

424B4 1 d698870d424b4.htm 424B4

[Table of Contents](#)

Filed Pursuant to Rule 424(b)(4)
 Registration No. 333-229578
 Registration No. 333-231554

207,000,000 Shares



Avantor, Inc.

Common Stock

This is an initial public offering of shares of our common stock. We are offering 206,999,900 shares of our common stock. The selling stockholder identified in this prospectus is offering 100 shares. We will not receive any proceeds from the sale of the shares being sold by the selling stockholder.

Prior to this offering, there has been no public market for our common stock. The initial public offering price per share is \$14.00. See “Underwriting (Conflicts of Interest)” for a discussion of the factors to be considered in determining the initial offering price. Our common stock has been approved for listing on the New York Stock Exchange under the symbol “AVTR.”

Concurrently with this offering, we are also making a public offering of 18,000,000 shares of our 6.250% Series A Mandatory Convertible Preferred Stock (the “Mandatory Convertible Preferred Stock”), which is being made by means of a separate prospectus and not by means of this prospectus. In that offering, we have granted the underwriters of that offering an option to purchase up to an additional 2,700,000 shares of the Mandatory Convertible Preferred Stock to cover over-allotments. We cannot assure you that the offering of Mandatory Convertible Preferred Stock will be completed or, if completed, on what terms it will be completed. The closing of this offering is not conditioned upon the closing of the offering of Mandatory Convertible Preferred Stock, but the closing of our offering of Mandatory Convertible Preferred Stock is conditioned upon the closing of this offering.

Broad Street Principal Investments, L.L.C. (“BSPI”), a current investor, is purchasing 5 million shares of our common stock in this offering at the initial public offering price. The underwriters will receive the same discount on any shares of our common stock purchased by BSPI as they will from any other shares sold to the public in this offering. See “Underwriting (Conflicts of Interest)” for additional information.

Investing in shares of our common stock involves significant risks. See “Risk Factors” beginning on page 19.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Initial public offering price	\$ 14.00	\$ 2,898,000,000
Underwriting discounts and commissions ⁽¹⁾	\$ 0.385	\$ 79,695,000
Proceeds, before expenses, to us	\$ 13.615	\$ 2,818,303,639
Proceeds before expenses, to the selling stockholder	\$ 13.615	\$ 1,362

(1) We have agreed to reimburse the underwriters for certain expenses. See “Underwriting (Conflicts of Interest).”

We have agreed to pay certain offering expenses for the selling stockholder incurred in connection with the sale.

We have granted the underwriters the option to purchase up to an additional 31,050,000 shares of common stock from us to cover over-allotments at the initial public offering price, less the underwriting discounts and commissions.

The underwriters expect to deliver the shares of common stock to purchasers on or about May 21, 2019.

Goldman Sachs & Co. LLC

J.P. Morgan

BofA Merrill Lynch

Barclays

Jefferies

Credit Suisse

Deutsche Bank Securities

Evercore ISI

Guggenheim Securities

Morgan Stanley

UBS Investment Bank

Citigroup

Cowen

Piper Jaffray

RBC Capital Markets

Baird

**William
Blair**

Janney Montgomery Scott

**KeyBanc Capital
Markets**

**PJT
Partners LP**

**Raymond
James**

**Stephens
Inc.**

Stifel

**SunTrust
Robinson
Humphrey**

**Wells Fargo
Securities**

**Drexel
Hamilton**

The date of this prospectus is May 16, 2019.

[Table of Contents](#)

TABLE OF CONTENTS

	<u>Page</u>
Market and Industry Data	i
Trademarks, Tradenames and Service Marks	ii
Basis of Presentation	ii
Presentation of Certain Financial Measures	ii
About This Prospectus	iii
Summary	1
Risk Factors	19
Special Note Regarding Forward-Looking Statements	49
Use of Proceeds	51
Dividend Policy	52
Capitalization	53
Dilution	54
Selected Condensed Historical Financial Data	56
Management's Discussion and Analysis of Financial Condition and Results of Operations	57
Business	91
Management	118
Principal and Selling Stockholders	159
Certain Relationships and Related Party Transactions	164
Mandatory Convertible Preferred Stock Offering	172
Description of Indebtedness	176
Description of Capital Stock	182
Shares Eligible for Future Sale	191
Certain United States Federal Income and Estate Tax Consequences to Non-U.S. Holders	194
Underwriting (Conflicts of Interest)	197
Legal Matters	203
Experts	203
Where You Can Find More Information	203
Index to Financial Statements	F-1

Through and including June 10, 2019 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

We, the selling stockholder and the underwriters (and any of our or their affiliates) have not done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who obtain this prospectus must inform themselves about, and observe any restrictions relating to, this offering and the distribution of this prospectus outside of the United States.

MARKET AND INDUSTRY DATA

This prospectus includes market and industry data and forecasts that we have derived from independent consultants, publicly available information, various industry publications, other published industry sources and our internal data and estimates. Independent consultant reports, industry publications and other published industry sources generally indicate that the information contained therein was obtained from sources believed to be reliable.

[Table of Contents](#)

Our internal data and estimates are based upon information obtained from trade and business organizations and other contacts in the markets in which we operate and our management's understanding of industry conditions. Although we believe that such information is reliable, we have not had this information verified by any independent sources. Similarly, our internal research is based upon our understanding of industry conditions, and such information has not been verified by any independent sources. Any estimates underlying such market-derived information and other factors could cause actual results to differ materially from those expressed in the independent parties' estimates and in our estimates.

TRADEMARKS, TRADENAMES AND SERVICE MARKS

We own or have rights to trademarks or trade names that we use in conjunction with the operation of our business and that appear in this prospectus. This prospectus also contains trademarks, service marks, trade names and copyrights of other companies which, to our knowledge, are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this prospectus may appear without the ® or ™ symbols, but the absence of such symbols does not indicate the registration status of the trademarks and is not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to such trademarks and trade names.

BASIS OF PRESENTATION

Unless otherwise indicated or the context otherwise requires, references in this prospectus to the "Company," "we," "us" and "our" refer to Avantor, Inc. and its consolidated subsidiaries.

In accordance with generally accepted accounting principles in the United States ("GAAP"), we have included the financial results of VWR Corporation ("VWR") since the acquisition of VWR on November 21, 2017 (the "VWR Acquisition"). In addition, on September 30, 2016, we merged with NuSil Acquisition Corp, NuSil Technology LLC and its subsidiaries ("NuSil"). Since both NuSil and our predecessor were controlled by New Mountain Capital, our historical financial statements have been combined with NuSil's into a single comparative presentation for all periods presented. For more information about this basis of presentation, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 1 to the audited annual financial statements included elsewhere in this prospectus.

PRESENTATION OF CERTAIN FINANCIAL MEASURES

Certain financial measures presented in this prospectus, including Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA, are not recognized under GAAP. Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA have been presented in this prospectus as supplemental measures of financial performance that are not required by, or presented in accordance with GAAP. These non-GAAP financial measures are included in this prospectus because they are key metrics used by management to assess our financial performance. We use these measures to supplement GAAP measures of performance in order to evaluate the effectiveness of our business strategies, to make budgeting decisions, and to compare our performance against that of other peer companies using similar measures. We believe such measures are frequently used by analysts, investors and other interested parties to evaluate companies in our industry and are helpful supplemental measures to provide additional insight in evaluating a company's core operational performance as they exclude costs that do not relate to the underlying operation of their business and include cost savings that are expected to occur.

Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA are non-GAAP measures of our financial performance and should not be considered as alternatives to net income or loss as a

Table of Contents

measure of financial performance or any other performance measures derived in accordance with GAAP, nor should they be construed as an inference that our future results will be unaffected by unusual or other items. Additionally, Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA are not intended to be a measure of free cash flow for management's discretionary use, as they do not reflect certain cash requirements such as tax payments, debt service requirements, capital expenditures and certain other cash costs that may recur in the future, Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA contain certain other limitations, including the failure to reflect our cash expenditures, cash requirements for working capital needs and cash costs to replace assets being depreciated and/or amortized. Management compensates for these limitations by relying on our GAAP results in addition to using Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA. Our presentation of Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA is not necessarily comparable to other similarly titled captions of other companies due to different methods of calculation.

In calculating Adjusted EBITDA, Adjusted Net Income, Management EBITDA and Covenant EBITDA, we make certain adjustments that are based on assumptions and estimates that may prove to have been inaccurate. Accordingly, you should not view our presentation of these adjustments as a projection that we will achieve these benefits but rather only as an indication of our current expectations.

For definitions of Adjusted EBITDA, Adjusted Net Income and Management EBITDA and reconciliations to the most directly comparable measure under GAAP, see "Summary—Summary Historical Financial and Other Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Reconciliations of Non-GAAP Financial Measures." For a definition of Covenant EBITDA, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Reconciliations of Non-GAAP Financial Measures."

ABOUT THIS PROSPECTUS

We, the selling stockholder and the underwriters (and any of our or their affiliates) have not authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses filed with the Securities and Exchange Commission. We, the selling stockholder and the underwriters (and any of our or their affiliates) take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date.

Certain monetary amounts, percentages and other figures included in this prospectus have been subject to rounding adjustments. Accordingly, figures shown as totals in certain tables may not be the arithmetic aggregation of the figures that precede them, and figures expressed as percentages in the text may not total 100% or, as applicable, when aggregated may not be the arithmetic aggregation of the percentages that precede them.

[Table of Contents](#)**SUMMARY**

This summary highlights selected information contained elsewhere in this prospectus, but it does not contain all of the information that you should consider before deciding to invest in our common stock. You should carefully read the entire prospectus, including the information presented under the sections entitled “Risk Factors” and “Special Note Regarding Forward-Looking Statements” and the financial statements and the notes thereto, included elsewhere in this prospectus, before making an investment decision. This summary containing forward-looking statements that involves risks and uncertainties.

Company Overview

We are a leading global provider of mission critical products and services to customers in the biopharma, healthcare, education & government, and advanced technologies & applied materials industries. Our comprehensive offerings, which include materials & consumables, equipment & instrumentation and services & specialty procurement, are relied upon by our customers, often on a recurring basis, because they are frequently specified into their research, development and production processes. These processes are commonly organized into “workflows” that define the activities our customers perform each day. We collaborate closely with our customers to enable them to develop new innovative products, lower their development and production costs, improve product or process performance characteristics, and enhance the safety and reliability of the drugs, devices and other products they produce. In addition to relying on our products, many customers depend upon our services. Some of these services are performed by approximately 1,400 of our associates that are co-located with certain customers, working side-by-side with their scientists every day. Our local presence combined with our global infrastructure enable and promote successful relationships with our customers and connect us to over 240,000 of their locations in over 180 countries. Our mission is to set science in motion to create a better world.

The depth and breadth of our portfolio provides our customers a comprehensive range of products and services and allows us to create customized and integrated solutions for our customers. Selected offerings sold to our customers in discovery, research, development and production processes include:

- **Materials & consumables:** Ultra-high purity chemicals and reagents, lab products and supplies, highly specialized formulated silicone materials, customized excipients, customized single-use assemblies, process chromatography resins and columns, analytical sample prep kits and education and microbiology and clinical trial kits. In 2018, 33% of our revenues were from sales of proprietary materials & consumables and 40% of our revenues were from third-party materials & consumables;
- **Equipment & instrumentation:** Filtration systems, virus inactivation systems, incubators, analytical instruments, evaporators, ultra-low-temperature freezers, biological safety cabinets and critical environment supplies; and
- **Services & specialty procurement:** Onsite lab and production, clinical, equipment, procurement and sourcing and biopharmaceutical material scale-up and development services.

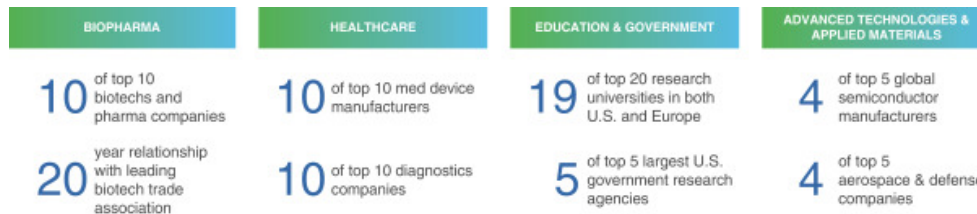
We have deep expertise in developing, customizing, manufacturing and supplying products for a wide variety of workflows, allowing us to provide tailored solutions throughout the lifecycle of our customers’ products. In aggregate, we provide approximately six million products, including products we make as well as products from approximately 4,000 core suppliers across the globe. We manufacture products that meet or exceed the demanding requirements of our customers across a number of highly-regulated industries. Our high-purity and ultra-high purity products, such as our J.T.Baker and SeaStar brand chemicals, are trusted by life sciences and electronic materials customers around the world and can be manufactured at purity levels as stringent as one part-per-trillion. Similarly, our NuSil brand of high-purity, customized silicones has been trusted for more than thirty years by leading medical device manufacturers and aerospace companies.

Table of Contents

We complement our products with a range of value-added services. Each day, our onsite service associates work side-by-side with our customers to support their workflows. This close proximity to our customers and their workflows allows our associates to develop insights into how to serve them better. In certain cases, customers choose to fully leverage our value-added services and expertise by outsourcing specialized workflows entirely to us, further connecting us to their operations and allowing us to identify new business opportunities. We believe our growing services offering is a competitive advantage that further differentiates us from our competitors, deepens our relationships with current customers and enhances our ability to reach new ones.

We employ a differentiated innovation model that is informed by our embedded relationships with our customers and enables us to anticipate and align our innovation efforts with our customers' priorities. We engage with our customers early in their product development cycles through our 300-person innovation team to advance our customers' programs from research and discovery through development and commercialization. At each step of our customers' workflows, we share our scientific and workflow expertise to help deliver incremental and sustainable improvements to existing customer products and processes. These projects include enhancing product purity and therefore its performance characteristics, improving product packaging and streamlining workflows. Our strategic initiatives include the development of new products in emerging areas of science such as cell and gene therapy. We currently have approximately 1,400 innovation projects with our customers that address process improvements for existing products and potential significant new opportunities for us to support.

We are a strategic partner to a diverse and sophisticated customer base with stringent quality and regulatory demands. Our ability to customize products and processes at scale while meeting these quality and regulatory requirements and the embedded nature of our business model have made us an integral part of our customers' development programs and broader supply chain. We are incorporated in over 800 of our customers' master access files ("MAF") and drug master files ("DMF") that are registered with regulatory authorities around the world. Additionally, we are able to meet the exacting quality and regulatory requirements of our advanced technologies & applied materials customers, including semiconductor manufacturers, by providing materials at purity levels as stringent as one part-per-trillion. We have developed long-standing relationships with a global customer base, and generated approximately 36% of our revenues for the year ended December 31, 2018 from customers with whom we have 15+ year relationships. In total, in 2018 we believe we served established leaders and emerging innovators across each of the industries we serve:



The combination of our innovation centers and manufacturing facilities empowers us to support our customers from the earliest stages of their product innovation to commercial manufacturing, and provides us multiple opportunities to serve as a critical partner to them. Our eight regional innovation centers located in five different countries (including four currently operating in the Asia, Middle East and Africa ("AMEA") region and a fifth which we expect to be operational in mid-2019), allow us to efficiently support the product development needs of our diverse customer base. In addition, we have 27 manufacturing facilities, 13 of which are Current Good Manufacturing Practices ("cGMP") compliant and 12 of which are regulated by the U.S. Food and Drug Administration ("FDA") or comparable foreign regulatory authorities. Led by our globally recognized VWR brand, we have approximately 150 sales and distribution centers strategically located to promote supply chain efficiency, enabling us to deliver orders virtually anywhere in the world, often within 24 to 48 hours. We employ

[Table of Contents](#)

approximately 3,800 sales and sales support professionals around the world who are focused on serving our customers through a local presence. Our professionals' comprehensive industry-specific knowledge is supplemented by our leading online customer platform which affords current and potential customers a rich, informative and customized user experience and allows us to better address a global customer base. Many customers choose to directly integrate their ordering activity with our online platform. We have over 2,500 integrated connections with our customers and approximately 1,000 integrated connections with our suppliers to simplify and expedite their transactions with us. In 2018, approximately 45% of our revenues came from our digital channels.

In 2018, we recorded net sales of \$5,864.3 million, net loss of \$86.9 million, Adjusted EBITDA of \$945.3 million and Adjusted Net Income of \$260.2 million. Approximately 85% of our revenues were from offerings which we consider to be recurring in nature. In addition, for the three months ended March 31, 2019, we have recorded net sales of \$1,480.1 million, net loss of \$6.2 million, Adjusted EBITDA of \$248.0 million and Adjusted Net Income of \$68.2 million. For the definition of Adjusted EBITDA and Adjusted Net Income and reconciliations of these measures from net loss, please see “—Summary Historical Financial and Other Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Reconciliations of Non-GAAP Financial Measures.”

Our Competitive Strengths

Our customer-centric business model, combined with our deep understanding of our customers' workflows, allows us to differentiate ourselves in the marketplace and is at the core of our competitive advantage. We believe the following competitive strengths provide the foundation for our position as the partner of choice for mission critical products and services to our customers:

Trusted Partner With Deep Customer Relationships. Our end-to-end integrated workflow platform and our ability to partner at every stage of research, development and commercialization have led to deep, embedded customer relationships. Approximately 1,400 of our associates are co-located with certain customers, working side-by-side with their scientists every day. We have collaborated with and supported many of our strategic global accounts for decades, and approximately 36% of our revenue for the year ended December 31, 2018 was generated by customers with whom we have maintained relationships for over 15 years. Regardless of company size or development stage, our customers seek a partner with innovative and comprehensive product offerings, superior quality, advanced manufacturing and skilled technical services to support all of their research, development and commercialization needs. Based on our expertise and experience in these areas, we believe we are a critical partner for our customers.

Customized Offerings to Address Our Customers' Evolving Needs. We work closely with our customers to provide highly customized formulations across a variety of workflows. Our customization capabilities span the entire spectrum of core customer requirements, including purity, composition, blending, kitting, form factor, packaging, lot size and specialized certifications. Our ability to rapidly customize and innovate has led to significant adoption of our products as we and our customers seek to improve productivity and establish new processes. Our highly specialized and customized development, manufacturing and servicing capabilities also allow us to continue to pursue customized solutions in emerging and innovative therapeutic areas such as cell and gene therapies.

Depth And Breadth of Product and Service Offerings. Our comprehensive portfolio of materials & consumables, equipment & instrumentation and services & specialty procurement enables us to serve some of the most demanding and challenging areas of science. We offer more than six million distinct products that are often required by our customers in many of their most important processes. Our portfolio includes products valued for their exacting purity and performance specifications, some of which we manufacture to purity levels as stringent as one part-per-trillion. In addition, we offer our customers comprehensive value-added services and innovative services needed in the laboratory. We are dedicated to bringing new digital

[Table of Contents](#)

insights and capabilities to our customers as we collaborate to cultivate the “lab of the future”—a lab capable of generating and digesting vast amounts of data with IoT devices.

Quality and Regulatory Expertise Drives Customer Loyalty. We serve industries that are subject to rigorous quality, performance and reliability regulations. Our customers rely on us to navigate these requirements while also facilitating their innovation and manufacturing efforts. We have submitted and maintain over 800 MAFs and DMFs with the FDA and comparable local regulatory authorities in nine countries, which simplifies our customers’ medical product approval processes by allowing them to reference our products as part of their own applications. Our 13 cGMP facilities and 19 ISO-certified distribution facilities create a manufacturing and distribution network that is designed to meet stringent quality and regulatory requirements. Our quality expertise is highly valued, including in semiconductor manufacturing, where customer demands for precision frequently exceed those in pharmaceuticals, biologics and medical devices. Our manufacturing expertise allows us to utilize the same manufacturing line for all stages of development and commercialization thus reducing customer regulatory burdens as their products progress from the laboratory to full scale production. This differentiated approach allows our customers to bring their products to market faster and more efficiently, and allows us to typically maintain our position over the life of the product given the regulatory requirements, as well as the costs and risks involved in substituting our products.

Customer-Centric Innovation Framework. We employ a differentiated innovation model that is informed by our embedded relationships with our customers and enables us to anticipate and align our innovation efforts with our customers’ priorities. We take a portfolio approach to our activities and focus on both incremental and breakthrough innovation. We will continue to serve the most successful established and emerging companies through:

- *Proprietary Product Innovations.* We engage with our customers throughout their product lifecycles, including during initial discovery and development activities, to create materials and solutions that meet stringent specifications. We currently have approximately 1,400 innovation projects with our customers that address process improvements for existing products and potential significant new opportunities for us to support.
- *Third-Party Product Innovations.* We are an important channel for thousands of specialized manufacturers of complex and sophisticated scientific products. Because we are already embedded in key customer workflows and are widely trusted among a broad collection of emerging and established suppliers, we are able to accelerate market acceptance and growth of promising third-party innovations.
- *Data and Research Analytics.* We are actively engaged in developing advanced, innovative data integration and analytical solutions to support the vast amounts of data being generated by our customers. By relying on our data capabilities and insights, we will allow our customers to continue to focus on their core competencies while also participating in the benefits derived from analyzing and utilizing data.

Global Scale, Strategic Locations and Specialized Infrastructure. We are strategically located close to our global customers to drive supply chain efficiency, minimize customer lead times and navigate a complex network of regulatory requirements. Our global footprint consists of over 200 facilities located in over 30 countries and allows us to deliver our extensive portfolio of products and services to customers nearly anywhere in the world and generally within 24 to 48 hours. We have the expertise and government licenses to manage multiple controlled environments globally, enabling us to safely and in a compliant manner handle highly regulated chemicals and other materials.

Attractive Financial Profile and Scalable Operating Platform. We believe we have an attractive business model due to our scale, resilient and recurring revenue base, demonstrated operating leverage, and

[Table of Contents](#)

strong cash flow generation. The cost of our products is often a small percentage of the overall cost of our customers' workflow, resulting in a resilient business profile. Additionally, for the year ended December 31, 2018, approximately 85% of our sales were from our materials & consumables and services & specialty procurement offerings which we consider to be recurring. By employing the Avantor Business System ("ABS"), a disciplined approach to continuously unlocking operational efficiencies, we have a demonstrated track record of improving profitability and driving cash flow generation. Our platform is further enhanced by a disciplined approach to M&A that, prior to the VWR Acquisition, historically contributed incremental revenue growth to VWR of approximately 1% to 2% per year by targeting businesses that enhance our workflow solutions, increase our technical capabilities and extend our global reach.

World-Class Leadership with Proven Ability to Execute at Scale. Our 13-member senior executive team has extensive experience within the life sciences and advanced technologies & applied materials industries globally, and possesses a wide network of industry relationships. Our management team has a proven track record of delivering stable revenue growth, executing on investment plans, achieving margin expansion and driving continuous improvement of global enterprises. Our management team is supported by approximately 12,000 associates around the world who have extensive scientific and commercial experience and enable us to provide our customers with tailored expertise and service.

Our Growth Strategies

We intend to capitalize on our world-class platform and distinctive competitive strengths as we pursue the following growth strategies:

Increase Integration of Our Products and Services Into Customers' Workflows. Our extensive and long-term relationships with our customers and our embedded position in their workflows provide us with unique insights into their activities and understanding of additional products and services that we could offer to them. We translate these insights and understanding, together with our focus on workflows, into a convenient one-stop solution for our customers resulting in a growing volume of business.

Develop New Products and Services. We are continuously expanding our portfolio to provide our customers with additional solutions and further expand our addressable markets. Specifically, we are focusing our efforts to expand our portfolio in:

- *Bioproduction.* We are broadening our range of process ingredients, serums, reagents, excipients, chromatography resins and single-use assemblies for use in the fast-growing bioproduction sector.
- *Custom Manufactured Products.* We are continuing to partner with our customers to create materials and solutions that meet the unique and stringent specifications for their current and future products. We currently have approximately 1,400 customer-directed projects in development at our innovation centers located around the world.
- *New Products in High Growth Areas.* We are working closely with our sales force and our customers' R&D teams to understand emerging technologies and regulatory and industry standards that will become critical workflows in high growth industries. This close coordination with customers allows us to make targeted investments in the development of innovative products and solutions, bringing new products and services to market rapidly.
- *Service Offerings.* We are expanding upon our traditional services, such as specialty procurement, to offer additional innovative, flexible and customized solutions to our global strategic customers. We will continue to expand the scope of our service offerings and increase the complexity, precision and value of our offerings.
- *Digital Capabilities.* As the volume, velocity and variety of data generated by our customers continue to expand, the ability to organize and analyze this data for actionable insight has become

[Table of Contents](#)

increasingly critical to our customers. Based on the insights we gain as strategic partners, we are building a broad suite of technology-enabled offerings tailored to our customers' objectives to increase productivity and effectiveness of their research and manufacturing workflows.

Expand in Geographies Expected to Have Outsized Growth. We are focused on expanding our geographic reach and believe certain emerging economies, including China, Southeast Asia and Eastern Europe, offer a strong opportunity for growth. Local demand for our products and solutions in these regions is being driven by increasingly stringent quality and regulatory requirements, the expansion of our customers' presence, an inadequate local supplier base and a significant increase in local government investment to support innovation in the industries we serve. We have invested in targeted geographies and intend to capitalize on our local presence and ability to attract new customers and follow existing ones into new geographies.

Continually Enhance Our Global Online Platform. We are continually improving and expanding our multi-lingual online sales platform in order to deliver our complete portfolio of offerings across all workflows. We will focus on enhancing our online platform in order to improve search engine effectiveness, simplify and personalize the user experience through enhancements to our [vwr.com](#) website and capture greater wallet share at existing customers and business from new customers. Using advanced analytics, we have also developed digital tools and marketing programs to increase the utility and stickiness of our platform, improve order conversion rates and share better insights with our customers regarding their needs and purchasing behaviors.

Increase Commercial Excellence and Operational Efficiency to Drive Margin Expansion. Operational discipline has been a core business focus at Avantor and VWR historically and continues to be our priority across manufacturing, sales and operational processes. The ABS is fundamental to our operational growth strategy to drive continuous improvement by improving efficiency throughout our supply chain and increasing our overall productivity. This approach will continue to be a key component in our margin expansion plans going forward and will help drive profitability and cash generation.

Pursue Strategic Acquisitions to Expand our Platform. We have a strong track record of successfully identifying, completing and integrating strategic acquisitions. Our broad platform, global infrastructure and diversified customer base allow us to generate growth and operating leverage through such acquisitions. We intend to continue to pursue opportunistic acquisitions in our existing and adjacent customer segments to accelerate our entry into high-growth markets and geographies as well as add capabilities and workflow solutions.

Industry Overview

We operate primarily in the biopharma, healthcare, education & government and advanced technologies & applied materials industries. We estimate our total addressable market within these industries to be approximately \$70 billion in the aggregate in 2018. We expect the total addressable market we serve will grow approximately 5% annually from 2018 to 2020. Our customers are sophisticated, science-driven businesses working across highly technical industries that require innovation and adherence to the most demanding technical and regulatory requirements.

The following are some of the market forces affecting our customers and driving growth within our industries:

- **Favorable Demographic and Epidemiologic Trends.** Healthcare demand is increasing rapidly across most of the world, driven principally by aging populations, an increased prevalence of chronic diseases and improved access to healthcare.
- **Strong Funding and Externalization of Drug Discovery.** Research and development ("R&D") activities are accelerating with approximately \$200 billion of investment in life sciences being

[Table of Contents](#)

deployed each year by a variety of sources, including governments, startups and large pharmaceutical companies. We have seen an increasing trend in R&D outsourcing among both small and large pharmaceutical companies, who are focused on driving efficiencies in their processes and aim to focus on their key strengths and value generating activities.

- **Proliferation of R&D and Development of New Therapeutic Modalities.** The rapid, accelerating pace of scientific innovation in the industries we serve is propelling heightened investment in complex and novel research, including new biologic and therapeutic modalities.
- **Emergence of Biosimilars.** Biosimilars are rapidly emerging alongside small and large molecule drugs. Based on our evaluation of third-party data, we estimate biosimilar sales will exceed \$25 billion by 2020.
- **Digital Transformation of Science.** The rapid adoption of technologies such as big data and analytics and cloud based solutions represents a meaningful opportunity to automate and optimize mission critical operations and drive competitive differentiation.
- **Positive Research and Development Trends in Advanced Technologies & Applied Materials.** Continued demand for Internet of Things (“IoT”) devices and groundbreaking technological advancements, including artificial intelligence and autonomous cars, are driving demand for improved chip designs that often have smaller feature sizes. These new chips will increase the need for ultra-high purity materials, in higher volumes, that are used in the semiconductor manufacturing processes. In addition, the aerospace & defense industry continues to utilize new technologies and features, which has driven increased spending in this industry.

The following is a summary of the industries we serve:

- **Biopharma.** Our offerings are used by biopharmaceutical companies, biotechnology companies, biosimilar companies, generic drug companies and contract manufacturing organizations (“CMOs”) of all sizes to specifically address their development and manufacturing needs during each phase of a drug’s lifecycle, from research and development to commercialization. We are well-positioned to support the emerging needs of science, providing solutions for both traditional small molecule sectors and the growing, more complex large molecule sector. We estimate that our addressable portion of the biopharma industry for 2018 was approximately \$30 billion and will grow approximately 7% from 2018 to 2020.
- **Healthcare.** Healthcare consists of medical implants, drug delivery devices, non-implantable devices (the “medical device industry”) and diagnostic tools and consumables (the “diagnostics industry”). Our offerings include high-purity silicones used in the manufacture of medical implantable devices, including aesthetic and reconstructive implants, pacemakers and cochlear implants. Our high-purity silicones are also frequently specified into non-implantable medical devices, such as medical-grade tubing, balloons and bladders. Also, we provide medical-grade silicones expertise to customize sustained drug-release devices for our pharmaceutical and biologics customers. We estimate that our addressable portion of the healthcare industry for 2018 was approximately \$9 billion and will grow approximately 5% from 2018 to 2020.
- **Education & Government.** The education & government industry consists of government sponsored research across multiple areas of discovery, including basic and applied science. Our offerings are used by academic institutions and government sponsored organizations to address their needs for continued education and testing and research activities that includes areas such as agriculture and environmental. We estimate that our addressable portion of the education & government industry for 2018 was approximately \$15 billion and will grow approximately 3% from 2018 to 2020.

[Table of Contents](#)

- **Advanced Technologies & Applied Materials.** We have a comprehensive product line of solutions and high-purity acids and solvents used in the manufacture of semiconductors and other high precision electronic applications. We also offer an extensive line of specialty space-grade silicone materials to the aerospace & defense industry. These highly customized materials are used in extreme environments, and include adhesives, sealants, coatings and other inputs for various aircraft, satellite and space applications. We estimate that our addressable portion of the advanced technologies & applied materials industry for 2018 was approximately \$15 billion and will grow approximately 4% from 2018 to 2020.

Risks Related to Our Business and Our Industry, Regulation and Our Offering

Investing in our common stock involves substantial risk, and our ability to successfully operate our business is subject to numerous risks. Some of the more significant challenges and risks related to our business include the following:

- our ability to implement our growth strategy, both domestically and internationally, while maintaining our commercial operations and administrative activities;
- our ability to anticipate and respond to changing industry trends;
- our ability to continue to successfully value and integrate acquired businesses, including NuSil and VWR;
- our products' satisfaction of applicable quality criteria, specifications and performance standards; and
- our high degree of leverage, our ability to incur more debt and access additional capital, and our ability to generate cash to service our indebtedness and to fund our other liquidity needs.

Any of the factors set forth under "Risk Factors" may limit our ability to successfully execute our business strategy. You should carefully consider all of the information set forth in this prospectus and, in particular, should evaluate the specific factors set forth under "Risk Factors" in deciding whether to invest in our common stock.

Corporate History and Information

Our 115 year legacy began in 1904 with the founding of the J.T. Baker Chemical Company. In 2010, Avantor was acquired by affiliates of New Mountain Capital, LLC ("New Mountain Capital"), our sponsor, from Covidien plc. Since then, we have expanded through a series of large acquisitions across the globe. In 2016, we acquired NuSil, a leading supplier of high-purity silicone products for the medical device industry that was founded in 1985. In 2017, we also acquired VWR, a global manufacturer and distributor of laboratory and production products and services founded in 1852 that now represents the primary ordering platform for our customers. Avantor, Inc. was incorporated in Delaware in May 2017 in anticipation of the VWR Acquisition.

Our principal executive offices are located at the Radnor Corporate Center, Building One, Suite 200, 100 Matsonford Road, Radnor, Pennsylvania 19087 and our telephone number is (610) 386-1700. Our website is www.avantorinc.com. Information contained on our website or that can be accessed through our website is not part of, and is not incorporated by reference in, this prospectus.

Our Sponsor

New Mountain Capital is a New York-based investment firm that currently manages private equity, public equity and credit funds with over \$20.0 billion in aggregate assets under management, including capital

[Table of Contents](#)

commitment and equity raised for New Mountain Partners V. Its private equity platform emphasizes business building and growth, rather than debt, as it pursues long-term capital appreciation. New Mountain Capital seeks out what it believes to be the highest quality growth leaders in carefully selected acyclical segments that have “defensive growth” characteristics and then works intensively with management to build the value of these companies.

Concurrent Offering

Concurrently with this offering, we are offering, by means of a separate prospectus, 18,000,000 shares of the Mandatory Convertible Preferred Stock (and up to an additional 2,700,000 shares of the Mandatory Convertible Preferred Stock that the underwriters in the concurrent offering have the option to purchase from us, exercisable within 30 days from the date of the prospectus for the concurrent offering, to cover over-allotments). We estimate that the net proceeds to us from the sale of shares of the Mandatory Convertible Preferred Stock in the concurrent offering, if completed, will be approximately \$872.7 million (or approximately \$1,004.0 million if the underwriters in the concurrent offering exercise their over-allotment option to purchase additional shares of the Mandatory Convertible Preferred Stock in full), in each case after deducting estimated expenses and underwriting discounts and commissions. The closing of this offering is not conditioned upon the closing of the concurrent offering, but the closing of the concurrent offering is conditioned upon the closing of this offering, and there can be no assurance that the concurrent offering will be completed on the terms described herein or at all. For additional information, see “Mandatory Convertible Preferred Stock Offering.”

Redemption of Existing Senior Preferred Stock

On May 6, 2019, we issued a conditional notice of full redemption to holders of our Series A Preferred Stock (the “Existing Senior Preferred Stock”) to redeem all of the outstanding Existing Senior Preferred Stock at a redemption price equal to the sum of 100% of the liquidation preference of such shares as of the redemption date, which we expect to be on or about May 21, 2019, plus accumulated and unpaid dividends thereon to, but not including, the date of redemption, plus a make-whole amount. The redemption of the Existing Senior Preferred Stock is conditioned upon the consummation of this offering and the receipt of funds from the consummation of this offering and the concurrent offering of Mandatory Convertible Preferred Stock sufficient to pay the aggregate redemption price for our Existing Senior Preferred Stock and accumulated and unpaid dividends. Nothing in this prospectus constitutes a notice of redemption or any offer to purchase or solicitation of an offer to sell any of the issued and outstanding Existing Senior Preferred Stock.

[Table of Contents](#)

The Offering	
Common stock offered by us	206,999,900 shares.
Common stock offered by the selling stockholder	100 shares.
Option to purchase additional shares of common stock	We have granted the underwriters an option for a period of 30 days from the date of this prospectus to purchase up to 31,050,000 additional shares of common stock to cover over-allotments, less underwriting discounts and commissions.
Common stock outstanding after this offering	534,293,808 shares (or 565,343,808 shares if the underwriters exercise in full their over-allotment option to purchase additional shares of common stock).
Use of proceeds	<p>We estimate that the net proceeds to us from this offering, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately \$2,810.4 million (or approximately \$3,233.2 million if the underwriters exercise in full their over-allotment option to purchase additional shares of common stock) at the offering price of \$14.00 per share. We will not receive any proceeds from the sale of shares of common stock by the selling stockholder named in this prospectus, but we will be required to pay the underwriting discounts and commissions associated with such sales of shares. See “Use of Proceeds.”</p> <p>We estimate that the net proceeds to us from the concurrent offering of the Mandatory Convertible Preferred Stock, if completed, will be approximately \$872.7 million (or approximately \$1,004.0 million if the underwriters of that offering exercise their over-allotment option to purchase additional shares of the Mandatory Convertible Preferred Stock in full), in each case after deducting estimated underwriting discounts and commissions and estimated offering expenses.</p> <p>We intend to use approximately \$2,630.8 million of the net proceeds to us from both offerings to redeem all outstanding shares of Existing Senior Preferred Stock (as defined herein). We intend to use the remaining proceeds to repay \$669.1 million and \$383.2 million of outstanding indebtedness under the Dollar Term Loan Facility and the Euro Term Loan Facility, respectively.</p> <p>Certain affiliates of Goldman Sachs & Co. LLC, an underwriter in both offerings, will receive an aggregate of approximately \$421.9 million following this offering and the concurrent offering of Mandatory Convertible Preferred Stock as a result of currently</p>

[Table of Contents](#)

	<p>holding 372,872 shares of our Existing Senior Preferred Stock and being a lender under the Dollar Term Loan Facility and the Euro Term Loan Facility, which represents 11.5% of the net proceeds from this offering and the concurrent offering (or 10.0% of the net proceeds of this offering and the concurrent offering if the underwriters exercise their over-allotment options in full in both offerings).</p> <p>To the extent that the underwriters exercise all or a portion of their over-allotment option to purchase additional shares of our common stock or the underwriters in our offering of Mandatory Convertible Preferred Stock exercise all or a portion of their over-allotment option to purchase additional shares of Mandatory Convertible Preferred Stock, the net proceeds received will be used to repay indebtedness pro rata under the Term Loan Facility.</p>
Dividend policy	<p>We do not currently anticipate paying any dividends on our common stock immediately following this offering. We expect to retain all future earnings for use in the operation and expansion of our business. Following this offering, we may reevaluate our dividend policy. Any decision to declare and pay dividends in the future will be made at the sole discretion of our Board of Directors and will depend on various factors. Our ability to pay dividends on common stock may be restricted by the documents governing our and our subsidiaries' existing and future outstanding indebtedness. If we issue any Mandatory Convertible Preferred Stock, no dividends may be declared or paid on our common stock unless accumulated and unpaid dividends on the Mandatory Convertible Preferred Stock have been declared and paid, or set aside for payment, on all outstanding shares of the Mandatory Convertible Preferred Stock for all preceding dividend periods. See "Dividend Policy."</p>
Risk factors	<p>See "Risk Factors" for a discussion of risks you should carefully consider before deciding to invest in our common stock.</p>
Conflicts of interest	<p>Certain affiliates of Goldman Sachs & Co. LLC (i) will receive approximately \$421.9 million (or 11.5%) of the net proceeds of this offering and the concurrent offering of Mandatory Convertible Preferred Stock due to the redemption of outstanding shares of our Existing Senior Preferred Stock they own and repayment of a portion of the outstanding indebtedness under the Dollar Term Loan Facility and the Euro Term Loan Facility with the net proceeds of this offering and the concurrent offering (or 10.0% of the net proceeds of this offering and the concurrent offering if the underwriters exercise their over-allotment options in full in both offerings), (ii) currently own 372,872 shares of our Existing Senior Preferred Stock, 564,000 shares of our Existing Junior Convertible Preferred Stock and warrants to purchase 1,133,920 shares of our common stock and (iii) currently have two director appointees on our Board, both of whom are expected to remain on our Board following this offering, as well as other rights.</p>

[Table of Contents](#)

NYSE ticker symbol	<p>Certain of the affiliates of Goldman Sachs & Co. LLC that hold the Existing Senior Preferred Stock, the Existing Junior Convertible Preferred Stock and warrants are funds whose limited partners are current and former employees of Goldman Sachs & Co. LLC; these current employees include individuals who are providing services on behalf of Goldman Sachs & Co. LLC in connection with this offering and the concurrent offering. See “Certain Relationships and Related Party Transactions.” In addition, as holders of our Existing Junior Convertible Preferred Stock, affiliates of Goldman Sachs & Co. LLC will receive 66,471,429 shares of common stock upon the automatic conversion of our Existing Junior Convertible Preferred Stock upon consummation of this offering based on the initial public offering price of \$14.00 per share of common stock. BSPI, an affiliate of Goldman Sachs & Co. LLC, is purchasing 5 million shares of our common stock in this offering at the initial public offering price. Therefore, Goldman Sachs & Co. LLC is deemed to have a conflict of interest within the meaning of Rule 5121 of the Financial Industry Regulatory Authority, Inc. (“Rule 5121”). Accordingly, this offering is being conducted in accordance with Rule 5121, which requires, among other things, that a “qualified independent underwriter” participate in the preparation of, and exercise the usual standards of “due diligence” with respect to, the registration statement and this prospectus. J.P. Morgan Securities LLC has agreed to act as a qualified independent underwriter for this offering and to undertake the legal responsibilities and liabilities of an underwriter under the Securities Act of 1933, as amended (the “Securities Act”), specifically including those inherent in Section 11 thereof. J.P. Morgan Securities LLC will not receive any additional fees for serving as a qualified independent underwriter with this offering. We have agreed to indemnify J.P. Morgan Securities LLC against liabilities incurred in connection with acting as a qualified independent underwriter, including liabilities under the Securities Act. For more information, see “Underwriting (Conflicts of Interest).”</p>
Concurrent Mandatory Convertible Preferred Stock Offering	<p>“AVTR.”</p> <p>Concurrently with this offering of common stock, we are making a public offering, by means of a separate prospectus, of 18,000,000 shares of the Mandatory Convertible Preferred Stock, and we have granted the underwriters of that offering a 30-day option to purchase up to an additional 2,700,000 shares of the Mandatory Convertible Preferred Stock to cover over-allotments.</p> <p>We cannot assure you that the offering of Mandatory Convertible Preferred Stock will be completed or, if completed, on what terms it will be completed. The closing of this offering is not conditioned upon the closing of the offering of Mandatory Convertible Preferred Stock, but the closing of our offering of Mandatory Convertible Preferred Stock is conditioned upon the closing of this offering. See the section of this prospectus entitled “Mandatory Convertible Preferred Stock Offering” for a summary of the terms of the Mandatory Convertible Preferred Stock and a further description of the concurrent offering.</p>

[Table of Contents](#)

Unless otherwise indicated or the context otherwise requires, all information in this prospectus reflects and assumes the following:

- no exercise by the underwriters in this offering of their over-allotment option to purchase additional shares of common stock from us;
- the completion of the concurrent offering of 18,000,000 shares of the Mandatory Convertible Preferred Stock and assuming no exercise by the underwriters of that offering of their over-allotment option to purchase additional shares of Mandatory Convertible Preferred Stock;
- issuance of 194,464,286 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock based on the initial public offering price of \$14.00 per share of common stock. Conversion of the Existing Junior Convertible Preferred Stock into shares of common stock will occur automatically upon consummation of this offering. See “Description of Capital Stock—Preferred Stock—Existing Junior Convertible Preferred Stock”;
- the initial public offering price of \$14.00 per share of common stock; and
- the (i) 5-for-1 stock split with respect to our shares of common stock and (ii) related amendment to our existing certificate of incorporation increasing the Company’s authorized amount of common stock and preferred stock, in each case, effected on May 16, 2019.

Additionally, 534,293,808 shares of our common stock to be outstanding after this offering is based on 132,829,622 shares of our common stock outstanding as of March 31, 2019, reflects the conversion of our Existing Junior Convertible Preferred Stock into 194,464,286 shares of common stock based on the initial public offering price of \$14.00 per share of common stock and the offering of 207,000,000 shares of common stock by us and the selling stockholder, and does not reflect:

- 7,110,225 shares of common stock that may be issued upon exercise of outstanding warrants at a weighted average exercise price of \$0.002 per share;
- 23,500,000 shares of common stock that may be issued pursuant to future awards under our 2019 Equity Incentive Plan (as defined below) to be in effect following this offering;
- 21,040,810 shares of common stock that may be issued upon the exercise of outstanding options at an average weighted exercise price of \$15.06 issued under the Legacy Avantor Plan and/or the Vail Plan (each as defined below);
- 154,180 shares of common stock that may be issued upon the vesting of restricted stock units issued under the Legacy Avantor Plan and/or the Vail Plan; and
- up to 64,285,200 shares of our common stock (or up to 73,927,980 shares if the underwriters in our offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full) issuable upon conversion of the Mandatory Convertible Preferred Stock being offered in our concurrent offering, subject to anti-dilution, make-whole and other adjustments or any shares of our common stock that may be issued in payment of a dividend, fundamental change dividend make-whole amount or accumulated dividend amount.

[Table of Contents](#)**Summary Historical Financial and Other Data**

The following tables set forth our summary historical consolidated financial data as of the dates and for the periods indicated. The summary historical consolidated financial data as of December 31, 2017 and 2018 and for the years ended December 31, 2016, 2017 and 2018 is derived from our audited consolidated financial statements and related notes thereto included elsewhere in this prospectus. The summary historical consolidated balance sheet data as of December 31, 2016, is derived from our audited consolidated financial statements and related notes thereto not included in this prospectus. The summary historical condensed consolidated financial data as of March 31, 2019 and for the three months ended March 31, 2018 and 2019 is derived from our unaudited condensed consolidated financial statements and related notes thereto included elsewhere in this prospectus. The unaudited condensed consolidated financial statements have been prepared on the same basis as our audited consolidated financial statements and, in the opinion of our management, reflect all normal recurring adjustments necessary for the fair presentation of our consolidated results for these periods. The results for any interim period are not necessarily indicative of the results that may be expected for the full year. Additionally, our historical results are not necessarily indicative of the results expected for any future period.

In accordance with GAAP, we have included the financial results of VWR since the VWR Acquisition on November 21, 2017. In addition, on September 30, 2016, we merged with NuSil. Since both NuSil and our predecessor were controlled by New Mountain Capital, our historical financial statements have been combined with NuSil's into a single comparative presentation for all periods presented. For more information about this basis of presentation, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 1 to the audited annual financial statements included elsewhere in this prospectus.

You should read the information contained in this table in conjunction with "Capitalization," "Selected Condensed Historical Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our audited consolidated financial statements and the accompanying notes and our unaudited consolidated financial statements and the accompanying notes, each included in this prospectus.

[Table of Contents](#)

	Year ended December 31,			Three months ended March 31,	
	2016	2017	2018	2018	2019
<i>(in millions, except per share data)</i>					
Statement of operations data					
Net sales	\$ 691.3	\$ 1,247.4	\$ 5,864.3	\$1,418.3	\$ 1,480.1
Cost of sales	371.6	814.6	4,044.5	978.0	1,004.9
Gross profit	319.7	432.8	1,819.8	440.3	475.2
Selling, general and administrative expenses	281.5	449.7	1,405.3	352.7	337.6
Fees to New Mountain Capital	28.3	193.5	1.0	—	—
Operating income (loss)	9.9	(210.4)	413.5	87.6	137.6
Interest expense	(80.3)	(257.3)	(523.8)	(128.3)	(128.6)
Other (expense) income, net	(0.2)	7.5	(3.5)	(4.4)	(5.1)
(Loss) income before income taxes	(70.6)	(460.2)	(113.8)	(45.1)	3.9
Income tax (expense) benefit	(10.1)	314.9	26.9	3.9	(10.1)
Net loss	(80.7)	(145.3)	(86.9)	(41.2)	(6.2)
Net loss attributable to noncontrolling interests	(38.3)	(32.6)	—	—	—
Net loss attributable to Avantor, Inc.	(42.4)	(112.7)	(86.9)	(41.2)	(6.2)
Accumulation of yield on series A preferred stock	—	(27.8)	(269.5)	(63.3)	(71.8)
Adjustment of series A preferred stock to redemption value	—	(274.4)	—	—	—
Net loss available to common stockholders of Avantor, Inc.	\$ (42.4)	\$ (414.9)	\$ (356.4)	\$ (104.5)	\$ (78.0)
Loss per share information, basic and diluted:					
Loss per share	\$ (0.28)	\$ (2.75)	\$ (2.69)	\$ (0.79)	\$ (0.59)
Weighted average shares outstanding	152.6	151.1	132.7	132.6	132.8
Unaudited pro forma loss per share(1)			\$ (0.18)		\$ (0.01)
<i>(in millions)</i>					
Balance sheet data (as of period end)					
Cash and cash equivalents	\$ 62.9	\$ 185.4	\$ 184.7		\$ 143.9
Total assets	1,135.8	10,446.5	9,911.6		10,013.9
Total long-term debt, including current portion	1,296.1	7,117.8	6,924.7		6,792.9
Total liabilities	1,646.4	9,476.9	9,104.0		9,221.2
Total redeemable equity	—	3,589.8	3,859.3		3,931.1
Avantor, Inc. stockholders' deficit	(374.9)	(2,620.2)	(3,051.7)		(3,138.4)
Deficit of noncontrolling interest	(135.7)	—	—		—
Total stockholders' deficit	(510.6)	(2,620.2)	(3,051.7)		(3,138.4)
Cash flow data					
Net cash provided by (used in) operating activities	\$ 72.9	\$ (167.5)	\$ 200.5	\$ 46.2	\$ 75.0
Net cash used in investing activities	(29.9)	(6,676.0)	(23.2)	(11.8)	(7.9)
Net cash (used in) provided by financing activities	(43.5)	6,965.0	(170.3)	(77.8)	(106.1)
Other data					
Adjusted EBITDA(2)	\$ 220.7	\$ 289.5	\$ 945.3	\$ 216.9	\$ 248.0
Adjusted Net Income(2)	30.3	157.4	260.2	47.4	68.2
(1) See Note 4 to our audited consolidated financial statements and Note 4 to our unaudited condensed consolidated financial statements included elsewhere in this prospectus for an explanation of the calculation of unaudited pro forma loss per share.					

[Table of Contents](#)

- (2) We define Adjusted EBITDA as net income (loss) before interest, taxes and depreciation and amortization as further adjusted to eliminate the impact of certain costs related to this offering and the concurrent offering of Mandatory Convertible Preferred Stock, our reorganization and other items that we do not consider in our evaluation of our ongoing operating performance from period to period as discussed further below and to remove the impact of noncontrolling interest. We believe Adjusted EBITDA is frequently used by analysts, investors and other interested parties to evaluate companies in our industry and is a helpful supplemental measure to provide additional insight in evaluating a company's core operational performance as it excludes costs that do not relate to the underlying operation of their business.

We define Adjusted Net Income as net income (loss) exclusive of amortization as further adjusted to eliminate the impact of certain costs related to this offering and the concurrent offering of Mandatory Convertible Preferred Stock, our reorganization and other items that we do not consider in our evaluation of our ongoing operating performance from period to period as discussed further below. We believe Adjusted Net Income is useful to investors as a way to analyze the underlying trends in our core business consistently across the periods inclusive of interest and depreciation.

Adjusted EBITDA and Adjusted Net Income are non-GAAP measures of our financial performance and should not be considered as alternatives to net income (loss) as a measure of financial performance, or any other performance measure derived in accordance with GAAP, nor should it be construed as an inference that our future results will be unaffected by unusual or other items. Additionally, Adjusted EBITDA and Adjusted Net Income are not intended to be measures of free cash flow for management's discretionary use, as they do not reflect certain cash requirements such as tax payments, debt service requirements, capital expenditures and certain other cash costs that may recur in the future. Adjusted EBITDA and Adjusted Net Income contain certain other limitations, including the failure to reflect our cash expenditures, cash requirements for working capital needs and cash costs to replace assets being depreciated and amortized. Management compensates for these limitations by relying on our GAAP results in addition to using Adjusted EBITDA and Adjusted Net Income. Our presentation of Adjusted EBITDA and Adjusted Net Income is not necessarily comparable to other similarly titled captions of other companies due to different methods of calculation.

The following table sets forth a reconciliation of net income (loss), the most directly comparable GAAP performance measure, to Adjusted Net Income and Adjusted EBITDA, using data derived from our consolidated financial statements, in each case for the periods indicated:

<i>(in millions)</i>	Year ended December 31			Three months ended March 31,	
	2016	2017	2018	2018	2019
Net loss	\$(80.7)	\$(145.3)	\$(86.9)	\$(41.2)	\$(6.2)
Amortization ^(a)	31.9	65.2	321.3	82.6	78.6
Net foreign currency loss from financing activities ^(b)	0.4	5.5	6.5	6.9	6.2
Gain on derivative instruments ^(c)	—	(9.6)	—	—	—
Other share-based compensation expense ^(d)	86.6	26.6	(0.7)	—	—
Restructuring and severance charges ^(e)	11.1	29.6	81.2	7.5	5.5
Purchase accounting adjustments ^(f)	4.5	41.8	(1.0)	10.3	(0.8)
Transaction fees to New Mountain Capital ^(g)	27.3	192.5	—	—	—
Executive departures ^(h)	—	—	4.5	—	—
Impairment charges ⁽ⁱ⁾	—	5.0	2.9	—	—
VWR transaction expenses ⁽ⁱ⁾	—	40.7	0.4	(0.1)	0.7
VWR integration and planning expenses ^(k)	—	33.0	35.8	7.3	5.6
Other transaction and integration expenses ^(l)	11.5	25.0	1.1	—	—
Debt refinancing fees ^(m)	4.7	3.1	—	—	—
Environmental remediation costs ⁽ⁿ⁾	4.6	—	—	—	—

[Table of Contents](#)

<i>(in millions)</i>	Year ended December 31			Three months ended March 31,	
	2016	2017	2018	2018	2019
Income tax benefit applicable to pretax adjustments ^(o)	(71.6)	(155.7)	(104.9)	(25.9)	(21.4)
Adjusted Net Income	30.3	157.4	260.2	47.4	68.2
Interest expense ^(a)	80.3	257.3	523.8	128.3	128.6
Depreciation ^(a)	28.4	34.0	83.3	19.2	19.7
Income tax provision (benefit) applicable to Adjusted Net Income ^(p)	81.7	(159.2)	78.0	22.0	31.5
Adjusted EBITDA	<u>\$220.7</u>	<u>\$ 289.5</u>	<u>\$ 945.3</u>	<u>\$216.9</u>	<u>\$248.0</u>

- (a) Represents amounts as determined under GAAP.
- (b) Represents remeasurement of various foreign-denominated borrowings into functional currencies. Our U.S. subsidiaries carry a significant amount of euro-denominated debt, and many of our subsidiaries borrow and lend with each other in foreign currencies. For 2018, 2017 and the three months ended March 31, 2019 and 2018, the foreign currency losses were primarily caused by unhedged intercompany loans receivable ranging from €190 million and €250 million.
- (c) Represents the realized gain on foreign currency forward contracts used to hedge pre-acquisition changes in the value of VWR's euro-denominated loans.
- (d) Represents expenses related to remeasuring legacy NuSil awards at fair value on a recurring basis and modification of share-based awards caused by the legal entity restructurings in November 2017 and September 2016. These expenses fluctuated significantly across the periods due to the increases in the value of our business following business combinations.
- (e) The following table presents restructuring and severance charges by plan:

<i>(in millions)</i>	Year ended December 31,			Three months ended March 31,	
	2016	2017	2018	2018	2019
Global value capture program	\$ —	\$ 17.5	\$ 78.3	\$ 5.6	\$ 5.1
Other	11.1	12.1	2.9	1.9	0.4
Total	<u>\$ 11.1</u>	<u>\$ 29.6</u>	<u>\$ 81.2</u>	<u>\$ 7.5</u>	<u>\$ 5.5</u>

See "Factors and Current Trends Affecting Our Business and Results of Operations—We are implementing a significant global value capture program" for additional information about the global value capture program. Other includes three smaller plans for VWR, NuSil and legacy Avantor and other non-plan initiatives.

- (f) Represents reversals of the short-term impact of purchase accounting adjustments on earnings, the most significant of which was the increase to cost of sales that resulted from valuing VWR's inventory at fair value in purchase accounting. Also includes the earnings impact of remeasuring contingent consideration to fair value on a recurring basis.
- (g) Represents transaction fees paid to New Mountain Capital. Pursuant to the terms of their advisory agreement with us, New Mountain Capital earned a fee equal to 2% of the value of each of our three debt refinancings and the VWR Acquisition. See "Certain Relationships and Related Party Transactions."
- (h) Represents severance payments made to former executives that were not included in a restructuring program.
- (i) Represents the write-off of property, plant and equipment related to a legacy research and development facility in 2018 and the write-off of property, plant and equipment and inventory related to a discontinued product line in 2017.
- (j) Represents direct expenses incurred to consummate the VWR Acquisition.

[Table of Contents](#)

- (k) Represents expenses incurred related to planning and integration of VWR.
 (l) The following table presents the components of our other transaction and integration expenses:

<i>(in millions)</i>	Year ended December 31,		
	2016	2017	2018
Unconsummated equity offering	\$ 5.0	\$ 19.9	\$ —
NuSil-related integration expenses	3.4	5.1	—
Other transaction expenses	3.1	—	1.1
Total	<u>\$ 11.5</u>	<u>\$ 25.0</u>	<u>\$ 1.1</u>

- (m) Represents non-capitalized fees incurred to refinance our debt in March 2017, September 2016 and June 2016, excluding transaction fees paid to New Mountain Capital.
 (n) Represents establishment of a multi-year environmental remediation liability to remediate soil and groundwater conditions at our Gliwice, Poland manufacturing facility.
 (o) Represents the tax benefit or provision associated with the reconciling items between net loss and Adjusted Net Income. To determine the aggregate tax effect of the reconciling items, we utilized statutory income tax rates ranging from 0% and 35%, depending upon the applicable jurisdictions of each adjustment.
 (p) Represents the difference between income tax expense or benefit as determined under GAAP and the income tax benefit applicable to pretax adjustments.

[Table of Contents](#)**RISK FACTORS**

An investment in our common stock involves a high degree of risk. You should carefully consider the risks described below, together with the other information in this prospectus, before deciding whether to purchase our common stock. If any of the risks described below actually occur, our business, financial condition, results of operations or prospects could be materially adversely affected. In any such case, the trading price of our common stock could decline and you could lose all or part of your investment.

Risks Related to Our Business and Our Industry

Significant interruptions in our operations could harm our business, financial condition and results of operations.

Manufacturing, distribution and logistics problems can and do arise, and any such problems could have a significant impact on our operating results. Accordingly, any significant disruptions to the operations of our manufacturing or distribution centers or logistics providers for any reason, including labor relations issues, power interruptions, severe weather, fire or other circumstances beyond our control could cause our operating expenses to increase without coverage or compensation or seriously harm our ability to fulfill our customers' orders or deliver products on a timely basis, or both. We must also maintain sufficient production capacity in order to meet anticipated customer demand, which carries fixed costs that we may not be able to offset if orders slow, which would adversely affect our operating margins. If we are unable to manufacture our products consistently, in sufficient quantities, and on a timely basis, our net sales, gross margins and our other operating results will be materially and adversely affected. Prompt shipment of our products is also very important to our business. We have experienced problems with or delays in our production, shipping and logistics capabilities that resulted in delays in our ability to ship finished products, and there can be no assurance that we will not encounter such problems in the future. If we experience significant delays in our manufacturing, shipping or logistics processes, we could damage our customer relationships, cause disruption to our customers and adversely affect our business, financial condition and operating results.

We compete in highly competitive markets. Failure to compete successfully could adversely affect our business, financial condition and results of operations.

We face competition across our products and the markets in which we operate. We compete on several fronts, both domestically and internationally, including competing with other companies that provide similar offerings. Competition is driven by proprietary technologies and know-how, capabilities, consistency of operational performance, quality, supply chain control, price, value and speed. Our competitors range from regional companies, which may be able to more quickly respond to customers' needs because of geographic proximity, to large multinational companies, which may have greater financial, marketing, operational and research and development resources than we do. Such greater resources may allow our competitors to respond more quickly with new, alternative or emerging technologies.

In addition, consolidation trends in the biopharma and healthcare industries have served to create fewer customer accounts and to concentrate purchasing decisions for some customers, resulting in increased pricing pressures. The entry into the market by manufacturers in low-cost manufacturing locations also creates increased pricing and competitive pressures, particularly in developing markets, which may impede our goal to increase penetration in such markets. Failure to anticipate and respond to competitors' actions may adversely affect our results of operations and financial condition.

Our operations are also subject to the effects of global competition, including potential competition from specialty materials manufacturers in low-cost manufacturing locations. These risks, individually or in the aggregate, could have an adverse effect on our results of operations and financial condition. The occurrence or allegation of these types of risks may adversely affect our business, performance, prospects, value, financial condition and results of operations.

[Table of Contents](#)

It may be difficult for us to implement our strategies for improving growth.

We plan to continue expanding our commercial sales operations and scope and complexity of our business both domestically and internationally, while maintaining our commercial operations and administrative activities. For example, we intend to pursue the following growth strategies:

(i) increase integration of our products and services into customers' workflows; (ii) develop new products and services; (iii) expand in geographies expected to have outsized growth; (iv) continue to enhance our global online platform; (v) increase commercial excellence and operational efficiency to drive margin expansion; and (vi) pursue strategic acquisitions to expand our platform. See "Business—Our Growth Strategies." However, our ability to manage our business and conduct our global operations while also pursuing the aforementioned growth strategies requires considerable management attention and resources and is subject to the challenges of supporting a rapidly growing business in an environment of multiple languages, cultures and customs, legal and regulatory systems, alternative dispute systems and commercial markets.

Our failure to implement these strategies in a cost-effective and timely manner could have an adverse effect on our business, results of operations and financial condition.

Part of our growth strategy is to pursue strategic acquisitions, which will subject us to a variety of risks that could harm our business.

As part of our business strategy, we intend to continue to review, pursue and complete selective acquisition opportunities. There can be no assurances that we will be able to complete suitable acquisitions for a variety of reasons, including the identification of and competition for acquisition targets, the need for regulatory approvals, the inability of the parties to agree to the structure or purchase price of the transaction and the inability to finance the transaction on commercially acceptable terms. In addition, any completed acquisition will subject us to a variety of other risks, including:

- we will need to allocate substantial operational, financial and management resources in integrating new businesses, technologies and products, and management may encounter difficulties in integrating the operations, personnel or systems of the acquired businesses;
- acquisitions may have an adverse effect on our business relationships with existing or future suppliers and other business partners, in particular, to the extent we consummate acquisitions that vertically integrate portions of our business;
- we may assume substantial actual or contingent liabilities, known and unknown;
- acquisitions may not meet our expectations of future financial performance;
- we may experience delays or reductions in realizing expected synergies;
- we may incur substantial unanticipated costs or encounter other problems associated with acquired businesses or devote time and capital investigating a potential acquisition and not complete the transaction;
- we may be unable to achieve our intended objectives for the transaction; and
- we may not be able to retain the key personnel, customers and suppliers of the acquired business.

In addition, we may be unable to maintain uniform standards, controls, procedures and policies as we attempt to integrate the acquired businesses, and this may lead to operational inefficiencies. These factors related to our acquisition strategy, among others, could have an adverse effect on our business, financial condition and results of operations.

Our business, financial condition and results of operations may be harmed if our customers discontinue or spend less on research, development and production and other scientific endeavors.

Our direct and end customers include biopharmaceutical, biomaterials, diagnostics, electronics, aerospace and defense and research companies, which includes laboratories, universities, government agencies and public

[Table of Contents](#)

and private research institutions. Many factors, including public policy spending priorities, available resources and product and economic cycles, have a significant effect on the capital spending policies of these entities. Fluctuations in the research and development budgets of our customers could have a significant effect on the demand for our products. Our customers determine their research and development budgets based on several factors, including the need to develop new products, continued availability of governmental and other funding, competition and the general availability of resources. If research and development budgets are reduced, the impact could eventually adversely affect our overall business.

The customers we serve have and will continue to experience significant industry-related changes that could adversely affect our business.

Many of the customers we serve have experienced significant industry-related changes in the last several years and are expected to continue to experience significant changes, including reductions in governmental payments for biopharmaceutical products, expirations of significant patents, adverse changes in legislation or regulations regarding the delivery or pricing of general healthcare services or mandated benefits, and increased requirements on quality. General industry changes include:

- development of large and sophisticated group purchasing organizations and on-line “auction” sites that increase competition for and reduce spending on laboratory products;
- consolidation of biopharmaceutical companies resulting in a rationalization of research expenditures;
- increased regulatory scrutiny over drug production requiring safer raw materials;
- customers’ purchasing the products that we supply directly from our suppliers; and
- significant reductions in development and production activities.

Some of our customers have implemented or may in the future implement certain measures described above in an effort to control and reduce costs. The ability of our customers to develop new products to replace sales decreases attributable to expirations of significant patents, along with the impact of other past or potential future changes in the industries we serve, may result in our customers significantly reducing their purchases of products from us or the prices they are willing to pay for those products. While we believe we are able to adapt our business to maintain existing customer relationships and develop new customer relationships if we are unsuccessful or untimely in these efforts, our results of operations may suffer.

We may be adversely affected by global and regional economic and political conditions.

We conduct operations around the globe. The prospects, strength and sustainability of the current environment remain uncertain as does the possibility of an economic downturn in the United States and other countries. The uncertainty or deterioration of the global economic environment could adversely affect us. Customers or suppliers may experience cash flow problems and as a result, customers may modify, delay or cancel plans to purchase our products and services and suppliers may significantly and rapidly increase their prices or reduce their output. Any inability of current and/or potential customers to purchase and/or pay for our products due to, among other things, declining economic conditions as a result of inflation, rising interest rates, changes in spending patterns at biopharmaceutical, biotechnology, research, diagnostic, electronics, aerospace and defense companies and the effects of governmental initiatives to manage economic conditions may have a negative impact on our consolidated results of operations, financial condition and cash flows. Overall demand for our products could be reduced as a result of a global economic recession or political unrest, especially in such areas as the biopharma, healthcare, education & government and advanced technologies & applied materials industries.

Sales and earnings could also be affected by our ability to manage the risks and uncertainties associated with the application of trade protection measures, regional political instability, war, terrorist activities, severe or prolonged adverse weather conditions and natural disasters as well as health epidemics and pandemics.

[Table of Contents](#)

We may not be able to integrate mergers or acquisitions successfully into our existing business, or realize anticipated cost savings or synergies, if any, from those transactions, which could adversely affect our business.

Our ability to realize the benefits we anticipate from our mergers and acquisitions activities, including anticipated cost savings and additional sales opportunities, will depend in large part upon whether we are able to integrate such businesses efficiently and effectively. Integration is an ongoing process and we may not be able to fully integrate such businesses smoothly or successfully and the process may take longer than expected. Further, the integration of certain operations and the differences in operational culture following mergers and acquisitions activity will continue to require the dedication of significant management resources, which may distract management's attention from day-to-day business operations. There may also be unasserted claims or assessments that we failed or were unable to discover or identify in the course of performing due diligence investigations of target businesses. If we are unable to successfully integrate the operations of acquired businesses into our business, including with respect to our ongoing integration of VWR and NuSil, we may be unable to realize the sales growth, cost synergies and other anticipated benefits we expect to achieve as a result of such transactions and our business, results of operations and cash flow could be adversely affected.

Our offerings are highly complex, and, if our products do not satisfy applicable quality criteria, specifications and performance standards, we could experience lost net sales, delayed or reduced market acceptance of our products, increased costs and damage to our reputation.

The high-purity materials and customized solutions we offer are highly exacting and complex due to demanding customer specifications and stringent regulatory and industry requirements. Our operating results depend on our ability to execute and, when necessary, improve our global quality control systems, including our ability to effectively train and maintain our employees with respect to quality control. See "Business—Quality and Regulatory." A failure of our global quality control systems could result in problems with facility operations or preparation or provision of defective or non-compliant products. In each case, such problems could arise for a variety of reasons, including equipment malfunction, failure to follow specific protocols and procedures, problems with raw materials, or environmental factors and damage to, or loss of, manufacturing operations. Although many of our products are tested prior to shipment, defects or errors nevertheless occur and we have product recalls from time to time. Such problems could affect production of a particular batch or series of batches of products, requiring the destruction of such products or a halt of facility production altogether. Nearly all of our products are subsequently incorporated into products sold to end users by our customers, and we have no control over the manufacture and production of such products.

Our success depends on our customers' confidence that we can provide reliable, high-quality products. We believe that customers in our target markets are likely to be particularly sensitive to product defects and errors. Our reputation and the public image of our products and technologies may be impaired if our products fail to perform as expected or fail to meet applicable quality criteria, specifications or performance standards. If our products experience, or are perceived to experience, a material defect or error, this could result in loss or delay of net sales, damaged reputation, diversion of development resources, and increased insurance or warranty costs, any of which could harm our business. Such defects or errors could also result in our inability to timely deliver products to our customers, which in turn could cause disruption to our customers' production of their products, narrowing the scope of the use of our products and ultimately hindering our or their success in relevant markets. Even after any underlying concerns or problems are resolved, any lingering concerns in our target markets regarding our technology, product defects or performance standards could continue to result in lost net sales, delayed market acceptance and damaged reputation, among other things. If problems in preparation or manufacture of a product or failures to meet required quality standards for that product or other product defects are not discovered before such product is released to our customers, we may be subject to adverse regulatory and legal actions, including recalls, product seizures, injunctions to halt manufacture and distribution, restrictions on our operations, civil sanctions, including monetary sanctions, and criminal actions. In addition, such problems or failures subject us to other litigation claims, including claims from our customers for reimbursement for the cost

[Table of Contents](#)

of lost or damaged raw materials or end products, disposal of defective products, production line clean out and consequential damages, the cost of which could be significant.

The loss of a significant number of customers or a reduction in orders from a significant number of customers could reduce our net sales and harm our operating results.

Our operating results could be negatively affected by the loss of revenue from a significant number of our customers, including direct distributors and end users. Though we often include pricing and volume incentives in our contracts, our customers are generally not obligated to purchase any fixed quantities of products, and they may stop placing orders with us at any time. If a significant number of customers purchase fewer of our products, defer orders or fail to place additional orders with us, our sales could decline, and our operating results may not meet our expectations. In addition, if those customers order our products, but fail to pay on time or at all, our liquidity and operating results could be adversely affected.

Our contracts generally do not contain minimum purchase requirements and we sell primarily on a purchase order basis. Therefore, our sales are subject to demand variability by our clients, has fluctuated historically and may continue to fluctuate, sometimes materially from year to year and even from quarter to quarter. The level and timing of orders placed by these clients vary for a variety of reasons, individual customer strategies, the introduction of new technologies, the desire of our clients to reduce their exposure to any single supplier and general economic conditions. If we are unable to anticipate and respond to the demands of our clients, we may lose clients because we have an inadequate supply of raw materials with which to manufacture our products or insufficient capacity in our sites, or in the alternative, we may have excess inventory or excess capacity, either of which may have a material adverse effect on our business, financial position and operating results.

Though we do generate a portion of our net sales from long-term contracts, the majority of these contracts are non-exclusive and do not require a minimum purchase volume. These customers therefore generally have no obligation to assign a specific amount of work pursuant to the agreements themselves. Consequently, projected expenditures by customers under long-term contracts are not assured. This makes it difficult to estimate our customers' demand for our products and our raw material needs. In addition, though we believe customers in our markets display a significant amount of loyalty to their supplier of a particular product, we may not be able to renew a contract on favorable pricing terms if our competitors reduce their prices in order to procure business, or if a customer is insistent that we lower the price charged under the contract being renewed in order to retain the contract. The loss of sales obtained through long-term contracts or the reduced profitability of such sales could adversely affect our results of operations, cash flows and liquidity.

We are subject to risks associated with doing business globally, which may harm our business.

We have global operations and derive a portion of our net sales from customers outside the United States. Accordingly, our international operations or those of our international customers could be substantially affected by a number of risks arising with operating an international business, including:

- limitations on repatriation of earnings;
- taxes on imports;
- the possibility that unfriendly nations or groups could boycott our products;
- general economic and political conditions in the markets we operate in;
- foreign currency exchange rate fluctuations;
- potential increased costs associated with overlapping tax structures;
- potential increased reliance on third parties within less developed markets;
- potential trade restrictions, tariffs and exchange controls;

Table of Contents

- more limited protection for intellectual property rights in some countries;
- difficulties and costs associated with staffing and managing foreign operations;
- unexpected changes in regulatory requirements;
- difficulties in complying with a wide variety of foreign laws and regulations;
- the risk that certain governments may adopt regulations or take other actions that would have a direct adverse impact on our business and market opportunities, including nationalization of private enterprise;
- violations of anti-bribery and anti-corruption laws, such as the United States Foreign Corrupt Practices Act, or the “FCPA”;
- violations of economic sanctions laws, such as the regulations enforced by the U.S. Department of The Treasury’s Office of Foreign Assets Control, or “OFAC”;
- longer accounts receivable cycles in certain foreign countries, whether due to cultural differences, exchange rate fluctuation or other factors;
- the credit risk of local customers and distributors;
- limitations on our ability to enforce legal rights and remedies with third parties or partners outside the United States;
- import and export licensing requirements and other restrictions, such as those imposed by OFAC, the Bureau of Industry and Security, or “BIS,” the Directorate of Defense Trade controls, or “DDTC,” and comparable regulatory agencies and policies of foreign governments; and
- changes to our distribution networks.

Changes in exchange rates can adversely affect our net sales, profits and cash flows.

We report our consolidated financial results in U.S. dollars. Approximately 47% of net sales for the year ended December 31, 2018 were generated from operations outside the United States and denominated in foreign currencies (principally the British Pound Sterling, Canadian dollar, euro, Indian Rupee and the Chinese Renminbi). Fluctuations in the relative values of currencies occur from time to time and could adversely affect our operating results. Specifically, during times of a strengthening U.S. dollar, our reported international sales and earnings will be reduced because the local currency will convert into fewer U.S. dollars. In addition, currency fluctuations may affect the comparability of our results of operations between financial periods.

Further, we have a substantial amount of euro denominated indebtedness. Fluctuations in the exchange rate between U.S. dollars and euros may have a material adverse effect on our ability to repay such indebtedness.

Our business depends on our ability to use and access information systems, and any failure to successfully maintain these systems or implement new systems to handle our changing needs could materially harm our operations.

We depend on standardized procedures and multiple information systems, including our online customer portal and distribution and enterprise resource systems, for our operations, customer service and quality and safety procedures. We utilize commercially available third-party technology solutions, software and software systems with some proprietary configurations. In the past we have stored data using third-party cloud services and we plan to do so in the future. Our information systems are subject to damage or interruption from power outages, computer and telecommunications failures, computer viruses, security breaches, vandalism, catastrophic events and human error. If our information systems are damaged, fail to work properly or otherwise become unavailable, we may incur substantial costs to repair or replace them, and we may experience a loss of critical

Table of Contents

information, customer disruption and interruptions or delays in our ability to perform essential functions and implement new and innovative services. If the cloud service providers we may use were to experience unplanned downtime, delays or other issues delivering data to our information technology systems, this could significantly and adversely impact business operations. A compromise of our information systems or those with which we interact could harm our reputation and expose us to regulatory actions and claims from customers and other persons, any of which could adversely affect our business, financial position and results of operations.

In addition, we may not have the necessary resources to enhance existing information systems or implement new systems where necessary to handle our increasing volume and changing needs, and may experience unanticipated delays, complications and expenses in implementing and integrating our systems. Any interruptions in operations would adversely affect our ability to properly allocate resources and timely deliver our products, which could result in customer dissatisfaction. The failure to successfully implement and maintain information systems could have an adverse effect on our ability to obtain new business, retain existing business and maintain or increase our sales and profit margins.

Furthermore, we rely on information technology systems to process, transmit, store and protect electronic information, including confidential customer, supplier, employee or other business information. For example, a significant portion of the communications between our personnel, customers, and suppliers depends on information technology. Through our online customer portal, we collect and store confidential information that customers provide in order to, among other things, purchase products and services and register on our website. Our information technology systems may be vulnerable to a variety of interruptions due to events beyond our control, including, but not limited to, natural disasters, terrorist attacks, telecommunications failures, computer viruses, hackers and other security issues. We have technology and information security processes and disaster recovery plans in place to mitigate our risks to these vulnerabilities. However, these measures may not be adequate to ensure that our operations will not be disrupted, should such an event occur.

In recent years, information security risks have generally increased because of the proliferation of new technologies and the increased sophistication and activities of perpetrators of cyberattacks. In addition to exploiting technical vulnerabilities, the perpetrators of cyberattacks may seek to gain access to user credentials through “phishing” and “spear phishing” attacks. A failure in or breach of our operational or information systems, or those of our third-party service providers, as a result of cyberattacks or information security breaches, regardless of whether the failure or breach is attributable to a vulnerability in our systems, could disrupt our business and/or our supply chain, result in the improper disclosure or misuse of our or our customers’ confidential or proprietary information, damage our reputation, subject us to claims and/or increase our costs. We may be required to expend additional resources to continue to enhance our information security measures and/or to investigate and remediate any information security vulnerabilities.

The General Data Protection Regulation (“GDPR”), which went into effect in the European Union (“EU”) on May 25, 2018, applies to the collection, use, retention, security, processing, and transfer of personally identifiable information of residents of countries in the European Economic Area. The GDPR created a range of new compliance obligations, and imposes significant fines and sanctions for violations. It is possible that the GDPR may be interpreted or applied in a manner that is adverse to us or otherwise inconsistent with our practices; or that the EU authorities may hold that we are not in full compliance with the GDPR’s requirements.

Any failure, or perceived failure, by us to comply with the GDPR, or with any applicable regulatory requirements or orders, including but not limited to privacy, data protection, information security, or consumer protection-related privacy laws and regulations, in one or more jurisdictions within the EU or elsewhere, could: result in proceedings or actions against us by governmental entities or individuals; subject us to significant fines, penalties, and/or judgments; require us to change our business practices; limit access to our products and services in certain countries, incur substantial costs (even if we ultimately prevail) or otherwise adversely affect our business.

[Table of Contents](#)

Our inability to protect our intellectual property could adversely affect our business. In addition, third parties may claim that we infringe their intellectual property, and we could suffer significant litigation or licensing expenses as a result.

We rely on a variety of intellectual property rights (including patents, trademarks, copyrights and trade secrets) to protect our proprietary technology and products. We place considerable emphasis on obtaining patent or maintaining trade secret protection for significant new technologies, products and processes because of the length of time and expense associated with bringing new products and processes through the development process and to the market. Our success depends, in part, on our ability to develop and maintain trade secrets, or obtain and enforce patent protection, for our products and processes both in the United States and internationally.

We rely on trade secrets and proprietary know-how to protect our products and processes, in part, by confidentiality agreements with our customers, collaborators, employees and consultants. We cannot be certain, however, that these agreements will not be breached, including a breach by a customer or collaborator involving reverse-engineering of our products or the use or disclosure of our trade secrets or know-how, or that adequate remedies will be available in the event of any breach. We cannot guarantee that our trade secrets and other proprietary and confidential information will not be disclosed or that competitors will not otherwise gain access to or independently develop our trade secrets. If a competitor lawfully obtained or independently developed any of our trade secrets, we would have no right to prevent such competitor from using that technology or information to compete with us. Monitoring unauthorized uses and disclosures is difficult, and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. Furthermore, enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable, in part because some courts both within and outside the United States may be less willing or unwilling to protect trade secrets. Any misappropriation, disclosure or independent development of our trade secrets could harm our competitive position.

We own numerous U.S. and foreign patents and patent applications, and we expect to file additional applications, as appropriate, for patents covering certain of our products and processes. Patents may not be issued for any pending or future patent applications owned by or licensed to us, and the claims allowed under any issued patents may not be sufficiently broad to protect our technology. Any issued patents owned by or licensed to us may be challenged, invalidated or circumvented, and the rights under these patents may not provide us with competitive advantages. In addition, competitors may design around our technology or develop competing technologies. Intellectual property rights may also be unavailable or limited in some foreign countries, which could make it easier for competitors to capture increased market position. Moreover, pursuing patent protection in all jurisdictions would be prohibitively expensive, and we will not have the benefit of any such protection in jurisdictions where we do not pursue and obtain patents. We could incur substantial costs to defend ourselves in suits brought against us or in suits in which we may assert our patent rights against others. An unfavorable outcome of any such litigation could adversely affect our business and results of operations.

We actively manage our portfolio of trademarks including by maintaining registrations for long-standing trademarks and applying to obtain trademark registrations for new brands. We cannot guarantee that any application for registration will be granted in any given jurisdiction, or that third parties will not challenge our existing rights. We also police certain trademarks against infringement by third parties. Our efforts to defend and enforce our trademarks may be unsuccessful against competitors or other third parties and we may not have adequate remedies against infringements. Due to our focus on branded products, we consider our trademarks to be valuable assets.

We may need to spend significant resources monitoring and enforcing our intellectual property rights and we may not be able to prove infringement by third parties. Our competitive position may be harmed if we cannot enforce our intellectual property rights. In some circumstances, we may choose to not pursue enforcement for business reasons. In addition, competitors might avoid infringement by designing around our intellectual property rights or by developing non-infringing competing technologies. Intellectual property rights and our

[Table of Contents](#)

ability to enforce them may be unavailable or limited in some countries, which could make it easier for competitors to capture market share and could result in lost revenues.

We may be subject to claims that former employees, collaborators or other third parties have an interest in our patents or other intellectual property as an inventor or co-inventor, or that an employee, consultant, or other third party performed work for us that conflicts with that person's obligations to a third party. While it is generally our policy to require our employees and contractors who may be involved in the creation, conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, creates, conceives or develops intellectual property that we regard as our own, or a court may determine that such agreement was insufficient to assign such intellectual property to us. In some cases, when we perform certain services for a customer, the customer may own rights in resulting intellectual property, if any, generated in the course of performing those services. Disputes may arise with respect to such arrangements and our, and the customer's, rights in such intellectual property. Litigation may be necessary to defend against any of these and other claims challenging inventorship or ownership. If we fail in defending or asserting any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Even if we are successful in defending or asserting such claims, litigation could result in substantial costs and be a distraction to management and other employees.

We cannot be certain that our products and our business do not or will not infringe the intellectual property rights of a third party. Third parties may assert claims against us to the effect that we are infringing on their intellectual property rights. Such claims are costly, regardless of their merit, divert the attention of management, and outcomes are uncertain, all of which could adversely affect our business, financial condition and results of operations. In addition, parties making these claims could secure a judgment awarding substantial damages, as well as injunctive or other equitable relief against us and those to whom we have sold the allegedly infringing products, which could require us to design around the infringement, and/or effectively block our ability to make, use, sell, distribute, or market our products in the United States or other countries. In the event that a claim relating to intellectual property is asserted against us, or third parties not affiliated with us hold pending or issued patents that relate to our products or technology, we may seek licenses to such intellectual property or challenge those patents. However, we may be unable to obtain these licenses on commercially reasonable terms, if at all, and our challenge of the patents may be unsuccessful. Our failure to obtain the necessary licenses or other rights could prevent the sale, manufacture, or distribution of our products and, therefore, could adversely affect our business, financial condition and results of operations.

Our trademarks are valuable assets and if we are unable to protect them from infringement our business prospects may be harmed.

Our brands, particularly our J.T.Baker, NuSil and VWR brands, are valuable assets. Therefore, we actively manage our trademark portfolio, including by maintaining registrations for long-standing trademarks and applying to obtain trademark registrations for new brands. We also police our trademark portfolio against infringement. Our efforts to protect and defend our trademarks may fall short or be unsuccessful against competitors or other third parties for a variety of reasons. To the extent that third parties or distributors sell products that are counterfeit versions of our branded products, our customers could inadvertently purchase products that are inferior. This could cause them to refrain from purchasing our brands in the future and in turn could impair our brand equity and adversely affect our sales.

We are subject to product liability and other claims in the ordinary course of business.

Our business involves risk of product liability (including, without limitation, with respect to our products used to manufacture drugs and for research, our silicone-based products including those used by our customers as raw materials to make medical implantable devices, and our diagnostic products including those used to screen for disease or disorder), intellectual property claims and other claims in the ordinary course of business arising

[Table of Contents](#)

from the products that we source from various manufacturers or produce ourselves. Furthermore, there may be product liability risks that are unknown or which become known in the future. Substantial, complex or extended litigation on any claim could cause us to incur significant costs and distract our management. For example, lawsuits by governmental authorities, employees, shareholders, suppliers, collaborators, distributors, customers, competitors or others with protected intellectual property could be very costly and substantially disrupt our business. Our exposure to such claims may increase as we seek to increase the geographic scope of our sourcing and sales activities and to the extent that we expand our manufacturing operations. We maintain insurance policies and in some cases, our suppliers, customers and predecessors of acquired companies have indemnified us against certain claims. We cannot assure you that our insurance coverage or indemnification agreements will be available in all pending or any future cases brought against us. Furthermore, our ability to recover under any insurance or indemnification arrangements is subject to the terms and conditions of such insurance or indemnification agreement, as well as the financial viability of our and such third parties' insurers, as well as legal enforcement under the local laws governing these arrangements. Insurance coverage in general or coverage for certain types of liabilities, such as product liability in developing markets, may not be readily available for purchase or cost-effective for us to purchase. Furthermore, many of our insurance policies are subject to high deductibles and retentions. Accordingly, we could be subject to uninsured and unindemnified future liabilities requiring us to provide additional reserves to address such liabilities. An unfavorable result in a case for which adequate insurance or indemnification is not available could adversely affect our business, financial condition and results of operations.

We are also involved in various disputes, litigation and regulatory matters incidental to and in the ordinary course of our business, including employment matters, commercial disputes, government compliance matters, environmental matters, and other matters arising out of the normal conduct of our business. We intend to vigorously defend ourselves in such matters. While the impact of this litigation has or may be immaterial, there can be no assurance that the impact of the pending and any future claims will not be material to our business, financial condition or results of operations in the future.

We must develop new products, adapt to rapid and significant technological change and respond to introductions of new products by competitors to remain competitive.

We sell our products in industries that are characterized by significant technological changes, frequent new product and technology introductions and enhancements and evolving industry standards. As a result, our customers' needs are rapidly evolving. If we do not appropriately innovate and invest in new technologies, our offerings may become less desirable in the markets we serve, and our customers could move to new technologies offered by our competitors or make products themselves. Though we believe customers in our markets display a significant amount of loyalty to their supplier of a particular product, we also believe that because of the initial time investment required by many of our customers to reach a purchasing decision for a new product, it may be difficult to regain that customer once the customer purchases a product from a competitor. Without the timely introduction of new products, services and enhancements, our offerings will likely become less competitive over time, in which case our competitive position, net sales and operating results could suffer. Accordingly, we focus significant efforts and resources on the development and identification of new technologies, products and services that are attractive to and gain acceptance in the markets we serve and further broaden our offerings. To the extent we fail to timely introduce new and innovative products or services, adequately predict our customers' needs or fail to obtain desired levels of market acceptance, our business may suffer.

Our business, financial condition and results of operations depend upon the availability of raw materials.

Our operations depend upon our ability to obtain high-quality raw materials meeting our specifications and other requirements at reasonable prices, including various APIs, components, compounds, excipients and other raw materials, many of which are sole-sourced due to market or customer demands. Our ability to maintain an adequate supply of such materials and components could be impacted by the availability and price of those raw materials and maintaining relationships with key suppliers. While we may seek to minimize the impact of price

Table of Contents

increases and potential shortages by, among other things, entering into long-term supply agreements, increasing our own prices and implementing cost-saving measures, our earnings and cash flows could be adversely affected in the event these measures are insufficient to cover our costs. Our dependency upon regular deliveries from particular suppliers of components and raw materials means that interruptions or stoppages in such deliveries could adversely affect our operations until arrangements with alternate suppliers, to the extent any alternate suppliers acceptable to us and, if applicable, to our customers, even exist. If this occurs, we could expend substantial expense and time in re-establishing relationships with third-party suppliers that meet the appropriate quality, cost and regulatory requirements needed for commercially viable manufacture of our products or in re-designing our products to incorporate different components and raw materials that are available from third-party suppliers. If we are unable to obtain the materials we need at reasonable prices or at all, we may not be able to produce certain of our products at a marketable price or at all. If our supply of raw materials and key components is adversely affected, we could impact our customers' ability to produce their products, damage our relationship with current and prospective customers and our operating results and financial condition could be adversely affected.

Moreover, we are dependent upon the ability of our suppliers to provide materials and components that meet our specifications, quality standards, other applicable criteria, and delivery schedules. Our suppliers' failure to provide expected raw materials or components that meet such criteria could adversely affect production schedules and contract profitability.

The continued supply of materials from our suppliers is subject to a number of risks including:

- the destruction of or damage to our suppliers' facilities or their distribution infrastructure;
- work stoppages or strikes by our suppliers' employees;
- the failure of our suppliers to provide materials of the requisite quality or in compliance with strict specifications;
- the failure of essential equipment at our suppliers' plants;
- the failure of our suppliers to satisfy U.S. and international import and export control laws for goods that we purchase from them;
- the failure of our suppliers to meet regulatory standards, including cGMP, where applicable;
- the failure, shortage or delay in the delivery of raw materials to our suppliers;
- contractual amendments and disputes with our suppliers; and
- inability of our suppliers to perform as a result of the weakened global economy or otherwise.

If we experience problems with suppliers, we may not be able to find acceptable alternatives, and any such alternatives could result in increased costs for us and possible forward losses on certain contracts. Even if acceptable alternatives are found, the process of locating and securing such alternatives might be disruptive to our business, might lead to termination of our supply agreements with our customers, and might disrupt the operations of our customers leading to potential claims.

Our business, financial condition and results of operations depend upon maintaining our relationships with suppliers.

We offer products from a wide range of suppliers. While there is generally more than one source of supply for most of the categories of third-party materials & consumables and equipment & instrumentation that we sell, we currently do not manufacture the majority of our products and are dependent on these suppliers for access to those products.

[Table of Contents](#)

Our ability to sustain our gross margins has been, and will continue to be, dependent in part upon our ability to obtain favorable terms from our suppliers. These terms may change from time to time, and such changes could adversely affect our gross margins over time. In addition, our results of operations and cash flows could be adversely impacted by the acceleration of payment terms to our suppliers and/or the imposition of more restrictive credit terms and other contractual requirements.

Some of our competitors are increasing their manufacturing operations both internally and through acquisitions of manufacturers, including manufacturers that supply products to us. In addition, we manufacture certain products that may compete directly with products we source from our suppliers. To date, we have not experienced an adverse impact on our ability to continue to source products from manufacturers that have been vertically integrated or otherwise compete with us, although there is no assurance that we will not experience such an impact in the future.

The loss of one or more of our large suppliers, including as a result of consolidation, a material reduction in their supply of products or provision of services to us, extended disruptions or interruptions in their operations or material changes in the terms we obtain from them, could have a material adverse effect on our business, financial condition and results of operations.

Our use of chemicals and chemical processes is subject to inherent risk.

We use chemical ingredients in the manufacture of certain of our products. Due to the nature of the manufacturing process itself, there is a risk of incurring liability for damages caused by or during the storage or manufacture of both the chemical ingredients and the finished products. The processes used in certain of our facilities typically involve large volumes of solvents and chemicals, creating the potential for fires, spills and other safety or environmental impacts. If any of these risks materialize, it could result in significant remediation and other costs, potential adverse regulatory actions and liabilities, any of which could have an adverse effect on our business, results of operations and financial condition.

In addition, the manufacturing, use, storage, and distribution of chemicals are subject to threats including terrorism. We have several high-risk chemical facilities that possess materials that could be stolen and used to make weapons. We could also be subject to an attack on our high-risk facilities that could cause a significant number of deaths and injuries. As a result, many people, including our employees, could be harmed. Such an occurrence could also harm the environment, our reputation and disrupt our operations.

We are highly dependent on our senior management and key employees. Competition for our employees is intense, and we may not be able to attract and retain the highly skilled employees that we need to support our business and our intended future growth.

Our success largely depends on the skills, experience and continued efforts of our management, including our Chief Executive Officer and our senior leadership. The replacement of any member of our management team would likely involve the expenditure of significant time and financial resources, and the loss of any such individual may significantly delay or prevent the achievement of our business objectives. As we continue to grow, our success also depends on our ability to attract, motivate and retain highly qualified individuals. Competition for senior management and other key personnel in our industry is intense, and the pool of suitable candidates is limited. If qualified personnel become scarce or difficult to attract or retain in our industry for compensation-related or other reasons, we could experience higher labor, recruiting or training costs. Further, new hires may require significant training and time before they achieve full productivity and may not become as productive as we expect. The failure to attract, retain and properly motivate members of our senior management team and other key employees, or to find suitable replacements for them in the event of death, illness or their desire to pursue other professional opportunities, could have a negative effect on our operating results.

[Table of Contents](#)

We may incur impairment charges on our goodwill and other intangible assets with indefinite lives that would reduce our earnings.

We are required under generally accepted accounting principles to test goodwill and non-amortizable intangible assets for impairment at least annually and to review our amortizable intangible assets, including other assets acquired through merger and acquisition activity, for impairment when events or changes in circumstance indicate the carrying value may not be recoverable.

Factors that could lead to impairment of goodwill, non-amortizable intangible assets, and amortizable intangible assets in the future (including goodwill or assets acquired via acquisitions) include significant adverse changes in the business climate and actual or projected operating results and declines in the financial condition of our business. We have recorded and may be required in the future to record additional charges to earnings if our goodwill, non-amortizable intangible assets, and amortizable intangible assets or other assets become impaired. Any such charge would adversely impact our financial results.

Significant developments stemming from the domestic U.S. and international political climate could have an adverse effect on us.

The Trump administration has called for substantial changes to trade agreements, such as the North American Free Trade Agreement (“NAFTA”), and has raised the possibility of imposing significant increases on tariffs on goods imported into the United States, particularly from China and Mexico. For example, throughout 2018 and 2019, the Trump administration and China have been levying taxes on their respective imports. The administration has also indicated an intention to request Congress to make significant changes, replacement or elimination of the Patient Protection and Affordable Care Act, (the “PPACA”) and government negotiation/regulation of drug prices paid by government programs. In December 2017, the Tax Cuts and the Jobs Act of 2017 (the “TCJA”), which reduced the PPACA’s tax penalty for individuals that do not have health insurance to \$0, among other policy changes. There are other changes in U.S. social, political, regulatory and economic conditions or laws and policies governing the health care system and drug prices, foreign trade, manufacturing, and development and investment in the territories and countries where we or our customers operate could adversely affect our operating results and our business.

Additionally, in June 2016, the United Kingdom held a referendum and voted in favor of leaving the European Union, or “EU” and in March 2017, the government of the United Kingdom formally initiated the withdrawal process. This referendum has created political and economic uncertainty, particularly in the United Kingdom and the EU, and this uncertainty may last for years. Our business could be affected during this period of uncertainty, and perhaps longer, by the impact of the United Kingdom’s referendum. In addition, our business could be negatively affected by new trade agreements between the United Kingdom and other countries, including the United States, by the possible imposition of trade or other regulatory barriers in the United Kingdom and if the government of the United Kingdom does not reach a deal with the EU with respect to the United Kingdom’s exit from the EU by March 29, 2019, the scheduled exit date. Neither the Company’s business related to importing goods into the United Kingdom nor the Company’s business related to exporting goods from the United Kingdom is currently material with respect to the Company’s business. Nevertheless, these possible negative impacts, and others resulting from the United Kingdom’s actual or threatened withdrawal from the EU, may adversely affect our operating results and our customers’ businesses.

Our reputation, ability to do business and financial statements may be impaired by improper conduct by any of our employees, agents or business partners.

We cannot provide assurance that our internal controls and compliance systems will always protect us from acts committed by employees, agents or business partners of ours (or of businesses we acquire or partner with) that would violate U.S. and/or non-U.S. laws, including the laws governing payments to government officials, bribery, fraud, kickbacks and false claims, pricing, sales and marketing practices, conflicts of interest,

[Table of Contents](#)

competition, export and import compliance, money laundering and data privacy. In particular, the FCPA, the U.K. Bribery Act and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments for the purpose of obtaining or retaining business, and we operate in many parts of the world that have experienced corruption to some degree. Any such improper actions or allegations of such acts could damage our reputation and subject us to civil or criminal investigations in the United States and in other jurisdictions and related shareholder lawsuits, could lead to substantial civil and criminal, monetary and nonmonetary penalties and could cause us to incur significant legal and investigatory fees. In addition, the government may seek to hold us liable as a successor for violations committed by companies in which we invest or that we acquire. We also rely on our suppliers to adhere to our supplier standards of conduct, and material violations of such standards of conduct could occur that could have a material effect on our business, reputation and financial statements.

The indemnification provisions of acquisition agreements by which we have acquired companies may not fully protect us and as a result we may face unexpected liabilities.

Certain of the acquisition agreements by which we have acquired companies require the former owners to indemnify us against certain liabilities related to the operation of the company before we acquired it. In most of these agreements, however, the liability of the former owners is limited and certain former owners may be unable to meet their indemnification responsibilities. We cannot assure you that these indemnification provisions will protect us fully or at all, and as a result we may face unexpected liabilities that adversely affect our financial statements.

Government or private civil antitrust actions could harm our business, results of operations, financial condition and cash flows.

The antitrust laws prohibit, among other things, any joint conduct among competitors that would lessen competition in the marketplace. We believe that we are in compliance with the legal requirements imposed by the antitrust laws. However, a governmental or private civil action alleging the improper exchange of information, or unlawful participation in price maintenance or other unlawful or anticompetitive activity, even if unfounded, could be costly to defend and could harm our business, results of operations, financial condition and cash flows.

Changes in tax law relating to multinational corporations could adversely affect our tax position.

The U.S. Congress, government agencies in non-U.S. jurisdictions where we and our affiliates do business, and the Organisation for Economic Co-operation and Development (“OECD”) have recently focused on issues related to the taxation of multinational corporations. One example is in the area of “base erosion and profit shifting,” where profits are claimed to be earned for tax purposes in low-tax jurisdictions, or payments are made between affiliates from a jurisdiction with high tax rates to a jurisdiction with lower tax rates. The OECD has released several components of its comprehensive plan to create an agreed set of international rules for addressing base erosion and profit shifting.

Due to the potential for changes to tax laws and regulations or changes to the interpretation thereof (including regulations and interpretations pertaining to the TCJA), the ambiguity of tax laws and regulations, the subjectivity of factual interpretations, the complexity of our intercompany arrangements, uncertainties regarding the geographic mix of earnings in any particular period, and other factors, our estimates of effective tax rate and income tax assets and liabilities may be incorrect and our financial statements could be adversely affected; please refer to “Management’s Discussion and Analysis of Financial Condition and Results of Operations” for a discussion of additional factors that may adversely affect our effective tax rate and decrease our profitability in any period. The impact of the factors referenced in the first sentence of this paragraph may be substantially different from period-to-period.

In addition, the amount of income taxes we pay is subject to ongoing audits by U.S. federal, state and local tax authorities and by non-U.S. tax authorities, such as the audits described in “Management’s Discussion and

Table of Contents

Analysis of Financial Condition and Results of Operations” and our financial statements. If audits result in payments or assessments different from our reserves, our future results may include unfavorable adjustments to our tax liabilities and our financial statements could be adversely affected. Any further significant changes to the tax system in the United States or in other jurisdictions (including changes in the taxation of international income as further described below) could adversely affect our financial statements.

Certain of our businesses rely on relationships with collaborative partners and other third parties for development, supply and marketing of certain products and potential products, and such collaborative partners or other third parties could fail to perform sufficiently.

We believe that for certain of our businesses, success in penetrating target markets depends in part on their ability to develop and maintain collaborative relationships with other companies. Relying on collaborative relationships is risky because, among other things, our collaborative partners may (1) not devote sufficient resources to the success of our collaborations; (2) fail to obtain regulatory approvals necessary to continue the collaborations in a timely manner; (3) be acquired by other companies and terminate our collaborative partnership or become insolvent; (4) compete with us; (5) disagree with us on key details of the collaborative relationship; (6) have insufficient capital resources; and (7) decline to renew existing collaborations on acceptable terms. Because these and other factors may be beyond our control, the development or commercialization of our products involved in collaborative partnerships may be delayed or otherwise adversely affected. If we or any of our collaborative partners terminate a collaborative arrangement, we may be required to devote additional resources to product development and commercialization or we may need to cancel some development programs, which could adversely affect our business and financial statements.

Risks Related to Regulation

We are required to comply with a wide variety of laws and regulations, and are subject to regulation by various federal, state and foreign agencies, and our failure to comply with existing and future regulatory requirements could adversely affect our results of operations and financial condition.

We compete in markets in which we and our customers are subject to federal, state, local, international and transnational laws and regulations, including the operating, quality and security standards of the FDA, various state health departments, the Department of Health and Human Services, or “DHHS,” similar bodies of the EU and its member states and other comparable agencies around the world, and, in the future, any changes to such laws and regulations could adversely affect us. We develop, configure and market our products to meet customer needs driven by those regulations. Among other rules affecting us, we are subject to laws and regulations concerning cGMP and product safety. Our subsidiaries may be required to register for permits and/or licenses with, and may be required to comply with, the laws and regulations of the FDA, the DHHS, the Drug Enforcement Administration, or “DEA,” foreign agencies including the European Medicines Agency, or “EMA,” and other various state health departments and/or comparable state and foreign agencies as well as certain accrediting bodies depending upon the types of operations and locations of distribution and sale of the products manufactured or services provided by those subsidiaries. Any significant change in regulations could reduce demand for our products or increase our expenses. For example, many of our products are marketed to the biopharma industry for use in discovering, developing and manufacturing drugs, or are sold as raw materials or components to drug device manufacturers or for use in the manufacture of implantable devices. Changes in the domestic or foreign regulation of drug discovery, development or manufacturing processes or medical device manufacturing processes, or adverse findings concerning any health effects associated with these products, could have an adverse effect on the demand for these products and could also result in legal liability and claims.

Our operations are subject to a broad array of regulatory requirements globally. In particular, certain portions of our business must satisfy domestic and international standards in the medical, biopharmaceutical and other health sciences areas involving products and technologies which impact human health and safety. In addition, some of our operations must meet governmental requirements in terms of contracting, sourcing,

[Table of Contents](#)

financial accounting standards, product testing and reporting. We are required to comply with economic sanctions laws, which may affect our transactions with certain customers, business partners and other persons and entities. There are also business operations that produce products regulated by import/export regulations because their actual or potential use is considered sensitive and involves substantial licensing and record-keeping obligations. In addition, we are registered with the DDTC, as a manufacturer and exporter of goods controlled by the International Traffic in Arms Regulations, or "ITAR," and we are subject to strict export control and prior approval requirements related to these goods. Our failure to comply with ITAR and other export control laws and regulations, as well as economic sanctions, could result in penalties, loss, or suspension of contracts or other consequences. Any of these could adversely affect our operations and financial condition. Failure by us or by our customers to meet one or more of these various regulatory obligations could have adverse consequences in the event of material non-compliance. Compliance with relevant sanctions and export control laws could restrict our access to, and increase the cost of obtaining, certain products and at times could interrupt our supply of imported inventory or our ability to service certain customers. See "—Violation of government regulations or quality programs could harm demand for our products or services." Conversely, compliance with these regulatory obligations may require us to incur significant expenses.

Although we believe that we comply in all material respects with applicable laws and regulations, there can be no assurance that a regulatory agency or tribunal would not reach a different conclusion concerning the compliance of our operations with applicable laws and regulations. In addition, there can be no assurance that we will be able to maintain or renew existing permits, licenses or other regulatory approvals or obtain, without significant delay, future permits, licenses or other approvals needed for the operation of our businesses. Any noncompliance by us with applicable laws and regulations or the failure to maintain, renew or obtain necessary permits and licenses could have an adverse effect on our results of operations and financial condition. Furthermore, loss of a permit, license or other approval in any one portion of our business may have indirect consequences in other portions of our business if regulators or customers, for example cease doing business with such other portion due to fears that such loss is a sign of broader concerns about our ability to deliver products or services of sufficient quality.

Violation of government regulations or quality programs could harm demand for our products or services.

Some of our testing procedures and products, as well as some of the products manufactured by our customers which incorporate our products, are regulated by the FDA, the EMA and other comparable local, state, federal, foreign and transnational regulatory authorities. As applicable, we and our customers may be required to comply with laws and regulations enforced by the FDA and comparable state and foreign agencies. Failure to comply with these laws and regulations can lead to agency action, including warning letters, product recalls, product seizures, monetary sanctions, injunctions to halt manufacturing or distribution, restrictions on our operations, withdrawal of existing or denial of pending approvals, permits or registrations, including those relating to products or facilities, debarment consent decrees and civil and criminal sanctions. To the extent these agencies were to take enforcement action, such action may be publicly available, and such publicity could harm our ability to sell these regulated products globally and may harm our reputation. In addition, such actions could limit the ability of our customers to obtain regulatory clearance or approval for their products in the United States or abroad and/or our customers may incur significant costs in obtaining or maintaining such regulatory clearances or approvals in the United States or abroad. In addition, any such failure relating to the products we provide exposes us to direct and third-party product liability claims as well as contractual claims from our customers, including claims for reimbursement for lost or damaged products, as well as potential recall liability, which costs could be significant. Customers may also claim loss of profits due to lost or delayed sales, although our direct contracts with end customers typically place limits on such claims. There can be no assurance that any such contractual limitation will be applicable or sufficient or fully enforced in any given situation.

Additionally, some of our customers use our products in the manufacturing or testing processes for their drug and medical device products, and such end-products may be regulated by the FDA under pharmaceutical cGMP, for drugs and Quality System Regulations, or "QSR," for medical devices or by the Centers for Medicare

[Table of Contents](#)

and Medicaid Services, or “CMS,” under the Clinical Laboratory Improvement Amendments, or “CLIA,” regulations. The customer is ultimately responsible for all compliance requirements relating to the manufacture and sale of their end-products; however, our customers rely on us to provide products in compliance with laws and regulations enforced by the FDA and comparable state and foreign agencies. Should any non-compliance be related to the products we sell, we could lose sales and customers and be exposed to liability claims.

Many of our facilities are either FDA-registered or the international equivalent or cGMP manufacturing sites. As such, these facilities are subject to periodic inspections by the FDA and/or foreign regulatory authorities to determine compliance with applicable regulations. Any failure to comply with these regulations could require us to implement costly remedial measures, institute product recalls, cease manufacturing products or commence manufacturing at an alternative facility, if available, until such issues are remediated. In addition, certain of our facilities are certified to International Organization for Standardization, or “ISO,” or international equivalents, including ISO 13485, ISO 9001, AS9100, ISO 22000 and/or ISO 14001. These standards are voluntary quality management system standards, the maintenance of which indicates to customers certain quality and operational norms. Customers may rely on contractual assurances that we make with respect to ISO certificates to transact business. Failure to comply with these ISO standards can lead to observations of non-compliance or even suspension of ISO or AS certifications or EC Declarations of Conformity Certificates by the registrar. If we were to lose ISO or AS certifications or EC Declarations of Conformity, we could lose sales and customers to competitors or other suppliers. We are also subject to periodic inspections or audits by our customers. If these audits or inspections identify issues or the customer perceives there are issues, the customer may decide to cease purchasing products from us which could adversely affect our business.

If we violate a government-mandated or voluntary quality program, we may incur additional expense to come back into compliance with such government mandated or voluntary standards. That expense may be material and we may not have anticipated that expense in our financial forecasts. Our financial results could suffer as a result of such increased expenses.

We are subject to environmental, health and safety laws and regulations, and costs to comply with such laws and regulations, or any liability or obligation imposed under such laws or regulations, could negatively impact our business, financial condition and results of operations.

We are subject to a broad range of foreign, federal, state and local environmental, health and safety laws and regulations, including those of the U.S. Environmental Protection Agency, or the “EPA,” and the U.S. Occupational Safety & Health Administration, or “OSHA,” and equivalent local, state, and foreign regulatory agencies in each of the jurisdictions in which we operate. These laws and regulations govern, among other things: air emissions; wastewater discharges; the manufacturing, handling, disposal and transport of hazardous materials and solid waste; the manufacturing, processing and selling of chemical substances; the investigation and remediation of soil and groundwater contamination and otherwise relating to health and safety of our employees; and the protection of the environment and natural resources. Further, as our global operations have involved and continue to involve the manufacturing, handling, transport and distribution of materials that are, or could be classified as toxic or hazardous, there is a risk of contamination and environmental damage inherent in our operations and the products we manufacture, handle, transport and distribute. Our environmental, health and safety liabilities and obligations may result in significant capital expenditures and other costs, which could negatively impact our business, financial condition and results of operations. We may be fined or penalized by regulators for failing to comply with environmental, health and safety laws and regulations. For example, the EPA inspected our Phillipsburg, New Jersey facility in March 2017 and June 2017, and in April 2018 notified us of potential liabilities under the Toxic Substances Control Act and the Emergency Planning and Community Right to Know Act, and proposed that we pay civil penalties. See “Business—Legal Proceedings.” In addition, contamination resulting from our current or past operations or from past uses of land that we own or operate may trigger investigation or remediation obligations, which may have an adverse effect on our business, financial condition and results of operations.

Table of Contents

We cannot be certain that identification of presently unidentified environmental, health and safety conditions, new regulations, more vigorous enforcement by regulatory authorities or other unanticipated events will not arise in the future and give rise to additional environmental liabilities, business interruptions, compliance costs or penalties which could have an adverse effect on our business, financial condition and results of operations. In addition, environmental, health and safety laws and regulations are constantly evolving and it is not possible to predict accurately the effect they, or any new regulations or legislation may have in future periods.

We currently incur costs and may incur additional costs related to remediation of alleged environmental damage associated with past or current waste disposal practices or other hazardous materials handling at property that we currently own or operate, or formerly owned or operated, or facilities to which we arranged for the disposal of hazardous substances. Our liabilities arising from past or future releases of, or exposures to, hazardous substances may exceed our estimates or adversely affect our financial statements and reputation and we may be subject to additional claims for cleanup or other environmental claims in the future based on our past, present or future business activities, or that we will be able to recover any costs under any indemnifications that we have. For additional information regarding environmental matters, see Note 13 to the audited financial statements and Note 9 to the unaudited financial statements included elsewhere in this prospectus.

Risks Related to Our Indebtedness

Our substantial indebtedness could adversely affect our financial condition and prevent us from fulfilling our debt or contractual obligations.

Through our subsidiaries, we have a substantial amount of indebtedness, which requires us to make significant interest and principal payments. As of March 31, 2019, we had indebtedness totaling approximately \$7,021.1 million outstanding and an additional \$500.0 million of borrowing capacity under the Revolving Facilities (as defined below) (without giving effect to \$29.3 million of letters of credit outstanding and \$3.0 million of outstanding borrowings under the Revolving Facilities as of March 31, 2019). Our high level of debt could have important consequences to us including the following:

- making it more difficult for us to satisfy our debt or contractual obligations;
- exposing us to the risk of increased interest rates as certain of our borrowings, including borrowings under our Senior Secured Credit Facilities (as defined below), are at variable rates of interest;
- restricting us from making strategic acquisitions or causing us to make non-strategic divestitures;
- requiring us to dedicate a substantial portion of our cash flow from operations to payments on our indebtedness, which would reduce the funds available for working capital, capital expenditures, investments, acquisitions and other general corporate purposes;
- limiting our flexibility in planning for, or reacting to, changes in our business, future business opportunities and the industry in which we operate;
- placing us at a competitive disadvantage compared to any of our less leveraged competitors;
- increasing our vulnerability to a downturn in our business and both general and industry-specific adverse economic conditions; and
- limiting our ability to obtain additional financing at a favorable cost of borrowing, or at all, or to dispose of assets to raise funds, to fund future working capital, capital expenditures, investments, acquisitions or other general corporate requirements.

Any of the above-listed factors could have an adverse effect on our business, financial condition and results of operations and our ability to meet our payment obligations.

[Table of Contents](#)

Our debt agreements contain restrictions on our ability to operate our business and to pursue our business strategies, and our failure to comply with, cure breaches of, or obtain waivers for covenants could result in an acceleration of the due date of our indebtedness.

The agreements governing our Senior Secured Credit Facilities, the Notes and the A/R Facility contain and agreements governing future debt issuances may contain covenants that restrict our ability to finance future operations or capital needs, to respond to changing business and economic conditions or to engage in other transactions or business activities that may be important to our growth strategy or otherwise important to us. The agreements governing our existing indebtedness restrict, subject to certain exceptions, among other things, Avantor Funding, Inc.'s ability and the ability of its subsidiaries to:

- incur additional indebtedness and guarantee indebtedness;
- create or incur liens;
- make investments and loans;
- engage in mergers, consolidations or sales of all or substantially all of our assets;
- pay dividends or make other distributions, in respect of, or repurchase or redeem, capital stock;
- prepay, redeem or repurchase certain debt;
- engage in certain transactions with affiliates;
- sell or otherwise dispose of assets;
- sell stock of our subsidiaries;
- enter into agreements restricting our and our subsidiaries ability to pay dividends; and
- amend, modify, waive or supplement certain subordinated indebtedness to the extent such amendments would be materially adverse to lenders.

In addition, any future financing arrangements entered into by us or any of our subsidiaries may contain similar restrictions. As a result of these covenants and restrictions, through our subsidiaries we are and will be limited in how we conduct our business, and we may be unable to raise additional debt or equity financing to compete effectively or to take advantage of new business opportunities. In addition, Avantor Funding, Inc. is required to maintain specified financial ratios and satisfy other financial condition tests. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Indebtedness." The terms of any future indebtedness we or our subsidiaries may incur could include more restrictive covenants. We cannot assure you that we will be able to maintain compliance with these covenants in the future and, if we fail to do so, that we will be able to obtain waivers from the lenders and/or amend the covenants.

Our or our subsidiaries' failure to comply with the restrictive covenants described above as well as others contained in our or our subsidiaries' future debt instruments from time to time could result in an event of default, which, if not cured or waived, could result in our being required to repay these borrowings before their maturity. If we are forced to refinance these borrowings on less favorable terms or cannot refinance these borrowings, our results of operations and financial condition could be adversely affected. If we were unable to repay or otherwise refinance these borrowings, the lenders under our Senior Secured Credit Facilities and/or the collateral agent under our Senior Secured Notes could proceed against the collateral granted to them to secure such indebtedness, which could force us into bankruptcy or liquidation. Any such acceleration may also constitute a termination event under our A/R Facility, which could result in the amount outstanding under that facility becoming due and payable. Any acceleration of amounts due under the Credit Agreement or Secured Indenture (as defined herein), or the exercise by the applicable lenders or agent of their rights under the related security documents, would likely have a material adverse effect on our business.

[Table of Contents](#)***Despite our current level of indebtedness, we and our subsidiaries will still be able to incur substantially more debt.***

We and our subsidiaries may be able to incur significant additional indebtedness in the future. Although the Credit Agreement and the Indentures contain restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of qualifications and exceptions, and the additional indebtedness incurred in compliance with these restrictions could be substantial. If new debt is added to our current debt levels, the related risks that we now face could intensify.

We may be unable to generate sufficient cash flow to satisfy our significant debt service obligations, which could have a material adverse effect on our business, financial condition and results of operations.

Our ability to service our indebtedness and to refinance our indebtedness will depend on our ability to generate cash in the future and is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. If our business does not generate sufficient cash flow from operations, in the amounts projected or at all, or if future borrowings are not available to us in amounts sufficient to fund our other liquidity needs, our business, financial condition and results of operations could be materially adversely affected.

If we cannot generate sufficient cash flow from operations to service our indebtedness in the future, we may need to refinance all or a portion of our indebtedness on or before maturity, sell assets, delay capital expenditures or seek additional equity. The terms of our existing or future debt agreements may also restrict us from effecting any of these alternatives. Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. Further, changes in the credit and capital markets, including market disruptions and interest rate fluctuations, may increase the cost of financing, make it more difficult to obtain favorable terms, or restrict our access to these sources of future liquidity. In addition, any failure to make required payments on our outstanding indebtedness would likely result in a reduction of our credit rating, which could harm our ability to incur additional indebtedness on commercially reasonable terms or at all. Our inability to generate sufficient cash flow to satisfy our debt service obligations, or to refinance or restructure our obligations on commercially reasonable terms or at all, could have a material adverse effect on our business, financial condition and results of operations, as well as on our ability to satisfy our obligations in respect of our indebtedness.

An increase in interest rates may negatively impact our operating results and financial condition.

Certain of our borrowings, including borrowings under our Senior Secured Credit Facilities and our A/R Facility, to the extent the interest rate is not fixed, are at variable rates of interest. An increase in interest rates would have a negative impact on our results of operations by causing an increase in interest expense.

Our total interest expense, net, was \$523.8 million for the year ended December 31, 2018 and \$257.3 million for the year ended December 31, 2017.

Our ability to repay our indebtedness is affected by the cash flow generated by our subsidiaries.

Our subsidiaries own substantially all of our assets and conduct substantially all of our operations. Accordingly, repayment of our indebtedness will be dependent on the generation of cash flow by our subsidiaries and their ability to make such cash available to us, by dividend, debt repayment or otherwise. Our subsidiaries may not be able to, or may not be permitted to, make distributions to enable us or Avantor Funding, Inc. to make payments in respect of our indebtedness. Each subsidiary is a distinct legal entity and, under certain circumstances, legal and contractual restrictions may limit our ability to obtain cash from our subsidiaries. While the Credit Agreement and the Indentures limit the ability of our subsidiaries to incur consensual restrictions on their ability to pay dividends or make other intercompany payments to us, these limitations are subject to certain qualifications and exceptions.

[Table of Contents](#)**Risks Related to this Offering and Ownership of Our Common Stock**

No market currently exists for our common stock, and an active, liquid trading market for our common stock may not develop, which may cause shares of our common stock to trade at a discount from the initial offering price and make it difficult to sell the shares of common stock you purchase.

Prior to this offering, there has not been a public trading market for shares of our common stock. We cannot predict the extent to which investor interest in us will lead to the development of a trading market or how active and liquid that market may become. If an active and liquid trading market does not develop or continue, you may have difficulty selling your shares of our common stock at an attractive price or at all. The initial public offering price per share of common stock will be determined by negotiations between us and the underwriters, and may not be indicative of the price at which shares of our common stock will trade in the public market after this offering. The market price of our common stock may decline below the initial offering price and you may not be able to sell your shares of our common stock at or above the price you paid in this offering, or at all.

You will incur immediate and substantial dilution and may incur additional dilution in the future as a result of the issuance by us of additional shares of common stock.

Prior stockholders have paid substantially less per share of our common stock than the price in this offering. The initial public offering price per share of our common stock will be substantially higher than the net tangible book deficit per share of outstanding common stock prior to completion of this offering. Based on our net tangible book deficit as of March 31, 2019, and upon the issuance and sale of 206,999,900 shares of our common stock by us at an initial public offering price of \$14.00 per share, if you purchase our common stock in this offering, you will pay more for your shares than the amounts paid by our existing stockholders for their shares and you will suffer immediate dilution of approximately \$24.13 per share (including giving effect to the conversion of our Existing Junior Convertible Preferred Stock). Dilution is the amount by which the offering price paid by purchasers of our common stock in this offering will exceed the as adjusted net tangible book value (deficit) per share of our common stock upon completion of this offering. If the underwriters exercise their over-allotment option to purchase additional shares, or if outstanding options to purchase our common stock are exercised, you will experience additional dilution.

Concurrently with this offering, we are offering 18,000,000 shares of the Mandatory Convertible Preferred Stock, plus up to an additional 2,700,000 shares of the Mandatory Convertible Preferred Stock if the underwriters in that offering exercise their over-allotment option to purchase additional shares of Mandatory Convertible Preferred Stock in full.

Unless converted earlier as described below, each share of the Mandatory Convertible Preferred Stock will automatically convert on the mandatory conversion date into between 3.0395 and 3.5714 shares of our common stock, subject to certain anti-dilution and other adjustments. The number of shares of common stock issuable upon conversion will be determined based on the average volume weighted average price per share of our common stock over the 20 consecutive trading day period beginning on and including the 21st scheduled trading day immediately preceding the mandatory conversion date in accordance with the certificate of designations setting forth the terms of the Mandatory Convertible Preferred Stock. Up to 64,285,200 shares of our common stock (or up to 73,927,980 shares if the underwriters in our offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full) are issuable upon conversion of the Mandatory Convertible Preferred Stock being offered in the concurrent offering, subject to anti-dilution, make-whole and other adjustments. At any time prior to the mandatory conversion date, holders of Mandatory Convertible Preferred Stock may elect to convert each share of the Mandatory Convertible Preferred Stock into shares of our common stock at the minimum conversion rate of 3.0395 shares of our common stock per share of the Mandatory Convertible Preferred Stock, subject to anti-dilution adjustments. If holders elect to convert any shares of the Mandatory Convertible Preferred Stock during a specified period beginning on the effective date of a fundamental change (as defined in the certificate of designations setting forth the terms of the Mandatory Convertible Preferred Stock), such shares of the Mandatory Convertible Preferred Stock will be converted into shares of our common

[Table of Contents](#)

stock at a conversion rate including a make-whole amount based on the present value of future dividend payments.

We may also choose to pay dividends on the Mandatory Convertible Preferred Stock in shares of our common stock, and the number of shares of common stock issued for such purpose will be based on the average volume weighted average price per share of our common stock over a certain period, subject to certain limitations described in the certificate of designations setting forth the terms of the Mandatory Convertible Preferred Stock. See “Mandatory Convertible Preferred Stock Offering.”

Any of these issuances may dilute your ownership interest in us and any of these events or the perception that these conversions and/or issuances could occur may have an adverse impact on the price of our common stock.

You may also experience additional dilution upon future equity issuances or upon the exercise of our outstanding warrants held by holders of our Existing Senior Preferred Stock, exercise of options to purchase our common stock or the settlement of restricted stock units granted to our employees, executive officers and directors under the Legacy Avantor Plan, the Vail Plan and the 2019 Equity Incentive Plan. See “Dilution.”

Our stock price may change significantly following this offering, and you may not be able to resell shares of our common stock at or above the price you paid or at all, and you could lose all or part of your investment as a result.

We and the underwriters will negotiate to determine the initial public offering price. You may not be able to resell your shares at or above the initial public offering price due to a number of factors such as those listed in “—Risks Related to Our Business” and the following:

- results of operations that vary from the expectations of securities analysts and investors;
- results of operations that vary from those of our competitors;
- changes in expectations as to our future financial performance, including financial estimates and investment recommendations by securities analysts and investors;
- changes in economic conditions for companies in our industry;
- changes in market valuations of, or earnings and other announcements by, companies in our industry;
- declines in the market prices of stocks generally, particularly those of companies in our industry;
- additions or departures of key management personnel;
- strategic actions by us or our competitors;
- announcements by us, our competitors or our suppliers of significant contracts, price reductions, new products or technologies, acquisitions, joint marketing relationships, joint ventures, other strategic relationships or capital commitments;
- dilution as a result of the conversion of our Existing Junior Convertible Preferred Stock;
- changes in preference of our customers;
- changes in general economic or market conditions or trends in our industry or the economy as a whole;
- changes in business or regulatory conditions;
- future sales of our common stock or other securities;
- investor perceptions of or the investment opportunity associated with our common stock relative to other investment alternatives;

Table of Contents

- the public's response to press releases or other public announcements by us or third parties, including our filings with the SEC;
- announcements relating to litigation or governmental investigations;
- guidance, if any, that we provide to the public, any changes in this guidance or our failure to meet this guidance;
- the development and sustainability of an active trading market for our stock;
- changes in accounting principles; and
- other events or factors, including those resulting from informational technology system failures and disruptions, natural disasters, war, acts of terrorism or responses to these events.

Furthermore, the stock market may experience extreme volatility that, in some cases, may be unrelated or disproportionate to the operating performance of particular companies. These broad market and industry fluctuations may adversely affect the market price of our common stock, regardless of our actual operating performance. In addition, price volatility may be greater if the public float and trading volume of our common stock is low.

In the past, following periods of market volatility, stockholders have instituted securities class action litigation. If we were to become involved in securities litigation, it could have a substantial cost and divert resources and the attention of executive management from our business regardless of the outcome of such litigation.

None of the proceeds from the sale of shares of our common stock by the selling stockholder in this offering will be available to us to fund our operations.

We will not receive any proceeds from the sale of shares of our common stock by the selling stockholder in this offering. The selling stockholder will receive all proceeds from the sale of such shares. Consequently, none of the proceeds from such sale by the selling stockholder will be available to us to fund our operations, capital expenditures, compensation plans or acquisition opportunities. See "Use of Proceeds."

The Mandatory Convertible Preferred Stock may adversely affect the market price of our common stock.

The market price of our common stock is likely to be influenced by the Mandatory Convertible Preferred Stock. For example, the market price of our common stock could become more volatile and could be depressed by:

- investors' anticipation of the potential resale in the market of a substantial number of additional shares of our common stock received upon conversion of the Mandatory Convertible Preferred Stock;
- possible sales of our common stock by investors who view the Mandatory Convertible Preferred Stock as a more attractive means of equity participation in us than owning shares of our common stock; and
- hedging or arbitrage trading activity that may develop involving the Mandatory Convertible Preferred Stock and our common stock.

Certain rights of the holders of the Mandatory Convertible Preferred Stock, if issued, could delay or prevent an otherwise beneficial takeover or takeover attempt of us.

Certain rights of the holders of the Mandatory Convertible Preferred Stock could make it more difficult or more expensive for a third party to acquire us. For example, if a fundamental change were to occur on or prior to May 15, 2022, holders of the Mandatory Convertible Preferred Stock, if issued, may have the right to convert their Mandatory Convertible Preferred Stock, in whole or in part, at an increased conversion rate and will also be

[Table of Contents](#)

entitled to receive a make-whole amount equal to the present value of all remaining dividend payments on their Mandatory Convertible Preferred Stock as described in the certificate of designations governing the Mandatory Convertible Preferred Stock. These features of the Mandatory Convertible Preferred Stock could increase the cost of acquiring us or otherwise discourage a third party from acquiring us or removing incumbent management.

Our common stock will rank junior to the Mandatory Convertible Preferred Stock, if issued, with respect to the payment of dividends and amounts payable in the event of our liquidation, dissolution or winding-up of our affairs.

Our common stock will rank junior to the Mandatory Convertible Preferred Stock, if issued, with respect to the payment of dividends and amounts payable in the event of our liquidation, dissolution or winding-up of our affairs. This means that, unless accumulated and unpaid dividends have been declared and paid, or set aside for payment, on all outstanding shares of the Mandatory Convertible Preferred Stock, if issued, for all preceding dividend periods, no dividends may be declared or paid on our common stock and we will not be permitted to purchase, redeem or otherwise acquire any of our common stock, subject to limited exceptions. Likewise, in the event of our voluntary or involuntary liquidation, dissolution or winding-up of our affairs, no distribution of our assets may be made to holders of our common stock until we have paid to holders of the Mandatory Convertible Preferred Stock, if issued, a liquidation preference equal to \$50.00 per share plus accumulated and unpaid dividends.

Holders of the Mandatory Convertible Preferred Stock, if issued, will have the right to elect two directors in the case of certain dividend arrearages.

Whenever dividends on any shares of the Mandatory Convertible Preferred Stock have not been declared and paid for the equivalent of six or more dividend periods, whether or not for consecutive dividend periods, the authorized number of directors on our Board of Directors will, at the next annual meeting of stockholders or at a special meeting of stockholders, if any, automatically be increased by two and the holders of such shares of the Mandatory Convertible Preferred Stock, if issued, voting together as a single class with holders of other series of our Voting Preferred Stock (as defined under “Mandatory Convertible Preferred Stock Offering”) then outstanding will be entitled, at our next annual meeting of stockholders or at a special meeting of stockholders, if any, to vote for the election of a total of two additional members of our Board of Directors, subject to certain terms and limitations. This right to elect directors will dilute the representation of the holders of our common stock on our Board of Directors and may adversely affect the market price of our common stock.

Because we have no current plans to pay cash dividends on our common stock, you may not receive any return on investment unless you sell your common stock for a price greater than that which you paid for it.

We have no current plans to pay cash dividends on our common stock. The declaration, amount and payment of any future dividends on our common stock will be at the sole discretion of our Board of Directors. Our Board of Directors may take into account general and economic conditions, our financial condition and results of operations, our available cash and current and anticipated cash needs, capital requirements, contractual, legal, tax and regulatory restrictions and implications on the payment of dividends by us to our stockholders or by our subsidiaries to us, including restrictions under our credit agreements and other indebtedness we may incur, and such other factors as our Board of Directors may deem relevant. If we issue any Mandatory Convertible Preferred Stock, no dividends may be declared or paid on our common stock unless accumulated and unpaid dividends on the Mandatory Convertible Preferred Stock have been declared and paid, or set aside for payment, on all outstanding shares of the Mandatory Convertible Preferred Stock for all preceding dividend periods. See “Dividend Policy.”

As a result, you may not receive any return on an investment in our common stock unless you sell our common stock for a price greater than your purchase price.

Table of Contents

We are a holding company with no operations of our own and, as such, we depend on our subsidiaries for cash to fund all of our operations and expenses, including future dividend payments, if any.

Our operations are conducted entirely through our subsidiaries and our ability to generate cash to meet our debt service obligations or to make future dividend payments, if any, is highly dependent on the earnings and the receipt of funds from our subsidiaries via dividends or intercompany loans. We do not currently expect to declare or pay dividends on our common stock for the foreseeable future; however, to the extent that we determine in the future to pay dividends on our common stock, the agreements governing our indebtedness restrict the ability of our subsidiaries to pay dividends or otherwise transfer assets to us. See Notes 14 and 26 to the audited financial statements included elsewhere in this prospectus.

If securities analysts do not publish research or reports about our business or if they downgrade our stock or our sector, our stock price and trading volume could decline.

The trading market for our common stock will rely in part on the research and reports that industry or financial analysts publish about us or our business. We do not control these analysts. Furthermore, if one or more of the analysts who do cover us downgrade our stock or our industry, or the stock of any of our competitors, or publish inaccurate or unfavorable research about our business, the price of our stock could decline. If one or more of these analysts stop covering us or fail to publish reports on us regularly, we could lose visibility in the market, which in turn could cause our stock price or trading volume to decline.

We will incur significantly increased costs and become subject to additional regulations and requirements as a result of becoming a public company, and our management will be required to devote substantial time to new compliance matters, which could lower our profits or make it more difficult to run our business.

As a public company, we will incur significant legal, regulatory, finance, accounting, investor relations and other expenses that we have not incurred as a private company, including costs associated with public company reporting requirements. As a result of having publicly traded common stock, we will also be required to comply with, and incur costs associated with such compliance with, the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, and the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, as well as rules and regulations implemented by the SEC and the New York Stock Exchange (the "NYSE"). The expenses incurred by public companies generally for reporting and corporate governance purposes have been increasing. We expect these rules and regulations to increase our legal and financial compliance costs and to make some activities more time-consuming and costly. Our management will need to devote a substantial amount of time to ensure that we comply with all of these requirements, diverting the attention of management away from revenue-producing activities. These laws and regulations also could make it more difficult or costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. These laws and regulations could also make it more difficult for us to attract and retain qualified persons to serve on our Board of Directors, our board committees or as our executive officers. Furthermore, if we are unable to satisfy our obligations as a public company, we could be subject to delisting of our common stock and the Mandatory Convertible Preferred Stock, fines, sanctions and other regulatory action and potentially civil litigation.

Failure to comply with requirements to design, implement and maintain effective internal control over financial reporting could have a material adverse effect on our business and stock price. We have identified a material weakness and significant deficiencies in our internal control over financial reporting.

As a privately-held company, we were not required to evaluate our internal control over financial reporting in a manner that meets the standards of publicly traded companies required by Section 404(a) of the Sarbanes-Oxley Act ("Section 404").

As a public company, we will have significant requirements for enhanced financial reporting and internal controls. The process of designing and implementing effective internal controls is a continuous effort that

Table of Contents

requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to maintain a system of internal controls that is adequate to satisfy our reporting obligations as a public company. If we are unable to establish or maintain appropriate internal financial reporting controls and procedures, it could cause us to fail to meet our reporting obligations on a timely basis, result in material misstatements in our consolidated financial statements and harm our results of operations. In addition, we will be required, pursuant to Section 404, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting in the second annual report following the completion of this offering. This assessment will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. Testing and maintaining internal controls may divert our management's attention from other matters that are important to our business. In addition, our independent registered public accounting firm will be required to issue an attestation report on the effectiveness of our internal control over financial reporting in the second annual report following the completion of this offering.

In connection with the implementation of the necessary procedures and practices related to internal control over financial reporting, we may identify deficiencies that we may not be able to remediate in time to meet the deadline imposed by the Sarbanes-Oxley Act for compliance with the requirements of Section 404. In addition, we may encounter problems or delays in completing the remediation of any deficiencies identified by our independent registered public accounting firm in connection with the issuance of their attestation report.

For the year ended December 31, 2016, we identified a material weakness in our internal control over financial reporting relating to processes and controls over properly accounting for transactions of a complex or non-routine nature. The material weakness was identified as the primary cause of errors relating to the accounting for deferred income taxes and proper allocation of attributes of certain subsidiaries between us and noncontrolling interests recorded in connection with the NuSil merger and the internal reorganization effected in anticipation of the NuSil merger. This weakness resulted in a misstatement of our previously issued September 30, 2016 financial statements. For the year ended December 31, 2017, we identified three significant deficiencies in our internal control over financial reporting, two of which were remediated, and we identified one additional significant deficiency for the year ended December 31, 2018. Although we took measures to remediate these issues and believe the material weakness was remedied as of December 31, 2017, these measures may not be sufficient to avoid similar weaknesses or deficiencies in the future.

Our testing, or the subsequent testing by our independent registered public accounting firm, may reveal deficiencies in our internal controls over financial reporting that are deemed to be material weaknesses which could result in a material misstatement of our annual or quarterly consolidated financial statements or disclosures that may not be prevented or detected.

We may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting in accordance with Section 404 or our independent registered public accounting firm may not issue an unqualified opinion. If either we are unable to conclude that we have effective internal control over financial reporting or our independent registered public accounting firm is unable to provide us with an unqualified opinion, investors could lose confidence in our reported financial information, which could have a material adverse effect on the trading price of our common stock.

Future sales, or the perception of future sales, by us or our existing stockholders in the public market following this offering could cause the market price for our common stock to decline.

After this offering, the sale of shares of our common stock in the public market, or the perception that such sales could occur, including sales by our existing stockholders and the conversion of the Mandatory Convertible Preferred Stock, could harm the prevailing market price of shares of our common stock. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

Table of Contents

Upon completion of this offering, we will have a total of 534,293,808 shares of our common stock outstanding (565,343,808 shares if the underwriters exercise in full their over-allotment option to purchase additional shares). Such amount includes 194,464,286 shares of our common stock issuable upon the conversion of the Existing Junior Convertible Preferred Stock upon consummation of this offering based on the initial public offering price of \$14.00 per share. We will also have outstanding 18,000,000 shares of the Mandatory Convertible Preferred Stock (or up to 20,700,000 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), which will be convertible into up to 64,285,200 shares of our common stock (or up to 73,927,980 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), subject to anti-dilution, make-whole and other adjustments or any shares of our common stock that may be issued in payment of a dividend, fundamental change dividend make-whole amount or accumulated dividend amount. See “Mandatory Convertible Preferred Stock Offering.” Of the outstanding shares, the 207,000,000 shares sold in this offering (or 238,050,000 shares if the underwriters exercise in full their over-allotment option to purchase additional shares) will be freely tradable without restriction or further registration under the Securities Act, except that any shares held by our affiliates, as that term is defined under Rule 144 of the Securities Act, or Rule 144, including our directors, executive officers and other affiliates (including affiliates of New Mountain Capital and affiliates of Goldman Sachs & Co. LLC (“Goldman Sachs”)), may be sold only in compliance with the limitations described in “Shares Eligible for Future Sale.”

The 178,489,878 shares of common stock held by affiliates of New Mountain Capital, affiliates of Goldman Sachs and certain of our directors and executive officers after this offering and the conversion of our Existing Junior Convertible Preferred Stock, representing 33% of the total outstanding shares of our common stock following this offering, will be “restricted securities” within the meaning of Rule 144 and subject to certain restrictions on resale. Restricted securities may be sold in the public market only if they are registered under the Securities Act or are sold pursuant to an exemption from registration such as Rule 144, as described in “Shares Eligible for Future Sale.”

In connection with this offering, we, our directors and executive officers and certain holders of our outstanding common stock and other securities, including the selling stockholder, prior to this offering will sign lock-up agreements with the underwriters that will, subject to certain exceptions, restrict the disposition of, or hedging with respect to, the shares of our common stock or securities convertible into or exchangeable for shares of common stock, each held by them for 180 days following the date of this prospectus, except with the prior written consent of Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC. See “Underwriting (Conflicts of Interest)” for a description of these lock-up agreements. Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC, on behalf of the underwriters, may, in their sole discretion, release all or some portion of the shares subject to the 180 day lock-up agreements prior to the expiration of such period.

Upon the expiration of the lock-up agreements described above, all of such 327,293,807 shares will be eligible for resale in a public market, subject, in the case of 178,489,878 shares held by our affiliates, to volume, manner of sale and other limitations under Rule 144. We expect that affiliates of New Mountain Capital and affiliates of Goldman Sachs may be considered affiliates based on their respective expected share ownership consisting of approximately 110,477,990 shares and 66,471,429 shares (based on the initial public offering price of \$14.00 per share of common stock, respectively, along with warrants held by affiliates of Goldman Sachs to purchase 1,133,920 shares of our common stock, as well as their board nomination rights. Certain other of our stockholders may also be considered affiliates at that time.

In addition, pursuant to a registration rights agreement, New Mountain Capital, affiliates of Goldman Sachs and certain other stockholders have the right, subject to certain conditions, to require us to register the sale of their shares of our common stock under the Securities Act. See “Certain Relationships and Related Party Transactions—Registration Rights Agreement.” By exercising its registration rights and selling a large number of shares, New Mountain Capital and these affiliates of Goldman Sachs could cause the prevailing market price of our common stock to decline. Certain of our other stockholders have “piggyback” registration rights with respect to future

[Table of Contents](#)

registered offerings of our common stock. Following completion of this offering, the shares of common stock covered by registration rights would represent approximately 57% of our total common stock outstanding (or 54% if the underwriters exercise in full their over-allotment option to purchase additional shares). Registration of any of these outstanding shares of common stock would result in such shares becoming freely tradable without compliance with Rule 144 upon effectiveness of the registration statement. See “Shares Eligible for Future Sale.”

As soon as practicable following this offering, we intend to file one or more registration statements on Form S-8 under the Securities Act to register all shares of our common stock subject to outstanding stock options and the shares of our common stock subject to issuance under the Legacy Avantor Plan, the Vail Plan and our 2019 Equity Incentive Plan to be adopted in connection with this offering. Any such Form S-8 registration statements will automatically become effective upon filing. Accordingly, shares registered under such registration statements will be available for sale in the open market, subject to limitations in the stockholders agreement. See “Certain Relationships and Related Party Transactions—Stockholders Agreement.” We expect that the initial registration statement on Form S-8 will cover 44,540,810 shares of our common stock.

As restrictions on resale end, or if the existing stockholders exercise their registration rights, the market price of our shares of common stock could drop significantly if the holders of these shares sell them or are perceived by the market as intending to sell them. These factors could also make it more difficult for us to raise additional funds through future offerings of our shares of common stock or other securities.

In the future, we may also issue our securities in connection with investments or acquisitions. The amount of shares of our common stock issued in connection with an investment or acquisition could constitute a material portion of our then-outstanding shares of our common stock. Any issuance of additional securities in connection with investments or acquisitions may result in additional dilution to you.

Risk of Concentration of Shareholder Control

Certain of our shareholders, including affiliates of New Mountain Capital and affiliates of Goldman Sachs have significant influence over us as a result of their share ownership. This concentration could lead to conflicts of interest and difficulties for non-insider investors effecting corporate changes, and could adversely affect our Company’s share price. Our two largest shareholders (and their affiliates) and certain of our directors and officers, acting together, will hold approximately 33% of our issued and outstanding shares upon the completion of this offering (giving effect to the conversion of our Existing Junior Convertible Preferred Stock) and have the ability to influence all matters submitted to our shareholders for approval (including the election and removal of directors and any merger, consolidation or sale of all or substantially all of our assets). In addition, in connection with the offering, we intend to enter into an investor rights agreement with an affiliate of New Mountain Capital, which agreement is expected to provide for the ability of New Mountain Capital to nominate members to our Board of Directors. Accordingly, this concentration of ownership may have the effect of delaying, deferring or preventing a change in control of our Company, impeding a merger, consolidation, takeover or other business combination involving us or discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us, which in turn could have a material adverse effect on the market price of our shares. The issuance of stock options and warrants could lead to greater concentration of share ownership among insiders and could lead to dilution of share ownership which could lead to depressed share prices. In addition, New Mountain Capital and shareholders affiliated with Goldman Sachs may have different interests than investors in this offering.

Anti-takeover provisions in our organizational documents could delay or prevent a change of control.

Certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws may have an anti-takeover effect and may delay, defer or prevent a merger, acquisition, tender offer, takeover attempt, or other change of control transaction that a stockholder might consider in its best interest, including those attempts that might result in a premium over the market price for the shares held by our stockholders.

[Table of Contents](#)

These provisions will provide for, among other things:

- a classified Board of Directors, as a result of which our Board of Directors will initially be divided into three classes, with each class serving for staggered terms, with successors to the class of directors whose term expires at the first and second annual meetings of stockholders following the date of the offering, as applicable, elected for a term expiring at the third annual meeting of stockholders following the date of the offering;
- the ability of our Board of Directors to issue one or more series of preferred stock;
- advance notice requirements for nominations of directors by stockholders and for stockholders to include matters to be considered at our annual meetings;
- certain limitations on convening special stockholder meetings;
- the removal of directors either with or without cause and only upon the affirmative vote of the holders of at least 66 $\frac{2}{3}$ % of the shares of common stock entitled to vote generally in the election of directors; and
- that certain provisions may be amended only by the affirmative vote of at least 66 $\frac{2}{3}$ % in voting power of all outstanding shares of stock entitled to vote generally in the election of directors, voting together as a single class.

These anti-takeover provisions could make it more difficult for a third party to acquire us, even if the third party's offer may be considered beneficial by many of our stockholders. As a result, our stockholders may be limited in their ability to obtain a premium for their shares. See "Description of Capital Stock."

Our Board of Directors will be authorized to issue and designate shares of our preferred stock in additional series without stockholder approval.

Our amended and restated certificate of incorporation will authorize our Board of Directors, without the approval of our stockholders, to issue 75,000,000 shares of our preferred stock (including 25,000,000 shares of Mandatory Convertible Preferred Stock), subject to limitations prescribed by applicable law, rules and regulations and the provisions of our amended and restated certificate of incorporation, as shares of preferred stock in series, to establish from time to time the number of shares to be included in each such series and to fix the designation, powers, preferences and rights of the shares of each such series and the qualifications, limitations or restrictions thereof. The powers, preferences and rights of these additional series of preferred stock may be senior to or on parity with our common stock, which may reduce its value.

Our amended and restated certificate of incorporation will provide, subject to limited exceptions, that state and federal courts (as appropriate) located within the State of Delaware will be the sole and exclusive forum for certain stockholder litigation matters, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or stockholders.

Our amended and restated certificate of incorporation will provide that unless we consent to the selection of an alternative forum, the state or federal courts (as appropriate) located within the State of Delaware shall, to the fullest extent permitted by law, be the sole and exclusive forum for any (i) derivative action or proceeding brought on behalf of our company, (ii) action asserting a claim of breach of a fiduciary duty owed by any director, officer, or other employee or stockholder of our company to us or our stockholders, creditors or other constituents, (iii) action against us or any of our directors or officers involving a claim or defense arising pursuant to any provision of the Delaware General Corporation Law ("DGCL") or our amended and restated certificate of incorporation or our amended and restated bylaws, (iv) action against us or any director or officer of the Company involving a claim or defense implicating the internal affairs doctrine, or (v) action against us or any of our directors or officers involving a claim or defense arising pursuant to the Exchange Act or the Securities Act. It is possible that these exclusive forum provisions may be challenged in court and may be deemed

[Table of Contents](#)

unenforceable in whole or in part. Our exclusive forum provision shall not relieve the company of its duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations.

Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the forum provisions in our amended and restated certificate of incorporation. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, other employees or stockholders which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, operating results and financial condition.

Affiliates of Goldman Sachs & Co. LLC, an underwriter in this offering, will have an interest in this offering beyond customary underwriting discounts and commissions.

Certain affiliates of Goldman Sachs & Co. LLC, an underwriter in this offering, (i) will receive approximately \$421.9 million (or 11.5%) of the net proceeds of this offering and the concurrent offering of Mandatory Convertible Preferred Stock due to the redemption of outstanding shares of our Existing Senior Preferred Stock they own and repayment of a portion of the outstanding indebtedness under the Dollar Term Loan Facility and the Euro Term Loan Facility with the net proceeds of this offering and the concurrent offering (or 10.0% of the net proceeds of this offering and the concurrent offering if the underwriters exercise their over-allotment options in full in both offerings), (ii) currently own 372,872 shares of our Existing Senior Preferred Stock, 564,000 shares of our Existing Junior Convertible Preferred Stock and warrants to purchase 1,133,920 shares of our common stock and (iii) currently have two director appointees on our Board, both of whom are expected to remain on our Board following this offering, as well as other rights. Certain of the affiliates of Goldman Sachs & Co. LLC that hold the Existing Senior Preferred Stock, the Existing Junior Convertible Preferred Stock and warrants are funds whose limited partners are current and former employees of Goldman Sachs & Co. LLC; these current employees include individuals who are providing services on behalf of Goldman Sachs & Co. LLC in connection with this offering and the concurrent offering. See "Certain Relationships and Related Party Transactions." In addition, as holders of our Existing Junior Convertible Preferred Stock, affiliates of Goldman Sachs & Co. LLC will receive 66,471,429 shares of common stock upon the automatic conversion of our Existing Junior Convertible Preferred Stock upon consummation of this offering based on the public offering price of \$14.00 per share of common stock. See "Description of Capital Stock—Preferred Stock—Existing Junior Convertible Preferred Stock." BSPI, an affiliate of Goldman Sachs & Co. LLC, is purchasing 5 million shares of our common stock in this offering at the initial public offering price. As such, Goldman Sachs & Co. LLC is deemed to have a "conflict of interest" under Rule 5121 of the Financial Industry Regulatory Authority Inc., or Rule 5121. Accordingly, this offering will be made in compliance with the applicable provisions of Rule 5121. This rule requires, among other things, that a "qualified independent underwriter" has participated in the preparation of, and has exercised the usual standards of "due diligence" with respect to, the registration statement, J.P. Morgan Securities LLC, or JP Morgan, has agreed to act as qualified independent underwriter for this offering and to undertake the legal responsibilities and liabilities of an underwriter under the Securities Act. J.P. Morgan Securities LLC will not receive any additional fees for serving as qualified independent underwriter in connection with this offering. Although JP Morgan has, in its capacity as qualified independent underwriter, participated in due diligence and the preparation of this prospectus and the registration statement of which this prospectus forms a part, this may not adequately address all potential conflicts of interest. We have agreed to indemnify JP Morgan against liabilities incurred in connection with acting as qualified independent underwriter, including liabilities under the Securities Act. Pursuant to FINRA Rule 5121, Goldman Sachs & Co. LLC will not confirm sales of securities to any account over which it exercises discretionary authority without the prior written approval of the customer. See "Underwriting (Conflicts of Interest)" for additional information.

[Table of Contents](#)**SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

This prospectus contains certain forward-looking statements and information relating to us that are based on the beliefs of our management as well as assumptions made by, and information currently available to, us. These statements include, but are not limited to, statements about our strategies, plans, objectives, expectations, intentions, expenditures and assumptions and other statements contained in or incorporated by reference in this prospectus that are not historical facts. When used in this document, words such as “may,” “will,” “should,” “intend,” “potential,” “continue,” “anticipate,” “believe,” “estimate,” “expect,” “plan” and “project” and similar expressions as they relate to us are intended to identify forward-looking statements. These statements reflect our current views with respect to future events, are not guarantees of future performance and involve risks and uncertainties that are difficult to predict. Further, certain forward-looking statements are based upon assumptions as to future events that may not prove to be accurate.

The forward-looking statements in this prospectus are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements, including such statements taken from third-party industry and market reports. See “Market and Industry Data.” You should understand that the following important factors, in addition to those discussed herein under the caption “Risk Factors,” could affect our future results and could cause those results or other outcomes to differ materially from those expressed or implied in our forward-looking statements:

- disruptions to our operations;
- competition from other industry providers;
- our ability to implement our growth strategy;
- our ability to anticipate and respond to changing industry trends;
- adverse impacts from conditions affecting trends in consumer, business, and government spending;
- our dependence on sole or limited sources for some essential materials and components;
- our ability to successfully value and integrate acquired businesses, including NuSil, and VWR;
- our products’ satisfaction of applicable quality criteria, specifications and performance standards;
- our ability to maintain our relationships with key customers;
- our ability to maintain our relationships with distributors;
- our ability to maintain consistent purchase volumes under purchase orders;
- our ability to maintain and develop relationships with drug manufacturers and contract manufacturing organizations;
- the impact of new laws, regulations, or other industry standards;
- changes in the interest rate environment that increase interest on our borrowings;
- adverse impacts from currency exchange rates or currency controls imposed by any government in major areas where we operate or otherwise;
- our ability to implement and improve processing systems and prevent a compromise of our information systems;
- our ability to protect our intellectual property and avoid third-party infringement claims;
- the fact that we are subject to product liability and other claims in the ordinary course of business;
- our ability to develop new products responsive to the markets we serve;

Table of Contents

- the availability of raw materials;
- our ability to avoid negative outcomes related to the use of chemicals;
- our ability to maintain highly skilled employees;
- adverse impact of impairment charges on our goodwill and other intangible assets;
- fluctuations and uncertainties related to doing business outside the United States;
- our ability to obtain and maintain required regulatory clearances or approvals may constrain the commercialization of submitted products;
- our ability to comply with environmental, health and safety laws and regulations, or the impact of any liability or obligation imposed under such laws or regulations;
- our substantial indebtedness could adversely affect our financial condition and prevent us from fulfilling our debt or contractual obligations;
- our ability to generate sufficient cash flows or access sufficient additional capital to meet our debt obligations or to fund our other liquidity needs; and
- our ability to maintain an adequate system of internal control over financial reporting.

These forward-looking statements involve known and unknown risks, inherent uncertainties and other factors, which may cause our actual results, performance, time frames or achievements to be materially different from any future results, performance, time frames or achievements expressed or implied by the forward-looking statements. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements. Actual results and the timing of certain events may differ materially from those contained in these forward-looking statements.

Many of these factors are macroeconomic in nature and are, therefore, beyond our control. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, our actual results, performance or achievements may vary materially from those described in this prospectus as anticipated, believed, estimated, expected, intended, planned or projected. We discuss many of these risks in greater detail under the heading "Risk Factors." Unless required by United States federal securities laws, we neither intend nor assume any obligation to update these forward-looking statements, which speak only as of their dates.

[Table of Contents](#)**USE OF PROCEEDS**

We estimate that the net proceeds to us from this offering, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately \$2,810.4 million (or approximately \$3,233.2 million if the underwriters exercise in full their over-allotment option to purchase additional shares of common stock).

We will not receive any of the proceeds from the selling stockholder named in this prospectus and we will not be required to pay the underwriting discounts and commissions associated with such sales of shares. The selling stockholder will receive approximately \$1,400.00 of proceeds from this offering.

We estimate that the net proceeds to us from the concurrent offering of the Mandatory Convertible Preferred Stock, if completed, will be approximately \$872.7 million (or approximately \$1,004.0 million if the underwriters of that offering exercise their over-allotment option to purchase additional shares of the Mandatory Convertible Preferred Stock in full), in each case after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use approximately \$2,630.8 million (including the accumulated and unpaid dividends and make whole amount) of the net proceeds to us from both offerings to redeem all outstanding shares of our Existing Senior Preferred Stock, with any remaining proceeds used to repay \$669.1 million and \$383.2 million of outstanding indebtedness under the Dollar Term Loan Facility and the Euro Term Loan Facility, respectively. The Term Loan Facility matures in November 2024. The Dollar Term Loan Facility bears interest on the outstanding unpaid principal amount at a rate equal to an applicable margin plus, at Avantor Funding's option, either (a) a base rate or (b) a LIBOR rate, in each case subject to interest rate floors. The Euro Term Loan Facility bears interest on the outstanding unpaid principal amount at a rate equal to an applicable margin plus the EURIBO Rate, subject to an interest rate floor. The applicable margin for the term loans under the Dollar Term Loan Facility, after giving effect to the Repricing Amendment, is 3.75%, with respect to LIBOR borrowings, and 2.75%, with respect to base rate borrowings. The applicable margin under the Euro Term Loan Facility is 3.75%. See "Description of Indebtedness Senior—Secured Credit Facilities."

Certain affiliates of Goldman Sachs & Co. LLC, an underwriter in this offering, will receive an aggregate of approximately \$421.9 million following this offering and the concurrent offering of Mandatory Convertible Preferred Stock as a result of currently holding 372,872 shares of our Existing Senior Preferred Stock and being a lender under the Dollar Term Loan Facility and the Euro Term Loan Facility, which represents 11.5% of the net proceeds from this offering and the concurrent offering (or 10.0% of the net proceeds of this offering and the concurrent offering if the underwriters exercise their over-allotment options in full in both offerings).

To the extent that the underwriters in this offering exercise all or a portion of their over-allotment option to purchase additional shares of our common stock or the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise all or a portion of their over-allotment option to purchase additional shares of Mandatory Convertible Preferred Stock, the net proceeds received will be used to repay indebtedness pro rata under the Term Loan Facility.

[Table of Contents](#)

DIVIDEND POLICY

We do not currently anticipate paying any dividends on our common stock immediately following this offering and currently expect to retain all future earnings for use in the operation and expansion of our business. Following this offering, we may reevaluate our dividend policy. The declaration, amount and payment of any future dividends on our common stock will be at the sole discretion of our Board of Directors, which may take into account general and economic conditions, our financial condition and results of operations, our available cash and current and anticipated cash needs, capital requirements, contractual, legal, tax and regulatory restrictions and implications on the payment of dividends by us to our stockholders or by our subsidiaries to us, including restrictions under our credit agreements and other indebtedness we may incur, and such other factors as our Board of Directors may deem relevant. If we issue any Mandatory Convertible Preferred Stock, no dividends may be declared or paid on our common stock unless accumulated and unpaid dividends on the Mandatory Convertible Preferred Stock have been declared and paid, or set aside for payment, on all outstanding shares of the Mandatory Convertible Preferred Stock for all preceding dividend periods. See “Mandatory Convertible Preferred Stock Offering.” If we elect to pay such dividends in the future, we may reduce or discontinue entirely the payment of such dividends at any time.

Because a significant portion of our operations is through our subsidiaries, our ability to pay dividends depends in part on our receipt of cash dividends from our operating subsidiaries, which may further restrict our ability to pay dividends as a result of the laws of their jurisdiction of organization, agreements of our subsidiaries or covenants under any existing and future outstanding indebtedness we or our subsidiaries incur. In addition, Avantor Funding’s ability to pay dividends to us is limited by covenants in its outstanding indebtedness. See “Description of Indebtedness” for a description of the restrictions on Avantor Funding’s ability to pay dividends to us.

The following table presents the cash distributions we paid in each of the three years ended December 31, 2016, 2017 and 2018:

<i>(in millions)</i>	<u>Year ended December 31,</u>		
	<u>2016</u>	<u>2017</u>	<u>2018</u>
Payments to stockholders	\$ 121.9	\$1,531.5	\$ —
Settlement of TRA	—	90.5	—
Repurchase of common shares	—	58.7	—
Payments to holders of vested stock options	36.8	21.2	—
Total	<u>\$ 158.7</u>	<u>\$1,701.9</u>	<u>\$ —</u>

In September 2016, we entered into a tax receivables agreement (the “TRA”) under which we were required to distribute cash to our stockholders based on the value of certain income tax benefits we realized. In November 2017, we fully settled the TRA by paying the distributions noted above. No distributions were made during 2018 or during the three months ended March 31, 2019.

[Table of Contents](#)

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of March 31, 2019:

- on an actual basis giving effect to the 5-for-1 stock split and related amendment to our existing certificate of incorporation, in each case, effected on May 16, 2019;
- as adjusted to give effect to the following:
 - the sale of 207,000,000 shares of our common stock in this offering at the initial public offering price of \$14.00 per share and the concurrent issuance of 18,000,000 shares of the Mandatory Convertible Preferred Stock, in each case after deducting underwriting discounts, commissions and estimated offering expenses; and
 - the application of the net proceeds as described in “Use of Proceeds”; and
- as further adjusted to give effect to the full conversion of the Existing Junior Convertible Preferred Stock at the initial public offering price, which will occur automatically upon consummation of this offering.

You should read the information in this table in conjunction with our financial statements and the notes to those statements appearing in this prospectus, as well as the information under the headings “Use of Proceeds,” “Selected Condensed Historical Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” Because the closing of this offering is not contingent upon the completion of the concurrent offering of Mandatory Convertible Preferred Stock, you should not assume that the concurrent offering, as reflected in the applicable column below, will take place.

	As of March 31, 2019		
	Actual	As Adjusted	As Further Adjusted
<i>(dollars in millions except per share amounts)</i>			
Cash and cash equivalents	\$ 143.9	\$ 143.9	\$ 143.9
Debt:			
Total debt, gross	\$ 7,021.1	\$ 5,968.8	\$ 5,968.8
Less: unamortized deferred financing fees	(228.2)	(194.0)	(194.0)
Total debt	<u>6,792.9</u>	<u>5,774.8</u>	<u>5,774.8</u>
Redeemable equity:			
Existing Senior Preferred Stock at redemption value: par value \$0.01 per share; 25,000,000 shares authorized, 2.3 million shares issued and outstanding, actual; zero shares authorized, issued and outstanding, as adjusted and as further adjusted	\$ 2,369.1	\$ —	\$ —
Existing Junior Convertible Preferred Stock: par value \$0.01 per share; 5,000,000 shares authorized, 1.7 million shares issued and outstanding, actual and as adjusted; zero shares authorized, issued and outstanding, as further adjusted	<u>1,562.0</u>	<u>1,562.0</u>	<u>—</u>
Total redeemable equity	<u>3,931.1</u>	<u>1,562.0</u>	<u>—</u>
Total stockholders’ (deficit) equity:			
Mandatory Convertible Preferred Stock: par value \$0.01 per share; zero shares authorized, issued and outstanding, actual; 25,000,000 shares authorized, 18.0 million shares issued and outstanding, as adjusted and as further adjusted	\$ —	\$ 872.7(1)	\$ 872.7(1)
Undesignated preferred stock: par value \$0.01 per share; 45,000,000 shares authorized, actual and as adjusted; 50,000,000 shares authorized, as further adjusted; zero shares issued or outstanding	—	—	—
Common stock, including paid-in capital: par value \$0.01 per share; 750,000,000 shares authorized; 132.8 million shares issued and outstanding, actual; 339.8 million shares issued and outstanding, as adjusted; 534.3 million shares issued and outstanding, as further adjusted	(2,814.6)	(4.2)	1,557.8
Accumulated deficit	(247.7)	(247.7)	(247.7)
Accumulated other comprehensive loss	(76.1)	(76.1)	(76.1)
Total stockholders’ (deficit) equity	<u>(3,138.4)</u>	<u>544.7</u>	<u>2,106.7</u>
Total capitalization	<u>\$ 7,585.6</u>	<u>\$ 7,881.5</u>	<u>\$ 7,881.5</u>

(1) Represents net proceeds from our offering after deducting allocated expenses and applicable underwriting discounts and commissions.

[Table of Contents](#)

DILUTION

If you invest in our common stock in this offering, your ownership interest in us will be diluted to the extent of the difference between the initial public offering price per share of our common stock and the as adjusted net tangible book value (deficit) per share of our common stock after this offering. Dilution results from the fact that the per share offering price of the common stock is substantially in excess of the book value (deficit) per share attributable to the shares of common stock held by existing stockholders.

Our net tangible book value (deficit) as of March 31, 2019 was approximately \$(6,432.1) million, or \$(48.43) per share of our common stock. We calculate net tangible book value (deficit) per share by taking the amount of our total tangible assets, reduced by the amount of our total liabilities, and then dividing that amount by the total number of shares of common stock outstanding.

After giving effect to (i) the sale by us and the selling stockholder of the shares of common stock in this offering at the initial public offering price of \$14.00 per share and the concurrent issuance of 18,000,000 shares of the Mandatory Convertible Preferred Stock, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, (ii) the application of the net proceeds from both offerings as set forth under "Use of Proceeds," and (iii) the full conversion of the Existing Junior Convertible Preferred Stock at the initial public offering price of common stock in this offering, our as adjusted net tangible book value (deficit) as of March 31, 2019 would have been \$(5,414.0) million, or \$(10.13) per share of our common stock. This amount represents an immediate increase in net tangible book value (or a decrease in net tangible book value) of \$38.30 per share to existing stockholders and an immediate and substantial dilution in net tangible book value (deficit) of \$24.13 per share to investors purchasing shares in this offering at the initial public offering price.

The following table illustrates this dilution on a per share basis:

Initial public offering price per share of common stock	\$ 14.00
Net tangible book value (deficit) per share as of March 31, 2019	\$(48.43)
Increase in tangible book (deficit) value per share attributable to investors in this offering	\$ 38.30
As adjusted net tangible book value (deficit) per share after this offering	(10.13)
Dilution per share to investors in this offering	\$ 24.13

Dilution is determined by subtracting as adjusted net tangible book value (deficit) per share of common stock after this offering from the initial public offering price per share of common stock.

If the underwriters exercise in full their over-allotment option to purchase additional shares in this offering, the as adjusted net tangible book value (deficit) per share after giving effect to this offering by us and the selling stockholder, the use of proceeds therefrom and the full conversion of the Existing Junior Convertible Preferred Stock would be \$(8.63) per share. This represents an increase in as adjusted net tangible book value (or a decrease in as adjusted net tangible book value) of \$39.80 per share to existing stockholders and results in dilution in as adjusted net tangible book value (deficit) of \$22.63 per share to investors purchasing shares in this offering at the initial public offering price.

Table of Contents

The following table summarizes, as of March 31, 2019, the differences between the number of shares of common stock purchased from us, the total consideration paid to us, and the average price per share paid by existing stockholders (including, upon full conversion of the Existing Junior Convertible Preferred Stock) and by new investors. As the table shows, new investors purchasing shares in this offering will pay an average price per share substantially higher than our existing stockholders paid. The table below is based on the initial public offering price of \$14.00 per share for shares of common stock purchased in this offering and excludes underwriting discounts and commissions and estimated offering expenses payable by us:

(\$ in millions, except per share amounts)	Shares Purchased		Total Consideration		Avg/Share
	Number	%	Amount	%	
Existing stockholders ⁽¹⁾	327,293,908	61.3%	\$ 3,513.0	54.8%	\$ 10.73
Investors in this offering	206,999,900	38.7%	2,898.0	45.2%	14.00
Total	<u>534,293,808</u>	<u>100.0%</u>	<u>\$ 6,411.0</u>	<u>100.0%</u>	<u>\$ 12.34</u>

(1) Shares purchased by existing stockholders is determined as follows:

Shares of common stock issuable upon conversion of Existing Junior Convertible Preferred Stock	194,464,286
Common shares issued and outstanding	132,829,622
Less: Common treasury shares	—
Total common shares purchased by existing stockholders	327,293,908

Sales by the selling stockholder in this offering will cause the number of shares held by existing stockholders to be reduced to 327,293,808 shares, or 61.3% of the total number of shares of our common stock outstanding following the completion of this offering, and will increase the number of shares held by new investors to 207,000,000 shares, or 38.7% of the total number of shares outstanding following the completion of this offering.

If the underwriters were to fully exercise their over-allotment option to purchase 31,050,000 additional shares of our common stock in this offering, the percentage of shares of our common stock held by existing stockholders as of March 31, 2019 would be 57.9% and the percentage of shares of our common stock held by new investors would be 42.1%, based on the initial public offering price of \$14.00 per share.

To the extent that outstanding options or warrants are exercised or outstanding restricted stock units settle or we grant options, restricted stock, restricted stock units or other equity-based awards to our employees, executive officers and directors in the future, or other issuances of common stock are made, there will be further dilution to new investors.

[Table of Contents](#)
SELECTED CONDENSED HISTORICAL FINANCIAL DATA

The following table sets forth our selected historical consolidated financial data as of the dates and for the periods indicated. The selected historical consolidated financial data as of and for the year ended December 31, 2014 is derived from our unaudited consolidated financial statements and the related notes thereto not included in this prospectus. The selected historical consolidated financial data as of December 31, 2017 and 2018 and for the years ended December 31, 2016, 2017 and 2018 is derived from our audited consolidated financial statements and related notes thereto included elsewhere in this prospectus. The selected historical consolidated financial data as of December 31, 2015 and 2016 and for the year ended December 31, 2015 is derived from our audited consolidated financial statements and related notes thereto not included in this prospectus. The selected historical condensed consolidated financial data as of March 31, 2019 and for the three months ended March 31, 2018 and 2019 is derived from our unaudited condensed consolidated financial statements and related notes thereto included elsewhere in this prospectus. The unaudited condensed consolidated financial statements have been prepared on the same basis as our audited consolidated financial statements and, in the opinion of our management, reflect all normal recurring adjustments necessary for the fair presentation of our consolidated results for these periods. The results for any interim period are not necessarily indicative of the results that may be expected for the full year. Additionally, our historical results are not necessarily indicative of the results expected for any future period.

In accordance with GAAP, we have included the financial results of VWR since the VWR Acquisition on November 21, 2017. In addition, on September 30, 2016, we merged with NuSil. Since both NuSil and our predecessor were controlled by New Mountain Capital, our historical financial statements have been combined with NuSil's into a single comparative presentation for all periods presented. For more information about this basis of presentation, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Note 1 to the audited annual financial statements included elsewhere in this prospectus.

You should read the information contained in this table in conjunction with "Summary—Summary Historical Financial and Other Data," "Capitalization," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our audited consolidated financial statements and the accompanying notes and our unaudited consolidated financial statements and the accompanying notes included in this prospectus.

(in millions except per share data)	Year ended December 31,					Three months ended March 31,	
	2014	2015	2016	2017	2018	2018	2019
Statement of operations data							
Net sales	\$ 587.2	\$ 636.9	\$ 691.3	\$ 1,247.4	\$ 5,864.3	\$ 1,418.3	\$ 1,480.1
Net income (loss)	5.7	12.7	(80.7)	(145.3)	(86.9)	(41.2)	(6.2)
Earnings (loss) per share:							
Basic	\$ 0.04	\$ 0.14	\$ (0.28)	\$ (2.75)	\$ (2.69)	\$ (0.79)	\$ (0.59)
Diluted	\$ 0.03	\$ 0.13	\$ (0.28)	\$ (2.75)	\$ (2.69)	\$ (0.79)	\$ (0.59)
Weighted average shares outstanding:							
Basic	152.6	152.6	152.6	151.1	132.7	132.6	132.8
Diluted	167.5	167.5	152.6	151.1	132.7	132.6	132.8
Pro forma loss per share (unaudited)							
Basic					\$ (0.18)		\$ (0.01)
Diluted					\$ (0.18)		\$ (0.01)
Balance sheet data (as of period end)							
Total assets	\$1,156.4	\$1,150.4	\$1,135.8	\$10,446.5	\$9,911.6		\$10,013.9
Total long-term liabilities	644.8	623.4	1,510.5	8,372.6	8,007.8		8,113.8
Total redeemable equity	—	—	—	3,589.8	3,859.3		3,931.1

[Table of Contents](#)**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION
AND RESULTS OF OPERATIONS**

You should read the following discussion of our results of operations and financial condition together with "Summary—Summary Historical and Other Financial Data," "Risk Factors," "Special Note Regarding Forward-Looking Statements," "Selected Condensed Historical Financial Data" and our audited consolidated financial statements and notes thereto, each included elsewhere in this prospectus. In addition to historical financial information, this discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results may differ materially from those contained in or implied by any forward-looking statements.

Overview

We are a leading global provider of mission critical products and services to customers in the biopharma, healthcare, education & government, and advanced technologies & applied materials industries. Our comprehensive offerings, which include materials & consumables, equipment & instrumentation and services & specialty procurement, are relied upon by our customers, often on a recurring basis, because they are frequently specified into their research, development and production processes. These processes are commonly organized into "workflows" that define the activities our customers perform each day. We collaborate closely with our customers to enable them to develop new innovative products, lower their development and production costs, improve product or process performance characteristics, and enhance the safety and reliability of the drugs, devices and other products they produce. In addition to relying on our products, many customers depend upon our services. Some of these services are performed by approximately 1,400 of our associates that are co-located with certain customers, working side-by-side with their scientists every day. Our local presence combined with global infrastructure enable and promote successful relationships with our customers and connect us to over 240,000 of their locations in over 180 countries. Our mission is to set science in motion to create a better world.

The depth and breadth of our portfolio provides our customers a comprehensive range of products and services and allows us to create customized and integrated solutions for our customers. Selected offerings used by our customers in discovery, research, development and production processes include:

- **Materials & consumables:** Ultra-high purity chemicals and reagents, lab products and supplies, highly specialized formulated silicone solutions, customized excipients, customized single-use assemblies, process chromatography resins and columns, analytical sample prep kits and education, microbiology and clinical trial kits;
- **Equipment & instrumentation:** Filtration systems, virus inactivation systems, incubators, analytical instruments, evaporators ultra-low-temperature freezers, biological safety cabinets and critical environment supplies; and
- **Services & specialty procurement:** Onsite lab and production, clinical, equipment, procurement & sourcing and biopharmaceutical material scale-up and development services.

In 2018, we recorded net sales of \$5,864.3 million, net loss of \$86.9 million, Adjusted EBITDA of \$945.3 million and Adjusted Net Income of \$260.2 million. Approximately 85% of our revenues were from offerings that are recurring in nature. In addition, for the three months ended March 31, 2019, we have recorded net sales of \$1,480.1 million, net loss of \$6.2 million, Adjusted EBITDA of \$248.0 million and Adjusted Net Income of \$68.2 million. For the definitions of Adjusted EBITDA and Adjusted Net Income and reconciliations of these measures from net loss, please see "—Reconciliations of Non-GAAP Financial Measures."

Factors and Current Trends Affecting Our Business and Results of Operations

We expect that our performance and financial condition will continue to be impacted by the key trends impacting our customers, suppliers and customer segments as outlined in "Business—Industry." In addition, we

[Table of Contents](#)

believe the following trends and key factors have affected our recent operating results and/or are likely to continue to affect our performance and financial condition in future periods.

We acquired VWR in November 2017 and have been integrating our companies

VWR was a global manufacturer and distributor of laboratory and production products and services. VWR's primary business was the distribution of third-party materials & consumables, and its results presented throughout the section entitled "—Results of Operations" are highly correlated to our overall third-party materials & consumables business. The VWR Acquisition improved our access to life sciences and research customers, expanded our geographic reach, created a robust offering for the entire biopharmaceutical value chain and continues to generate significant cost and commercial synergies.

As a result of the VWR Acquisition, our total assets, net sales, operating income and Adjusted EBITDA increased significantly. We also expect to spend more on capital expenditures, including up to \$85 million in capital expenditures in 2019, approximately \$30 million of which relates to our global value capture program.

The VWR Acquisition has the potential to create significant long-term growth as a result of our ability to offer new products and services to existing customers and potential new customers.

We have implemented a significant global value capture program

We have generated significant cost and commercial synergies across all aspects of our business from the global value capture program we initiated in the fourth quarter of 2017. Under the program, we anticipate spending up to \$215 million over a three-year period to optimize our sales, gross margins and operating costs. The spending is expected to include up to \$90 million for capital expenditures and up to \$125 million for employee severance, facility closure and other charges. Our plans include combining sales and marketing resources, eliminating redundant corporate functions, optimizing procurement and our manufacturing footprint and implementing best practices throughout the organization.

From the inception of this program through December 31, 2018, we have recognized over \$95 million of charges and have spent \$7 million on capital projects. As of December 31, 2018, our financial results include \$83 million of realized cost savings as compared to the combined run-rate operating expenses of our combined businesses as of November 21, 2017. We believe that the actions we have taken in 2018 will generate over \$112 million (inclusive of realized cost savings) of annualized cost synergies, which we expect will favorably impact our results in 2019. We estimate that we will be able to generate an additional \$117 million of annualized cost synergies. We currently expect that all synergies and cost savings will be fully realized by 2021.

In addition, as of March 31, 2019, our last four quarters financial results included \$101 million of realized cost savings under our global value capture program as compared to the combined run-rate operating expenses of our combined businesses as of November 21, 2017. We believe that the actions we have taken through March 31, 2019 have resulted in annualized cost synergies of \$118 million (inclusive of realized cost savings). We estimate that we will be able to generate an additional \$111 million of annualized cost synergies.

We may not continue to realize the cost savings we benefited from prior to March 31, 2019, and the cost savings we expect in future periods from the actions we took prior to March 31, 2019 may not be realized in full or at all.

We expect to undergo a recapitalization of our equity in connection with this offering

Our capitalization includes two classes of preferred stock, common stock, class B stock and warrants. In connection with this offering, we amended our certificate of incorporation on May 16, 2019 to effect a 5-for-1 stock split of all of our outstanding shares of common stock and otherwise intend to undergo a recapitalization by

[Table of Contents](#)

(i) redeeming all of our Existing Senior Preferred Stock, (ii) experiencing an automatic conversion of all shares of our Existing Junior Convertible Preferred Stock into common stock upon consummation of this offering and (iii) issuing 18,000,000 shares of the Mandatory Convertible Preferred Stock. See “Summary—The Offering.”

We have made significant borrowings, resulting in significant fees, interest and financial leverage

In connection with the VWR Acquisition, we refinanced substantially all of our indebtedness. As a result, our indebtedness, availability under credit facilities and interest expense each significantly increased. We also extended the overall maturity profile of our debt. In connection with the refinancing, we paid debt issuance costs of \$283.1 million and a transaction fee to New Mountain Capital of \$180.0 million in 2017. A substantial majority of the debt issuance costs were deferred and are being recognized as interest expense through the maturity dates of our indebtedness. The transaction fee to New Mountain Capital was immediately recognized as selling, general and administrative expense. We also incurred a debt extinguishment loss of \$34.6 million which was immediately recognized as interest expense.

In November 2018, we entered into a repricing amendment to our Senior Secured Credit Facility (as defined below) to reduce the interest rate margins on our euro term loans by 0.50% and our U.S. term loans by 0.25%. We expect the amendment to result in annual interest savings of approximately \$10 million. The costs to complete the amendment were not material.

As of December 31, 2018, we had \$7.2 billion of indebtedness, excluding deferred financing costs. In 2018, we made required principal and interest payments of over \$500 million to service that indebtedness.

Tax reform was enacted in the United States

In December 2017, tax reform legislation was enacted in the United States. The new legislation included a broad range of corporate tax reforms including: (i) a reduction of the U.S. federal corporate tax rate from 35% to 21% beginning in 2018, (ii) a one-time transition tax on undistributed foreign earnings and profits, (iii) ongoing anti-base erosion provisions designed to tax foreign earnings generated without a large fixed asset base and (iv) new limitations on deductions for interest expense and net operating losses.

As a result of the new legislation, we recognized a one-time provisional income tax benefit of \$126.7 million for 2017, of which a \$285.5 million benefit was caused by the remeasurement of our deferred tax assets and liabilities at the new corporate tax rate and a \$158.8 million expense was caused by the one-time transition tax on our accumulated foreign undistributed earnings and profits. The legislation also impacted us in a number of other ways in 2018, including (i) the beginning of a new series of tax payments on undistributed foreign earnings being made over an eight-year period, (ii) finalization of our provisional accounting for the one-time transition tax which resulted in an income tax benefit of \$51.0 million and (iii) finalization of our provisional accounting for deferred tax remeasurement which resulted in an income tax provision of \$21.5 million. Accordingly, we recognized a net benefit of \$29.5 million when we finalized our accounting for the tax reform legislation in 2018.

Changes in foreign currency exchange rates could have a significant impact on our financial condition and results of operations

Our operations span the globe. We have a substantial amount of indebtedness denominated in euros, whose remeasurement to U.S. dollars can impact our earnings. Changes to foreign currency exchange rates also affect our operating results. See “—Quantitative and Qualitative Disclosures About Market Risk.”

Growth in AMEA and other emerging geographies

We are focused on expanding our geographic reach to certain emerging economies, including China, southeast Asia and eastern Europe. Our largest customers in the AMEA region are in the biopharma and

[Table of Contents](#)

advanced technologies & applied materials industries. We believe that local demand for our products and solutions in these regions is being driven by the expansion of our customers' presence, an inadequate local supplier base and a significant increase in local government investment to support innovation in the industries we serve.

We are continuing to invest in our differentiated innovation model

Our innovation model enables us to anticipate and align our innovation efforts with our customers' priorities. We engage with our customers early in their product development cycles to advance our customers' programs from research and discovery through development and commercialization. These projects include enhancing product purity and performance characteristics, improving product packaging and streamlining workflows. We are also developing new products in emerging areas of science such as cell and gene therapy. To invest in those initiatives, we incurred research and development expenses of \$22.1 million in 2018, \$17.2 million in 2017 and \$19.1 million in 2016. These expenses were approximately 3% of net sales of the portfolio of proprietary materials & consumables products we were actively developing in 2018.

Seasonality

We do not experience seasonality in the traditional manner. Two types of our proprietary materials & consumables products, science educational kits and implantable medical devices, have exhibited cyclical customer demand in prior periods. We believe that this is caused by factors unique to those particular product markets, such as the multi-year approval processes many states follow to approve new curriculums and the ability of medical device customers to adjust inventory levels on-hand. As a result, we may see fluctuations across periods as the timing of our customers' demand for these products may change.

Key Indicators of Performance and Financial Condition

To evaluate our performance, we monitor a number of key indicators. As appropriate, we supplement our results of operations determined in accordance with GAAP with certain non-GAAP financial measurements that we believe are useful to investors, creditors and others in assessing our performance. These measurements should not be considered in isolation or as a substitute for reported GAAP results because they may include or exclude certain items as compared to similar GAAP-based measurements, and such measurements may not be comparable to similarly-titled measurements reported by other companies. Rather, these measurements should be considered as an additional way of viewing aspects of our operations that provide a more complete understanding of our business.

The key indicators that we monitor are as follows:

- ***Net sales, gross margin, operating income and net loss.*** These measures are discussed in the section entitled “—Results of Operations;”
- ***Adjusted EBITDA,*** which is a non-GAAP measure discussed in the section entitled “—Results of Operations.” Adjusted EBITDA is used by investors to measure and evaluate our operating performance exclusive of depreciation, income tax effects, interest, amortization, and certain infrequently occurring items. We believe that this measurement is useful to investors as a way to analyze the underlying trends in our core business consistently across the periods presented. A reconciliation of net loss, the most directly comparable GAAP financial measure, to Adjusted EBITDA is included in “—Reconciliations of Non-GAAP Financial Measures;”
- ***Management EBITDA,*** which is a non-GAAP measure discussed in the section entitled “—Results of Operations.” Management EBITDA is used by our management to measure and evaluate our internal operating performance at both a consolidated and at a segment level. It is also the basis for calculating management incentive compensation programs. Management EBITDA is our Adjusted EBITDA

Table of Contents

further adjusted for certain other items that are not used to measure internal operating performance. We believe that this measurement is useful to investors as a way to analyze the underlying trends in our core business, including at the segment level, consistently across the periods presented and also to evaluate performance under management incentive compensation programs. Management EBITDA is also our segment profitability measure under GAAP. A reconciliation of net loss, the most directly comparable GAAP financial measure, to Management EBITDA is included in “—Reconciliations of Non-GAAP Financial Measures;”

- **Adjusted Net Income**, which is a non-GAAP measure discussed in the section entitled “—Results of Operations.” Adjusted Net Income is used by investors to measure and evaluate our operating performance exclusive of amortization and certain infrequently occurring items. We believe that this measurement is useful to investors as a way to analyze the underlying trends in our core business consistently across the periods inclusive of income tax effects, interest and depreciation. A reconciliation of net loss, the most directly comparable GAAP financial measure, to Adjusted Net Income is included in “—Reconciliations of Non-GAAP Financial Measures;”
- **Covenant EBITDA**, which is a non-GAAP measure. We discuss this measure in the section entitled “—Liquidity and Capital Resources—Indebtedness.” Covenant EBITDA is our Management EBITDA further adjusted as required under our Credit Agreement (as defined below) and Indentures (as defined below). We believe that this measurement is useful to investors and creditors to monitor and evaluate our indebtedness and compliance with certain of our debt covenants. A reconciliation of net loss to Covenant EBITDA is included under “—Reconciliations of Non-GAAP Financial Measures;” and
- **Cash flows from operating activities**, which we discuss in the section entitled “—Liquidity and Capital Resources—Historical Cash Flows.”

Results of Operations

We present results of operations in the same way that we manage our business, evaluate our performance and allocate our resources. We provide discussion of segment results for net sales and Management EBITDA based on customer location: Americas, Europe and AMEA. Each segment manufactures and distributes solutions for the biopharma, healthcare, education & government and advanced technologies & applied materials industries. Corporate costs are managed on a standalone basis and not allocated to segments.

Three months ended March 31, 2019 and 2018

<i>(dollars in millions)</i>	Three months ended		Change
	March 31,		
	2019	2018	
Net sales	\$1,480.1	\$1,418.3	\$ 61.8
Gross margin	32.1%	31.0%	110 bps
Operating income	\$ 137.6	\$ 87.6	\$ 50.0
Net loss	(6.2)	(41.2)	35.0
Adjusted EBITDA	248.0	216.9	31.1
Management EBITDA	265.4	224.7	40.7
Adjusted Net Income	68.2	47.4	20.8

Net sales growth, gross margin improvements and cost synergies from our global value capture program were the most significant drivers of performance year-over-year. Net sales increased 4.4%, which included a 3.5% unfavorable foreign currency impact. The remaining increase of 7.9% reflected both volume growth and improved pricing across all major customer and product groups. The gross margin improvement included net pricing improvements, the absence of unfavorable purchase accounting adjustments, and other improvements from the global value capture program, partially offset by unfavorable product mix. Operating income growth

[Table of Contents](#)

and the decrease in net loss reflected those improvements and an additional \$11.8 million reduction to SG&A expenses due to realized cost synergies. Adjusted EBITDA, Management EBITDA and Adjusted Net Income each increased for similar reasons.

Net sales

(in millions)	Three months ended March 31,			Reason for change	
	2019	2018	Change	Foreign currency impact	Other
Americas	\$ 857.3	\$ 807.4	\$ 49.9	\$ (3.5)	\$ 53.4
Europe	542.1	538.1	4.0	(43.7)	47.7
AMEA	80.7	72.8	7.9	(3.5)	11.4
Total	<u>\$1,480.1</u>	<u>\$1,418.3</u>	<u>\$ 61.8</u>	<u>\$ (50.7)</u>	<u>\$112.5</u>

Net sales increased 4.4%, which included a 3.5% unfavorable foreign currency impact. The remaining increase of 7.9% reflected both volume growth and improved pricing across all major customer and product groups. The following table summarizes growth rates in net sales by customer and product group from the first quarter of 2019 compared to the first quarter of 2018:

Customer group		Product group	
Biopharma	+LDD	Proprietary materials & consumables	+LDD
Healthcare	+LSD	Third-party materials & consumables	+HSD
Education & government	+MSD	Services & specialty procurement	+MSD
Advanced technologies & applied materials	+LSD	Equipment & instrumentation	+HSD

LSD = low single-digit (1 – 3%), MSD = mid single-digit (4 – 6%), HSD = high single-digit (7 – 9%), LDD = low double-digit (10 – 19%)

Net sales — segment results

In the Americas, net sales increased 6.2%, which included a 0.4% unfavorable foreign currency impact. The remaining increase of 6.6% reflected both volume growth and improved pricing. The following provides additional information about the 6.6% increase:

- Our global value capture program included strategic initiatives to improve volume and pricing that contributed \$10.1 million or 1.3% to that increase.
- Sales to biopharma, our largest customer group, continues to expand. This is driven by our innovative technologies and delivery techniques. Those sales grew by a low double-digit rate primarily from sales of proprietary materials & consumables (including single-use offerings) to key accounts.
- We experienced high single-digit growth from proprietary materials & consumables, driven by biopharma production. We continue to align ourselves with our customers' discovery efforts and production needs. Robust investment from biopharma and education sources and continued market strength helped increase equipment & instrumentation sales by a high single-digit rate. We experienced low double-digit growth in services & specialty procurement by executing our strategy to embed with large pharmaceutical customers and help them innovate and drive productivity in their lab and procurement groups.

[Table of Contents](#)

In Europe, net sales increased 0.7%, which included an 8.2% unfavorable foreign currency impact. The remaining increase of 8.9% reflected both volume growth and improved pricing. The following provides additional information about the 8.9% increase:

- We experienced low double-digit growth in biopharma driven by higher demand from our largest customers. Part of the strong growth is due to the later timing of Easter this year, which impacts the buying patterns of our European customers. Sales to healthcare, education and government customers were relatively flat as these customers continue to be impacted by constricted funding from several European governments. That comparison was also unfavorably impacted by a significant, individual non-recurring project sale recognized in the prior year.
- Higher sales of production-grade biopharmaceutical products and advanced technologies & applied materials drove low double-digit growth of proprietary materials & consumables products. Services & specialty procurement grew by a low single-digit rate despite headwinds from a significant project sale recognized in the prior year and concerns over Brexit.

In AMEA, net sales increased 10.9%, which included a 4.8% unfavorable foreign currency impact. The remaining increase of 15.7% primarily reflected volume growth. We experienced over 60% growth from biopharma, our largest customer group, and nearly 30% growth from healthcare as our ability to capture new market share in this emerging region continues to grow.

Gross margin

	Three months ended March 31,		Change
	2019	2018	
Gross margin	32.1%	31.0%	110 bps

The increase in gross margin included 80 basis points of net pricing improvements, 80 basis points caused by the absence of unfavorable 2018 purchase accounting effects and 60 basis points of other improvements from the global value capture program, partially offset by 110 basis points of unfavorable product mix. The pricing improvements resulted from commercial efforts with our customers, some of which were driven by the value capture initiatives, which were partially offset by inflation. The product mix reflected very strong volume growth from specialty procurement and third-party materials & consumables.

The global value capture program contributed a total of \$18.5 million or 90 basis points to the gross margin increases noted above and included improvements in product sourcing, footprint optimization and lean operating practices.

Operating income

<i>(in millions)</i>	Three months ended March 31,		Change
	2019	2018	
Gross profit	\$ 475.2	\$ 440.3	\$ 34.9
SG&A expenses	337.6	352.7	(15.1)
Operating income	<u>\$ 137.6</u>	<u>\$ 87.6</u>	<u>\$ 50.0</u>

Operating income increased primarily from higher gross profit and reduced SG&A expenses. The improvement in gross profit was caused by the growth in net sales and gross margin previously discussed. The reduction in SG&A expenses was primarily caused by \$13.6 million of realized cost synergies from the global value capture program, a \$13.8 million favorable foreign currency impact and a \$4.0 million reduction of

[Table of Contents](#)

amortization, which were substantially offset by a mix of inflationary expense increases and strategic cost investments to support our global business centers, business strategy teams and our initial public offering process.

Net loss

<i>(in millions)</i>	Three months ended		Change
	March 31,		
	2019	2018	
Operating income	\$ 137.6	\$ 87.6	\$ 50.0
Interest expense	(128.6)	(128.3)	(0.3)
Other expense, net	(5.1)	(4.4)	(0.7)
Income tax (expense) benefit	(10.1)	3.9	(14.0)
Net loss	<u>\$ (6.2)</u>	<u>\$ (41.2)</u>	<u>\$ 35.0</u>

Net loss decreased primarily due to the increase in operating income as previously discussed. Interest expense and other expense were relatively flat with consistent borrowing levels, interest rates and currency effects year-over-year.

Income tax benefit changed to expense primarily due to the various changes in our pretax results, previously described, the composition of projected income for the year in different countries and certain quarterly adjustments unique to each quarterly period.

Adjusted EBITDA, Management EBITDA and Adjusted Net Income

<i>(in millions)</i>	Three months ended March 31,		Change
	2019	2018	
Adjusted EBITDA	\$248.0	\$216.9	\$ 31.1
Management EBITDA:			
Americas	\$173.1	\$134.3	38.8
Europe	93.2	88.9	4.3
AMEA	18.8	17.0	1.8
Corporate	(19.7)	(15.5)	(4.2)
Total	<u>\$265.4</u>	<u>\$224.7</u>	<u>\$ 40.7</u>
Adjusted Net Income	\$ 68.2	\$ 47.4	\$ 20.8

Adjusted EBITDA, Management EBITDA and Adjusted Net Income each increased primarily due to the increase in operating income of \$50.0 million but excluded \$11.1 million of favorable purchase accounting effects.

For a reconciliation of Adjusted EBITDA, Management EBITDA and Adjusted Net Income to the most directly comparable measure under GAAP, see “—Reconciliations of Non-GAAP Financial Measures.”

Management EBITDA — segment results

In the Americas, the growth in Management EBITDA reflected the impact of the net sales growth, gross margin improvements and reductions to SG&A expense due to realized cost synergies from the global value capture program. The cost synergies were primarily related to headcount reduction, workforce and facility footprint optimization and product sourcing.

Table of Contents

In Europe, the growth in Management EBITDA reflected the favorable impact of the net sales growth, gross margin improvements and reductions to SG&A expense due to realized cost synergies from the global value capture program, each as previously discussed, partially offset by a net unfavorable foreign currency impact. The cost synergies were primarily related to headcount reduction, optimizing our workforce footprint and product sourcing.

In AMEA, the growth in Management EBITDA primarily reflected the impact of the net sales growth previously discussed, partially offset by personnel and other investments to increase our sales force and product and service offerings in the region. Our strategy is to invest in the AMEA region in an effort to continue to capture market share.

For corporate, the decline was primarily caused by investments made in our global business centers and business strategy teams along with higher incentive compensation expense.

Years ended December 31, 2018 and 2017

On November 21, 2017, we acquired VWR. Under GAAP, VWR is consolidated with us prospectively since the acquisition date of November 21, 2017. On September 30, 2016, we combined with NuSil. Since both NuSil and our predecessor were both controlled by New Mountain Capital, our historical financial statements have been combined with NuSil's into a single presentation for all periods presented.

In order to provide relevant insight about the financial impact of the VWR Acquisition on our results for the years ended December 31, 2018 and 2017, we discuss and analyze the year-over-year change in operating results as two components:

- (1) "Baseline 2017 VWR," which is VWR's pre-acquisition performance for the 324 days ended November 21, 2017 reduced by Avantor's pre-acquisition sales and cost of sales to VWR for that period. See "—Other Financial Data" for a reconciliation of VWR's previously reported amounts to Baseline 2017 VWR. Management uses Baseline 2017 VWR as an indication of what VWR's standalone results would have been for 2018 because VWR's actual 2018 results are not determinable on a standalone basis following the integration of VWR during 2018. The presentation of Baseline 2017 VWR as a reason for change from 2017 to 2018 provides readers a way to evaluate the impact of the VWR Acquisition on our year-over-year results that is consistent with how management evaluates the results; and
- (2) "Combined Change," which is calculated by subtracting our reported 2017 results and Baseline 2017 VWR from our reported 2018 results. Management uses the Combined Change to evaluate what our year-over-year change in operating performance would have been had our company been combined during all of 2017 and 2018. The presentation of the Combined Change as a reason for change from 2017 to 2018 provides readers a way to evaluate the performance of our combined company compared to prior periods that is consistent with how management evaluates the results.

Table of Contents

We do not present Baseline 2017 VWR or a Combined Change for net loss, certain components of net loss or Adjusted Net Income because differences such as debt service, hedging strategies and tax attributes between VWR and Avantor introduce variables into the comparison that management believes may be confusing and will not be useful to investors in analyzing our results of operations.

<i>(dollars in millions)</i>	Year ended December 31,			Reason for change	
	2018	2017	Change	Baseline 2017 VWR	Combined Change
Net sales	\$ 5,864.3	\$ 1,247.4	\$4,616.9	\$ 4,151.3	\$ 465.6
Gross margin	31.0%	34.7%	(370) bps	(480) bps	110 bps
Operating income (loss)	\$ 413.5	\$ (210.4)	\$ 623.9	\$ 233.7	\$ 390.2
Net loss	(86.9)	(145.3)	58.4		
Adjusted EBITDA	945.3	289.5	655.8	461.0	194.8
Management EBITDA	1,006.0	324.0	682.0	468.5	213.5
Adjusted Net Income	260.2	157.4	102.8		

The VWR Acquisition in November 2017 was the most significant driver of change when comparing 2018 and 2017. Net loss decreased, the net result of the factors discussed below, partially offset by higher interest expense on new borrowings to finance the VWR Acquisition. The VWR Acquisition caused net sales, operating income, Adjusted EBITDA and Adjusted Net Income to increase, as indicated by Baseline 2017 VWR in the table above. Gross margins declined because VWR's historical margins were lower than ours.

The Combined Change for 2018 reflected growth in net sales and gross margin primarily driven by sales growth to our biopharma customers and our proprietary materials & consumables product group. We also incurred significant new expenses to restructure and integrate VWR that impacted operating income and net loss.

Net sales

<i>(in millions)</i>	Year ended December 31,			Reason for change	
	2018	2017	Change	Baseline 2017 VWR	Combined Change
Americas	\$ 3,460.9	\$ 688.1	\$2,772.8	\$ 2,498.6	\$ 274.2
Europe	2,095.3	381.4	1,713.9	1,552.6	161.3
AMEA	308.1	177.9	130.2	100.1	30.1
Total	\$ 5,864.3	\$ 1,247.4	\$4,616.9	\$ 4,151.3	\$ 465.6

Net sales increased primarily due to the VWR Acquisition, as indicated by Baseline 2017 VWR in the table above. The Combined Change reflects strong sales of silicones used in the manufacture of medical implantable devices from our proprietary materials & consumables portfolio, a significant project award from an education & government customer in the Americas, commercial synergies generated by our global value capture program, low double-digit growth in the AMEA region and strong global performance in services & specialty procurement. The Combined Change also includes a favorable foreign currency impact of \$74.4 million.

The following table summarizes the Combined Change growth rates in net sales by customer and product group, exclusive of the foreign currency impact noted above:

Customer group		Product group	
Biopharma	+HSD	Proprietary materials & consumables	+HSD
Healthcare	+MSD	Third-party materials & consumables	+MSD
Education & government	+HSD	Services and specialty procurement	+LDD
Advanced technologies & applied materials	+MSD	Equipment & instrumentation	+HSD

MSD = mid single-digit (4-6%), HSD = high single-digit (7-9%), LDD = low double-digit (10-19%)

[Table of Contents](#)

Net sales — segment results

For the Americas segment, the Combined Change included primarily higher volumes but also, to a lesser extent, pricing improvements. Our global value capture program included strategic initiatives to improve market share and pricing that contributed \$19.5 million to net sales in the 2018 period. From a customer perspective, we experienced above-market growth from education & government customers through significant account wins in 2018. Biopharma, our largest customer group, continues to expand its reach through innovative technologies and delivery techniques, driving low double-digit growth in the Americas. From a product perspective, our industry leading position in silicones used in the manufacture of medical implantable devices and other proprietary materials and consumables accelerated our growth. This, combined with continued strong growth in our recurring product lines, continues to align us with our customers' discovery efforts and other needs. Robust investment from biopharma, primary education and government sources helped increase equipment & instrumentation sales by a low double-digit rate. We experienced low double-digit growth in services as a result of our unique position with large pharmaceutical customers that allows us to continue to help them innovate and drive productivity in their lab and procurement groups.

For the Europe segment, the Combined Change included a favorable foreign currency impact of \$74.8 million and primarily higher volumes with no significant change to pricing. Our global value capture program included strategic initiatives to improve market share and pricing that contributed \$23.9 million to net sales. From a customer perspective, we experienced strong growth in biopharma driven by higher demand from our largest customers. We experienced lower growth from our healthcare and our education & government customers. These customers continue to be impacted by constricted funding by several European governments, and lower 2018 growth reflects normalizing orders after receipt in 2017 of a large order for equipment & instrumentation to build a new university research facility. From a product perspective, higher sales of production-grade biopharmaceutical products drove growth in our proprietary materials & consumables category, which was partially offset by lower growth in our equipment & instrumentation products for the reasons previously discussed.

For the AMEA segment, the Combined Change was driven by significantly higher volumes. We experienced low double-digit growth across all product and customer groups driven by our ability to capture new market share in this emerging region. Our largest customers in this region are in the biopharma and advanced technologies & applied materials industries.

Gross margin

	Year ended December 31,		Change	Reason for change	
	2018	2017		Baseline 2017	Combined
				VWR	Change
Gross margin	31.0%	34.7%	(370) bps	(480) bps	110 bps

The decrease in gross margin was primarily caused by the VWR Acquisition, as indicated by Baseline 2017 VWR in the table above, which reported gross margin of 28.4% for the nine months ended September 30, 2017. This effect was partially offset by 110 basis points of Combined Change that included 70 basis points of growth from commercial synergies realized from our global value capture program. The remainder of the growth was primarily caused by net pricing changes, which includes effects both from customers and suppliers. We also experienced offsetting effects as follows: (i) the absence of \$41.8 million of purchase accounting adjustments incurred in 2017, the substantial majority of which were caused by higher cost of sales from valuing VWR's inventory at fair value in purchase accounting; offset by (ii) 2018 non-cash restructuring charges of \$28.4 million primarily for the write-off of inventory related to a discontinued product line and (iii) \$22.1 million of primarily other inventory write-offs.

[Table of Contents](#)
Operating income or loss

<i>(in millions)</i>	<u>Year ended December 31,</u>			<u>Reason for change</u>	
	<u>2018</u>	<u>2017</u>	<u>Change</u>	<u>Baseline</u>	<u>Combined</u>
				<u>2017 VWR</u>	<u>Change</u>
Gross profit	\$ 1,819.8	\$ 432.8	\$1,387.0	\$ 1,180.6	\$ 206.4
Operating expenses	1,406.3	643.2	763.1	946.9	(183.8)
Operating income (loss)	<u>\$ 413.5</u>	<u>\$ (210.4)</u>	<u>\$ 623.9</u>	<u>\$ 233.7</u>	<u>\$ 390.2</u>

Operating income increased as a result of higher gross profit, partially offset by higher operating expenses, each primarily due to the VWR Acquisition, as indicated by Baseline 2017 VWR in the table above. Gross profit also increased with the Combined Change to net sales and gross margin, each of which improved as previously discussed.

The Combined Change in operating expenses was a reduction primarily caused by the absence of \$192.5 million of transaction fees to New Mountain Capital incurred in 2017. The remaining change was the result of various offsetting factors. The most significant factors included (i) higher combined depreciation and amortization of \$176.7 million and higher combined restructuring and severance charges of \$40.7 million discussed below, (ii) the absence of \$21.8 million of modification expense for share-based awards triggered by the November 2017 legal entity restructuring, (iii) the absence of \$65.7 million of transaction expenses incurred in 2017, as well as \$18.9 million of transaction expenses attributable to Baseline 2017 VWR and (iv) realization of about \$83 million of cost savings from our global value capture program in 2018.

The increase to depreciation and amortization was primarily related to significant new customer relationship and trade name assets recognized in purchase accounting for the VWR Acquisition. The increase to restructuring and severance charges was primarily caused by a \$60.8 million increase in costs to implement our global value capture program.

Net loss

<i>(in millions)</i>	<u>Year ended December 31,</u>		<u>Change</u>
	<u>2018</u>	<u>2017</u>	
Operating income (loss)	\$ 413.5	\$ (210.4)	\$ 623.9
Interest expense	(523.8)	(257.3)	(266.5)
Other (expense) income, net	(3.5)	7.5	(11.0)
Income tax benefit	26.9	314.9	(288.0)
Net loss	<u>\$ (86.9)</u>	<u>\$ (145.3)</u>	<u>\$ 58.4</u>

Net loss decreased with the significant increase to operating income as previously discussed, which was partially offset by higher interest expense and a lower tax benefit.

Interest expense reflected a full year of interest on higher levels of indebtedness following the fourth quarter 2017 debt restructuring to finance the VWR Acquisition. See "Liquidity and Capital Resources—Indebtedness" for additional information.

Income tax benefit at U.S. federal corporate tax rates decreased \$137.2 million reflecting the decrease in rate from 35% to 21% and the reduction to pretax loss. The remainder of the decrease was driven by two offsetting changes to the global effective tax rate: (i) the \$360.5 million unfavorable impact of remeasuring deferred income tax assets and liabilities at reduced U.S. and foreign tax rates and (ii) the \$209.8 million favorable change to the provisional impact of the one-time transition tax.

[Table of Contents](#)
Adjusted EBITDA, Management EBITDA and Adjusted Net Income

<i>(in millions)</i>	Year ended December 31,			Reason for change	
	2018	2017	Change	Baseline 2017 VWR	Combined Change
	Adjusted EBITDA	\$ 945.3	\$ 289.5	\$655.8	\$ 461.0
Management EBITDA:					
Americas	\$ 651.6	\$ 196.8	\$454.8	\$ 322.9	\$ 131.9
Europe	349.6	103.4	246.2	183.7	62.5
AMEA	73.8	43.3	30.5	14.3	16.2
Corporate	(69.0)	(19.5)	(49.5)	(52.4)	2.9
Total	\$ 1,006.0	\$ 324.0	\$682.0	\$ 468.5	\$ 213.5
Adjusted Net Income	\$ 260.2	\$ 157.4	\$102.8		

Adjusted EBITDA and Management EBITDA each increased primarily due to the VWR Acquisition, as indicated by Baseline 2017 VWR in the table above. The Combined Change to Adjusted EBITDA increased for reasons similar to Management EBITDA, which is described by segment below.

Adjusted Net Income increased primarily due to the \$655.8 million growth in Adjusted EBITDA as previously discussed. This growth was partially offset by three factors. First, we experienced a \$266.5 million increase in interest expense following the 2017 debt refinancings. See “—Factors and Current Trends Affecting Our Business and Results of Operations—We have made significant borrowings, resulting in significant fees, interest and financial leverage.” Second, the change from income tax benefit to provision applicable to Adjusted Net Income caused a \$237.2 million reduction to Adjusted Net Income, primarily caused by absence of significant favorable effects of U.S. tax reform in 2017. See “—Factors and Current Trends Affecting Our Business and Results of Operations—Tax reform was enacted in the United States.” Third, depreciation increased \$49.3 million with the inclusion of VWR’s operating results for the full year 2018.

Management EBITDA — segment results

Management EBITDA increased for all segments and had a greater negative effect from corporate due to the VWR Acquisition, as indicated by Baseline 2017 VWR in the table above.

For the Americas segment, the Combined Change included the impact of the net sales growth and gross margin improvements previously discussed, as well as \$53.2 million of growth from realized cost synergies under the global value capture program. Those savings were primarily related to headcount reduction and personnel off-shoring.

For the Europe segment, the Combined Change included the impact of the net sales growth and gross margin improvements previously discussed, as well as \$10.9 million of growth from realized cost synergies under the global value capture program. Those savings were primarily related to headcount reduction and personnel off-shoring.

For the AMEA segment, the Combined Change included the impact of the net sales growth and gross margin improvements previously discussed, partially offset by personnel and other investments to increase our sales force and product and service offerings in the region. Our strategy is to invest in the AMEA region in an effort to continue to capture market share.

For corporate, the Combined Change was primarily caused by headcount reductions and other realized cost synergies under the global value capture program. Those savings were primarily related to the elimination of redundant executive officers and reduction of other corporate personnel costs.

[Table of Contents](#)
Years ended December 31, 2017 and 2016

In order to provide relevant insight about the financial impact of the VWR Acquisition on our results for the years ended December 31, 2017 and 2016, we discuss and analyze the year-over-year change in operating results as two components:

- (1) VWR, which is the contribution made by the VWR business we acquired for the 41 day period from November 21, 2017, the date we closed the acquisition, to December 31, 2017.
- (2) Other, which is the period-over-period change in our legacy business absent VWR.

<i>(dollars in millions)</i>	Year ended December 31,			Reason for change	
	2017	2016	Change	VWR	Other
Net sales	\$ 1,247.4	\$ 691.3	\$ 556.1	\$ 552.0	\$ 4.1
Gross margin	34.7%	46.2%	(1,150) bps	(1,170) bps	20 bps
Operating (loss) income	\$ (210.4)	\$ 9.9	\$(220.3)	\$ (39.3)	\$(181.0)
Net loss	(145.3)	(80.7)	(64.6)		
Adjusted EBITDA	289.5	220.7	68.8	59.0	9.8
Management EBITDA	324.0	250.2	73.8	59.0	14.8
Adjusted Net Income	157.4	30.3	127.1		

The VWR Acquisition in November 2017 was the most significant driver of change when comparing 2017 to 2016. Net loss and operating loss reflect the impact of \$194 million of fees to New Mountain Capital and other charges related to the VWR Acquisition. Net loss also increased as a result of higher interest expense on new borrowings to finance the VWR Acquisition. The inclusion of VWR's results for the 41-day period after the acquisition caused significant growth in net sales and Adjusted EBITDA and a decline in gross margin. Gross margins declined because VWR's historical margins were lower than ours.

Net sales

<i>(in millions)</i>	Year ended December 31,			Reason for change	
	2017	2016	Change	VWR	Other
Americas	\$ 688.1	\$ 394.5	\$293.6	\$317.8	\$(24.2)
Europe	381.4	155.6	225.8	226.9	(1.1)
AMEA	177.9	141.2	36.7	7.3	29.4
Total	\$ 1,247.4	\$ 691.3	\$556.1	\$552.0	\$ 4.1

Net sales increased primarily from the inclusion of 41 days of results from the VWR Acquisition. Otherwise, results were affected by three substantially offsetting factors. First, we experienced a weak first quarter where net sales declined \$29.2 million, or 16%, driven primarily by the performance in the Americas. Growth for the remainder of the year was \$33.3 million, or 6.5%. Secondly, sales of advanced technologies & applied materials increased by a low single-digit rate due to volume growth and pricing actions across all markets. Finally, we experienced significant, broad-based growth in AMEA.

The following table presents Other change growth rates in net sales by customer and product group:

Customer group	Product group
Biopharma	flat
Healthcare	Proprietary materials & consumables
Education & government	flat
Advanced technologies & applied materials	-LDD
	-LDD
	+LSD

LSD = low single-digit (0-3%), LDD = low double-digit (10-19%)

[Table of Contents](#)

Net sales — segment results

For the Americas segment, net sales increased primarily from the inclusion of 41 days of results from the VWR Acquisition. Otherwise, net sales decreased, caused by a \$29.4 million decrease in the first quarter that was partially offset by \$5.2 million of growth for the remainder of the year. We believe that our net sales volume to healthcare and biopharma customers was adversely impacted in the first quarter of 2017 because those customers utilized previously purchased inventories and also because of the timing of biopharma customer production campaigns. This caused us to experience a flat net sales trend from biopharma customers and a low double-digit decline from healthcare customers for the full year, despite the growth trend we experienced in the latter portion of the year. Sales growth from advanced technologies & applied materials customers helped to partially offset that first quarter decline, driven by favorable pricing in a significant new customer contract and a new product supply award from another significant customer.

For the Europe segment, net sales increased primarily from the inclusion of 41 days of results from the VWR Acquisition. Otherwise, sales were relatively flat due to small offsetting factors. We consolidated plants in the Netherlands and Poland which caused a temporary disruption to production. We also experienced growth from certain advanced technologies & applied materials customers caused by both higher demand and higher pricing for silicones used in the manufacture of medical implantable devices.

For the AMEA segment, net sales increased from the inclusion of 41 days of results from the VWR Acquisition. Otherwise, we experienced significantly higher volumes, particularly in India and China as we focused on growth in these regions. We experienced growth across all significant product groups and customers driven by our ability to capture new market share in this emerging region. Our strongest growing customer group was advanced technologies & applied materials, which was attributable to new product developments and a new product supply award from a significant customer.

Gross margin

	<u>Year ended December 31,</u>		<u>Change</u>	<u>Reason for change</u>	
	<u>2017</u>	<u>2016</u>		<u>VWR</u>	<u>Other</u>
Gross margin	34.7%	46.2%	(1,150) bps	(1,170) bps	20 bps

The decrease in gross margin was primarily caused by the inclusion of 41 days of results from the VWR Acquisition. VWR's gross margin for the year ended December 31, 2016 was 28%. Gross margin attributable to VWR was further reduced in 2017 due to \$41.8 million of purchase accounting adjustments on sold VWR inventory whose carrying value was increased to fair value as part of purchase accounting for the VWR Acquisition.

Operating income or loss

<i>(in millions)</i>	<u>Year ended December 31,</u>		<u>Change</u>	<u>Reason for change</u>	
	<u>2017</u>	<u>2016</u>		<u>VWR</u>	<u>Other</u>
Gross profit	\$ 432.8	\$ 319.7	\$ 113.1	\$110.1	\$ 3.0
Operating expenses	643.2	309.8	333.4	149.4	184.0
Operating (loss) income	<u>\$ (210.4)</u>	<u>\$ 9.9</u>	<u>\$(220.3)</u>	<u>\$(39.3)</u>	<u>\$(181.0)</u>

Operating income decreased to a loss as a result of higher operating expenses, partially offset by higher gross profit, each due in part to the inclusion of 41 days of results following the VWR Acquisition. Gross profit also increased due to other changes to net sales and gross margin previously discussed.

[Table of Contents](#)

The remaining increase to operating expenses was primarily caused by higher fees to New Mountain Capital and other expenses related to the VWR Acquisition. Fees to New Mountain Capital increased \$165.2 million primarily due to the 2017 payments of a \$180.0 million transaction fee for the VWR Acquisition and a \$12.5 million transaction fee for a debt refinancing, whereas in 2016 we paid transaction fees totaling \$27.3 million for two other debt refinancings. Other expenses related to the VWR Acquisition included an increase to amortization of \$33.3 million for significant new customer relationship and trade name assets and \$17.5 million related to restructuring and severance expenses under of the global value capture program.

Net loss

<i>(in millions)</i>	<u>Year ended December 31,</u>		<u>Change</u>
	<u>2017</u>	<u>2016</u>	
Operating (loss) income	\$ (210.4)	\$ 9.9	\$(220.3)
Interest expense	(257.3)	(80.3)	(177.0)
Other income (expense), net	7.5	(0.2)	7.7
Income tax benefit (expense)	314.9	(10.1)	325.0
Net loss	<u>\$ (145.3)</u>	<u>\$ (80.7)</u>	<u>\$ (64.6)</u>

Net loss increased primarily due to a change from operating income to loss for reasons discussed in the previous section and higher interest expense, partially offset by a change from income tax expense to benefit. Interest expense increased due to the fourth quarter 2017 debt restructuring to finance the VWR Acquisition. See “Liquidity and Capital Resources—Indebtedness” for additional information. Income tax expense in 2016 changed from a provision to a significant benefit in 2017 primarily due to tax reform legislation passed in the United States and other foreign jurisdictions in the fourth quarter of 2017, from which we provisionally recognized benefits from rate changes of \$339.0 million, partially offset by the provisional rate effect of a one-time transition tax of \$158.8 million. The change from income tax expense to income tax benefit was also impacted by the changes in pretax earnings previously discussed.

Adjusted EBITDA, Management EBITDA and Adjusted Net Income

<i>(in millions)</i>	<u>Year ended December 31,</u>			<u>Reason for change</u>	
	<u>2017</u>	<u>2016</u>	<u>Change</u>	<u>VWR</u>	<u>Other</u>
Adjusted EBITDA	\$ 289.5	\$ 220.7	\$ 68.8	\$ 59.0	\$ 9.8
Management EBITDA:					
Americas	\$ 196.8	\$ 171.0	\$ 25.8	\$ 36.1	\$ (10.3)
Europe	103.4	63.6	39.8	31.0	8.8
AMEA	43.3	42.1	1.2	0.5	0.7
Corporate	(19.5)	(26.5)	7.0	(8.6)	15.6
Total	<u>\$ 324.0</u>	<u>\$ 250.2</u>	<u>\$ 73.8</u>	<u>\$ 59.0</u>	<u>\$ 14.8</u>
Adjusted Net Income	\$ 157.4	\$ 30.3	\$ 127.1		

Adjusted EBITDA increased primarily due to the inclusion of 41 days of results following the VWR Acquisition. Otherwise, growth was moderate due to offsetting factors.

Adjusted Net Income increased primarily due to the change from income tax provision to benefit applicable to Adjusted Net Income. This change had the effect of increasing Adjusted Net Income by \$240.9 million and was primarily caused by the favorable effects of U.S. tax reform. See “—Factors and Current Trends Affecting Our Business and Results of Operations—Tax reform was enacted in the United States.” Additionally, we experienced growth of \$68.8 million in Adjusted EBITDA as previously discussed. These growth factors were partially offset by a \$177.0 million increase in interest expense caused by our 2016 and 2017 debt refinancings and a \$5.6 million increase to depreciation with the inclusion of VWR’s operating results for 41 days in 2017.

[Table of Contents](#)

Management EBITDA — segment results

For the Americas and Europe, the increase in Management EBITDA was primarily due to the inclusion of 41 days of results from the VWR Acquisition.

For the Americas, the other decrease in Management EBITDA was caused by the weak first quarter results previously discussed.

For Europe, the other increase primarily reflects benefits from the consolidation of production facilities in the Netherlands and Poland.

For corporate, the other increase reflects cost synergies from integrating the organizations in the fourth quarter of 2017, as well as restructuring initiatives prior to the VWR Acquisition.

Reconciliations of Non-GAAP Financial Measures

As previously noted, we supplement our results of operations determined in accordance with GAAP with certain non-GAAP financial measurements that are used by management, and which we believe are useful to investors, creditors and others as supplemental operational measurements to evaluate our financial performance. These measurements should not be considered in isolation or as a substitute for reported GAAP results because they may include or exclude certain items as compared to similar GAAP-based measurements, and such measurements may not be comparable to similarly-titled measurements reported by other companies. Rather, these measurements should be considered as an additional way of viewing aspects of our operations that provide a more complete understanding of our business. We strongly encourage readers to review our consolidated financial statements included elsewhere in this prospectus in their entirety and not rely solely on any one single financial measurement. See “Presentation of Certain Financial Measures.”

Table of Contents

The following table presents the reconciliation of net loss to non-GAAP measures for the three months ended March 31, 2019 and 2018 and for the years ended December 31, 2018, 2017 and 2016:

<i>(in millions)</i>	Three months ended March 31,		Year ended December 31,		
	2019	2018	2018	2017	2016
Net loss ⁽¹⁾	\$ (6.2)	\$ (41.2)	\$ (86.9)	\$ (145.3)	\$ (80.7)
Amortization ⁽¹⁾	78.6	82.6	321.3	65.2	31.9
Net foreign currency loss from financing activities ⁽²⁾	6.2	6.9	6.5	5.5	0.4
Gain on derivative instruments ⁽³⁾	—	—	—	(9.6)	—
Other share-based compensation expense ⁽⁴⁾	—	—	(0.7)	26.6	86.6
Restructuring and severance charges ⁽⁵⁾	5.5	7.5	81.2	29.6	11.1
Purchase accounting adjustments ⁽⁶⁾	(0.8)	10.3	(1.0)	41.8	4.5
Transaction fees to New Mountain Capital ⁽⁷⁾	—	—	—	192.5	27.3
Executive departures ⁽⁸⁾	—	—	4.5	—	—
Impairment charges ⁽⁹⁾	—	—	2.9	5.0	—
VWR transaction expenses ⁽¹⁰⁾	0.7	(0.1)	0.4	40.7	—
VWR integration and planning expenses ⁽¹¹⁾	5.6	7.3	35.8	33.0	—
Other transaction and integration expenses ⁽¹²⁾	—	—	1.1	25.0	11.5
Debt refinancing fees ⁽¹³⁾	—	—	—	3.1	4.7
Environmental remediation costs ⁽¹⁴⁾	—	—	—	—	4.6
Income tax benefit applicable to pretax adjustments ⁽¹⁵⁾	(21.4)	(25.9)	(104.9)	(155.7)	(71.6)
Adjusted Net Income	68.2	47.4	260.2	157.4	30.3
Interest expense ⁽¹⁾	128.6	128.3	523.8	257.3	80.3
Depreciation ⁽¹⁾	19.7	19.2	83.3	34.0	28.4
Income tax provision (benefit) applicable to Adjusted Net Income ⁽¹⁶⁾	31.5	22.0	78.0	(159.2)	81.7
Adjusted EBITDA	248.0	216.9	945.3	289.5	220.7
Business performance improvement programs ⁽¹⁷⁾	1.5	0.6	7.1	0.3	6.5
Ongoing share-based compensation expense ⁽¹⁸⁾	4.8	4.5	19.1	21.6	12.1
Write-offs of working capital and other assets ⁽¹⁹⁾	7.5	—	22.1	—	1.0
Long-term incentive plan ⁽²⁰⁾	2.4	0.8	9.6	3.2	1.5
Other ⁽²¹⁾	1.2	1.9	2.8	9.4	8.4
Management EBITDA	265.4	224.7	1,006.0	324.0	\$250.2
Pro forma adjustment for VWR ⁽²²⁾	—	—	—	492.7	—
Pro forma adjustment for projected synergies ⁽²³⁾	27.6	45.2	145.1	219.0	—
Covenant EBITDA	\$293.0	\$269.9	\$1,151.1	\$1,035.7	—

(1) Represents amounts as determined under GAAP.

(2) Represents remeasurement of various foreign-denominated borrowings into functional currencies. Our U.S. subsidiaries carry a significant amount of euro-denominated debt, and many of our subsidiaries borrow and lend with each other in foreign currencies. For 2018, 2017 and the three months ended March 31, 2019 and 2018, the foreign currency losses were primarily caused by unhedged intercompany loans receivable ranging from €190 million and €250 million.

(3) Represents the realized gain on foreign currency forward contracts used to hedge pre-acquisition changes in the value of VWR's euro-denominated loans.

(4) Represents expenses related to remeasuring legacy NuSil awards at fair value on a recurring basis and modification of share-based awards caused by the legal entity restructurings in November 2017 and September 2016. These expenses fluctuated significantly across the periods due to the increases in the value of our business following business combinations.

Table of Contents

- (5) The following table presents restructuring and severance charges by plan:

<i>(in millions)</i>	Three months ended March 31,		Year ended December 31,		
	2019	2018	2018	2017	2016
Global value capture program	\$ 5.1	\$ 5.6	\$ 78.3	\$ 17.5	\$ —
Other	0.4	1.9	2.9	12.1	11.1
Total	<u>\$ 5.5</u>	<u>\$ 7.5</u>	<u>\$ 81.2</u>	<u>\$ 29.6</u>	<u>\$ 11.1</u>

See “Factors and Current Trends Affecting Our Business and Results of Operations—We are implementing a significant global value capture program” for additional information about the global value capture program. Other includes three smaller plans for VWR, NuSil and legacy Avantor and other non-plan initiatives.

- (6) Represents reversals of the short-term impact of purchase accounting adjustments on earnings, the most significant of which was the increase to cost of sales that resulted from valuing VWR’s inventory at fair value in purchase accounting. Also includes the earnings impact of remeasuring contingent consideration to fair value on a recurring basis.
- (7) Represents transaction fees paid to New Mountain Capital. Pursuant to the terms of their advisory agreement with us, New Mountain Capital earned a fee equal to 2% of the value of each of our three debt refinancings and the VWR Acquisition. See “Certain Relationships and Related Party Transactions.”
- (8) Represents severance payments made to former executives that were not included in a restructuring program.
- (9) Represents the write-off of property, plant and equipment related to a legacy research and development facility in 2018 and the write-off of property, plant and equipment and inventory related to a discontinued product line in 2017.
- (10) Represents direct expenses incurred to consummate the VWR Acquisition.
- (11) Represents expenses incurred related to planning and integration of VWR.
- (12) The following table presents the components of our other transaction and integration expenses:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Unconsummated equity offering	\$ —	\$ 19.9	\$ 5.0
NuSil-related integration expenses	—	5.1	3.4
Other transaction expenses	1.1	—	3.1
Total	<u>\$ 1.1</u>	<u>\$ 25.0</u>	<u>\$ 11.5</u>

- (13) Represents non-capitalized fees incurred to refinance our debt in March 2017, September 2016 and June 2016, excluding transaction fees paid to New Mountain Capital.
- (14) Represents establishment of a multi-year environmental remediation liability to remediate soil and groundwater conditions at our Gliwice, Poland manufacturing facility.
- (15) Represents the tax benefit or provision associated with the reconciling items between net loss and Adjusted Net Income. To determine the aggregate tax effect of the reconciling items, we utilized statutory income tax rates ranging from 0% and 35%, depending upon the applicable jurisdictions of each adjustment.
- (16) Represents the difference between income tax expense or benefit as determined under GAAP and the income tax benefit applicable to pretax adjustments.

Table of Contents

- (17) Represents consultant and employee expenses to implement commercial operating improvements including optimization of our global manufacturing footprint, strategic pricing initiatives and manufacturing productivity.
- (18) Primarily represents expense related to stock options and optionholder awards that vest based on continuing employee service.
- (19) Substantially represents the reduction of inventory to net realizable value in accordance with GAAP, but also includes immaterial write-offs of trade accounts receivable and property, plant and equipment.
- (20) Represents cost of cash-based compensation programs awarded to key employees that vest at the end of three-year periods through December 31, 2020 with continuing service.
- (21) Represents non-recurring tax payments, customer rebates, non-cash pension charges, consulting projects, advisory fees and other immaterial items.
- (22) Represents the incremental results attributable to VWR as if the VWR Acquisition had been completed on January 1, 2017, as permitted by our debt covenants.
- (23) Reflects estimated cost synergies to be generated by our global value capture program, as permitted by our debt covenants. As of December 31, 2018, we believe that we have captured \$112 million of annualized cost synergies as a result of the program and we have plans to capture an additional \$117 million. We currently expect that all synergies and cost savings will be fully realized by 2021. See “—Factors and Current Trends Affecting Our Business and Results of Operations—We are implementing a significant global value capture program.” We may not continue to realize the cost savings we benefited from in 2018, and the cost savings we expect in future periods from the actions we took in 2018 may not be realized in full or at all. See “Risk Factors—We have implemented a significant global value capture program.”

Table of Contents

The following table presents quarterly reconciliations of net income or loss to non-GAAP measures for the quarters in the year ended December 31, 2018:

<i>(in millions)</i>	Year ended December 31, 2018				
	First quarter	Second quarter	Third quarter	Fourth quarter	Total
Net loss (benefit)	\$ (41.2)	\$ (26.9)	\$ 34.5	\$ (53.3)	\$ (86.9)
Amortization	82.6	80.5	79.4	78.8	321.3
Net foreign currency loss from financing activities	6.9	(10.1)	3.4	6.3	6.5
Other share-based compensation benefit ⁽¹⁾	—	—	—	(0.7)	(0.7)
Restructuring and severance charges ⁽²⁾	7.5	32.9	16.7	24.1	81.2
Purchase accounting adjustments	10.3	(3.4)	(4.1)	(3.8)	(1.0)
Executive departures	—	2.3	0.1	2.1	4.5
Impairment charges	—	1.9	—	1.0	2.9
VWR transaction expenses	(0.1)	0.5	—	—	0.4
VWR integration and planning expenses	7.3	6.6	5.1	16.8	35.8
Other transaction and integration expenses	—	—	1.1	—	1.1
Income tax benefit applicable to pretax adjustments	(25.9)	(27.0)	(24.6)	(27.4)	(104.9)
Adjusted Net Income	47.4	57.3	111.6	43.9	260.2
Interest expense	128.3	130.2	130.2	135.1	523.8
Depreciation	19.2	19.9	21.9	22.3	83.3
Income tax provision (benefit) applicable to Adjusted Net Income	22.0	30.4	(8.8)	34.4	78.0
Adjusted EBITDA	216.9	237.8	254.9	235.7	945.3
Business performance improvement programs	0.6	2.7	3.1	0.7	7.1
Ongoing share-based compensation expense	4.5	4.2	5.8	4.6	19.1
Write-offs of working capital and other assets	—	—	0.2	21.9	22.1
Long-term incentive plan	0.8	4.6	2.7	1.5	9.6
Other	1.9	0.8	1.5	(1.4)	2.8
Management EBITDA	224.7	250.1	268.2	263.0	1,006.0
Pro forma adjustment for projected synergies	45.2	38.3	32.4	29.2	145.1
Covenant EBITDA	\$269.9	\$288.4	\$300.6	\$292.2	\$1,151.1

Note: See footnotes 1 through 23 under “—Reconciliations of Non-GAAP Financial Measures” for descriptions of the reconciling items noted above to the extent not described below.

- (1) Represents expenses related to remeasuring legacy NuSil awards at fair value on a recurring basis.
- (2) The following table presents restructuring and severance charges by plan:

<i>(in millions)</i>	Year ended December 31, 2018				
	First quarter	Second quarter	Third quarter	Fourth quarter	Total
Global value capture program	\$ 5.6	\$ 32.6	\$ 16.6	\$ 23.5	\$78.3
Other	1.9	0.3	0.1	0.6	2.9
Total	\$ 7.5	\$ 32.9	\$ 16.7	\$ 24.1	\$81.2

See “Factors and Current Trends Affecting Our Business and Results of Operations—We are implementing a significant global value capture program” for additional information about the global value capture program. Other includes three smaller plans for VWR, NuSil and legacy Avantor and other non-plan initiatives.

[Table of Contents](#)
Other Financial Data

The following table presents the reconciliation of VWR as previously reported to Baseline 2017 VWR:

	VWR as previously reported	Reconciling items			Baseline 2017 VWR
	Nine months ended September 30, 2017	VWR 51 days ended November 21, 2017	Segment allocation	Pre- acquisition sales to VWR	324 days ended November 21, 2017
<i>(in millions)</i>					
Net sales:					
Americas	\$ 2,136.8	\$ 410.1	\$ —	\$ (48.3)	\$ 2,498.6
EMEA-APAC	1,372.8	284.5	(1,657.3)	—	—
Europe	—	—	1,557.2	(4.6)	1,552.6
AMEA	—	—	100.1	—	100.1
Total	<u>\$ 3,509.6</u>	<u>\$ 694.6</u>	<u>\$ —</u>	<u>\$ (52.9)</u>	<u>\$ 4,151.3</u>
Operating income:					
Gross profit	\$ 984.8	\$ 195.8	\$ —	\$ —	\$ 1,180.6
Operating expenses	739.5	207.4	—	—	946.9
Total	<u>\$ 245.3</u>	<u>\$ (11.6)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 233.7</u>
Adjusted EBITDA ⁽¹⁾	\$ 383.7	\$ 77.3	\$ —	\$ —	\$ 461.0
Management EBITDA:					
Not allocated	\$ 393.4	\$ 75.1	\$ (468.5)	\$ —	\$ —
Americas	—	—	322.9	—	322.9
Europe	—	—	183.7	—	183.7
AMEA	—	—	14.3	—	14.3
Corporate	—	—	(52.4)	—	(52.4)
Total	<u>\$ 393.4</u>	<u>\$ 75.1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 468.5</u>

Table of Contents

(1) The following table reconciles VWR's net income to Adjusted EBITDA and VWR as previously reported to Baseline 2017 VWR:

	VWR as previously reported	Reconciling item	Baseline 2017 VWR
	Nine months ended	VWR	324 days ended
<i>(in millions)</i>	September 30, 2017	51 days ended November 21, 2017	November 21, 2017
Net income (loss) ^(a)	\$ 124.6	\$ (31.6)	\$ 93.0
Interest expense ^(a)	61.1	51.7	112.8
Income tax expense ^(a)	64.4	(30.0)	34.4
Depreciation and amortization ^(a)	108.0	20.7	128.7
Net foreign currency loss (gain) from financing activities ^(b)	5.0	(0.7)	4.3
Gain on derivative instruments ^(c)	(9.7)	—	(9.7)
Other share-based compensation expense ^(d)	—	34.0	34.0
Restructuring and severance charges ^(e)	9.8	1.1	10.9
Purchase accounting related adjustments ^(f)	2.1	0.1	2.2
VWR integration and planning ^(g)	—	31.5	31.5
VWR transaction expenses ^(g)	18.4	0.5	18.9
Adjusted EBITDA	<u>383.7</u>	<u>77.3</u>	<u>461.0</u>
Ongoing share-based compensation ^(h)	9.7	1.9	11.6
Other	—	(4.1)	(4.1)
Management EBITDA	<u>\$ 393.4</u>	<u>\$ 75.1</u>	<u>\$ 468.5</u>

(a) Represents amounts as determined under GAAP.

(b) Represents remeasurement of various foreign-denominated borrowings into functional currencies. VWR's U.S. subsidiaries carried a significant amount of euro-denominated debt, and many of its subsidiaries borrowed and lent with each other in foreign currencies.

(c) Represents the realized gain caused by the settlement of interest rate swaps in anticipation of the VWR Acquisition.

(d) Represents the immediate vesting of VWR's share-based awards pursuant to a change in control clause triggered by the VWR Acquisition.

(e) Represents charges for the legacy VWR 2016 restructuring plan.

(f) Represents the earnings impact of remeasuring contingent consideration to fair value on a recurring basis.

(g) See footnotes 10 and 11 to the table included under "—Reconciliations of Non-GAAP Financial Measures."

(h) Primarily represents expense related to stock options that vested based on continuing employee service.

[Table of Contents](#)

The following table presents certain calculations of the changes to gross margin:

<i>(dollars in millions)</i>	<u>Gross profit</u>	<u>Net sales</u>	<u>Gross margin</u>
Year ended December 31, 2017	\$ 432.8	\$ 1,247.4	34.7%(A)
Baseline 2017 VWR	<u>1,180.6</u>	<u>4,151.3</u>	28.4%
Subtotal	1,613.4	5,398.7	29.9%(B)
Combined change	<u>206.4</u>	<u>465.6</u>	
Year ended December 31, 2018	<u>\$1,819.8</u>	<u>\$ 5,864.3</u>	31.0%(C)
Calculation of Baseline 2017 VWR		(B) - (A)	(480)bps
Calculation of Combined Change		(C) - (B)	110 bps

The following table presents quarterly net sales:

<i>(in millions)</i>	<u>First quarter</u>	<u>Second quarter</u>	<u>Third quarter</u>	<u>Fourth quarter</u>	<u>Total</u>
Year ended December 31, 2018:					
Avantor, Inc.	\$1,418.3	\$1,477.9	\$1,494.2	\$1,473.9	\$5,864.3
Year ended December 31, 2017:					
Avantor, Inc.	151.8	182.9	183.0	729.7	1,247.4
Baseline 2017 VWR	1,125.1	1,159.3	1,180.6	686.3	4,151.3

Liquidity and Capital Resources

We fund short-term cash requirements primarily from operating cash flows and unused availability under our credit facilities. Most of our long-term financing is from indebtedness.

Our most significant contractual obligations are scheduled principal and interest payments for indebtedness. We also have obligations to make payments under operating leases, to purchase certain products and services and to fund pension obligations. In addition to contractual obligations, we use cash to fund capital expenditures and taxes. We have also used significant amounts of cash to fund distributions and debt refinancing fees, but we do not anticipate this going forward due to new restrictions imposed by our indebtedness. Changes in working capital may be a source or a use of cash depending on our operations during the period.

We expect to fund our long-term capital needs with cash generated by operations and availability under the Revolving Facilities (as defined below). See “—Indebtedness.” Although we believe that these sources will provide sufficient liquidity for us to meet our long-term capital needs, our ability to fund these needs will depend to a significant extent on our future financial performance, which will be subject in part to general economic, competitive, financial, regulatory and other factors that are beyond our control.

We believe that cash generated by operations, together with available liquidity under our credit facilities, will be adequate to meet our current and expected needs for cash prior to the maturity of our debt, although no assurance can be given in this regard.

Table of Contents
Liquidity

The following table presents our primary sources of liquidity:

<i>(in millions)</i>	As of March 31, 2019		
	<u>A/R Facility</u>	<u>Revolver</u>	<u>Total</u>
Unused availability under credit facilities:			
Current availability	\$ 250.0	\$ 250.0	\$500.0
Undrawn letters of credit outstanding	(12.6)	(16.7)	(29.3)
Outstanding borrowings	(3.0)	—	(3.0)
Unused availability	<u>\$ 234.4</u>	<u>\$ 233.3</u>	<u>\$467.7</u>
Cash and cash equivalents			<u>143.9</u>
Total liquidity			<u>\$611.6</u>

Our liquidity needs change daily. We manage liquidity needs by utilizing our Revolving Facilities and also by monitoring working capital levels. Our A/R Facility availability also depends upon maintaining a sufficient borrowing base of eligible accounts receivable. We believe that we have sufficient capital resources to meet our daily liquidity needs.

Most of our cash resides outside of the United States. At March 31, 2019, \$128.7 million of our cash and cash equivalents was held by our foreign subsidiaries.

Historical cash flows

Three months ended March 31, 2019 and 2018

The following table presents a summary of cash provided by (used in) various activities:

<i>(in millions)</i>	Three months ended March 31,		<u>Change</u>
	<u>2019</u>	<u>2018</u>	
Operating activities:			
Working capital changes	\$ (20.0)	\$ (13.8)	\$ (6.2)
All other	<u>95.0</u>	<u>60.0</u>	<u>35.0</u>
Total	75.0	46.2	28.8
Investing activities	(7.9)	(11.8)	3.9
Financing activities	(106.1)	(77.8)	(28.3)
Capital expenditures	12.4	12.3	0.1

Operating activities provided \$28.8 million more cash in 2019 primarily due to the decrease in net loss of \$35.0 million. This was partially offset by higher cash paid for taxes of \$8.2 million and working capital changes of \$6.2 million. Non-cash items such as depreciation, amortization and deferred taxes were comparable to 2018.

Investing activities used \$3.9 million less cash in 2019 primarily due to \$4.5 million of cash received from the sale of property, plant and equipment in 2019. Capital expenditures were comparable across both periods.

Financing activities used \$28.3 million more cash in 2019 primarily due to additional repayments of borrowings under credit facilities.

Table of Contents

Years ended December 31, 2018 and 2017

The following table presents a summary of cash provided by (used in) various activities:

<i>(in millions)</i>	Year ended December 31,		Change
	2018	2017	
Operating activities:			
Working capital changes	\$ (100.0)	\$ 72.6	\$ (172.6)
All other	300.5	(240.1)	540.6
Total	200.5	(167.5)	368.0
Investing activities	(23.2)	(6,676.0)	6,652.8
Financing activities	(170.3)	6,965.0	(7,135.3)
Capital expenditures	37.7	25.2	12.5

Operating activities provided cash in 2018 and used cash in 2017, resulting in a \$368.0 million increase in cash flows. Excluding working capital changes, operating cash flows increased \$540.6 million primarily from VWR's operating contributions following the acquisition and the absence of a \$192.5 million transaction fee paid to New Mountain Capital in 2017, partially offset by a \$344.1 million increase in cash paid for interest. Working capital changes used additional cash of \$172.6 million, \$97.5 million of which was due to accounts receivable growth that followed the growth in net sales and \$60.8 million of which was growth in inventory reflecting cyclical stocking of science educational kits for a significant new customer and inventory growth in the AMEA region to improve customer service levels.

Investing activities used \$6.7 billion less cash in 2018 compared to 2017, caused primarily by the absence of the \$6.6 billion VWR Acquisition in 2017. This was partially offset by higher ongoing capital expenditures due to the acquisition of VWR. The scale of our global business increased significantly and requires us to spend more on an ongoing basis to maintain our capital infrastructure.

Financing activities used cash in 2018 and provided a substantial amount of cash in 2017, resulting in a \$7.1 billion decrease to cash flows primarily caused by the absence of significant debt and equity financing that was used to fund the VWR Acquisition and distributions in 2017. We raised \$1.8 billion from the issuance of Existing Senior Preferred Stock and warrants and \$1.2 billion from the issuance of Existing Junior Convertible Preferred Stock, each net of fees paid. We also raised \$4.1 billion from the issuance of Senior Secured Notes and Senior Unsecured Notes and \$1.8 billion from an increase in term borrowings under the Senior Secured Credit Facilities as compared to our prior credit facilities. We used these funds primarily to make a \$1.7 billion distribution and to fund the VWR Acquisition as noted in the description of investing activities above. Cash outflows for the year ended December 31, 2018 included \$185.5 million of debt repayments and \$20.5 million of contingent consideration payments related to previous acquisitions.

Years ended December 31, 2017 and 2016

The following table presents a summary of cash provided by (used in) various activities:

<i>(in millions)</i>	Year ended December 31,		Change
	2017	2016	
Operating activities:			
Working capital changes	\$ 72.6	\$(11.5)	\$ 84.1
All other	(240.1)	84.4	(324.5)
Total	(167.5)	72.9	(240.4)
Investing activities	(6,676.0)	(29.9)	(6,646.1)
Financing activities	6,965.0	(43.5)	7,008.5
Capital expenditures	25.2	29.9	(4.7)

[Table of Contents](#)

Operating activities used cash in 2017 and provided cash in 2016, resulting in a \$240.4 million decrease in cash flows. Excluding working capital changes, operating cash flows decreased \$324.5 million primarily due to a \$165.2 million increase in transaction fees paid to New Mountain Capital and an \$82.3 million increase in cash paid for interest. Partially offsetting this, working capital changes provided cash of \$84.1 million.

Investing activities used \$6.6 billion more cash in 2017 and financing activities provided \$7.0 billion more cash, primarily due to the 2017 debt and equity financings to finance a shareholder distribution and fund the VWR Acquisition, each as described above.

Indebtedness

In November 2017, we refinanced substantially all of our debt through our wholly-owned subsidiary Avantor Funding, Inc. As a result, our availability under credit facilities, debt borrowings and interest each significantly increased. We also extended the overall maturity profile of our debt. The refinancing resulted in payments of \$283.1 million to fund debt issuance costs, \$273.5 million of which was deferred and is being recognized as interest expense through the maturity dates of our debt. We also incurred a loss on extinguishment of debt of \$34.6 million. Each of those amounts excludes transaction fees paid to New Mountain Capital.

In connection with the foregoing, Avantor Funding, Inc. entered into (i) a senior secured term facility, or the “Term Loan Facility,” for the borrowing of approximately \$3,154.3 million, including a \$1,953.1 million U.S. dollar tranche, or the “Dollar Term Loan Facility” and a €1,000 million euro tranche, or the “Euro Term Loan Facility” and (ii) a senior secured revolving credit facility of up to \$250.0 million, or the “Revolver” and, together with the Term Loan Facility, the “Senior Secured Credit Facilities,” each with a syndicate of financial institutions led by Goldman Sachs Bank USA, as administrative agent and collateral agent. As of December 31, 2018, we had \$232.8 million of additional borrowing capacity under the Revolver (after giving effect to \$17.2 million of issued but undrawn letters of credit). The Term Loan Facility and the Revolver mature in November 2024 and November 2022, respectively, and have the terms described under “Description of Indebtedness—Senior Secured Credit Facilities.” In November 2018, Avantor Funding, Inc. entered into a repricing amendment to the Term Loan Facility to lower the applicable interest rate margin for each of the U.S. dollar tranche and the euro tranche.

In addition, in 2017, VWR Receivables Funding, LLC entered into an amended and restated receivables facility (the “A/R Facility” together with Revolver the “Revolving Facilities”) with PNC Bank, National Association, as administrator. The A/R Facility provides us with borrowing capacity in an aggregate principal amount of up to \$250.0 million. As of December 31, 2018, we had \$133.7 million of additional borrowing capacity thereunder (after giving effect to \$12.3 million of issued but undrawn letters of credit). The A/R Facility matures in November 2020 and has the terms described under “Description of Indebtedness—A/R Facility.”

Further, in 2017, Avantor Funding, Inc. issued (i) \$1.5 billion aggregate principal amount of 6.000% Senior First Lien Notes due 2024 (the “Dollar Notes”), (ii) €500 million aggregate principal amount of 4.750% Senior First Lien Notes due 2024 (the “Euro Notes” and together with the Dollar Notes, the “Senior Secured Notes”) and (iii) \$2 billion aggregate principal amount of 9.000% Senior Notes due 2025 (the “Senior Unsecured Notes”), each in an exempt offering pursuant to Rule 144A and Regulations S under the Securities Act. The Senior Secured Notes and the Senior Unsecured Notes mature in October 2024 and October 2025, respectively, and have the terms described under “Description of Indebtedness—Senior Secured Notes” and “Description of Indebtedness—Senior Unsecured Notes.”

The credit agreement governing the Senior Secured Credit Facilities (the “Credit Agreement”), the purchase agreement governing the A/R Facility (the “A/R Purchase Agreement”) and the indentures governing the Senior Secured Notes (the “Secured Indenture”) and Senior Unsecured Notes (the “Unsecured Indenture” and, together with the Secured Indenture, the “Indentures”) contain a number of affirmative and negative covenants, which we consider to be customary and usual. As of December 31, 2018, we were in compliance with all of these covenants. For more information regarding the terms of our indebtedness, see “Description of Indebtedness.”

Table of Contents

Among other things, the Credit Agreement and the Indentures restrict the ability of Avantor Funding, Inc. to pay dividends or make other distributions to Avantor, Inc. As of December 31, 2018, substantially all of our net assets were held by our subsidiaries.

In addition, under the Credit Agreement, we are required to satisfy and maintain a consolidated first lien net leverage ratio of 7.35:1.00, in periods when we have drawn more than 35% of our revolving credit facility. To date, the covenant has not yet become applicable. Our continued ability to meet this financial ratio can be affected by events beyond our control, and we may not meet such ratio in the future.

This financial ratio, as well as others including the (i) consolidated interest coverage ratio, consolidated total net leverage ratio and fixed charge coverage ratio, which are utilized, among other things, in the debt incurrence covenants of the Credit Agreement, the Credit Agreement and the Indentures, respectively (ii) consolidated secured net leverage ratio and consolidated total debt ratio, which are utilized, among other things, in the investment covenant of the Credit Agreement and the Indentures, respectively and (iii) consolidated secured debt ratio, which is utilized, among other things, in the liens incurrence covenant of the Indentures, involve the calculation of a non-GAAP financial measure that we refer to in this discussion as "Covenant EBITDA."

Contractual obligations

The following table presents our contractual obligations at December 31, 2018:

<i>(in millions)</i>	Payments due by period				
	Total	Less than a year	1-3 years	3-5 years	More than 5 years
Debt: ⁽¹⁾					
Principal ⁽²⁾	\$ 7,162.9	\$ 38.6	\$ 171.8	\$ 64.8	\$ 6,887.7
Interest ⁽³⁾	2,881.8	466.8	923.2	912.0	579.8
Operating leases	213.0	44.2	63.3	46.6	58.9
Purchase obligations ⁽⁴⁾	71.4	23.3	27.7	20.4	—
Other liabilities:					
Underfunded pension obligations ⁽⁵⁾	74.1	6.6	13.5	14.7	39.3
Transition tax payments ⁽⁶⁾	71.1	6.1	12.4	17.8	34.8
Other	25.7	8.4	6.3	2.3	8.7
Total	<u>\$10,500.0</u>	<u>\$ 594.0</u>	<u>\$1,218.2</u>	<u>\$1,078.6</u>	<u>\$7,609.2</u>

- (1) Includes capital lease obligations, which were not material. To calculate payments for principal and interest, we assumed that variable interest rates, foreign currency exchange rates and outstanding borrowings under the Revolving Facilities were unchanged from December 31, 2018 through maturity.
- (2) Our Senior Secured Credit Facilities would require us to accelerate our principal repayments should we generate excess cash flows, as defined, in future periods.
- (3) In November 2018, we amended our Senior Secured Credit Facilities to reduce the interest rate margins on our euro term loans by 0.50% and our U.S. term loans by 0.25%. We expect the amendment to result in annual interest savings of approximately \$10 million.
- (4) Purchase obligations for certain products and services are made in the normal course of business to meet operating needs.
- (5) Represents future pension obligations due to pension plan participants in which the underlying plan liabilities exceed its assets.
- (6) Represents our remaining transition tax obligation due over eight years to transition to the modified territorial tax system under new U.S. income tax legislation.

[Table of Contents](#)

Off-Balance Sheet Arrangements

We do not use special purpose entities or have any other material off-balance sheet financing arrangements except for our receivables facility, letters of credit and operating leases. We enter into these arrangements for ordinary business reasons and believe that they are governed by ordinary commercial terms. For more information, see Notes 13 and 22 to our audited consolidated financial statements included elsewhere in this prospectus.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the amounts reported throughout the financial statements. Those estimates and assumptions are based on our best estimates and judgment. We evaluate our estimates and assumptions on an ongoing basis using historical experience and known facts and circumstances. We adjust our estimates and assumptions when we believe the facts and circumstances warrant an adjustment. As future events and their effects cannot be determined with precision, actual results could differ significantly from those estimates.

We consider the policies and estimates discussed below to be critical to an understanding of our financial statements because their application places the most significant demands on our judgment. Specific risks for these critical accounting policies are described in the following sections. For all of these policies, we caution that future events rarely develop exactly as forecast, and such estimates routinely require adjustment.

Our discussion of critical accounting policies and estimates is intended to supplement, not duplicate, our summary of significant accounting policies so that readers will have greater insight into the uncertainties involved in these areas. For a summary of all of our significant accounting policies, see Note 2 to our audited consolidated financial statements included elsewhere in this prospectus.

Estimating the fair value of assets acquired from VWR

In November 2017, we acquired VWR for a purchase price of \$6.6 billion. To account for the acquisition, we were required to allocate the purchase price to the assets acquired and liabilities assumed based on their individual fair values with the excess allocated to goodwill.

Estimating fair value requires the use of significant unobservable inputs, or level 3 measurements. Determining these inputs requires us to make significant assumptions and judgments. Those estimates impacted nearly all captions on our consolidated balance sheet and the amount of net sales, cost of sales, depreciation, amortization and income tax expense on our statement of operations. Using different estimates or assumptions would have materially affected our results in 2017 and future periods. For example:

- A one percent decrease to the rate we used to discount future cash flows would have increased the fair value of finite-lived intangible assets by \$580 million and increased annual amortization by \$25 million; and
- An overall one-year decrease to our estimates of remaining useful lives would have increased annual amortization of our customer relationships by \$11 million and annual depreciation of our property, plant and equipment by \$17 million.

All purchase accounting estimates are determined as of the acquisition date and are not adjusted for future developments. However, any differences between acquisition-date estimates and actual future results could impact other subsequent accounting under GAAP, such as the results of future impairment tests.

Accounting for changes to income tax laws

Income tax laws change from time to time. The effect of a change in tax law on deferred tax assets and liabilities is recognized as a cumulative adjustment to income tax expense or benefit in the period of enactment.

[Table of Contents](#)

The effect of a change in tax law on the income tax expense or benefit itself is recognized prospectively for the applicable tax years.

In December 2017, tax reform legislation was enacted in the United States. The new legislation included a broad range of corporate tax reforms, some of which were very complex. The new legislation caused us to recognize a provisional income tax benefit of \$126.7 million for 2017 and an additional benefit of \$29.5 million when we finalized our accounting for tax reform in 2018. Additional details are included in Note 19 to our audited consolidated financial statements included elsewhere in this prospectus.

Testing goodwill and other intangible assets for impairment

As a result of the VWR Acquisition, we carry significant amounts of goodwill and other intangible assets on our consolidated balance sheet. At December 31, 2018, the combined carrying value of goodwill and other intangible assets, net of accumulated amortization and impairment charges, was \$7.4 billion or 74% of our total assets.

Required annual assessment

On October 1 of each year, we perform annual impairment testing of our goodwill and indefinite-lived intangible assets, or more frequently whenever an event or change in circumstance occurs that would require reassessment of the recoverability of those assets. The impairment analysis for goodwill and indefinite-lived intangible assets consists of an optional qualitative test potentially followed by a quantitative analysis. These measurements rely upon significant judgment from management described as follows:

- The qualitative analysis for goodwill and indefinite-lived intangible assets requires us to identify potential factors that may result in an impairment and estimate whether they would warrant performance of a quantitative test;
- The quantitative goodwill impairment test requires us to estimate the fair value of our reporting units. We estimate the fair value of each reporting unit using a weighted average of three valuation methods based on discounted cash flows, market multiples and market references. These valuation methods require management to make various assumptions, including, but not limited to, future profitability, cash flows, discount rates, weighting of valuation methods and the selection of comparable publicly traded companies; and
- The quantitative test for indefinite-lived intangible assets is determined using a discounted cash flow method that incorporates an estimated royalty rate, an estimated discount rate and certain other assumptions.

Our estimates are based on historical trends, management's knowledge and experience and overall economic factors, including projections of future earnings potential. Developing future cash flows in applying the income approach requires us to evaluate our intermediate to longer-term strategies, including, but not limited to, estimates about net sales growth, operating margins, capital requirements, inflation and working capital management. The development of appropriate rates to discount the estimated future cash flows requires the selection of risk premiums, which can materially impact the present value of future cash flows. Selection of an appropriate peer group under the market approach involves judgment, and an alternative selection of guideline companies could yield materially different market multiples. Weighing the different value indications involves judgment about their relative usefulness and comparability to the reporting unit.

Based on the results of our October 1, 2018 impairment testing, we did not record any impairment charges. Each reporting unit had a fair value that was substantially in excess of the carrying value.

Determination of operating segments and reporting units

Effective October 1, 2018, we established three new reporting units aligned to geographic operating segments based on customer location: Americas, Europe and AMEA. Prior to this, we determined that we had three reporting units aligned to product groups.

[Table of Contents](#)

The determination of operating segments and reporting units requires us to exercise significant judgment, especially in determining (i) the basis of segmentation used by our Chief Executive Officer and segment management at various points in time across the reporting periods; and (ii) whether components of operating segments are economically similar and therefore aggregated. Determining one basis of segmentation versus another fundamentally changes the way economic and other changes will impact individual reporting units; an impairment could be recognized under one basis but not another, or the impairment could be of different magnitudes. If we make a judgment that reporting units are economically dissimilar when in fact they are similar, we will establish more reporting units than necessary. This would put us at a greater risk of goodwill impairment because there will be a smaller portfolio to potentially mitigate specific types of business downturns or other indicators of impairment.

Estimating valuation allowances on deferred tax assets

We are required to estimate the degree to which tax assets and loss carryforwards will result in a future income tax benefit, based on our expectations of future profitability by tax jurisdiction. We provide a valuation allowance for deferred tax assets that we believe will more likely than not go unused. If it becomes more likely than not that a deferred tax asset will be realized, we reverse the related valuation allowance and recognize an income tax benefit for the amount of the reversal. At December 31, 2018, our valuation allowance on deferred tax assets was \$197.8 million, most of which relates to foreign net operating loss carryforwards that are not expected to be realized.

We must make assumptions and judgments to estimate the amount of valuation allowance to be recorded against our deferred tax assets, which take into account current tax laws and estimates of the amount of future taxable income, if any. Changes to any of the assumptions or judgments could cause our actual income tax obligations to differ from our estimates.

Accounting for uncertain tax positions

In the ordinary course of business, there is inherent uncertainty in quantifying our income tax positions. We assess income tax positions for all years subject to examination based upon our evaluation of the facts, circumstances and information available at the reporting date. For those tax positions where it is more likely than not that a tax benefit will be sustained, we have recorded an amount having greater than 50% likelihood of being realized upon ultimate settlement with a taxing authority assumed to have full knowledge of all relevant information. For those income tax positions where it is not more likely than not that a tax benefit will be sustained, no tax benefit has been recognized in the financial statements. Our reserve for uncertain tax positions was \$84.3 million at December 31, 2018, exclusive of penalties and interest. Where applicable, associated interest expense has also been recognized as a component of the provision for income taxes.

We operate in numerous countries under many legal forms and, as a result, we are subject to the jurisdiction of numerous domestic and non-U.S. tax authorities, as well as to tax agreements and treaties among these governments. Determination of taxable income in any jurisdiction requires the interpretation of the related tax laws and regulations and the use of estimates and assumptions regarding significant future events, such as the amount, timing and character of deductions and the sources and character of income and tax credits. Changes in tax laws, regulations, agreements and treaties, currency exchange restrictions or our level of operations or profitability in each taxing jurisdiction could have an impact upon the amount of current and deferred tax balances and hence our net income.

We file tax returns in each tax jurisdiction that requires us to do so. Should tax return positions not be sustained upon audit, we could be required to record an income tax provision. Should previously unrecognized tax benefits ultimately be sustained, we could be required to record an income tax benefit.

Estimating the fair value of share-based compensation

Our employees have received awards under various share-based compensation plans. Those awards include stock options, restricted stock awards, restricted stock units, stock appreciation rights, mirror units and phantom

[Table of Contents](#)

units. Expense for all of those awards is calculated using a measurement of fair value based on unobservable inputs, a level 3 measurement. Fair value for some of those awards is determined on the grant date and recognized ratably over their vesting term. Fair value for other awards is remeasured at the end of each reporting period.

For awards measured at grant date fair value, we estimate fair value using the Black-Scholes model. This model requires us to make various assumptions with the most significant assumption being the grant date fair value of our shares and the volatility of the stock price. The fair value of our awards may have differed if we had applied different assumptions in the valuation model or if our shares had been traded in a public market. The factors that may impact the grant date fair value of our shares include a change in our customer base, market interest or overall economic conditions. These factors would also have an impact on the volatility of our share price. For example, increasing our expected volatility assumptions by 5% would increase the ongoing expense for our stock options by 10% to 15%.

For awards measured at fair value on a recurring basis, we estimate fair value based upon forecasts and three different valuation methodologies, each of which depends on management making assumptions and judgments. The valuation methodologies include a discounted cash flow approach, a guideline company method and a selected transaction method. In connection with each of these valuation methodologies, we prepare a forecast to project our financial results, identify our terminal growth rate, determine our discount rate, identify comparable companies and transactions, and determine our volatility among other things.

Estimating the fair value of our common stock

We are required to estimate the fair value of the common stock underlying our equity awards in connection with grants of equity awards. The fair value of the common stock underlying our equity awards was determined on each grant date by our Board of Directors, taking into account input from management. In addition, we engaged a third-party independent valuation firm to provide an estimate of fair value of the common stock underlying our equity awards. The analysis performed by the independent valuation firm was based upon data and assumptions provided to it by us and received from third party sources, which the independent valuation firm relied upon as being accurate without independent verification. The advice of the third-party independent valuation firm is one input that our Board of Directors considers for determining fair value of the common stock underlying our equity awards, for which we and our Board of Directors are ultimately and solely responsible. All options to purchase shares of our common stock are intended to be granted with an exercise price per share no less than the fair value per share of our common stock underlying those options on the date of grant, based on the information known to us on the date of grant. The assumptions we use in the valuation models were based on future expectations for the company combined with judgment from our Board of Directors and management.

Our Board of Directors considered various objective and subjective factors, along with input from management, to determine the fair value of our common stock, including but not limited to:

- Our results of operations, current financial position, as well as financial projections for the company, including our levels of available capital resources;
- The valuation and corresponding market multiples of publicly-traded companies in the life sciences and advanced technologies & applied materials industry sectors, as well as recently completed mergers and acquisitions of peer companies;
- The lack of marketability of our common stock as a private company;
- The likelihood of achieving a liquidity event for the holders of our common stock, such as an initial public offering or a sale of our company, given prevailing market conditions;
- Trends and developments in our industry; and
- External market conditions affecting the life sciences and advanced technologies & applied materials industry sectors.

[Table of Contents](#)

In valuing our common stock, our Board of Directors determined the fair value using both the income and market approach valuation methods. The income approach estimates value based on the expectation of future cash flows that a company will generate. These future cash flows are discounted to their present values using a rate based on our weighted average cost of capital, which is adjusted to reflect the risks inherent in our projected cash flows. The market approach estimates value based on a comparison of the subject company to comparable public companies and target companies involved in mergers and acquisition transactions in a similar line of business. From the comparable companies and/or transactions, a representative market multiple is determined and then applied to the subject company's financial performance to estimate the value of the subject company.

Application of these approaches involves the use of estimates, judgment and assumptions that are highly complex and subjective, such as those regarding our expected future revenue, expenses, and cash flows, discount rates, market multiples, the selection of comparable companies and the probability of future events. Changes in any or all of these estimates and assumptions, or the relationships between those assumptions, would impact our valuations as of each valuation date and may have a material impact on the valuation of common stock.

For valuations performed after the completion of the contemplated initial public offering, our Board of Directors will determine the fair value of each share of underlying common stock based on the closing price of our common stock as reported on the date of the grant.

Estimating the net realizable value of inventories

We value our inventories at the lower of cost or net realizable value. We regularly review quantities of inventories on hand and compare these amounts to the expected use of each product or product line, which can require us to make significant judgments. If our judgments prove to be incorrect, we may be required to record a charge to cost of sales to reduce the carrying amount of inventory on hand to net realizable value. As with any significant estimate, we cannot be certain of future events which may cause us to change our judgments.

In December 2018, we determined that market conditions deteriorated for a specialty product line we formerly manufactured and divested as part of our global value capture program. As a result, we no longer believe that we will be able to recover any of the cost of the manufactured inventory still on hand. We recorded a non-cash restructuring loss of \$20.2 million in the fourth quarter of 2018 to reduce the value of those inventories to zero.

Quantitative and Qualitative Disclosures About Market Risk

Foreign currency exchange rate risk

While we report our consolidated financial statements in U.S. dollars, a significant portion of the underlying operations are denominated in foreign currencies, principally the euro but also the British pound sterling and many others. Changes to foreign currency exchange rates expose us to the risk of: (i) changes to our earnings from the remeasurement of foreign-denominated financing; (ii) changes to earnings from the translation of our foreign operations into U.S. dollars; and (iii) changes to the reported value of our cash and cash equivalents.

Our U.S. subsidiaries carry significant amounts of euro-denominated debt, and many of our subsidiaries carry foreign currency denominated intercompany borrowing arrangements. We remeasure these positions into local currencies each period, and the effect is recognized immediately in earnings. Our foreign currency denominated intercompany borrowing exposure at December 31, 2018 was €250 million of unhedged intercompany loans receivable. A one percent decrease to the price of the euro in U.S. dollars at December 31, 2018 would have required us to reduce our 2018 pretax income by \$2.8 million.

Changes to foreign currency exchange rates could favorably or unfavorably affect our operating results. For example, during times of a strengthening U.S. dollar, our reported international sales and earnings will be reduced because local currencies will translate into fewer U.S. dollars. For the year ended December 31, 2018, a \$0.01 change in the exchange rate from U.S. dollars to euros would have resulted in \$0.9 million and \$1.7 million changes to net loss and Adjusted EBITDA, respectively.

[Table of Contents](#)

Most of our cash and cash equivalents are denominated in foreign currencies. At December 31, 2018, a 1% increase in the value of U.S. dollar compared to all other foreign currencies would have caused our cash and cash equivalents to decrease by \$1.6 million.

Interest rate risk

We carry a significant amount of debt that exposes us to interest rate risk. A significant portion of our debt consists of variable-rate instruments. We have also issued fixed-rate secured and unsecured notes. None of our other financial instruments are subject to material interest rate risk.

At December 31, 2018, we had borrowings of \$3.0 billion under our Senior Secured Credit Facilities and our A/R Facility. Borrowings under these facilities bear interest at variable rates based on prevailing LIBOR and EURIBOR rates in the financial markets. Changes to those market rates affect both the amount of cash we pay for interest and our reported interest expense. Our euro term loans include a zero percent floor on EURIBOR, which has been negative, so the floor provides a partial hedge of our variable interest rate risk on that loan. At December 31, 2018, a 100 basis point increase to the applicable variable rates of interest would have increased the amount of interest by \$25.9 million per annum.

Our Senior Secured Notes and Senior Unsecured Notes bear interest at fixed rates, so their fair value will increase if interest rates fall and decrease if interest rates rise. At December 31, 2018, a 100 basis point decrease in the market rate of interest for the notes would have increased their aggregate fair value by \$207.2 million.

[Table of Contents](#)**BUSINESS****Company Overview**

We are a leading global provider of mission critical products and services to customers in the biopharma, healthcare, education & government, and advanced technologies & applied materials industries. Our comprehensive offerings, which include materials & consumables, equipment & instrumentation and services & specialty procurement, are relied upon by our customers, often on a recurring basis, because they are frequently specified into their research, development and production processes. These processes are commonly organized into “workflows” that define the activities our customers perform each day. We collaborate closely with our customers to enable them to develop new innovative products, lower their development and production costs, improve product or process performance characteristics, and enhance the safety and reliability of the drugs, devices and other products they produce. In addition to relying on our products, many customers depend upon our services. Some of these services are performed by approximately 1,400 of our associates that are co-located with certain customers, working side-by-side with their scientists every day. Our local presence combined with our global infrastructure enable and promote successful relationships with our customers and connect us to over 240,000 of their locations in over 180 countries. Our mission is to set science in motion to create a better world.

The depth and breadth of our portfolio provides our customers a comprehensive range of products and services and allows us to create customized and integrated solutions for our customers. Selected offerings sold to our customers in discovery, research, development and production processes include:

- **Materials & consumables:** Ultra-high purity chemicals and reagents, lab products and supplies, highly specialized formulated silicone materials, customized excipients, customized single-use assemblies, process chromatography resins and columns, analytical sample prep kits and education and microbiology and clinical trial kits. In 2018, 33% of our revenues were from sales of proprietary materials & consumables and 40% of our revenues were from third-party materials & consumables;
- **Equipment & instrumentation:** Filtration systems, virus inactivation systems, incubators, analytical instruments evaporators, ultra-low-temperature freezers, biological safety cabinets and critical environment supplies; and
- **Services & specialty procurement:** Onsite lab and production, clinical, equipment, procurement & sourcing and biopharmaceutical material scale-up and development.

We have deep expertise in developing, customizing, manufacturing and supplying products for a wide variety of workflows, allowing us to provide tailored solutions throughout the lifecycle of our customers’ products. In aggregate, we provide approximately six million products, including products we make as well as products from approximately 4,000 core suppliers across the globe. We manufacture products that meet or exceed the demanding requirements of our customers across a number of highly-regulated industries. Our high-purity and ultra-high purity products, such as our J.T.Baker and SeaStar brand chemicals, are trusted by life sciences and electronic materials customers around the world and can be manufactured at purity levels as stringent as one part-per-trillion. Similarly, our NuSil brand of high-purity, customized silicones has been trusted for more than thirty years by leading medical device manufacturers and aerospace companies.

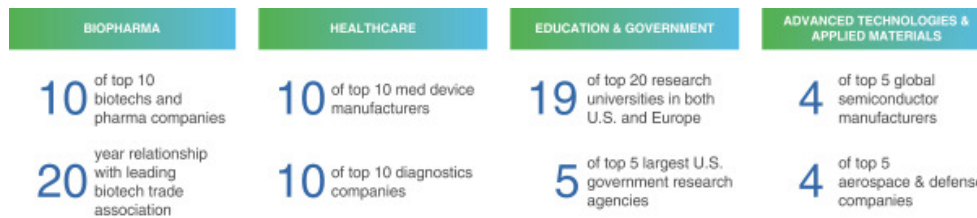
We complement our products with a range of value-added services. Each day, our onsite service associates work side-by-side with our customers to support their workflows. This close proximity to our customers and their workflows allows our associates to develop insights into how to serve them better. In certain cases, customers choose to fully leverage our value-added services and expertise by outsourcing specialized workflows entirely to us, further connecting us to their operations and allowing us to identify new business opportunities. We believe our growing services offering is a competitive advantage that further differentiates us from our competitors, deepens our relationships with current customers and enhances our ability to reach new ones.

We employ a differentiated innovation model that is informed by our embedded relationships with our customers and enables us to anticipate and align our innovation efforts with our customers’ priorities. We engage

[Table of Contents](#)

with our customers early in their product development cycles through our 300-person innovation team to advance our customers' programs from research and discovery through development and commercialization. At each step of our customers' workflows, we share our scientific and workflow expertise to help deliver incremental and sustainable improvements to existing customer products and processes. These projects include enhancing product purity and therefore its performance characteristics, improving product packaging and streamlining workflows. Our strategic initiatives include the development of new products in emerging areas of science such as cell and gene therapy. We currently have approximately 1,400 innovation projects with our customers that address process improvements for existing products and potential significant new opportunities for us to support.

We are a strategic partner to a diverse and sophisticated customer base with stringent quality and regulatory demands. Our ability to customize products and processes at scale while meeting these quality and regulatory requirements and the embedded nature of our business model have made us an integral part of our customers' development programs and broader supply chain. We are incorporated in over 800 of our customers' MAFs and DMFs that are registered with regulatory authorities around the world. Additionally, we are able to meet the exacting quality and regulatory requirements of our advanced technologies & applied materials customers, including semiconductor manufacturers, by providing materials at purity levels as stringent as one part-per-trillion. We have developed long-standing relationships with a global customer base, and generated approximately 36% of our revenues for the year ended December 31, 2018 from customers with whom we have 15+ year relationships. In total, in 2018 we believe we served established leaders and emerging innovators across each of the industries we serve:



The combination of our innovation centers and manufacturing facilities empowers us to support our customers from the earliest stages of their product innovation to commercial manufacturing, and provides us multiple opportunities to serve as a critical partner to them. Our eight regional innovation centers located in five different countries (including four currently operating in the AMEA region and a fifth which we expect to be operational in mid-2019), allow us to efficiently support the product development needs of our diverse customer base. In addition, we have 27 manufacturing facilities, 13 of which are cGMP compliant and 12 of which are regulated by the FDA or comparable foreign regulatory authorities. Led by our globally recognized VWR brand, we have approximately 150 sales and distribution centers strategically located to promote supply chain efficiency, enabling us to deliver orders virtually anywhere in the world, often within 24 to 48 hours. We employ approximately 3,800 sales and sales support professionals around the world who are focused on serving our customers through a local presence. Our professionals' comprehensive industry-specific knowledge is supplemented by our leading online customer platform which affords current and potential customers a rich, informative and customized user experience and allows us to better address a global customer base. Many customers choose to directly integrate their ordering activity with our online platform. We have over 2,500 integrated connections with our customers and approximately 1,000 integrated connections with our suppliers to simplify and expedite their transactions with us. In 2018, approximately 45% of our revenues came from our digital channels.

In 2018, we recorded net sales of \$5,864.3 million, net loss of \$86.9 million, Adjusted EBITDA of \$945.3 million and Adjusted Net Income of \$260.2 million. Approximately 85% of our revenues were from offerings that are recurring in nature. In addition, for the three months ended March 31, 2019, we have recorded net sales

[Table of Contents](#)

of \$1,480.1 million, net loss of \$6.2 million, Adjusted EBITDA of \$248.0 million and Adjusted Net Income of \$68.2 million. For the definitions of Adjusted EBITDA and Adjusted Net Income and reconciliations of these measures from net loss, please see “Summary—Summary Historical Financial and Other Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Reconciliations of Non-GAAP Financial Measures.”

Our Competitive Strengths

Our customer-centric business model, combined with our deep understanding of our customers’ workflows, allows us to differentiate ourselves in the marketplace and is at the core of our competitive advantage. We believe the following competitive strengths provide the foundation for our position as the partner of choice for mission critical products and services to our customers:

Trusted Partner With Deep Customer Relationships. Our end-to-end integrated workflow platform and our ability to partner at every stage of research, development and commercialization have led to deep, embedded customer relationships. Approximately 1,400 of our associates are co-located with certain customers, working side-by-side with their scientists every day. We have collaborated with and supported many of our strategic global accounts for decades, and approximately 36% of our revenue for the year ended December 31, 2018 was generated by customers with whom we have maintained relationships for over 15 years. We serve large, multinational customers through our dedicated Strategic Partners group, which deepens our relationship with these customers and allows us to support their critical workflows throughout their global operations. We also hold strong positions with many smaller and emerging companies. For example, through our 20-year, relationship with Biotechnology Innovation Organization (“BIO”), the world’s largest biotech trade association, we are well-positioned to serve as the supplier of choice to many startups and emerging companies. Collectively, the community of innovators we serve through our BIO agreement is one of our largest customers. Regardless of company size or development stage, our customers seek a partner with innovative and comprehensive product offerings, superior quality, advanced manufacturing and skilled technical services to support all of their research, development and commercialization needs. Based on our expertise and experience in these areas, we believe we are a critical partner for our customers.

Customized Offerings to Address Our Customers’ Evolving Needs. We work closely with our customers to provide highly customized formulations across a variety of workflows. Our customization capabilities span the entire spectrum of core customer requirements, including purity, composition, blending, kitting, form factor, packaging, lot size and specialized certifications. In demanding medical device workflows, where customization and precision are essential, our NuSil brand of formulated silicones is trusted by device manufacturers to create healthcare products and implantable devices approved by the FDA. Many of our product brands, such as J.T. Baker, have been specified and trusted for decades in critical biopharma processes as well. Our ability to rapidly customize and innovate has led to significant adoption of our products as we and our customers seek to improve productivity and establish new processes. In addition, many of our products are routinely used in complex and sensitive workflows such as Liquid Chromatography/Mass Spectrometry. Similarly, as the power of Next Generation Sequencing revolutionizes the scientific understanding of biological systems, enhances diagnostics, and screens patients for clinical trials, our strong offering related to sample preparation combined with our evolving digital capabilities enable scientists to tackle complex genomic and clinical research challenges. Our highly specialized and customized development, manufacturing and servicing capabilities also allow us to continue to pursue customized solutions in emerging and innovative therapeutic areas such as cell and gene therapies.

Depth And Breadth of Product and Service Offerings. Our comprehensive portfolio of materials & consumables, equipment & instrumentation and services & specialty procurement enables us to serve some of the most demanding and challenging areas of science. We offer more than six million distinct products that are often required by our customers in many of their most important processes. Our portfolio includes products valued for their exacting purity and performance specifications, some of which we manufacture to

Table of Contents

purity levels as stringent as one part-per-trillion. In addition, we offer our customers comprehensive value-added services which include lab and production services, clinical services, equipment services, procurement and sourcing services, biopharma material scale-up and development services. We also offer additional services such as research support, DNA extraction, sample prep, compound management and other innovative technical services needed in the laboratory. We are dedicated to bringing new digital insights and capabilities to our customers as we collaborate to cultivate the “lab of the future” – a lab capable of generating and digesting vast amounts of data with IoT devices.

Quality and Regulatory Expertise Drives Customer Loyalty. We serve industries that are subject to rigorous quality, performance and reliability regulations. Our customers rely on us to navigate these requirements while also facilitating their innovation and manufacturing efforts. We have submitted and maintain over 800 MAFs and DMFs with the FDA and comparable local regulatory authorities in nine countries, which simplifies our customers’ medical product approval processes by allowing them to reference our products as part of their own applications. We utilize supply chain transparency and security practices, manufacturing batch tracking, statistical controls, tamper-evident packaging, and multi-compendial product standards to meet our customers’ requirements. In addition, our 13 cGMP facilities and 19 ISO-certified distribution facilities create a distribution and manufacturing network that is designed to meet stringent quality and regulatory requirements. Our quality expertise is highly valued, including in semiconductor manufacturing, where customer demands for precision frequently exceed those in pharmaceuticals, biologics and medical devices. Our manufacturing expertise allows us to utilize the same manufacturing line for all stages of development and commercialization thus reducing customer regulatory burdens as their products progress from the laboratory to full scale production. This differentiated approach allows our customers to bring their products to market faster and more efficiently, and allows us to typically maintain our position over the life of the product given the regulatory requirements as well as the costs and risks involved in substituting our products.

Customer-Centric Innovation Framework. We employ a differentiated innovation model that is informed by our embedded relationships with our customers and enables us to anticipate and align our innovation efforts with our customers’ priorities. Grounded in our business and portfolio strategies, we have a comprehensive innovation system that seamlessly integrates our talent, key processes, functions, infrastructure and metrics. We take a portfolio approach to our activities and focus on both incremental and breakthrough innovation. We will continue to serve the most successful established and emerging companies through:

- *Proprietary Product Innovations.* We engage with our customers throughout their product lifecycles, including during initial discovery and development activities, to create materials and solutions that meet stringent specifications. We currently have approximately 1,400 innovation projects with our customers that address process improvements for existing products and potential significant new opportunities for us to support.
- *Third-Party Product Innovations.* We are an important channel for thousands of specialized manufacturers of complex and sophisticated scientific products. Because we are already embedded in key customer workflows and are widely trusted among a broad collection of emerging and established suppliers, we are able to accelerate market acceptance and growth of promising third-party innovations.
- *Data and Research Analytics.* We are actively engaged in developing advanced, innovative data integration and analytical solutions to support the vast amounts of data being generated by our customers. By relying on our data capabilities and insights, we will allow our customers to continue to focus on their core competencies while also participating in the benefits derived from analyzing and utilizing data.

Global Scale, Strategic Locations and Specialized Infrastructure. We are strategically located close to our global customers to drive supply chain efficiency, minimize customer lead times and navigate a

[Table of Contents](#)

complex network of regulatory requirements. Our highly dispersed customer base often requires access to intensely-regulated materials, which few other companies can address as well as we do given our capabilities and infrastructure. Our global footprint consists of over 200 facilities located in over 30 countries and allows us to deliver our extensive portfolio of products and services to customers nearly anywhere in the world and generally within 24 to 48 hours. We have the expertise and government licenses to manage multiple controlled environments globally, enabling us to safely and in a compliant manner handle highly regulated chemicals and other materials. Our local and regional sales associates, offshore support teams and global export organization are complemented by our multi-language online platform, which can display 17 languages and accept 10 currencies. Our global manufacturing, innovation, sales and customer service locations, combined with our online platform, allow us to provide outstanding service to our customers and enable us to grow.

Attractive Financial Profile and Scalable Operating Platform. We believe we have an attractive business model due to our scale, resilient and recurring revenue base, demonstrated operating leverage, and strong cash flow generation. The cost of our products is often a small percentage of the overall cost of our customers' workflow, resulting in a resilient business profile. Additionally, for the year ended December 31, 2018, approximately 85% of our sales were from our materials & consumables and services & specialty procurement offerings which we consider to be recurring. By employing ABS, a disciplined approach to continuously unlocking operational efficiencies, we have a demonstrated track record of improving profitability and driving cash flow generation. Our platform is further enhanced by a disciplined approach to M&A that, prior to the VWR Acquisition, historically contributed incremental revenue growth to VWR of approximately 1% to 2% per year by targeting businesses that enhance our workflow solutions, increase our technical capabilities and extend our global reach. Over the past ten years, VWR and Avantor have acquired and successfully integrated approximately 50 businesses.

World-Class Leadership with Proven Ability to Execute at Scale. Our 13-member senior executive team has extensive experience within the life sciences and advanced technologies & applied materials industries globally, and possesses a wide network of industry relationships. Our management team has a proven track record of delivering stable revenue growth, executing on investment plans, achieving margin expansion and driving continuous improvement of global enterprises. Our management team is supported by approximately 12,000 associates around the world who have extensive scientific and commercial experience and enable us to provide our customers with tailored expertise and service.

Our Growth Strategies

We intend to capitalize on our world-class platform and distinctive competitive strengths as we pursue the following growth strategies:

Increase Integration of Our Products and Services Into Customers' Workflows. Our extensive and long-term relationships with our customers and our embedded position in their workflows provide us with unique insights into their activities and understanding of additional products and services that we could offer to them. We translate these insights and understanding, together with our focus on workflows into a convenient one-stop solution for our customers resulting in a growing volume of business.

Develop New Products and Services. We are continuously expanding our portfolio to provide our customers with additional solutions and further expand our addressable markets. Specifically, we are focusing our efforts to expand our portfolio in:

- *Bioproduction.* We are broadening our range of process ingredients, serums, reagents, excipients, chromatography resins and single-use assemblies for use in the fast-growing bioproduction sector.
- *Custom Manufactured Products.* We are continuing to partner with our customers to create materials and solutions that meet the unique and stringent specifications for their current and future products. We currently have approximately 1,400 customer-directed projects in development at our innovation centers located around the world.

Table of Contents

- *New Products in High Growth Areas.* We are working closely with our sales force and our customers' R&D teams to understand emerging technologies and regulatory and industry standards that will become critical workflows in high growth industries. This close coordination with customers allows us to make targeted investments in the development of innovative products and solutions, bringing new products and services to market rapidly.
- *Service Offerings.* We are expanding upon our traditional services, such as specialty procurement, to offer additional innovative, flexible and customized solutions to our global strategic customers. We will continue to expand the scope of our service offerings. In addition, we will increase the complexity, precision and value of our offerings by adding more PhD-level practitioners with a significant level of expertise in particular workflows critical to biopharma and other industries.
- *Digital Capabilities.* As the volume, velocity and variety of data generated by our customers continue to expand, the ability to organize and analyze this data for actionable insight has become increasingly critical to our customers. We continue to develop digital solutions and tools to help expedite our customers' understanding of this critical data. Based on the insights we gain as strategic partners, we are building a broad suite of technology-enabled offerings tailored to our customers' objectives to increase productivity and effectiveness of their research and manufacturing workflows.

Expand in Geographies Expected to Have Outsized Growth. We are focused on expanding our geographic reach and believe certain emerging economies, including China, Southeast Asia and Eastern Europe, offer a strong opportunity for growth. Local demand for our products and solutions in these regions is being driven by increasingly stringent quality and regulatory requirements, the expansion of our customers' presence, an inadequate local supplier base and a significant increase in local government investment to support innovation in the industries we serve. We have invested in targeted geographies. We have dedicated executive leadership, R&D and sales force headcount to better serve these high growth markets. For example, we established a research and development facility for our electronic materials customers in Taiwan. Further, in the second half of 2019, we expect to open a new technology and development center in Shanghai to support customer innovation. We expect to continue this accelerating growth trend as we capitalize on our local presence and ability to attract new customers and follow existing ones into new geographies.

Continually Enhance Our Global Online Platform. We are continually improving and expanding our multi-lingual online sales platform in order to deliver our complete portfolio of offerings across all workflows. We will focus on enhancing our online platform in order to improve search engine effectiveness, simplify and personalize the user experience through enhancements to our vwr.com website and capture greater wallet share at existing customers and business from new customers. Using advanced analytics, we have also developed digital tools and marketing programs to increase the utility and stickiness of our platform, improve order conversion rates and share better insights with our customers regarding their needs and purchasing behaviors.

Increase Commercial Excellence and Operational Efficiency to Drive Margin Expansion. Operational discipline has been a core business focus at Avantor and VWR historically and continues to be our priority across manufacturing, sales and operational processes. ABS is fundamental to our operational growth strategy. ABS uses a team to drive continuous improvement by improving efficiency throughout our supply chain and increasing our overall productivity. Our associates are committed to running Kaizen events across the business in order to establish disciplined, sustainable processes to enhance our culture. This approach will continue to play a key component in our margin expansion plans going forward and will help drive profitability and cash generation.

Pursue Strategic Acquisitions to Expand our Platform. We have a strong track record of successfully identifying, completing and integrating strategic acquisitions. Our broad platform, global infrastructure and diversified customer base allow us to generate growth and operating leverage through such acquisitions. Our deep understanding of our customers' objectives provides us with the insight to make

[Table of Contents](#)

highly informed decisions on the acquisitions we should pursue. We have developed internal capabilities to source, evaluate and integrate acquisitions that have created value for stockholders. We intend to continue to pursue opportunistic acquisitions in our existing and adjacent customer segments to accelerate our entry into high-growth markets and geographies as well as add capabilities and workflow solutions.

Industry Overview

We operate primarily in the biopharma, healthcare, education & government and advanced technologies & applied materials industries. We estimate our total addressable market within these industries to be approximately \$70 billion in the aggregate in 2018. We expect the total addressable market we serve will grow approximately 5% annually from 2018 to 2020. We expect the convergence of several industry trends to drive increased demand for our products and services:

- **Favorable Demographic and Epidemiologic Trends.** Healthcare demand is increasing rapidly across most of the world, driven principally by aging populations, an increased prevalence of chronic diseases and improved access to healthcare. In the United States, individuals 65 and older spent three times more on healthcare in 2012 than working-age people between the ages of 19 to 64. At the same time, we expect the percentage of the population aged 65 and older to increase. The Centers for Medicare & Medicaid Services estimates that total healthcare expenditures will go from representing approximately 18% of gross domestic product in 2016 to approximately 20% in 2026, or \$5.7 trillion.
- **Strong Funding and Externalization of Drug Discovery.** R&D activities are accelerating with approximately \$200 billion of investment in life sciences being deployed each year by a variety of sources, including governments, startups and large pharmaceutical companies. The increasing contribution of startups to R&D spend is particularly noticeable in the biopharma industry, with more than 100 new companies being founded each year. These companies also control a significant proportion of the new molecules that are in development. These smaller companies often utilize an outsourced R&D model to allow them to focus on their core competencies, access expertise and support more efficiently from partners, and better manage their capital. In parallel, we have seen an increasing trend in R&D outsourcing among large pharmaceutical companies, who are also focused on driving efficiencies in their processes and aim to focus on their key strengths and value generating activities.
- **Proliferation of R&D and Development of New Therapeutic Modalities.** The rapid, accelerating pace of scientific innovation in the industries we serve is propelling heightened investment in complex and novel research, including new biologic and therapeutic modalities. For example, there has been a proliferation of various targeted therapies and drugs as companies seek to develop new and improve existing therapies and drugs to optimize patient outcomes leading to an increased R&D spend in these areas.
- **Emergence of Biosimilars.** Biosimilars are rapidly emerging alongside small and large molecule drugs. Based on our evaluation of third-party data, we believe biosimilar sales will exceed \$25 billion by 2020.
- **Digital Transformation of Science.** Scientific research has entered a new era, where the convergence of chemistry, biology and computational science is being utilized to solve complex challenges and create new modalities. The rapid adoption of technologies such as big data and analytics and cloud based solutions represents a meaningful opportunity to automate and optimize mission critical operations and drive competitive differentiation. As the volume, velocity, and variety of data continue to expand, the ability to leverage this data for actionable insight has become increasingly foundational to driving innovation and improving efficiencies in science.
- **Positive Research and Development Trends in Advanced Technologies & Applied Materials.** The increasing intelligence and mobility of electronic devices coupled with the prevalence of internet access globally are enabling the IoT, a term that describes the massive increase in IP-enabled devices

[Table of Contents](#)

connected to the Internet. Continued demand for IoT devices and groundbreaking technological advancements, including artificial intelligence and autonomous cars, are driving demand for improved chip designs that often have smaller feature sizes. These new chips will increase the need for ultra-high purity materials, in higher volumes, that are used in the semiconductor manufacturing processes. In addition, the aerospace & defense industry continues to utilize new technologies and features, which has driven increased spending in this industry.

- **Geographic Expansion.** Emerging markets represent an attractive growth opportunity given the emerging health needs, increased disposable income of their growing populations and focus on healthcare and innovation by governments in these regions. We expect China and India to significantly increase the amount each spends on healthcare in the future, with China expected to increase investment to make biotech 4% of its GDP by 2020. Chinese venture capital and private equity investment in healthcare reached approximately \$20 billion in 2016 and increased to approximately \$30 billion in 2017. Biologics only make up 12% of the Chinese market, but are forecasted to grow at a CAGR of more than 16% from 2010 to 2021, compared to approximately 8% in the US. There has been a growing trend where venture capital is buying US intellectual property or molecule licenses for the China market, subcontracting the drug development to Chinese contract research and manufacturing organizations. To respond to the needs in these geographies, many of our customers expanded their operations in these regions resulting in an increased need for our offerings.

Table of Contents

Our table presents select applications of our products, services and solutions for the customers in each industry we serve:

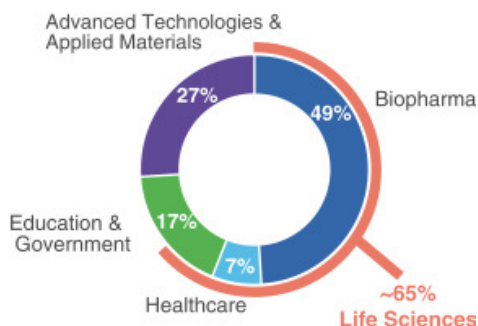
<u>Industry Sectors</u>	<u>2018 Management Estimated Addressable Market(1) (approximate dollar amount in billions)</u>	<u>Management Estimated CAGR (2018 – 2020)</u>	<u>Select Research, Development and Manufacturing Applications</u>
Biopharma	\$30	7%	<ul style="list-style-type: none"> • Small molecule pharmaceutical and generic drugs • Biologics and biosimilars • Vaccines, cell and gene therapies and blood components
Healthcare	\$ 9	5%	<ul style="list-style-type: none"> • Medical implants, drug delivery devices, non-implantable devices • Diagnostic tools and consumables
Education & Government	\$15	3%	<ul style="list-style-type: none"> • Basic and applied science • Government sponsored research across multiple areas of discovery • Kits for primary and secondary science education • Agricultural and environmental testing
Advanced Technologies & Applied Materials	\$15	4%	<ul style="list-style-type: none"> • Semiconductor manufacturing • Aerospace & defense • Chemical/petroleum • Other Industrial
Total	<u>\$70</u>	<u>5%</u>	

(1) 2018 Management Estimated Addressable Market includes both products and services.

The scientific communities above are served by a number of laboratory product suppliers and distributors. Customers have historically maintained a complex procurement infrastructure to achieve their procurement and resource objectives in order to source their desired products. They are increasingly seeking to eliminate complexity and improve the effectiveness of their supply chain.

[Table of Contents](#)

Our customers are sophisticated, science-driven businesses working across highly technical industries that require innovation and adherence to the most demanding technical and regulatory requirements. The following chart presents net sales from each of our end markets for the year ended December 31, 2018, of which approximately 65% comes from life sciences:



Biopharma

We offer a range of products and services along every step of the biopharmaceutical production process, from research and development to commercialization. Our offerings are used by biopharmaceutical companies, biotechnology companies, biosimilar companies, generic drug companies and CMOs of all sizes to specifically address their development and manufacturing needs during each phase of a drug's lifecycle. We are well-positioned to support the emerging needs of science, providing solutions for both traditional small molecule sectors and the growing, more complex large molecule sector. Specifically, our solutions are specified in 80% of the top 20 currently marketed biologic drugs. These drugs make up 50% of the biopharma industry revenue.

We are a trusted partner and serve the top 10 biotech and pharma companies, and have a 20-year relationship with BIO. We believe we are well-positioned to continue growing in this industry. We estimate that our addressable portion of the biopharmaceutical market for 2018 was approximately \$30 billion.

Industry Overview

The biopharma industry is comprised of two primary sectors: large molecule and small molecule drugs. Large molecule drugs are produced in living cells, microorganisms or animals by using bioproduction methods. Other cutting-edge techniques are used after production to isolate, purify and prepare these large molecules for therapeutic use. These drugs include antibodies, vaccines, monoclonal antibodies, gene therapies and blood components.

Large molecule drugs are produced in a living cell culture and are highly susceptible to changes in the production process that might lead to variations in yield, quality and composition. As a result, large molecule drugs tend to require more complex and costly manufacturing processes than those used to manufacture traditional pharmaceuticals. The large molecule drug manufacturing process is divided into two critical phases, the upstream production of the protein culture and the downstream purification/formulation process. Upstream bioprocessing steps include fermentation, cell growth and product harvest. Downstream steps include product purification and formulation fill and finish. The upstream process steps are needed to drive yield and product conformity, while the downstream steps relate to purification of the active ingredient followed by formulation of a stable drug.

Small molecule drugs, commonly referred to as "traditional pharmaceuticals," are chemically synthesized and may also use similar techniques as large-molecule drugs for purification and final dosage preparation. The

Table of Contents

process of manufacturing small molecule drugs is more predictable than that of large-molecule drugs, as the former are chemically synthesized. This sector contains a well-established generic drug sub-market that provides large volumes of off-patent small molecule pharmaceuticals at significantly reduced prices to patients worldwide.

Large and small molecule drug development is characterized by complex and lengthy research and development processes with strict regulatory requirements. Before a drug is marketed, the drug must go through a regulatory approval process which includes several clinical trials and the submission of an application for approval. In addition to traditional new drug application or biologic license application pathways, there are abbreviated processes to reach FDA approval for generic drugs and biosimilar drugs. The pathway for biosimilars is more complicated than that for generics because the product quality characteristics of the originator molecules are more complex and harder to replicate.

In addition to requiring laboratory products, participants in the biopharma and global life sciences industries also utilize a range of value-added services. These services historically have consisted of stockroom and other operational services performed at customer locations. We believe that these customers are beginning to look to outsource some of the more routine components of their scientific and more complex activities to focus on their core high science research activities.

Regulatory standards have become increasingly stringent in recent years, especially as they relate to the drug manufacturing process and overall supply chain. As a result, biopharma customers look to suppliers who are able to satisfy the industry's rigorous regulatory and quality standards in all stages, from research and development to full production.

Healthcare

We offer a range of products and services for the medical device industry and diagnostics industry, including inputs to traditional offerings such as medical implantable devices to evolving treatments such as deep brain stimulation used to treat Parkinson's disease. Our NuSil brand is recognized as a global leader in high-purity silicones used in the manufacture of medical implantable devices, including aesthetic and reconstructive implants, pacemakers and cochlear implants. Our high-purity silicones are also frequently specified into non-implantable medical devices, such as medical-grade tubing, balloons and bladders. Also, we provide medical-grade silicones expertise to customize sustained drug release devices for our pharmaceutical and biologics customers.

Our products and value-added service offerings include medical implants, drug delivery devices, non-implantable devices, and lab equipment onsite services. In addition, we provide reagents across diagnostic chemistries such as hematology, immunology, histology and clinical chemistry to diagnostics companies globally, and diagnostics kits for customers in India and greater Asia.

We are the trusted partners for the top 10 medical device companies and the top 10 diagnostics companies and believe we have the relationships to continue to grow with our customers. We estimate that our addressable portion of the healthcare market for 2018 was approximately \$9 billion.

Industry Overview

The medical device industry is focused on providing a range of products, from simple consumables such as surgical gloves to medical implants across a range of applications. These applications include surgical robotics, diabetes, atrial fibrillation, structural heart, neuro, and many others. The medical device industry has many established, large participants as well as a number of fast growing entrants, each fueling innovation and adoption of new technologies. The growth in the industry has been driven by favorable demographics, increased consumer willingness to utilize medical devices, high-tech medical equipment improving patient outcomes and the increasing demand for services from the aging population.

[Table of Contents](#)

The diagnostics industry consists of companies offering *in vitro* diagnostic tests that utilize reagents, techniques, or instruments for the analysis of specimens such as blood, urine, or tissue with the goal of obtaining a diagnosis from assays in a controlled environment outside a living organism. The diagnostics industry has many established, large participants as well as a number of highly specialized smaller players, for which lack of scale makes product differentiation essential. The evolution of science and adoption of technology are providing tailwinds for market growth in the near future. The genomics revolution is enabling predictive, personalized medicine and targeted therapies. The digitization of diagnostics is driving a new wave of analytics that will bring continued innovation. These innovations are not only increasing the patient's standard of living, but are also creating data that needs to be processed, analyzed, and applied for broader population health and to meet their evolving needs. At the same time, the standardization and automation of medical diagnostics is rapidly democratizing previously complex testing, potentially increasing the addressable market.

Education & Government

We are a supplier of materials & consumables and equipment & instrumentation used in academic and government research laboratories. We offer a product suite that includes a variety of high-purity products, including HPLC solvents, solutions, salts, separation media and services that are used in these research laboratories.

We work with 19 of the 20 top research universities in both the United States and Europe, and the top 5 largest U.S. government research agencies. We estimate that our addressable portion of the education & government market for 2018 was approximately \$15 billion.

Industry Overview

Academic institutions educate the next generation of scientists, and require high quality products and services to ensure their labs are keeping pace with innovation and supporting breakthroughs in research. In addition to higher education, the industry serves both primary and secondary education, delivering laboratory kits and equipment. Organizations such as the National Science Foundation and the National Institute of Health ("NIH") fund thousands of university and government programs through grants, cooperative agreements, and contracts. In 2018, there was an increase in U.S. academic spending partially as a result of strong NIH funding, which we expect to further increase by 5% in 2019. In Europe, the 2019 EU Budget is implementing an approximately 10% increase in the Horizon 2020 research and innovation program, with the Health, Demographic Change and Wellbeing Budget in particular receiving a 21% increase in 2019.

Advanced Technologies & Applied Materials

Our advanced technologies & applied materials product portfolio is designed to meet our customers' stringent quality, purity and performance standards in the semiconductor manufacturing, chemicals/petroleum, and aerospace & defense industries. We have a comprehensive product line of solutions and high-purity acids and solvents used in the manufacture of semiconductors and other high precision applications. We also offer an extensive line of specialty space-grade silicone materials to the aerospace & defense industry. These highly customized materials are used in extreme environments, and include adhesives, sealants, coatings and other inputs for various aircraft, satellite and space applications.

We serve 4 of the top 5 global semiconductor manufacturers and 4 of top 5 aerospace & defense contractors, demonstrating our ability to deliver scaled manufacturing and solutions to industry-leading customers. We estimate that our addressable portion of the advanced technologies & applied materials industry for 2018 was approximately \$15 billion.

Industry Overview

Semiconductors are ubiquitous in our daily lives, and are present in end-products ranging from automobiles and consumer electronics to computers, industrial systems and a variety of communication devices. Within

Table of Contents

semiconductors there are two main types of products, logic devices and memory devices, both of which require high-purity chemicals in the production process, including etching and cleaning.

Groundbreaking technological advancements and applications, including artificial intelligence and autonomous cars, are driving overall growth in the advanced technologies & applied materials industries. For example, we believe the demand for semiconductor chips will increase as electronic devices continue to utilize more sophisticated features and components, including internet connectivity and sensors. As these technologies continue to develop and proliferate, our customers will require custom solutions and ultra-high purity materials to meet their manufacturing requirements.

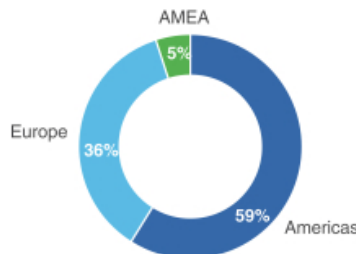
In electronics manufacturing, miniaturization is driving manufacturers to improve chip designs and manufacturing processes. Feature sizes have decreased steadily over the years with companies working on components at or below 10 nanometers in size. As these trends continue, new design innovations will increase the demand for the ultra-high purity and greater volumes of materials that are used in the manufacturing of these products.

In the aerospace & defense industry, we see favorable macro trends with strong defense budgets and increasing NATO funding, as well as strong order patterns for military equipment platforms that incorporate products we make, such as advanced aircraft. In addition to new space and military innovations, legacy platforms are going through an overhaul and upgrade cycle, commonly using various custom silicones and other high-performance materials to improve performance of these outdated systems.

Business Segments

We report financial results on the basis of three geographic segments: the Americas; Europe; and Africa, Middle East and Asia region or (“AMEA”). In each reported region, we sell materials & consumables, equipment & instrumentation and services & specialty procurement. Our products and services are often specified into customer research, development and production workflows in the biopharma, healthcare, education & government and advanced technologies & applied materials industries. As of December 31, 2018, our Americas segment is comprised of 87 facilities located in seven countries. Our Europe segment is comprised of 94 facilities located in 21 countries. Our AMEA segment is comprised of operations located in Asia, the Middle East and Africa, and includes 36 facilities located in seven countries.

The following chart presents the net sales from each of our reportable segments for the year ended December 31, 2018:



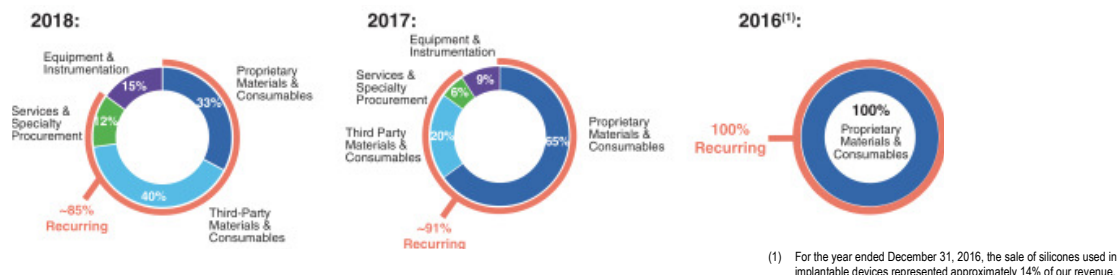
Our Products and Services

Our products and services portfolio is comprised of (i) materials & consumables, including proprietary and third-party products; (ii) equipment & instrumentation; and (iii) services & specialty procurement. Our broad product portfolio enhances our customers’ workflows at each stage from discovery through development to commercialization. We complement our products with a range of value-added services, including lab and

[Table of Contents](#)

production services, clinical services, equipment services, procurement and sourcing services, and biopharma material scale-up and development services. Approximately 85% of our revenues were from our products and services offerings which we consider to be recurring in nature.

We use operational data and management assumptions to estimate our revenue by product category for the years ended December 31, 2017, which includes VWR's results since the VWR Acquisition, and December 31, 2016, which does not include VWR's results. The following charts present our revenue by product category for the year ended December 31, 2018 and our estimated revenue by product category for the years ended December 31, 2017 and 2016:



Materials & Consumables

We serve our customers with proprietary products through a variety of valuable and recognizable brands, including J.T.Baker, NuSil and VWR Chemicals, which have longstanding reputations for purity, quality, reliability and innovation. Our J.T.Baker brand chemicals are trusted by life sciences and electronic materials customers around the world and can be manufactured at purity levels as stringent as one part-per-trillion. Likewise, our NuSil brand of high-purity, customized silicones have been trusted for more than thirty years by leading medical device manufacturers and aerospace companies. Our VWR Chemicals brand encompasses a wide range of laboratory and industrial chemicals manufactured to exacting quality, purity, performance, and packaging specifications. VWR Chemicals are often used by scientists as they perform sensitive analyses in disciplines such as microbiology, cell diagnostics, genomics and proteomics. Other brands in our portfolio include Macron Fine Chemicals, SeaStar, BeneSphera, Rankem, CareSil, POCH and Puritan Products. In aggregate, we provide approximately six million products, including products we make as well as products from approximately 4,000 core suppliers across the globe. Collectively, materials & consumables accounted for 79% of our sales for the year ended December 31, 2018 (33% of proprietary materials & consumables and 40% of third-party materials & consumables).

The table below summarizes key product lines of materials & consumables:

	<u>Illustrative Products</u>	<u>Workflow Applications</u>
Laboratory chemicals and supplies	<ul style="list-style-type: none"> Acids, salts, reagents and solvents Inorganic compound metals Bioreagents Liquid handling gloves & apparel Buffers 	Chemical research and development, analytical testing, pharmaceutical production applications, microelectronic production and microbiological testing; Utilized in the daily operations of labs spanning research and development, testing

[Table of Contents](#)

	<u>Illustrative Products</u>	<u>Workflow Applications</u>
	<ul style="list-style-type: none"> • Glassware, plasticware, pipettes • Laboratory safety products 	and measurement across multiple industries
Bioproduction products and chemicals	<ul style="list-style-type: none"> • Inorganic salts • Solvents • Chelating agents • Surfactants • High-purity acids • Buffers • Reagents 	Biological research and development, quality assurance/quality control testing and Biopharma production applications, genomics, proteomics and cell cultures
Biomaterials	<ul style="list-style-type: none"> • Foams, gels and dispersions 	High purity silicone used in the manufacture of medical implantable devices, such as aesthetic and reconstructive implants, deep brain stimulation devices, pacemakers, and cochlear implants, and non-implantable devices, such as medical-grade tubing, balloons and bladders
Advanced Technologies & Applied Materials	<ul style="list-style-type: none"> • Acids, solvents and solutions • Customized silicone formulations 	Used in the manufacture of semiconductors and other high precision electronic applications. Aerospace & defense industry applications; chemicals/petroleum and other industrial applications

Equipment & Instrumentation

We also offer equipment & instrumentation primarily from our third-party suppliers. For the year ended December 31, 2018, equipment & instrumentation represented approximately 15% of our revenue. Key product lines include:

	<u>Illustrative Products</u>	<u>Workflow Applications</u>
Equipment & Instrumentation	<ul style="list-style-type: none"> • Filtration systems • Biological safety cabinets • Virus inactivation systems • Incubators • Analytical instruments • Evaporators • Ultra-low temperature freezers • Biological safety cabinets • Critical environment supplies • Microscopes • Chromatographers 	Research, development and production workflows in the life sciences and advanced technologies and applied materials industries.

[Table of Contents](#)

<u>Illustrative Products</u>	<u>Workflow Applications</u>
<ul style="list-style-type: none"> Oxygen meters Mass spectrometers 	

Services & Specialty Procurement

We complement our extensive product portfolio with a range of value-added services supporting a higher level of science on behalf of our customers and enabling them to focus on their core areas of research. Our traditional service offerings focus on the needs of laboratory scientists, and include procurement, logistics, chemical and equipment tracking and glassware autoclaving. In addition, we have expanded our service offerings to include more complex and value-added scientific research support services, such as DNA extraction, bioreactor servicing, clinical and biorepository services and compound management. Furthermore, approximately 1,400 of our associates are co-located with certain of our customers, working side-by-side with their scientists every day. In 2018, our services associates returned approximately 162,000 hours to our customers' scientists, allowing them to use their time and expertise to focus on their key scientific priorities.

For the year ended December 31, 2018, services and specialty procurement represented approximately 12% of our revenue. Key services include:

	<u>Illustrative Services</u>	<u>Workflow Applications</u>
Onsite Services	<ul style="list-style-type: none"> Specialty-trained associates perform onsite and offsite operational laboratory or production area duties Inventory and chemical management solutions 	<ul style="list-style-type: none"> Media and buffer preparation GxP sanitization Garment management Stockroom and Point of Use management
Science as a Service	<ul style="list-style-type: none"> Lab-experienced professionals performing protocol-driven workflows 	<ul style="list-style-type: none"> DNA extraction Cell bank management Sample processing QC assays
Clinical & Biorepository Services	<ul style="list-style-type: none"> Secure biorepository preservation in temperature- and humidity controlled environments Secure sample and data management Custom kitting Clinical trial logistics 	<ul style="list-style-type: none"> Regulated research, production and clinical processes Services for diagnostic labs such as: <ul style="list-style-type: none"> Test kits build Maintenance of clinical/biological samples in controlled environment storage (e.g., tissue/DNA samples for identification of cancer mutations)
Equipment Services	<ul style="list-style-type: none"> Installation, validation, calibration, preventative maintenance of lab equipment Equipment Management Solutions including VWR My Equipment Management App 	<ul style="list-style-type: none"> HPLC, UPLC, GC & Mass Spectrometry Benchtop equipment and instruments Pipette calibration

[Table of Contents](#)

	<u>Illustrative Services</u>	<u>Workflow Applications</u>
Procurement & Sourcing Services	<ul style="list-style-type: none"> • Active vendor management • Order confirmation & tracking 	<ul style="list-style-type: none"> • Tracking all equipment service management needs: service records, preventive maintenance schedules, work orders creation • Application or customer-specific product sourcing • Streamlining inventory processes
Biopharma Services	<ul style="list-style-type: none"> • Spend management & analytics • New product development • Raw material characterization and analysis • Downstream optimization • Custom design and fabrication of single-use connectors, components and systems 	<ul style="list-style-type: none"> • Vaccines, pharmaceutical proteins and monoclonal antibodies processes • Filtration & diafiltration • Chromatographic processes

Innovation and New Product Development

Our business includes the development and introduction of new products and services and may include entry into new business lines. We continuously invest in new technologies, infrastructure and the improvement of our operating processes in order to deliver new products and solutions to customers. This capability also helps us build better customer relationships and helps us to become specified into our customers' new products and workflows. In addition, we engage with our customers early in their product development cycles through our 300-person innovation team to identify and help progress their programs from discovery through development to commercialization.

We have seven strategically located development centers around the world where we engage in innovation and collaboration with our customers. We anticipate that our eighth such center, located in Shanghai, China, will be fully operational in mid-2019. We also opened our world-class innovation center in Bridgewater, New Jersey during the first half of 2017. The Bridgewater site has a robust application testing facility and customer co-development capabilities with a particular focus on large molecule drugs. Our other key development and application centers are Phillipsburg, New Jersey, Mumbai, India, Carpinteria, California, Bakersfield, California, Chu-Bei City, Taiwan and Gwanggyo, South Korea.

Working in all of these innovation centers is a dedicated group of scientists and engineers, several of whom hold PhDs or other advanced degrees in various technical specialties relevant to our operations and our customers' workflows. This group works together in teams to help customers achieve their goals. Our scientists and engineers are fully engaged with a customer from the moment he or she visits one of our development centers to the generation of a project and through the manufacturing phase in a customer's factory. This approach allows us to respond to customers in a timely manner and act efficiently and innovatively in dealing with questions or problems. It is common for our technical teams to receive frequent questions and solicitations for help from our customers regarding the problems and issues that they face in particular projects or workflows.

Consequently, our processes have helped us develop a broad portfolio of innovation projects targeted at high impact, high demand applications. We currently have approximately 1,400 innovation projects with our customers that address process improvements for existing products and potential significant new opportunities for us to support. Our approach includes incremental innovation to build on top of existing products as well as the development of new product lines, new chemistries and next-generation programs. Additionally, our

[Table of Contents](#)

strategies are tailored to each product line: from partnering with customers in large molecule biopharmaceuticals, to focusing on customized silicone formulations for device and drug delivery in biomaterials, to focus on purification methods and new applications in research, to the development of extreme performance formulations in advanced technologies. We concentrate on opportunities to develop new products and expand product applications to meet our customers' current and future needs.

Quality and Regulatory

We are committed to ensuring and maintaining leading industry and regulatory compliance standards while providing high quality products to our customers. To meet these commitments, we employ stringent global quality control procedures across all of our manufacturing facilities to assure regulatory compliance and consistent lot-to-lot performance for our customers. Our quality control procedures are also designed to help us drive continuous improvement across our global production and distribution systems. To ensure we provide products that meet the demanding performance, quality and regulatory requirements of these customers, we have a comprehensive approach to quality that includes: (i) the careful selection of raw material suppliers, supported by confirmatory testing of those raw materials and periodic audits of our suppliers; (ii) the use of validated manufacturing and purification processes; (iii) the stringent quality control testing of our products before release; (iv) internal and customer audits to ensure compliance with various regulatory requirements and systems; and (v) the maintenance and compliance with documentation and change control requirements as applicable to the product or materials at issue.

We have more than 300 employees around the globe working directly in quality and regulatory compliance. Our senior management team is actively involved in setting quality policies and standards as well as managing internal and external quality performance. Each facility has a site quality manager dedicated to providing hands-on leadership and supervision of our quality programs within the production facility as well as within our quality assurance and quality control testing laboratories. Site quality managers work closely with both site leadership as well as with senior corporate quality and operations leadership to ensure a coordinated and consistent approach to quality procedures maintenance and improvement, as well as a coordinated response to any issues that require attention. We have ISO 9001-compliant quality management systems and we utilize document control software that complies with the FDA's cGMP requirements. Our quality management procedures also assist in our Management of Change, or "MOC," programs, which are designed to keep our customers who purchase our regulated products fully informed about changes in the supply chain of our product, including changes to raw materials, processes or sites, and other changes that could impact their operations or regulatory compliance obligations.

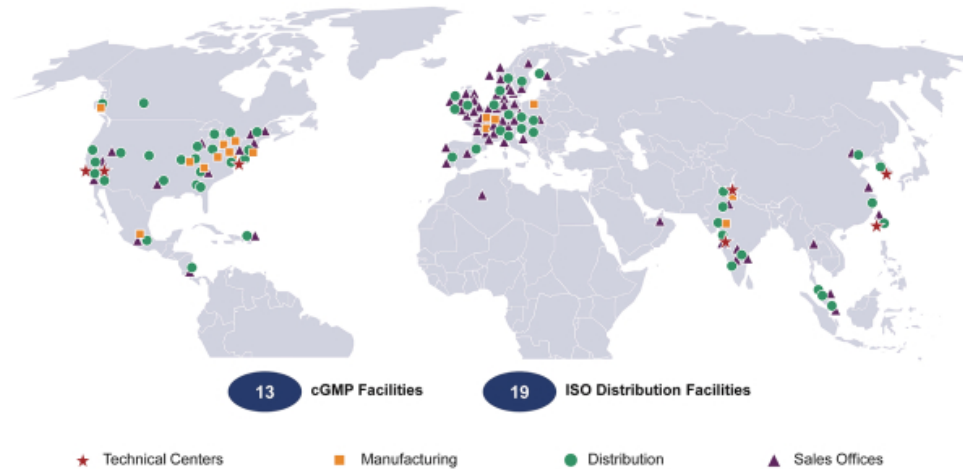
Our global quality control procedures are designed to meet the demanding and evolving needs of our customers and to satisfy strict regulatory standards enforced by the FDA and comparable international regulators. Our facilities are subject to periodic inspection by the FDA and/or other comparable local, state and foreign regulatory authorities and customers. We believe that our operations are in compliance in all material respects with the regulations under which our facilities are governed.

We conduct frequent internal audits and are subject to regular customer audits to ensure compliance with numerous regulatory systems, guidance and other requirements, as appropriate, including the FDA, ICH Q7, ISO 9001, IPEC and cGMP. We hold ourselves to high internal standards regarding quality and product performance and we undertake periodic internal audits and inspections of our facilities and testing laboratories, including audits by independent cross-functional teams, in order to ensure that we continue to meet our high internal standards of quality and to identify ways to continuously improve. We conduct stringent, statistically-valid analytical testing of our final products before sale. In addition, many of our customers also routinely conduct their own testing of our products prior to their use to ensure that our products are suitable for their intended uses and otherwise comply with the stated quality and analytical parameters.

[Table of Contents](#)

Infrastructure

We have over 200 facilities strategically located throughout North America, Europe and the AMEA region that consist of manufacturing, distribution and sales centers. The map below shows our facilities around the globe:



Manufacturing

We operate 27 global manufacturing facilities, including 13 facilities that are cGMP compliant and 12 facilities that have been registered with the FDA or comparable foreign regulatory authorities. Our facilities are strategically located in North America, Europe and the AMEA region to facilitate supply chain efficiency and proximity to customers. The principal highlights of our manufacturing capabilities include: (i) an ability to quickly change specifications depending on customer needs; (ii) our flexible unit operations, which allow for production scalability, from laboratory pre-clinical development to large-volume commercialization; (iii) proprietary purification technologies designed to ensure lot-to-lot consistency through ultra-low impurity levels; (iv) rigorous analytical quality control testing; and (v) robust regulatory and quality control procedures.

Our longstanding customer relationships are driven in part by our strong customization and purification capabilities coupled with our workflow orientation. Our facilities allow us to deliver products to fit exacting customer specifications in all batch sizes across the globe, yet our operations are also designed to be flexible, enabling us to quickly customize new product formulations that enhance our customers' workflows from discovery through development to commercialization. Historically, we have implemented programs to increase the manufacturing capacity of our plants by leaning out existing processes and increasing our low-cost manufacturing capacity. Our manufacturing process enables us to manufacture several different products, often using the same equipment, allowing us to leverage our fixed-cost structure. This operating flexibility is enabled by our stringent analytical quality control testing. See “—Quality and Regulatory.”

Each of our facilities is run under a stringent set of global quality procedures to ensure regulatory compliance and performance continuity and 13 of these facilities are cGMP facilities. As a cGMP supplier, we are audited based on the requirements of IPEC Federation, or “IPEC,” International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use, or “ICH” and U.S. Pharmacopeial Convention, or “USP,” and/or cGMP. In addition, 12 of our facilities are registered with the FDA or the equivalent with comparable foreign authorities. Most of our manufacturing facilities are ISO 9001-certified and several of our

Table of Contents

facilities are ISO 13485-certified, ISO 14001-certified and/or ISO 22000-certified. The chart below summarizes our manufacturing locations and their certifications:

Location	cGMP	U.S. FDA- Reg. /Int. FDA equivalent	ISO Certification			
			9001	13485	14001	22000
Americas:						
Aurora, Ohio			✓			
Bakersfield, California	✓	✓	✓			
Bethlehem, Pennsylvania	✓	✓	✓			
Buford, Georgia	✓	✓				
Carpinteria, California (NuSil)	✓		✓	✓		
Carpinteria, California (MediSil)				✓		
Chester, Connecticut			✓			
Claremont, California	✓	✓				
Devens, Massachusetts			✓			
Eatontown, New Jersey			✓	✓		
Irving, Texas			✓			
Morrisville, North Carolina			✓			
Overland, Missouri	✓	✓				
Paris, Kentucky	✓	✓	✓			
Phillipsburg, New Jersey	✓	✓	✓			
Sanborn, New York			✓			
Santiago, Chile			✓			
Sidney, British Columbia			✓		✓	
Solon, Ohio	✓	✓	✓	✓		
Europe:						
Briare, France			✓	✓	✓	
Ghent/Gavere, Belgium			✓	✓		
Gliwice, Poland	✓	✓	✓	✓		
Haasrode, Belgium	✓		✓		✓	
AMEA Region:						
Dehradun, India	✓	✓	✓	✓	✓	
Mumbai, India		✓	✓			
Neerabup, Australia			✓			
Panoli, India	✓	✓	✓			

Distribution Network and Facilities

Our global infrastructure consists of over 200 facilities and scalable ERP systems designed to deliver a broad array of products to customers within 24 to 48 hours. Our global facilities create a distribution chain that meets stringent quality and regulatory requirements. We have the expertise and government licenses to manage multiple controlled environments globally, enabling us to safely and in a compliant manner handle highly regulated chemicals and other materials. Our European network includes 94 facilities and customer contact centers. Our Asia network includes 36 facilities. We also contract with third parties sometimes to ship products directly to customers on our behalf.

Avantor Business System (“ABS”)

ABS is an integral part of the way we run our business by developing and deploying standard processes and tools aimed at driving continuous improvement. ABS focuses on creating, supporting and assisting the improvement efforts tied to our most critical business processes, primarily in the innovation, commercial, and operations functions. Our associates are committed to running Kaizen events across the business in order to

[Table of Contents](#)

establish disciplined, sustainable processes. Through analyzing processes, diagnosing operational challenges, and implementing process changes, ABS drives continuous improvement and breakthrough performance ultimately driving strong operating results and shaping our company culture. ABS impacts results and culture by establishing standards, institutionalizing management processes, adopting consistent problem-solving methods and is a core capability that drives growth and operational excellence.

Customers

We benefit from longstanding customer relationships and approximately 36% of our revenues for the year ended December 31, 2018 came from customers that have had relationships with us for 15 years or more. For the year ended December 31, 2018, we served over 240,000 customer locations in over 180 countries, including each of the ten largest biotechnology and pharmaceutical companies, each of the ten largest medical device manufacturers, each of the ten largest diagnostics companies, 19 of the 20 largest research universities in both the United States and Europe, each of the five largest United States government research agencies, four of the five largest global semiconductor manufacturers and four of the five largest aerospace and defense companies. We serve more than 40 strategic partners, which includes our large, multi-national customers whose combined global research and development funding is over \$115 billion annually. In addition to our strong relationships with our strategic partners, we have a diverse end customer base, with no single end customer constituting more than 4% of our net sales.

Suppliers

We sell proprietary products we make and third-party products sourced from approximately 4,000 product suppliers located across the globe. Our supplier relationships are based on contracts that vary in geographic scope, duration, product and service type, and some include exclusivity provisions. Those relationships may include distribution, sales and marketing support as well as servicing of instruments and equipment. Many of our supplier relationships have been in place for more than twenty years.

Sales Channels

We serve customers throughout the Americas, Europe and AMEA. Approximately 59% of our revenue is derived in the Americas, approximately 36% is derived in Europe and approximately 5% is derived in AMEA for the year ended December 31, 2018. We reach our customers in these regions through a well-trained global sales force, comprehensive websites and targeted catalogs. Our sales force is comprised of approximately 3,800 sales and sales support professionals, including over 300 sales specialists selected for their in-depth industry and product knowledge. Our sales professionals include native speakers for each of the countries in which we operate, allowing us to have high impact interactions with our customers across the globe.

Our online customer portal plays a vital role in how we conduct business with our customers. In 2018, approximately 45% of our revenues came from our digital channels. Our websites utilize search analytics and feature personalized search tools, customer specific web solutions and enhanced data that optimize our customers' online purchasing experience and better integrate our customers' processes with our own. Our websites are designed to integrate acquisitions, drive geographical expansion and serve segmented market needs with relative ease.

In all of our product lines, we rely on account managers who work closely with our customers to build and maintain long-lasting relationships. Our global sales and marketing team fosters true customer partnerships from concept to commercialization in order to drive engagement in product development as well as integration into the manufacturing process. Our global sales and marketing teams focus on strengthening key account relationships to build qualified supplier status and penetrate new growth markets across our business segments. In addition, we devote regional direct sales and product customization teams to drive penetration in emerging markets.

Table of Contents

Competition

We operate in a highly competitive environment with a diverse and fragmented base of competitors, many of whom focus on specific regions, customers, and/or segments. While many customers weigh and balance competitive factors differently in the industries, many focus upon service and delivery, breadth of product line, customization capabilities, price, customer support, online capabilities and the ability to meet the special and local needs of our customers.

Competition is driven not only by the product quality and purity across each of these industries, but also by the adaptability of the supplier as a developmental and commercial partner. We rely on our scale, expertise, deep customer access, depth of product and value-added service offerings, marketing strategies and sales force, acquisition strategy, financial profile and management team to deliver superior solutions to our customers and provide extensive market channel access to our suppliers.

In each of the industries we serve, we face competition from various players. Our key competitors include regional as well as global suppliers like BASF, Bio-Rad, Biomerieux, Cabot Microelectronics, Danaher, DowDuPont, GE Healthcare, Honeywell, Merck KGaA, Roquette and ThermoFisher Scientific, among others. We believe that our key advantages include our swift and focused response compared to those of large multi-segment companies, as well as our global scale and broad capabilities compared to those of smaller regional companies.

Intellectual Property

We rely on a variety of intellectual property rights, nondisclosure and other contractual provisions and technical measures to protect a number of our offerings, services and intangible assets. Much of our intellectual property is know-how and asset configurations that we treat as trade secrets. These proprietary rights are important to our ongoing operations. In some instances, we may license our technology to third parties or may elect to license intellectual property from others. We have applied in the United States and certain foreign countries for registration of a number of trademarks, service marks and patents, some of which have been registered and issued, and also hold common law rights in various trademarks and service marks. Other than our Avantor, VWR, J.T.Baker and NuSil trademarks, we do not consider any particular patent, trademark, license, franchise or concession to be material to our overall business.

Properties

The following table sets forth the location, approximate size, principal use and ownership status of our key properties as of December 31, 2018. Though the majority of our properties are leased, we also own many properties.

<u>Location</u>	<u>Approximate Square Footage</u>	<u>Principal Use</u>	<u>Owned or Leased</u>
<i>Americas:</i>			
Visalia, California	503,000	Distribution and offices	Owned
Phillipsburg, New Jersey	500,000	Manufacturing and R&D	Owned
Paris, Kentucky	420,000	Manufacturing and distribution	Owned
Bridgeport, New Jersey	369,000	Distribution and offices	Owned
Batavia, Illinois	360,000	Distribution and offices	Owned
West Henrietta, New York	339,000	Distribution, assembly and offices	Owned
Carpinteria, California	270,000	Manufacturing, office and R&D	Leased

Table of Contents

<u>Location</u>	<u>Approximate Square Footage</u>	<u>Principal Use</u>	<u>Owned or Leased</u>
Solon, Ohio	226,000	Distribution, manufacturing and offices	Leased
Sparks, Nevada	182,000	Manufacturing	Leased
Sterling, Virginia	174,000	Biostorage, Warehouse and offices	Leased
Suwanee, Georgia	169,000	Distribution and offices	Leased
Bakersfield, California	165,000	Manufacturing and R&D	Leased
Leesburg, Virginia	155,000	Biostorage and Warehouse	Leased
Radnor, Pennsylvania	150,000	Corporate headquarters	Leased
Buford, Georgia	130,000	Distribution/Customized Kitting	Leased
Manati, Puerto Rico	130,000	Distribution and offices	Owned
Denver, Colorado	130,000	Distribution	Leased
Missouri City, Texas	120,000	Distribution	Leased
Irving, Texas	118,200	Manufacturing	Leased
Mississauga, Ontario, Canada	114,000	Distribution and offices	Leased
Mexico City, Mexico	100,000	Distribution and manufacturing	Owned
Overland, Missouri	90,000	Distribution and manufacturing	Leased
Claremont, California	86,000	Distribution/Customized Kitting	Leased
Ecatepec, Mexico	80,000	Manufacturing and Distribution	Leased
Devens, Massachusetts	70,000	Distribution, offices and manufacturing	Leased
Aurora, Ohio	65,000	Manufacturing	Leased
Tualatin, Oregon	56,000	Distribution	Leased
Franklin, Massachusetts	55,000	Distribution	Leased
Bethlehem, Pennsylvania	50,000	Manufacturing, office and distribution	Leased
Chino, California	32,000	Equipment design and manufacturing	Leased
Bridgewater, New Jersey	28,400	R&D	Leased
Allentown, Pennsylvania	12,000	Offices	Leased
<i>Europe</i>			
Briare, France	303,000	Distribution, repackaging and mixing	Owned
Bruchsal, Germany	219,000	Distribution	Owned
Gliwice, Poland	213,000	Manufacturing and distribution	Leased
Leuven, Belgium	207,000	Distribution and manufacturing	Owned
Lutterworth, United Kingdom	185,000	Distribution	Leased
Karlskoga, Sweden	131,000	Distribution	Leased
Dublin, Ireland	77,000	Distribution	Leased
Barcelona, Spain	73,000	Distribution	Leased
Debrecen, Hungary	68,000	Distribution, repackaging and mixing	Leased

[Table of Contents](#)

<u>Location</u>	<u>Approximate Square Footage</u>	<u>Principal Use</u>	<u>Owned or Leased</u>
Søborg, Denmark	66,000	Distribution and offices	Leased
Kelsterbach, Germany	60,000	Distribution	Leased
Darmstadt, Germany	56,000	Offices	Leased
Fontenay-Sous-Bois, France	56,000	Offices	Leased
<i>AMEA:</i>			
Perth, Australia	90,000	Distribution, manufacturing and offices	Leased
Panoli, India	80,000	Manufacturing	Leased
Singapore	74,000	Distribution	Leased
Coimbatore, India	63,000	Service Center	Leased
Shanghai, China	39,000	Office and sales	Leased
Hyderabad, India	26,000	Warehouse	Leased
Dehradun, India	22,900	Manufacturing	Leased
Mumbai, India	18,000	R&D	Leased
Gurgaon, India	15,000	Asia-Pacific India headquarters	Leased
Chubei City, Taiwan	14,000	R&D and office	Leased
Gwanggyo, Korea	2,000	Laboratory	Leased
Seoul, Korea	1,400	Office	Leased

Employees

As of December 31, 2018, we had approximately 12,000 employees (including approximately 1,400 of our associates who are co-located with certain customers). We believe that our relations with our employees are good. As of December 31, 2018, approximately 7% of our employees in North America were represented by unions and a majority of our employees in Europe were represented by workers' councils or unions.

Information Technology

We have a highly automated suite of enterprise resource planning ("ERP") systems that promote standardization and business insights. Our global web infrastructure provides seamless integration with our customers and suppliers. These ERP platforms support rapid development and deployment of enhancements so that we may quickly adapt to meet the technology needs of our customers and seamlessly integrate new acquisitions. We have made significant investments in our IT platform to implement common ERP and online platforms to enhance the customer experience and to employ network and data security architecture. In 2018, approximately 45% of our revenues came from our digital channels. Through March 31, 2019, we had approximately 22.5 million user sessions across 9.8 million registered users on our online customer portal.

We have designed and deployed flexible, scalable, secure IT architecture to facilitate our business objectives and to develop a stable, growth oriented global information system. Our IT infrastructure has evolved into a cohesive group of global computing platforms that have reduced costs while improving our operating consistency, and business insights, and customer experience.

Environmental Matters

We are subject to various laws and governmental regulations concerning environmental, safety and health matters, including employee safety and health, in the United States and other countries. U.S. federal environmental legislation that affects us includes, without limitation, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act,

Table of Contents

and the Comprehensive Environmental Response Compensation and Liability Act, or “CERCLA.” These laws and regulations govern, among other things, air emissions, wastewater discharges, the use, handling and disposal of hazardous substances and wastes, soil and groundwater contamination and the general health and safety of our associates and the communities in which we operate. We are also subject to regulation by OSHA concerning employee safety and health matters. The EPA, OSHA, and other federal and foreign or local agencies have the authority to promulgate regulations that may impact our operations.

Under CERCLA, and analogous statutes in local and foreign jurisdictions, current and former owners and operators of contaminated land are strictly liable for the investigation and remediation of the land, and for natural resource damages that may result from releases of hazardous substances at or from the property. Liability under CERCLA and analogous laws is strict, unlimited, joint, several, retroactive, may be imposed regardless of fault and may relate to historical activities or contamination not caused by the current owner or operator. It is possible that facilities that we acquire or have acquired may expose us to environmental liabilities associated with historical site conditions that have not yet been discovered.

In addition to the federal environmental laws that govern our operations, various states have been delegated certain authority under the aforementioned federal statutes as well as having authority over these matters under state laws. Many state and local governments have adopted environmental and employee safety and health laws and regulations, some of which are similar to federal requirements.

A number of our operations involve, in varying degrees, the handling, manufacturing, use or sale of substances that are or could be classified as toxic or hazardous materials within the meaning of applicable laws. Consequently, some risk of environmental harm is inherent in our operations and products, as it is with other companies engaged in similar businesses.

As of March 31, 2019, we accrued investigation and remediation costs amounting to approximately \$3.6 million relating to a risk-based cleanup approach at our facility in Gliwice, Poland, as well as with respect to consultant, engineering and legal services. Actual remedial costs may vary depending on the final results of the site assessment, and if further investigations uncover additional contamination at or about our facility, such accrual may need to be increased. In addition, the New Jersey Department of Environmental Protection has ordered us to remediate groundwater conditions near our plant in Phillipsburg, New Jersey. The accrued obligation under this order is \$3.5 million. For additional information regarding environmental matters, see Note 12 to our audited financial statements included elsewhere in this prospectus.

Regulatory Matters

Our facilities that engage in the manufacturing, packaging, distribution and other biopharmaceutical and biomaterials product lines, as well as many of our products themselves, are subject to extensive ongoing regulation by the European Medicines Agency (“EMA”), other U.S. governmental authorities and foreign regulatory authorities. Certain of our subsidiaries are required to register with these agencies, or to apply for permits and/or licenses with, and must comply with the operating, cGMP, quality and security standards of applicable domestic and foreign regulators, including the FDA, the DEA, the Bureau of Alcohol, Tobacco, Firearms and Explosives, DHHS, the equivalent agencies of European Union member states, and comparable foreign, state and local agencies, as well as various accrediting bodies, each depending upon the type of operation and the locations of storage or sale of the products manufactured or services provided by those subsidiaries.

In order to maintain certain certifications of quality and safety standards for our manufacturing facilities and operations, we must comply with numerous regulatory systems, standards, guidance and other requirements, as appropriate, including, but not limited to, ICH Q7, IPEC, European IVD Directives, United States Pharmacopeia/ National Formulary, as well as the European, British, Japan, India and Chinese Pharmacopeia, the Food Chemicals Codex and controlled substances regulations.

[Table of Contents](#)

In addition, our operations, and some of the products we offer, are subject to a number of complex and stringent laws and regulations governing the production, handling, transportation and distribution of chemicals, drugs and other similar products. We are subject to various federal, state, local, foreign and transnational laws, regulations and recommendations, both in the United States and abroad, relating to safe working conditions, good laboratory and distribution practices, and the safe and proper use, transportation and disposal of hazardous or potentially hazardous substances. In addition, U.S. and international import and export laws and regulations, including those enforced by the U.S. Departments of Commerce, State and Treasury, OFAC and BIS, require us to abide by certain standards relating to the cross-border transit of finished goods, raw materials and supplies and the handling of related information. Our logistics activities must comply with the rules and regulations of the Department of Transportation, the department of Homeland Security, Department of Commerce, Department of Defense, and the Federal Aviation Administration and similar foreign agencies. We are also subject to various other laws and regulations concerning the conduct of our foreign operations, including the Foreign Corrupt Practices Act and other anti-bribery laws as well as laws pertaining to the accuracy of our internal books and records. Our aerospace and defense product line involves sales to government contractors. As such, we are subject to certain laws and regulations applicable to companies doing business with the government, as well as with those concerning government contracts. Failure to address or comply with these laws and regulations could harm our business by leading to a reduction in our sales to government contractors. We are also subject to investigation for compliance with government contracts regulations. While we believe we are in compliance in all material respects with such laws and regulations, failure to comply with these regulations could result in suspension of these contracts, criminal, civil and administrative penalties or debarment.

The costs associated with complying with the various applicable federal, state, local, foreign and transnational regulations could be significant and the failure to comply with such legal requirements could have an adverse effect on our reputation, results of operations and financial condition. See “Risk Factors—Risks Related to Regulation.” We are subject to audits by the FDA and other similar foreign regulatory bodies. To date, we have had no instances of noncompliance that have had a material impact on our operations.

In addition to the regulations described above, as part of our aerospace and military offerings, we are registered with the DDTC as a manufacturer and exporter of goods controlled by the International Traffic In Arms Regulations (“ITAR”), and we are subject to strict export control and prior approval requirements related to these goods. In connection with our NuSil brand products, we have one ITAR site registration and one ITAR product registration, and we maintain control systems which enable ITAR compliance. With respect to our electronics materials products, we adhere to applicable industry guidelines which set stringent quality criteria for our products, and we are subject to import and export regulations and other restrictions regarding the safe use of these products as well.

Legal Proceedings

We are involved from time to time in legal and regulatory proceedings concerning matters that arise in the ordinary course of our business. It is possible that an adverse result in governmental investigations, private lawsuits or other legal proceedings could have a material adverse effect on our financial position or results of operations; however, to the best of our knowledge, we are not currently the subject of any material governmental investigation, private lawsuit or other legal proceeding.

In April 2018 the EPA notified us of potential liabilities under the Toxic Substances Control Act and the Emergency Planning and Community Right to Know Act that were identified in March 2017 and June 2017 inspections of our Phillipsburg, New Jersey facility. The alleged violations relate to our failure to timely file reports regarding the Phillipsburg facility. This error resulted from the incorrect tabulating of data by a third-party database system used to prepare the reports, and we have taken steps to correct this error and have filed amended reports. While we are pursuing resolution of this matter with the EPA, and while the EPA has proposed total civil penalties of less than \$1 million, we cannot predict with certainty the amount of penalties that may ultimately be imposed.

[Table of Contents](#)**Insurance**

We maintain commercial insurance programs with third parties in the areas of executive risk, commercial property, business interruption and casualty (including product liability). We also self-insure certain risks inherent in our business which, taken together with the deductible levels and exclusions contained within our third-party programs, results in our recording of accruals for incurred claims. Our ultimate exposure may be mitigated by amounts we expect to recover from third parties associated with such claims.

[Table of Contents](#)

MANAGEMENT

Directors and Executive Officers

The following table sets forth certain information regarding our directors and executive officers as of the closing of this offering:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Michael Stubblefield	47	Director, President and Chief Executive Officer
Thomas Szlosek	55	Executive Vice President and Chief Financial Officer
James Bramwell	52	Executive Vice President, Strategic Partners
Gerard Brophy	53	Executive Vice President, Biopharma Production
Christophe Couturier	53	Executive Vice President, Services, Strategy and Business Transformation
Bjorn Hofman	49	Executive Vice President and Chief Operating Officer
Ashish Kulkarni	49	Executive Vice President and Chief Technology Officer
Eric McAllister	54	Executive Vice President and Chief Human Resources Officer
Justin Miller	52	Executive Vice President, General Counsel and Secretary
Devashish Ohri	52	Executive Vice President, AMEA
Frederic Vanderhaegen	51	Executive Vice President, Europe
Corey Walker	42	Executive Vice President, Americas, Biomaterials and Advanced Technologies
Michael Wondrasch	50	Executive Vice President and Chief Information Officer
Rajiv Gupta	73	Chairman of the Board of Directors
Thomas Connolly	52	Director
Matthew Holt	42	Director
Andre Moura	37	Director
Jo Natauri	41	Director
Jonathan Peacock	61	Director
Rakesh Sachdev	63	Director
Christi Shaw	52	Director

Executive Officers

The following is a biographical summary of the experience of our executive officers as of the consummation of this offering.

Michael Stubblefield became our President and Chief Executive Officer in 2014. In addition, Mr. Stubblefield also serves as a Director. Prior to joining us, Mr. Stubblefield was a Senior Expert for the Chemicals Practice of McKinsey & Company, a management consulting firm, from 2013 to 2014. Previously, he held a variety of roles at Celanese Corporation, a technology and specialty materials company, from 1994 to 2012. At Celanese, he acted as Vice President and General Manager—Advanced Engineered Materials from 2010 to 2012, Chief Marketing Officer from 2009 to 2010, Vice President and General Manager—EVA Performance Polymers from 2008 to 2009, Global Supply Chain Director—Acetyl Intermediates from 2007 to 2008, and Asia Commercial Director—Emulsion Polymers from 2006 to 2007. Mr. Stubblefield holds a B.S. in Chemical Engineering from the University of Utah, as well as an M.B.A. from Texas A&M University—Corpus Christi. Mr. Stubblefield's leadership role and extensive knowledge of our business, strategy and industry on an international basis make him a valuable member of our Board.

Thomas Szlosek is our Executive Vice President and Chief Financial Officer, a position he has held since December 2018. Mr. Szlosek has experience managing business and financials at global companies. Mr. Szlosek previously served as the Senior Vice President and Chief Financial Officer of Honeywell International, Inc., a diversified technology and manufacturing company, from April 2014 to August 2018. Mr. Szlosek joined Honeywell in 2004 and served in a number of senior level finance positions, including Vice President of

Table of Contents

Corporate Finance from April 2013 to April 2014 and Chief Financial Officer of Automation and Control Solutions from February 2007 to April 2013. Before joining Honeywell in 2004, Mr. Szlosek held financial leadership positions at General Electric Company, a multinational conglomerate that operates in the finance, aerospace, healthcare and energy industries, among others, and PricewaterhouseCoopers, a professional services company that provides audit, assurance, tax and consulting. Mr. Szlosek earned a B.S. in accounting from the State University of New York at Geneseo. Mr. Szlosek is also a Certified Public Accountant.

James Bramwell is our Executive Vice President, Strategic Partners, a position he has held since November 2017. Prior to his current role, Mr. Bramwell served as Senior Vice President, Strategic Partners and Global Export of VWR, a position he held from March 2016 to November 2017. From June 2008 until March 2016, Mr. Bramwell served as VWR's Senior Vice President, Strategic Partners and from 2006 until 2008, as Area Vice President, Southwest and Mexico. Mr. Bramwell holds a B.A. in business management from Brigham Young University.

Gerard Brophy is our Executive Vice President, Biopharma Production, a position he has held since July 2018. Dr. Brophy has extensive experience developing and commercializing products used in biopharma production, including cell culture media, sterile fluid transfer, excipients and other production chemicals. Dr. Brophy joined us from GE Healthcare, a medical technology and life sciences company where he spent more than 14 years in a variety of senior level positions, most recently as the Head of Cell Therapy, Life Sciences from January 2017 to July 2018, Chief Technology Officer, Life Sciences from April 2013 to January 2017 and VP of New Product Development, Medical Diagnostics from July 2009 to March 2013. Dr. Brophy earned a B.S. in biotechnology and a Ph.D. in molecular biology from Dublin City University in Dublin, Ireland.

Christophe Couturier is our Executive Vice President, Services, Strategy and Business Transformation, a position he has held since April 2018. In his current role, Mr. Couturier is responsible for our global service offerings including onsite lab and production, clinical, equipment, procurement and sourcing and biopharmaceutical material scale-up and development services and biorepository platforms to support our customer's operations. Mr. Couturier is also responsible for our strategic planning process and projects, as well as managing the Avantor Business System and its associated lean processes. Mr. Couturier has extensive experience managing global service offerings at global companies. Prior to joining Avantor, Mr. Couturier served as chief executive officer of Salicornia, LLC, a personal consulting company, from September 2017 to April 2018 and, before Salicornia, as chief financial officer at OvaScience, a biotechnology company, from September 2016 to July 2017. Prior to OvaScience, Mr. Couturier spent more than 12 years at Millipore Sigma, a life science and high technology company, where he held a variety of services, merger integration, general management, finance and consulting positions. Mr. Couturier earned an M.S. in management from ESSEC Business School in Cergy-Pontoise, France.

Bjorn Hofman is our Executive Vice President and Chief Operating Officer, a position he has held since November 2017. Prior to assuming his current role, Mr. Hofman was our Executive Vice President, Biopharmaceuticals, Research & Diagnostics from 2016 to November 2017. Previously, Mr. Hofman held the titles of Chief Operating Officer from 2015 to 2016 and Executive Vice President of Business Operations and General Manager for Europe from 2014 to 2015. Mr. Hofman has extensive experience managing product and business lines for large life science and advanced technology companies. Prior to joining us, Mr. Hofman acted as Senior Vice President of Advanced Technology of Merck KGaA, a pharmaceutical, science and technology company, from 2013 to 2014 and held a variety of roles at Celanese Corporation, a technology and specialty materials company, from 2009 to 2013. At Celanese, he acted as Business Director of EMEA from 2011 to 2013, Global Commercial Director for the Advanced Engineered Materials division from 2010 to 2011 and Director of Business Development & Strategy from 2009 to 2010. He also held various commercial and operations leadership positions with Honeywell International, Inc., a diversified technology and manufacturing company, from 1998 to 2009 and with DSM from 1992 to 1998. Mr. Hofman holds a master's degree in chemical engineering from Delft University of Technology, the Netherlands.

Table of Contents

Ashish Kulkarni is our Executive Vice President and Chief Technology Officer, a position he has held since 2016. Dr. Kulkarni has extensive experience serving as chief technology officer for other large global companies. Prior to joining us, Dr. Kulkarni acted as Chief Technology and Innovation Officer at Celanese Corporation, a technology and specialty materials company, from 2012 to 2016, and Vice President of Research and Development for the Advanced Engineering Materials and Emulsions business units, from 2010 to 2012. Dr. Kulkarni also previously acted as Vice President of Global Engineering, Building Systems and Services Divisions of United Technologies Corporation, a technology products and support services company, from 2007 to 2010. In addition, throughout his career Dr. Kulkarni served in various leadership roles with American Standard, a manufacturer of plumbing fixtures, and General Electric Company, a multinational conglomerate that operates in the finance, aerospace, healthcare and energy industries, among others, in his career. Dr. Kulkarni holds a bachelor's degree in chemical engineering from Osmania University, India, as well as master's and doctorate degrees in chemical engineering from Rensselaer Polytechnic Institute.

Eric McAllister is our Executive Vice President and Chief Human Resources Officer, a position he has held since March 2017. Prior to joining us, Mr. McAllister acted as Senior Vice President, Human Resources for Westinghouse Electric Company, a supplier of safe and innovative nuclear technology, where he led the global human resources and security organizations from 2014 to February 2017. Mr. McAllister also previously acted as Global Vice President of Human Resources for Danaher Corporation, a science and technology innovator, Chief Human Resources Officer at Omniture, online marketing and web analytics business company, and Senior Human Resources Director at Microsoft Corporation, a technology company, from 2005 to 2014. In addition, Mr. McAllister has also held senior human resources positions with Motorola Inc., a telecommunications company, in Japan and in the U.S., and he served in human resources consulting roles with Watson Wyatt, a consulting firm, and Accenture, a consulting firm. Mr. McAllister holds a B.A. in social anthropology and Japanese from Brigham Young University and an M.B.A. from Northwestern University's Kellogg Graduate School of Management.

Justin Miller is our Executive Vice President, General Counsel and Secretary, a position he has held since December 2017. Prior to joining us, Mr. Miller was Of Counsel at Ballard Spahr LLP from December 2015 to December 2017. Prior to Ballard Spahr, Mr. Miller spent 20 years at DuPont, a science company, where he worked in a variety of industries including pharmaceuticals, diagnostics, agricultural and industrial, biotechnology and advanced materials. Mr. Miller served at Dupont in a number of leadership positions within the legal group, serving most recently as Associate General Counsel and Chief Litigation Counsel from 2013 to 2015 and Assistant Chief Intellectual Property Counsel from 2009 to 2013. Mr. Miller also served as the lead commercial counsel for a variety of DuPont businesses in earlier assignments. Mr. Miller earned a B.A. from the University of Pennsylvania and J.D. from George Mason University Law School.

Devashish Ohri is our Executive Vice President, AMEA, a position he has held since 2014. Mr. Ohri has extensive experience working in life sciences in the Asia-Pacific region. Prior to joining us, Mr. Ohri acted as Managing Director, South Asia for Life Technologies, a biotechnological company, from 2010 to 2014. Mr. Ohri holds a Master's Degree in history from Delhi University, India, as well as an M.B.A. from INSEAD in France. In addition, Mr. Ohri attended the Advanced Management Program at Harvard Business School.

Frederic Vanderhaegen is our Executive Vice President, Europe, a position he has held since October 2018. Mr. Vanderhaegen joined us from Ortho Clinical Diagnostics, an *in vitro* diagnostics company, where he served as Vice President and General Manager, EMEA from June 2015 to October 2018. Prior to Ortho Clinical Diagnostics, Mr. Vanderhaegen acted as Vice President of Sales at Beckman Coulter, a company that develops, manufactures and markets diagnostic systems for complex biomedical testing, from October 2012 to June 2015, and also led global strategy for the Completion and Production division. Mr. Vanderhaegen also served in several roles at Tecan, a company that specialized in the development, production and distribution of automated workflow solutions for laboratories in the life sciences sector, from 2008 to 2012, including Executive Vice President, Life Sciences. In addition, Mr. Vanderhaegen served in various leadership roles at Millipore, a life science and high technology company, from 1995 to 2005. Mr. Vanderhaegen holds degrees in biochemistry and

Table of Contents

chemical engineering from the Free University of Brussels in Brussels, Belgium, as well as an M.B.A. from The Open University in Milton Keynes, England.

Corey Walker is our Executive Vice President, Americas, Biomaterials and Advanced Technologies. Mr. Walker has served as Executive Vice President, Biomaterials and Advanced Technologies since 2016 and in June 2018 was given the additional responsibility of leading our Americas region. Mr. Walker has extensive experience managing business and product lines at global companies. Prior to joining us, Mr. Walker acted as Global Vice President of the Sperry Drilling Services, a drilling services company, and Multichem global business groups at Halliburton Energy Services, a provider of products and services to the energy industry, from 2013 to 2016, and also led global strategy for the Completion and Production division. Prior to that time, he held a variety of strategic and business unit leadership roles at Dow Chemical, a chemical corporation, leading Dow's strategic initiatives from 2007 to 2009, specialty acrylic monomer business from 2009 to 2011, specialty adhesives business from 2012 to 2013, as well as hygiene and medical business from 2011 to 2013. From 2001 to 2006, Mr. Walker worked at Dell Computers, a computer technology company, where he held global positions in strategy, sales, and marketing. Mr. Walker holds a B.A. in marketing and business management from Brigham Young University and an M.B.A. from Harvard Business School.

Michael Wondrasch is our Executive Vice President and Chief Information Officer, a position he has held since April 2018. Prior to joining us, Mr. Wondrasch served as Global Chief Technology Officer at Bunge, an agribusiness and food ingredient company, from January 2017 to April 2018. Prior to Bunge, Mr. Wondrasch was Senior Vice President and Chief Technology Officer at Pepsico, a food, snack and beverages company, from July 2013 to December 2016 and served in a variety of leadership positions at AmerisourceBergen, a healthcare solutions company, from April 2006 to July 2013, including VP-Technology and VP-SAP Applications. Mr. Wondrasch received a B.S. in computer science from Villanova University and a M.S.E. in computer engineering from the University of Pennsylvania.

Board of Directors

Set forth below is a biographical summary of the experience of the current members of our Board of Directors (other than Mr. Stubblefield) that are expected to serve as directors following this offering.

Rajiv Gupta has served as our Chairman of the Board since 2010 and currently is the Chair of the Nominating and Governance Committee, as well as a member of the Compensation and Human Resources Committee. Mr. Gupta is a Senior Advisor to New Mountain Capital, LLC, a private equity investment firm based in New York, New York. Previously, Mr. Gupta served as Chairman of Delphi Automotive PLC, an auto parts company, from April 2015 to November 2017, when it separated into two companies. From 1999 to 2009, Mr. Gupta was Chairman and Chief Executive Officer of Rohm and Haas Company, a specialty chemical company, when it was acquired by Dow Chemical. Mr. Gupta previously held various other positions at Rohm and Haas, which he joined in 1971, including serving as Vice Chairman from 1998 to 1999, Director of the Electronic Materials business from 1996 to 1999, and Vice President and Regional Director of the Asia Pacific Region from 1993 to 1998. Mr. Gupta currently serves as a director of Arconic, Inc. and Aptiv PLC. In the past five years, Mr. Gupta also served as a director of Delphi Automotive PLC (2009 to 2015), HP, Inc. (2009 to 2017), Stroz Freidberg, LLC (2011 to 2013), The Vanguard Group, Inc. (2001 to 2017), IRI Group (2012 to 2018), Affle (2008 to 2016) and Tyco International plc (2005 to 2016). Mr. Gupta holds a B.S. in mechanical engineering from the Indian Institute of Technology, a M.S. in operations research from Cornell University and an M.B.A. in finance from Drexel University. Mr. Gupta is a past Chairman of the American Chemistry Council and the Society of Chemical Industry, America Section. Mr. Gupta's prior long-term, senior level experience at a major global chemical company, including serving as chairman and chief executive officer, and his expertise in financial accounting, international business transactions and strategy, make him a valuable member of our Board.

Thomas Connolly has served on our Board since November 2017. Mr. Connolly is global head of the Private Credit Group within the Merchant Banking Division (MBD) of Goldman Sachs, a global investment banking,

Table of Contents

securities and investment management firm. Mr. Connolly joined Goldman Sachs in 1996 and worked in High Yield Capital Markets in New York from 1996 to 1998. He was based in London from 1998 to 2002 as head of European Leveraged Finance. Prior to joining MBD, Mr. Connolly was head of Leveraged Finance. He was named managing director in 1999 and partner in 2004. Prior to joining the firm, Mr. Connolly worked for Bankers Trust Company from 1990 to 1996. Mr. Connolly serves on the National Advisory Board of Jumpstart Inc., which promotes literacy and reading skills among underprivileged preschoolers. He also serves on the Board of Trustees of Union College. Mr. Connolly earned a B.A. from Union College. Mr. Connolly's senior management experience at Goldman Sachs, board and advisory experience with other companies and his experience in the areas of finance, strategy and international business transactions make him a valuable member of our Board.

Matthew S. Holt has served on our Board since 2010 and is currently the Chair of the Compensation and Human Resources Committee, as well as a member of the Nominating and Governance Committee. Mr. Holt is a Managing Director of New Mountain Capital, LLC, a private equity investment firm based in New York, New York. He serves as the Deputy Head of Private Equity at New Mountain, and focuses on growth buyouts across a range of industries including healthcare products, health technology, materials and infrastructure. He previously worked in the Mergers and Acquisitions Group at Lehman Brothers, a financial services firm, from 1999 to 2001. He currently serves as Lead Director or Chairman of CIOX Health, Convey Health Solutions, Inc., Cytel, Equian LLC, Remedy Partners, Revint Solutions, Signify Health, and Zep, Inc. He also serves as a director of Topix Pharmaceuticals, Gelest, TRC Companies. Mr. Holt has previously served as Lead Director of Bellerophon Therapeutics, Inc., Ikaria, Inc., Nusil Technology LLC, and Director of MailSouth. Mr. Holt earned an A.B. in English and American Literature and Language from Harvard College. Mr. Holt's senior management experience as a Managing Director of New Mountain Capital, board and advisory experience with other companies in the healthcare industry and his extensive experience in the areas of finance, strategy, international business transactions and mergers and acquisitions, make him a valuable member of our Board.

Andre Moura has served on our Board since 2015 and is currently a member of the Audit and Finance Committee and the Compensation and Human Resources Committee. Mr. Moura is a Managing Director at New Mountain Capital, LLC, a private equity investment firm based in New York, New York. Prior to joining New Mountain in 2005, Mr. Moura worked at McKinsey & Company, a management consulting firm, from 2003 to 2005, where he helped to advise companies across various industries. He currently serves as a director of Bellerophon Therapeutics, Inc., Gelest, Alteon Health, Sparta Systems and Topix Pharmaceuticals. In the past five years, Mr. Moura also served as a director of NuSil Technology LLC, ACA Compliance Group and Medical Specialty Distributors. He received his A.B. in Computer Science from Harvard College and his M.B.A. from Harvard Business School, where he was a Baker Scholar. Mr. Moura's senior management experience as a Managing Director of New Mountain Capital, board and advisory experience with other companies in the life sciences' industry and his extensive experience in the areas of finance, strategy, international business transactions and mergers and acquisitions, make him a valuable member of our Board.

Jo Natauri has served on our board since November 2018. Ms. Natauri is a Managing Director and the global head of Healthcare Investing within the Merchant Banking Division (MBD) of Goldman Sachs, a global investment banking, securities and investment management firm, a position she has held since May 2018. In her current role, Ms. Natauri oversees a portfolio of investments and serves on the boards, or as an observer on the boards, of several MBD portfolio companies. Prior to assuming her current role in MBD, Ms. Natauri was an investment banker with Goldman Sachs for 12 years, where she led coverage of large cap companies in healthcare and other industries. She was named managing director in 2008 and partner in 2012. Ms. Natauri serves on the board of Safe Horizon, the nation's leading victim assistance organization. Ms. Natauri earned a B.A. in economics and biology from the University of Virginia. Ms. Natauri's senior management experience as a Managing Director of Goldman Sachs, board and advisory experience with other companies in the life sciences' industry and her experience in the areas of finance, strategy and international business transactions, make her a valuable member of our Board.

Table of Contents

Jonathan Peacock has served on our Board since 2017 and currently is the Chair of the Audit and Finance Committee. Mr. Peacock has been the Chairman of Arix Bioscience PLC, a global health and life sciences specialist investor in medical innovation, since 2016. From June 2014 to November 2016, Mr. Peacock served as the Chairman and Chief Executive Officer of Bellerophon Therapeutics, Inc., a clinical-stage biotherapeutics company, and has served as Chairman since 2016. Prior to that time, Mr. Peacock served as the Chief Financial Officer of Amgen Inc, a biopharmaceutical company, from September 2010 to January 2014. Mr. Peacock was the Chief Financial and Administrative Officer of the Pharmaceuticals Division of Novartis AG, a global healthcare company, from November 2005 to September 2010. Prior to Novartis, Mr. Peacock was a partner at McKinsey & Company, a management consulting firm, from 1998 to 2005 and was also a partner at PricewaterhouseCoopers, a professional services company that provides audit, assurance, tax and consulting services, from 1993 to 1998. In the past five years, Mr. Peacock served as a director of Kite Pharma as Chairman of the Audit and Finance Committee (2014 to 2017). Mr. Peacock earned a M.A. in Economics from the University of St. Andrews in Scotland. Mr. Peacock's prior senior leadership experience at several companies, including as chief executive officer and chief financial officer, current and past experience as a board member at other companies and his expertise in finance, strategy and financial accounting (including qualification as an audit committee financial expert), along with his independence, make him a valuable member of our Board.

Rakesh Sachdev has served on our Board since April 2019 and is a member of the Audit and Finance Committee and the Compensation and Human Resources Committee. Mr. Sachdev serves as a director of Element Solutions Inc., a global diversified specialty chemicals company and as a director of Regal-Beloit Corporation, an electric motor manufacturer, and Edgewell Personal Care Company, a consumer products company. Mr. Sachdev previously served as Chief Executive Officer of Platform Specialty Products (which changed its name to Element Solutions Inc. in January 2019) from January 2016 to 2019. Prior to joining Element Solutions Inc. in January 2016, Mr. Sachdev served for six years as Chief Executive Officer and as a director at Sigma-Aldrich Corporation, a chemical, life science and biotechnology company, where he had been President and Chief Executive Officer since 2010. He joined Sigma-Aldrich as Chief Financial Officer in 2008, taking on the additional role of Chief Administrative Officer in 2009 with direct oversight of the international business. From 2007 to 2008, Mr. Sachdev was Senior Vice President and President Asia Pacific at ArvinMeritor Inc. (now called Meritor Inc.), a global supplier of automotive systems and components. In May 2008, Mr. Sachdev became Executive Vice President, Chief Administrative Officer and Managing Director of Emerging Markets at Arvin Innovation Inc., a spin off business of ArvinMeritor Inc. He also held other senior leadership roles in strategy and corporate development, finance and general management for several ArvinMeritor global businesses from 1999 to 2007. Previously, he acquired 18 years of senior management experience with Cummins Inc., a global engine and power systems manufacturer, in various leadership roles, including Chief Financial Officer of its automotive business unit and Managing Director in Mexico. Mr. Sachdev earned an M.B.A. from Indiana University, a Masters in Mechanical Engineering from the University of Illinois and a Bachelor's degree in Mechanical Engineering from the Indian Institute of Technology in New Delhi. Mr. Sachdev's extensive senior management and board experience with companies in the life sciences and manufacturing industries, and his experience in the areas of finance, strategy and international business transactions, along with his independence, make him a valuable member of our Board.

Christi Shaw has served on our board since November 2018. Ms. Shaw is Senior Vice President of Eli Lilly Company, a global healthcare company, and President of Lilly Bio-Medicines, the business within Eli Lilly Company that comprises neuroscience and immunology, a position she has held since April 2017. From 2014 to 2016, Ms. Shaw served as U.S. country head and President of Novartis Pharmaceutical Corporation, a global healthcare company, and from 2010 to 2014 as North American region head of Novartis Oncology. Prior to 2010, Ms. Shaw held several leadership positions at Johnson & Johnson, Inc. Ms. Shaw also serves as an executive board member of the Biotechnology Innovation Organization and is the co-founder of the More Moments More Memories Foundation to assist people with cancer and their caregivers. Ms. Shaw holds a B.B.A. in Marketing from Iowa State University and an M.B.A. from the University of Wisconsin. Ms. Shaw's extensive senior leadership experience within the healthcare industry and services as a Board Member of a large trade organization, along with her independence, make her a valuable member of our Board.

[Table of Contents](#)

Family Relationships

There are no family relationships between any of our executive officers and directors.

Composition of the Board of Directors

Our business and affairs are managed under the direction of our Board of Directors. Robert Fine intends to resign from the Board of Directors, effective upon consummation of this offering. In connection with this offering, we will amend and restate our certificate of incorporation to provide for a classified Board of Directors, with three directors in Class I (expected to be Thomas Connolly, Jonathan Peacock and Andre Moura), three directors in Class II (expected to be Matthew Holt, Christi Shaw and Rakesh Sachdev) and three directors in Class III (expected to be Rajiv Gupta, Michael Stubblefield and Jo Natauri). See “Description of Capital Stock—Anti-Takeover Effects of Our Amended and Restated Certificate of Incorporation and Amended and Restated By-laws and Certain Provisions of Delaware Law—Classified Board of Directors.” Our independent directors will be Jonathan Peacock, Rakesh Sachdev and Christi Shaw.

Our Board of Directors will have discretion to determine the size of the Board of Directors. Subject to certain exceptions, newly created director positions resulting from an increase in size of the Board of Directors and vacancies may be filled by our Board of Directors. See “Description of Capital Stock—Anti-Takeover Effects of Our Amended and Restated Certificate of Incorporation and Amended and Restated By-laws and Certain Provisions of Delaware Law—Removal of Directors; Vacancies.”

Board Committees

Our Board of Directors have established an audit and finance committee, a compensation and human resources committee and a nominating and governance committee. The composition and responsibilities of each committee following this offering are described below. Members serve on these committees until their resignation or until otherwise determined by our board.

For each committee below, the rules of the SEC and the NYSE require us to have one independent committee member upon the listing of our common stock, a majority of independent committee members within 90 days of the effective date of the registration statement of which this prospectus forms a part and all independent audit committee members within one year of the effective date of the registration statement of which this prospectus forms a part.

Audit and Finance Committee

Upon the completion of this offering, our audit and finance committee will consist of Jonathan Peacock, Andre Moura and Rakesh Sachdev, with Jonathan Peacock serving as chair. Our audit and finance committee will be responsible for, among other things:

- selecting and hiring our independent auditors, and approving the audit and non-audit services to be performed by our independent auditors;
- assisting the Board of Directors in evaluating the qualifications, performance and independence of our independent auditors;
- assisting the Board of Directors in monitoring the quality and integrity of our financial statements and our accounting and financial reporting;
- reviewing the adequacy and effectiveness of our internal control over financial reporting processes;
- reviewing with management and our independent auditors our annual and quarterly financial statements;

Table of Contents

- establishing procedures for the receipt, retention and treatment of complaints received by us regarding accounting, internal accounting controls or auditing matters and the confidential, anonymous submission by our employees of concerns regarding questionable accounting or auditing matters;
- preparing the audit committee report that the SEC requires in our annual proxy statement; and
- reviewing related-party transactions.

Compensation and Human Resources Committee

Upon completion of this offering, our compensation and human resources committee will consist of Matthew Holt, Rakesh Sachdev and Christi Shaw, with Matthew Holt serving as chair. The compensation and human resources committee will be responsible for, among other things:

- reviewing and approving corporate goals and objectives relevant to the compensation of our CEO, evaluating our CEO's performance in light of those goals and objectives, and, either as a committee or together with the other independent directors (as directed by the Board of Directors), determining and approving our CEO's compensation level based on such evaluation;
- reviewing and approving, or making recommendations to the Board of Directors with respect to, the compensation of our other executive officers, including annual base salary, bonus, equity-based incentives and other benefits;
- reviewing and recommending to our Board of Directors with respect to the compensation of our directors; and
- reviewing and making recommendations with respect to our equity compensation plans.

Nominating and Governance Committee

Upon completion of this offering, we expect our nominating and governance committee will consist of Rajiv Gupta, Jonathan Peacock and Christi Shaw, with Rajiv Gupta serving as chair. The nominating and governance committee is responsible for, among other things:

- assisting our Board of Directors in identifying prospective director nominees and recommending nominees to the Board of Directors;
- overseeing the evaluation of the Board of Directors and management;
- reviewing developments in corporate governance practices and developing and recommending a set of corporate governance guidelines; and
- recommending members for each committee of our Board of Directors.

Compensation Committee Interlocks and Insider Participation

Messrs. Holt (Chairman) and Sachdev and Ms. Shaw are the current members of our Compensation and Human Resources Committee, and none of them is or has been our officer or employee. Mr. Holt is a Managing Director at New Mountain Capital. For a description of the transactions between us and New Mountain Capital, see "Certain Relationships and Related Party Transactions." Apart from these relationships, no member of the Compensation and Human Resources Committee has any relationship that would be required to be reported under Item 404 of Regulation S-K. No member of the Compensation and Human Resources Committee serves or served during the most recent fiscal year as a member of the Board of Directors or compensation committee of a company that has one or more executive officers serving as a member of the Board or Compensation and Human Resources Committee.

[Table of Contents](#)

Code of Ethics

The Company maintains a Code of Conduct and Ethics that applies to all of our officers and employees, including our principal executive officer, principal financial officer and principal accounting officer, which will be posted on our Internet website on the “Governance” link to the “About Us” page. Our Code of Conduct and Ethics is a “code of ethics,” as defined in Item 406(b) of Regulation S-K. The information contained on, or accessible from, our website is not part of this prospectus by reference or otherwise. We will make any legally required disclosures regarding amendments to, or waivers of, provisions of our code of ethics on our website.

Compensation Discussion and Analysis

This compensation discussion and analysis (our “CD&A”) provides an overview of our executive compensation philosophy and the material elements of compensation awarded to, earned by, or paid to our named executive officers with respect to the year ended December 31, 2018.

Our named executive officers consist of our Chief Executive Officer, our current Chief Financial Officer, our former Chief Financial Officer, and our three other most highly compensated executive officers who served in the capacities listed opposite their respective names on December 31, 2018 (collectively, our “named executive officers”). For 2018, the named executive officers were:

<u>Name</u>	<u>Title</u>
Michael Stubblefield	President and Chief Executive Officer
Thomas Szlosek(1)	Executive Vice President and Chief Financial Officer
Bjorn Hofman	Executive Vice President and Chief Operating Officer
Gerard Brophy(2)	Executive Vice President, Biopharma Production
Frederic Vanderhaegen(3)	Executive Vice President, Europe
Gregory Cowan(4)	Former Executive Vice President and Chief Financial Officer

- (1) Mr. Szlosek joined us on December 3, 2018.
 (2) Mr. Brophy joined us on July 30, 2018.
 (3) Mr. Vanderhaegen joined us on October 8, 2018.
 (4) Mr. Cowan retired effective December 31, 2018.

This CD&A is divided into three sections:

Executive Summary

Compensation Philosophy & Objectives—How we make compensation decisions

Elements of Compensation—What we pay and why

- Our Compensation Philosophy and Objectives
- Our Executive Compensation Practices
- Transition of Our Executive Compensation Programs
- Our Compensation Philosophy and Objectives
- Role of the Compensation Committee and our Executive Officers
- Base Salary, Guaranteed, Sign-on and Discretionary Bonuses, Performance-Based Cash Incentive Compensation, Long-Term Incentive Programs, VWR Retention Bonuses, Other Components, Severance Arrangements, Departure of Mr. Cowan, Actions Taken in Connection with This Offering, and Hedging, Short Sales and Pledging Policies

[Table of Contents](#)

Executive Summary

Our Compensation Philosophy and Objectives

Our primary executive compensation objectives are to:

Attract and Retain Talent	Provide a total compensation program that enables the company to attract, motivate, retain and reward high-performing executives, who have the ability to contribute to our success, and encourage management to place its primary focus on strategic planning and financial and operational priorities to ensure the achievement of our global strategy.
Pay for Performance	Support a “pay-for-performance” orientation to provide differentiated rewards for strong financial, operating and individual performance, including the use of cash and equity incentive compensation payments based in part upon our performance to encourage the achievement of short-term and long-term financial and operational objectives.
Market Competitive Pay	Provide a total compensation opportunity that is competitive with our market and the industry within which we compete for executive talent.

Our Executive Compensation Practices

The material elements of our 2018 executive compensation programs included base salary, an annual cash incentive plan that is tied to company financial and individual performance, long-term incentive opportunities, signing and other guaranteed cash bonuses, broad-based employee benefits, certain perquisites and severance benefits, all of which are described below.

Transition of Our Executive Compensation Programs

In connection with the VWR Acquisition, the compensation and human resources committee (the “Compensation Committee”) undertook a comprehensive review of our executive compensation program. We entered into new written employment arrangements with Messrs. Stubblefield and Hofman governing the terms of their employment. Mr. Cowan’s employment with us continued pursuant to the terms of his employment arrangement with VWR. We entered into written employment arrangements with Messrs. Szlosek, Brophy and Vanderhaegen when they joined us. See “Narrative Disclosure to Summary Compensation Table and Grants of Plan-Based Awards in 2018—Employment Arrangements.”

Under their respective employment arrangements, our named executive officers are also generally eligible to receive an annual cash incentive bonus. See “Elements of Compensation—What We Pay and Why—Performance-Based Cash Incentive Compensation.” In addition, pursuant to their employment arrangements, we granted stock options to Messrs. Stubblefield, Szlosek, Hofman, Brophy and Vanderhaegen. See “Elements of Compensation—What We Pay and Why—Long-Term Incentive Programs.”

In December 2018, in connection with this offering, the Compensation Committee engaged Frederic W. Cook & Company (“FW Cook”) as its independent compensation consultant, to assist in the establishment of a peer group for compensation benchmarking purposes, help align executive pay with public company market practices, review our short and long-term performance-based compensation programs and to advise generally on executive and director compensation in connection with becoming a public company. We anticipate that we will continue to review our executive compensation programs in connection with this offering and make such changes as are determined to be necessary or appropriate for our status as a public company. As we gain experience as a public company, we expect that the specific direction, emphasis and components of our executive compensation programs will continue to evolve. Accordingly, the compensation paid to our named executive officers for 2018, and the form and manner in which it was paid, is not necessarily indicative of how we will compensate our named executive officers after this offering.

[Table of Contents](#)

Compensation Philosophy, Objectives & Process—How We Make Compensation Decisions

Our Compensation Philosophy and Objectives

Our philosophy is to offer an executive compensation program that enables us to attract, motivate, reward and retain high-performing executives who are capable of creating and sustaining value for our stockholders over the long term. In addition, the executive compensation program is designed to provide a fair and competitive compensation opportunity that appropriately rewards executives for their contributions to our success. We believe that it is important to reinforce a results-oriented management culture focusing on our level of earnings, the achievement of both short-term and long-term goals and objectives, including the acceleration of our global growth strategy, and individual performance objectives. Pay received by executives is intended to be commensurate with organizational performance, individual performance, and labor market conditions. As part of its oversight responsibility, the Compensation Committee considers the impact of our risk profile and seeks to maintain a balanced compensation program that does not incentivize undue or inappropriate risks that are reasonably likely to have a material adverse effect on us.

Role of the Compensation Committee and our Executive Officers

Our Compensation Committee recommended the 2018 compensation of our Chief Executive Officer, which was ultimately approved by our Board of Directors, and determined the compensation of each of our other named executive officers. Prior to this offering, we were a privately-held company and our executive compensation practices were tied to immediate business needs relating to hiring and retaining talent and did not necessarily align with market pay practices at public companies. As discussed above, our Compensation Committee has engaged FW Cook as its independent compensation consultant to assist in evaluating our executive and director compensation programs in connection with this offering.

Elements of Compensation—What We Pay and Why

This section describes our executive compensation programs for 2018.

Base Salary

Base salary compensates executives for performing the requirements of their positions and provides executives with a predictable and stable level of cash income with respect to a portion of their total compensation. Base salaries are intended to reward strong performance and to attract and retain key executives. Base salaries are subject to the Compensation Committee's annual review, which includes a review of internally prepared competitive market compensation data based on the Willis Towers Watson 2017 General Industry Salary Survey, a broad-based published survey, and each named executive officer's compensation relative to our other executive officers, position and responsibilities, and individual performance over given periods. The Compensation Committee also considers general economic and industry conditions, company performance and executive compensation trends.

In connection with and effective as of the VWR Acquisition, we increased the base salaries of our named executive officers who were employed by us at such time in recognition of their increased job responsibilities following the acquisition. Pre-acquisition and post-acquisition base salaries, including for our new executives, are as follows:

<u>Name</u>	<u>Pre-VWR Acquisition Base Salary</u>	<u>Post-VWR Acquisition Base Salary</u>	<u>% Increase</u>
Michael Stubblefield	\$ 500,000	\$ 700,000	40%
Thomas Szlosek	—	\$ 600,000	—
Bjorn Hofman	\$ 400,000	\$ 450,000	12.5%
Gerard Brophy	—	\$ 435,000	—
Frederic Vanderhaegen	—	\$ 373,355 ⁽¹⁾	—
Gregory Cowan	\$ 520,000	\$ 546,000	5%

(1) Converted from Swiss francs to U.S. dollars using the average of the monthly average exchange rates for 2018 (1.02289).

[Table of Contents](#)

Guaranteed, Sign-on and Discretionary Bonuses

From time to time, we may award guaranteed, sign-on and discretionary bonuses to attract or retain executive talent. Generally, sign-on bonuses are used to incentivize candidates to leave their current employers or may be used to offset the loss of unvested compensation they may forfeit as a result of leaving their current employers.

Mr. Stubblefield's employment arrangement provides for a \$130,000 cash bonus to be paid on February 15th of each calendar year, subject to Mr. Stubblefield's continued employment on each applicable payment date. This bonus was paid on February 15, 2018.

Mr. Szlosek's employment arrangement provides for a one-time conditional signing bonus of \$225,000, which we paid to him on December 28, 2018. Mr. Szlosek is required to repay the full amount of the signing bonus to us on his last day of employment if he terminates his employment with us voluntarily for any reason other than good reason (as defined in Mr. Szlosek's employment letter) on or prior to December 3, 2019.

In addition, in connection with Mr. Cowan's agreement to assume his role as our Executive Vice President and Chief Financial Officer after the VWR Acquisition, his annual cash incentive plan compensation was guaranteed at a minimum of 100% of target for 2018, or \$409,500, which was paid quarterly. Finally, in lieu of continuing to provide certain executive benefits and perquisites that were maintained at VWR, we provided a special cash bonus to Mr. Cowan on November 16, 2018 of \$61,025, which is equal to 1.5 times the value of the annual executive perquisite and benefits that had been provided to Mr. Cowan.

Performance-Based Cash Incentive Compensation

During 2018, we maintained the legacy performance-based cash incentive programs of Avantor, known as the Annual Incentive Plan (the "AIP"), and VWR, known as the Management Incentive Plan (the "MIP"). As a result, Messrs. Stubblefield and Hofman participated in the AIP and Messrs. Brophy and Cowan participated in the MIP. Messrs. Szlosek and Vanderhaegen were ineligible to participate in the 2018 MIP as they joined us after October 1, 2018. The AIP and MIP are designed to encourage and reward contributions toward achieving our business goals. Each of the AIP and the MIP provide for a bonus opportunity based on achievement of a company-wide financial target and, other than with respect Mr. Stubblefield, individual performance.

For 2018, our Board of Directors and Compensation Committee established company-wide consolidated Management EBITDA targets, calculated on a constant currency basis, as the company-wide financial target. For the definition of Management EBITDA and reconciliation to the most directly comparable measure under GAAP, see "Summary—Summary Historical Financial and Other Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations—Reconciliations of Non-GAAP Financial Measures" elsewhere in this prospectus. Constant currency Management EBITDA is calculated using fixed foreign currency exchange rates based on the average of the prior year's monthly average rates. These rates are generally established at the beginning of the year in connection with the development of the operating plan for the year, in order to ensure that management is focused on long-term growth and not on short-term changes in foreign currency exchange rates.

In order to fund any portion of the AIP and MIP pools, the Company must first meet the minimum constant currency Management EBITDA target, which was \$941.3 million for 2018. If this threshold is not met, the plans are not funded and no payouts are made. Upon achievement of the minimum constant currency Management EBITDA of \$941.3 million, the payout then graduates on a straight-line basis to \$981.3 million for a 100% payout. It then graduates on a straight-line basis to a 165% payout if we achieved \$1,033.3 million of constant currency Management EBITDA. The aggregate payout under the AIP and MIP cannot exceed the total amount achieved under the respective plan.

Table of Contents

On the basis of the factors described above, annual bonus awards for each of the named executive officers on account of 2018 performance is set forth in the table below.

Name	2018 Target Bonus	Constant Currency Management EBITDA		Personal Performance Modifier		2018 Performance Cash Bonus
		Achievement				
Michael Stubblefield	\$1,400,000	x	115%	x	N/A	= \$1,610,000
Bjorn Hofman	\$ 360,000	x	115%	x	100%	= \$ 414,000
Gerard Brophy ⁽¹⁾	\$ 135,938	x	115%	x	105%	= \$ 168,185
Gregory Cowan ⁽²⁾	\$ 409,500	x	115%	x	100%	= \$ 470,925

- (1) Mr. Brophy's award was pro-rated based on his partial year of service in 2018.
(2) Mr. Cowan's award was guaranteed at a minimum cash bonus of 100% of target for 2018.

Although Mr. Vanderhaegen was ineligible to participate in the MIP during 2018, we agreed that if target Management EBITDA is achieved or exceeded, he will be eligible for a \$125,000 cash bonus. His employment arrangement provides for a target bonus percentage of 75% of base salary.

Additional details regarding the dollar value of target and maximum bonus payout opportunities for 2018 are provided under "Executive Compensation Tables—Grants of Plan-Based Awards."

Long-Term Incentive Programs

Our Compensation Committee believes that equity awards are a key component of our executive compensation program because they help us attract, motivate and retain executive talent.

In connection with the VWR Acquisition, we adopted the Vail Holdco Corp Equity Incentive Plan (the "Vail Plan"), which enables us to grant stock options, stock appreciation rights, restricted stock, restricted stock units and other cash-based awards, and to subject those awards to vesting to promote a long-term perspective. Our directors, officers and other employees, and of our subsidiaries, as well as others performing consulting or advisory services for us or our subsidiaries, are eligible for grants under the Vail Plan. The purpose of the Vail Plan is to provide incentives that will attract, retain and motivate high-performing officers, directors, employees and consultants by providing them with appropriate incentives and rewards through a proprietary interest in our long-term success.

In connection with the VWR Acquisition, in order to properly incentivize management, we granted Messrs. Stubblefield and Hofman options to purchase shares of our common stock pursuant to the Vail Plan. Messrs. Stubblefield and Hofman were granted options to purchase 3,380,200 and 1,352,080 shares of common stock, respectively. Upon joining the Company in 2018, Messrs. Brophy, Vanderhaegen and Szlosek were granted options to purchase 540,830, 540,830 and 1,352,080 shares of common stock, respectively.

The options granted to our named executive officers under the Vail Plan have a ten-year term, with 60 percent of each grant vesting quarterly over four years (the "time-vesting options"), and the remaining 40 percent vesting upon the occurrence of a "change in control" (as defined in the Vail Plan) or a public offering (including this offering), in each case, prior to December 13, 2020 (or 20 percent, if such event occurs after December 13, 2020 and prior to December 13, 2021) (the "performance-vesting options"), subject to the executive's continued employment through each such date. In the event of a change in control prior to an applicable vesting date, any then unvested time-vesting options will vest, subject to the executive's continued employment through such date. In the event of the termination of an executive's employment (other than for "cause" (as defined in the Vail Plan)), any then-unvested options will be immediately forfeited for no consideration, and any then-vested options will remain outstanding and exercisable for 180 days following such termination, subject to earlier expiration of the option. In the event of such executive's termination for "cause," all options, whether exercisable or not, will be immediately forfeited for no consideration.

Table of Contents

In addition, in connection with the VWR Acquisition, outstanding stock options and time-based vesting restricted stock in Avantor Inc. granted pursuant to the Avantor, Inc. Equity Incentive Plan (the “Legacy Avantor Equity Plan”) were converted on a one-for-one basis into corresponding equity awards based on shares of our common stock, with substantially similar vesting terms. Messrs. Stubblefield and Hofman hold outstanding stock options under the Legacy Avantor Equity Plan. The last tranche of time-based restricted stock granted under the Legacy Avantor Equity Plan held by Mr. Stubblefield vested on March 24, 2019.

The options issued to our named executive officers under the Legacy Avantor Equity Plan have a ten-year term, and vest 25% per year commencing on the first anniversary of the grant date, subject to the executive’s continued employment through the applicable vesting date. In the event of the termination of an executive’s employment (other than for “cause” (as defined in the Legacy Avantor Equity Plan)), any then-unvested options will be immediately forfeited for no consideration, and any then-vested options will remain outstanding and exercisable for 180 days following such termination, subject to earlier expiration of the option. In the event of such executive’s termination for “cause,” all options, whether exercisable or not, will be immediately forfeited for no consideration.

The time-based vesting restricted stock issued pursuant to the Legacy Avantor Equity Plan provided that, subject to the executive’s continued employment through the applicable vesting date, the shares of restricted stock vested 25% per year commencing on the first anniversary of the grant date.

The Legacy Avantor Equity Plan was frozen for new issuances in connection with the VWR Acquisition.

Our shares of common stock, including shares held by our named executive officers, are subject to the terms of our Stockholders Agreement, dated November 21, 2017. Under the Stockholders Agreement, we have specified repurchase rights with respect to shares of common stock held by our employees in the event of an employee’s termination. Specifically, we may repurchase an employee’s shares of common stock for a 210-day period commencing on the fifth day after the later of (i) the date that is six months after the date of the acquisition of the shares (whether by exercise of options or grant of shares) and (ii) the termination date. During this period, we may repurchase the shares for their fair market value if the employee stockholder’s employment is terminated by us other than for cause, by the employee stockholder with good reason prior to the second anniversary of the initial acquisition date, by the employee stockholder with or without good reason on or following the second anniversary of the initial acquisition date, or by reason of the employee stockholder’s death, disability or incompetency. In the event of a termination of employment by us for cause or by the employee stockholder without good reason prior to the second anniversary of the grant date, we may repurchase the shares for the lesser of (i) the amount paid by such stockholder to acquire the shares (or in the case of shares initially issued as restricted shares, \$0.01) and (ii) fair market value. With respect to unvested restricted shares, we may repurchase any such shares held by a terminated employee for a price of \$0.01 per share during a specified call period, which begins on the fifth day after the later of (i) the date that is six months after the grant date and (ii) the termination date.

Additional details regarding the equity awards described above, including grant dates and exercise prices, are provided under “Executive Compensation Tables—Outstanding Equity Awards at December 31, 2018.”

VWR Retention Bonuses

Prior to its acquisition by the Company, VWR established a management retention program (“retention program”) covering Mr. Cowan. The retention program provided for a bonus in a fixed amount (the “retention bonus”) for Mr. Cowan of \$2,125,000.

Table of Contents

Under the retention program if (i) Mr. Cowan was employed by the Company or its affiliates (including, without limitation, Avantor and any affiliate of Avantor) on May 4, 2018 (the “vesting date”) or (ii) Mr. Cowan’s employment with the Company and its affiliates was terminated before the vesting date (A) by the Company for a reason other than “cause” (as defined in the retention program), (B) by Mr. Cowan for “good reason” (as defined in the retention program) or (C) due to Mr. Cowan’s death or disability, a retention bonus would be paid in a cash lump sum to him within 10 days of the vesting date, subject to the execution and non-revocation of a release of claims against us. The right to receive a retention bonus would be forfeited upon any other termination of employment with the Company and its affiliates. We subsequently agreed with Mr. Cowan that if the acquisition of VWR closed prior to May 4, 2018, we would pay 50% of his retention bonus on the date of closing and the remaining 50% on May 4, 2018.

In connection with the VWR Acquisition, VWR’s Compensation Committee considered the impact of the potential golden parachute excise tax pursuant to Sections 280G and 4999 of the Code on Mr. Cowan in connection with payments under the retention program and determined that the imposition of the excise tax on him would result in a significant personal tax burden that would deprive him of a substantial portion of the value of his compensatory payments in connection with the acquisition. VWR’s Compensation Committee assessed the costs and benefits of making gross-up payments to alleviate the effect of the golden parachute excise tax on Mr. Cowan to VWR, its stockholders, the surviving corporation and Mr. Cowan. VWR’s Board of Directors, upon recommendation of VWR’s compensation committee, determined that it was in the best interests of VWR’s stockholders to mitigate the negative tax impact to Mr. Cowan that would otherwise result from our acquisition of VWR, which was expected to bring significant financial benefits to VWR’s stockholders. Upon recommendation of VWR’s compensation committee, VWR’s Board of Directors approved that the retention bonuses payable pursuant to the retention program, and also provided for the payment of an additional bonus in an amount so that, on a net after-tax basis, Mr. Cowan would be in the same position as if no golden parachute excise tax had applied to him (the “excise tax gross-up payment”).

Half of the retention bonus awarded to Mr. Cowan was paid on the date of the closing of the VWR Acquisition and the remaining half was paid on May 4, 2018. No excise tax gross-up payment was made to Mr. Cowan in respect of the retention bonus payments.

Even though the retention bonus was awarded and the full amount was accrued by VWR and not by Avantor, we have included the portions of the retention bonuses that were earned by Mr. Cowan for services performed for Avantor during 2018 in the “All Other Compensation” column in the Summary Compensation Table below.

Other Components

Retirement and Other Benefits

U.S. Pension Plan. We sponsor a defined benefit pension plan that was frozen on May 31, 2005 (the “U.S. Pension Plan”). In 2016, we made a decision to re-open the U.S. Pension Plan solely for purposes of providing a cash balance benefit to U.S. employees (except employees covered by collective bargaining agreements). For 2018, an amount equal to 2% of each eligible employee’s compensation was allocated by us to the U.S. Pension Plan on a quarterly basis. All contributions to the U.S. Pension Plan are fully-vested upon contribution. Mr. Cowan was eligible to participate in and receive benefits under the U.S. Pension Plan. Additional details regarding this pension plan are provided under “Executive Compensation Tables-Pension Benefits.”

Swiss Pension Plan. Our Swiss subsidiary, VWR International GmbH, sponsors the Swiss pension plan, which is a cash balance benefit (or pension) plan. Each year, contributions to the plan are made by each of the individual participants in the plan and the employer, with the employer portion of the contribution being at least equal to the total contributions made by the participant, up to a maximum contribution of 13% of the participant’s base salary. Amounts in the plan bear interest depending on the annual performance of the pension

Table of Contents

plan, including certain minimum amounts as set by Swiss law. Retirement benefits may be paid in the form of a lump-sum payment or a retirement pension when the employee reaches the normal retirement age under the plan of 65. Mr. Vanderhaegen was eligible to participate in the Swiss Pension Plan in 2018.

Savings Plans. In 2018, we sponsored the VWR International, LLC Retirement Savings 401(k) Plan (the “VWR Savings Plan”) and the Avantor Performance Materials, Inc. Savings Plan (the “Avantor Savings Plan” and together with the VWR Savings Plan, the “Savings Plans”), which are tax-qualified retirement savings plans available to all U.S.-based employees, including our U.S.-based named executive officers. Our employees are able to contribute, on a before-tax basis, up to 90% of their earnings to the Avantor Savings Plan, and up to 99% of their earnings to the VWR Savings Plan, up to the limit prescribed by the Internal Revenue Service. We have historically matched 50% of the first 6% of contributions to the Avantor Savings Plan and 100% of the first 4% of contributions to the VWR Savings Plan, subject to earnings limitations under applicable federal income tax rules. Company contributions to the Avantor Savings Plan vest according to a 2-year cliff vesting schedule. Company contributions to the VWR Savings Plan are fully-vested upon contribution. For 2018, Mr. Stubblefield was eligible to participate in the Avantor Savings Plan and Messrs., Hofman, Brophy and Cowan were eligible to participate in the VWR Savings Plan. Based on his start date, Mr. Szlosek was not eligible to participate in the Savings Plans for 2018. As of January 1, 2019, the Avantor Savings Plan merged into the VWR Savings Plan. Our contributions to named executive officers’ respective Savings Plan accounts is reflected in the column “All Other Compensation” of the Summary Compensation Table.

Nonqualified Deferred Compensation Plan. Mr. Cowan was eligible to participate in our Nonqualified Deferred Compensation Plan (the “Nonqualified Deferred Compensation Plan”). The Nonqualified Deferred Compensation Plan became effective May 1, 2007 and was terminated effective January 31, 2018. Under the Nonqualified Deferred Compensation Plan, eligible participants were entitled to defer up to 50% of their base salaries and up to 100% of their annual cash bonus awards. In addition, the Nonqualified Deferred Compensation Plan allowed us to credit certain matching amounts to the notional account of each eligible participant for each year, provided certain company performance goals are satisfied. These matching amounts were provided to restore matching amounts to which the participant would otherwise be entitled under the applicable Savings Plan, but which are limited due to earnings limitations under federal income tax rules. Additional details regarding this plan are provided under “Executive Compensation Tables—Nonqualified Deferred Compensation Plan.”

Perquisites and Other Personal Benefits

Our Compensation Committee periodically reviews the levels of perquisites and other personal benefits provided to our named executive officers. The perquisites and other benefits provided to our named executive officers in 2018 included automobile allowances for Mr. Stubblefield equal to \$30,000 and for Mr. Vanderhaegen equal to \$3,167 (pursuant to the terms of their respective employment agreements).

In addition, we also agreed to provide Mr. Cowan with a housing allowance of \$1,500 per month through his retirement on December 31, 2018 and a tax gross-up in respect thereof.

Our named executive officers are offered health coverage and disability insurance under the same programs as all other salaried employees.

Severance Arrangements

Our employment arrangements with each of our named executive officers provide for payments and other benefits in connection with certain qualifying terminations of employment. Our Compensation Committee believes that these severance benefits: (1) help secure the continued employment and dedication of our named executive officers; (2) enhance our value to a potential acquirer because our named executive officers have noncompetition, nonsolicitation and confidentiality provisions that apply after any termination of employment, including after a change in control; and (3) are important as a recruitment and retention device, as many of the

[Table of Contents](#)

companies with which we compete for executive talent have similar agreements in place for their senior management.

Additional information regarding the severance arrangements with each of our named executive officers, including a quantification of benefits that would have been received by each named executive officer who are currently employed by the Company had his employment terminated on December 31, 2018, is provided under “Termination and Change of Control Arrangements.”

Departure of Mr. Cowan

Mr. Cowan retired effective December 31, 2018. See “Termination and Change of Control Arrangements—Departure of Mr. Cowan” for further details regarding his departure.

Actions Taken in Connection with This Offering

In April 2019, in consultation with FW Cook and as recommended by our Compensation Committee, our Board of Directors approved adjustments to Mr. Stubblefield’s compensation arrangements, as follows:

- increase in base salary to \$1,085,000;
- decrease in target bonus percentage for 2019 from 200% to 165%;
- elimination of \$130,000 annual guaranteed cash bonus;
- elimination of \$30,000 automobile allowance; and
- certain adjustments to termination and change of control benefits, as described under “—Termination and Change of Control Arrangements.”

At the same time, also in consultation with FW Cook and as recommended by our Compensation Committee, our Board of Directors approved adjustments to the termination and change of control benefits for Messrs. Brophy and Vanderhaegen, as described under “—Termination and Change of Control Arrangements.”

To reflect the above adjustments, on April 2, 2019, we amended and restated our written arrangement with Mr. Brophy, and on April 10, 2019, we amended and restated our written arrangements with Mr. Stubblefield, and entered into an addendum to Mr. Vanderhaegen’s written arrangement.

Please see “—2019 Equity Incentive Plan” below for details regarding the Avantor, Inc. 2019 Equity Incentive Plan (the “2019 Equity Incentive Plan”) and “—2019 Employee Stock Purchase Plan” below for details regarding the Avantor, Inc. 2019 Employee Stock Purchase Plan (the “ESPP”), each of which our Board of Directors expects to adopt, and we expect our stockholders to approve, in connection with this offering.

IPO Equity Awards

In connection with this offering, we expect to make grants of restricted stock units under the 2019 Equity Incentive Plan to each of our named executive officers (other than Mr. Cowan).

Upon the completion of this offering, we expect to award Messrs. Stubblefield, Szlosek, Hofman, Brophy and Vanderhaegen approximately \$14,000,000, \$2,600,000, \$2,200,000, \$2,200,000 and \$2,200,000 worth of restricted stock units, respectively, pursuant to the 2019 Equity Incentive Plan. The actual number of restricted stock units to be awarded to each named executive officer will be determined based on the initial public offering price per share in this offering and Messrs. Stubblefield, Szlosek, Hofman, Brophy and Vanderhaegen would be awarded the following number of restricted stock units: 1,000,000, 185,714, 157,143, 157,143 and 157,143, respectively. The restricted stock units awarded to our named executive officers will be unvested as of the date of

[Table of Contents](#)

grant and 50% of the restricted stock units will vest on the second anniversary of the completion of this offering and the remaining 50% of the restricted stock units will vest in two substantially equal installments on the following two anniversaries of the completion of this offering, subject to the named executive officer's continued employment through the applicable vesting date; provided, that upon the occurrence of a change in control and subject to the named executive officer's continuous employment through the date of such change in control, all then-unvested restricted stock units will fully vest.

In connection with this offering, we also expect to award approximately \$15,108,938 worth of options to other employees and approximately \$49,943,563 worth of restricted stock units to other employees. The actual number of options to be awarded to other employees will be determined based on their grant date fair value, calculated using the Black-Scholes option pricing model. Based on the initial public offering price of \$14.00 per share, and a grant date fair value of \$4.79 per option, we would expect to award other employees options to purchase 3,154,267 shares of common stock. The actual number of restricted stock units to be awarded to other employees will be determined based on the initial public offering price per share, and we would expect to award other employees 3,567,397 restricted stock units.

Upon completion of this offering, we expect to award approximately \$200,000 worth of restricted stock units under the 2019 Equity Incentive Plan to each of our non-employee directors (other than the directors employed by New Mountain Capital or by Goldman Sachs), which awards are intended to constitute the 2019 annual grant under our newly adopted director compensation program, which is described in more detail below under "—Director Compensation Following This Offering." The actual number of restricted stock units to be awarded to each eligible director will be determined based on the initial public offering price per share in this offering, and each eligible director is expected to be awarded 14,286 restricted stock units. These awards will vest in full on the earlier of (x) the first anniversary of the Vesting Start Date (as defined in the restricted stock unit agreement) and (y) the date of our first regular annual meeting of stockholders following the grant date of the restricted stock units; provided, that if the director has continuously provided service to us upon the occurrence of a change in control prior to such dates, all then-unvested restricted stock units will vest.

2019 Incentive Compensation Plan

In connection with this offering and in consultation with FW Cook, we have adopted a cash incentive compensation plan for fiscal year 2019 that replaces the prior AIP and MIP and changes certain components of the prior AIP and MIP formulas in order to better balance and align our practices with public company practices and those of our peer group. With respect to our named executive officers, the changes are as follows:

- incorporation of two additional company-wide financial targets, so that financial performance will be evaluated based on achievement of Management EBITDA (60%), Revenue (20%) and Net Working Capital as a percentage of sales (20%), each calculated on a constant currency basis using 2018 average exchange rates. Net Working Capital is defined as total accounts receivable plus inventory less accounts payable, and is measured as the quarterly average of net working capital divided by trailing 12 months of sales;
- establishment of a threshold funding factor of 50% of target Management EBITDA in order for any payments to be made;
- establishment of maximum overachievement under the financial performance factors equal to 200%; and
- establishment of a personal performance modifier range of 0%-150% (expressed as a percentage of target bonus).

[Table of Contents](#)
Hedging, Short Sales and Pledging Policies

In connection with this offering, we intend to adopt a Policy on Insider Trading, which will apply to all directors, officers, consultants and contractors and will include our policies on hedging, short sales and pledging of our securities. The policy will prohibit hedging or monetization transactions involving Company securities, such as prepaid variable forwards and collars. It also will prohibit short sales of our securities. In addition, it will prohibit holding Company securities in a margin account or pledging Company securities as collateral for a loan except in limited circumstances with pre-approval from our Insider Trading Compliance Officer, which pre-approval will only be granted when such person clearly demonstrates the financial capacity to repay the loan without resort to any pledged securities.

Executive Compensation Tables
Summary Compensation Table

The table below summarizes the total compensation paid to or earned by each of our named executive officers for the years indicated.

Name and Principal Position	Year	Salary \$(1)	Bonus \$(2)	Stock Awards (\$)	Option Awards \$(3)	Non-Equity Incentive Plan Compensation \$(4)	Change in Pension Value and Nonqualified Deferred Compensation Earnings \$(5)	All Other Compensation \$(6)(7)	Total (\$)
Michael Stubblefield <i>Director, President and Chief Executive Officer</i>	2018	700,000	130,000	—	—	1,610,000	—	282,311	2,723,481
Thomas Szlosek <i>Executive Vice President and Chief Financial Officer</i>	2018	46,154	225,000	—	7,131,410	—	—	—	7,402,564
Bjorn Hofman <i>Executive Vice President and Chief Operating Officer</i>	2018	450,000	—	—	—	414,000	—	2,049,796	2,959,921
Gerard Brophy <i>Executive Vice President, Biopharma Production</i>	2018	184,038	—	—	3,163,639	168,185	—	5,354	3,521,216
Frederic Vanderhaegen <i>Executive Vice President, Europe</i>	2018	86,187	—	—	2,882,191	125,000	—	3,167	3,096,545
Gregory Cowan <i>Former Executive Vice President and Chief Financial Officer</i>	2018	546,000	470,525	—	—	61,425	5,510	2,283,315	3,366,775

- (1) Amounts reflect the named executive officer's base salary earned for 2018. For Mr. Szlosek the amount reflects his salary earned since he joined us in December 2018. For Mr. Brophy, the amount reflects his salary earned since he joined us in July 2018. For Mr. Vanderhaegen, who is based in Switzerland, the amount reflects his salary earned since he joined us in October 2018, and has been converted from Swiss francs to U.S. dollars using the average of the monthly average exchange rates for 2018 (1.02289).
- (2) Amounts reflect the additional annual bonus paid to Mr. Stubblefield pursuant to the terms of the Stubblefield Agreement (as described below), the sign-on bonus paid to Mr. Szlosek pursuant to the terms of his EVP Employment Agreement (as defined below), and bonus amounts guaranteed in connection with Mr. Cowan's agreement to become our CFO, including his special cash bonus in lieu of continuing to provide certain executive benefits and perquisites that were maintained at VWR. See "Narrative Disclosure to Summary Compensation Table and Grants of Plan-Based Awards—Employment Arrangements" and "Elements of Compensation—What We Pay and Why—Guaranteed, Sign-on and Discretionary Bonuses."
- (3) Amounts represent the aggregate grant date fair value of stock options granted to the named executive officer by us in 2018 computed in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, Compensation—Stock Compensation ("Topic 718"), disregarding the effect of estimated forfeitures. The assumptions made in the valuation of our equity awards are found in Note 18 to our audited financial statements included elsewhere in this prospectus.
- (4) Amounts reflect performance-based cash incentive awards earned under the AIP and MIP for 2018. For Mr. Cowan, amount reflects the amount in excess of his guaranteed target bonus of \$409,500. The terms of the cash incentive plans are described more fully above in the "Elements of Compensation—What We Pay and Why—Performance-Based Cash Incentive Compensation" section of this prospectus.

Table of Contents

- (5) For Mr. Cowan, amount reflects the year-over-year change in actuarial present value of the accumulated benefit under the U.S. Pension Plan in 2018. Since Mr. Vanderhaegen joined us in 2018, there has been no change in actuarial present value of his accumulated benefit under the Swiss Pension Plan during 2018. The terms of the U.S. Pension Plan and Nonqualified Deferred Compensation Plan are more fully above in the “Elements of Compensation—What We Pay and Why—Other Components—Retirement and Other Benefits” section of this prospectus. There were no “above-market” earnings on nonqualified deferred compensation under Mr. Cowan’s Nonqualified Deferred Compensation Plan notional account.
- (6) All Other Compensation for 2018 includes:

Name	Company Savings Plan Match (a)(\$)	Automobile Allowance (\$)	Tax Gross-Ups (b)(\$)	VWR Retention Bonuses (c)(\$)	Severance (d)(\$)	Housing Allowance (\$)	Total (\$)
Michael Stubblefield	8,250	30,000	—	—	—	—	38,250
Thomas Szlosek	—	—	—	—	—	—	—
Bjorn Hofman	11,000	—	—	—	—	—	11,000
Gerard Brophy	5,354	—	—	—	—	—	5,354
Frederic Vanderhaegen(e)	—	3,167	—	—	—	—	3,167
Gregory Cowan	11,000	—	13,330	796,875	1,444,110	18,000	2,283,315

- (a) Amounts represent our contributions to the applicable Savings Plan on behalf of such executive.
- (b) Amount represents a tax reimbursement, or “gross-up,” for the taxable portion of Mr. Cowan’s housing allowance.
- (c) Amounts represent the portions of the VWR retention bonuses that were earned for services performed for Avantor during 2018.
- (d) Amounts reflect payments to Mr. Cowan accrued in 2018 in connection with his departure. See “Termination and Change of Control Arrangements—Departure of Mr. Cowan” for further details.
- (e) Amounts for Mr. Vanderhaegen have been converted from Swiss francs to U.S. dollars using the average of the monthly average exchange rates for 2018 (1.02289).

- (7) Amounts shown in this column also include the aggregate amount of cash payments paid or credited to Messrs. Stubblefield and Hofman in 2018 to prevent the dilution of their outstanding equity awards under the Legacy Avantor Equity Plan in connection with our June 2016 refinancing, our September 2016 refinancing and the related June CPEC repurchase and October 2016 dividend to our stockholders. Such payments were not factored into the grant date fair values of the awards. The following table indicates such cash payments paid or expected to be paid in the fiscal year indicated:

Name	Fiscal 2018 Payments	Expected Fiscal 2019 Payments	Expected Fiscal 2020 Payments
Michael Stubblefield	\$ 244,061	\$ 574,249	\$ 468,352
Bjorn Hofman	\$2,083,795	\$ 137,485	\$ 137,485

[Table of Contents](#)
Grants of Plan-Based Awards

The following table provides information on bonus opportunity ranges under the applicable 2018 cash incentive plan for, and stock options granted in 2018 to, each of our named executive officers.

Name	Award Type	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards(1)			All Other Stock Awards: Number of Shares of Stock or Units (#)	All Other Awards: Number of Securities Underlying Options (#)	Exercise or Base Price of Option Awards (\$)	Grant Date Fair Value of Stock and Option Awards \$(2)
			Threshold (\$)	Target (\$)	Maximum (\$)				
			Michael Stubblefield	AIP	—				
Thomas Szlosek(3)	MIP Stock Options	— 12/3/18	—	—	—	1,352,080	23.21	7,131,410	
Bjorn Hofman	AIP	—	—	360,000	1,425,600				
Gerard Brophy(4)	MIP Stock Options	— 7/30/18	—	135,938	269,156	540,830	23.21	3,163,639	
Frederic Vanderhaegen(3)	MIP Stock Options	— 10/8/18	—	125,000	125,000	540,830	23.21	2,882,191	
Gregory Cowan(5)	MIP	—	—	409,500	810,810				

- (1) These columns reflect the potential payments under the MIP or AIP, as applicable, for 2018 performance including maximum achievement of the Management EBITDA target and personal performance objectives. Further details regarding the 2018 MIP and AIP, including the Management EBITDA target and personal performance modifier are provided above under “—Performance-Based Cash Incentive Compensation.”
- (2) Amounts represent the aggregate grant date fair value of stock options granted in 2018 computed in accordance with Topic 718, disregarding the effect of estimated forfeitures. The assumptions made in the valuation of our equity awards are found in Note 18 to the audited financial statements included elsewhere in this prospectus.
- (3) As noted above, Messrs. Szlosek and Vanderhaegen were ineligible to participate in the 2018 MIP based on their start dates. However, we agreed that if target Management EBITDA is achieved or exceeded, Mr. Vanderhaegen will be eligible for a \$125,000 incentive bonus.
- (4) The target and maximum MIP award amounts for Mr. Brophy have been prorated due to his partial year of service in 2018.
- (5) Mr. Cowan’s annual cash incentive plan compensation was guaranteed at a minimum of 100% of target for 2018, or \$409,500. See “Elements of Compensation—What We Pay and Why—Guaranteed, Sign-on and Discretionary Bonuses.”

Narrative Disclosure to Summary Compensation Table and Grants of Plan-Based Awards in 2018
Employment Arrangements

We have entered into written arrangements with each of our named executive officers governing the terms of their respective employment with us. As described above under “Actions Taken in Connection with This Offering,” we intend to amend our written arrangements with each of Messrs. Stubblefield, Brophy and Vanderhaegen.

Mr. Stubblefield’s Employment Agreement

In connection with our acquisition of VWR, we entered into an employment agreement with Mr. Stubblefield, effective as of November 21, 2017 (the “Stubblefield Agreement”), pursuant to which Mr. Stubblefield serves as our Chief Executive Officer. The Stubblefield Agreement continues until terminated by either party providing at least 90 days’ written notice (other than in the event of a termination of Mr. Stubblefield by the Company for “cause” (as defined in the Stubblefield Agreement)).

The Stubblefield Agreement provides for a base salary of \$700,000 per year, subject to review and adjustment no less frequently than annually by our Board, as well as the opportunity to earn an annual bonus in accordance with the terms of the 2018 AIP. See “Elements of Compensation—What We Pay and Why—Annual Cash Incentive Compensation.”

Table of Contents

In addition, the Stubblefield Agreement provides Mr. Stubblefield with the following additional payments and benefits:

- A \$130,000 cash bonus to be paid on February 15th of each calendar year (with the first such bonus having been paid on February 15, 2018), subject to Mr. Stubblefield's continued employment on each applicable payment date;
- An annual automobile allowance of \$30,000;
- Standard benefits normally provided to other senior executives, including payment for or reimbursement of commercially reasonable out-of-pocket business expenses;
- Four weeks of paid vacation; and
- Certain payments and benefits in the event that Mr. Stubblefield's employment is terminated under specified circumstances, subject to compliance with certain restrictive covenants, as described under "—Termination and Change of Control Arrangements."

As described above, we entered into an amended and restated employment agreement with Mr. Stubblefield on April 10, 2019 to reflect certain adjustments to the compensation arrangements in the Stubblefield Agreement.

Employment Agreements with Messrs. Cowan, Hofman, Vanderhaegen, Brophy and Szlosek

VWR entered into an agreement with Mr. Cowan, effective as of December 20, 2010 (the "Legacy VWR Employment Letter"), and we entered into agreements with Mr. Hofman, effective as of November 21, 2017, with Mr. Brophy, effective July 30, 2018, (which was amended and restated on April 2, 2019, as described above), with Mr. Vanderhaegen, effective October 8, 2018, (which was amended by the addendum thereto, dated April 10, 2019, as described above) and with Mr. Szlosek, effective as of December 3, 2018 (each a "Vail Employment Agreement" and collectively with the Legacy VWR Employment Letter, the "EVP Employment Agreements") pursuant to which each serves or served, as applicable, in the positions and with a base salary as described above. Each EVP Employment Agreement provides the applicable named executive officer with the opportunity to earn an annual bonus in accordance with the terms of the 2018 MIP or 2018 AIP, as applicable. As noted above, Messrs. Vanderhaegen and Szlosek were ineligible to receive a bonus in respect of 2018 pursuant to the MIP as their start dates with us were after October 1, 2018. See "Elements of Compensation—What We Pay and Why—Annual Cash Incentive Compensation."

Mr. Szlosek's EVP Employment Agreement provided for a one-time conditional signing bonus of \$225,000, which we paid to him on December 28, 2018. Mr. Szlosek is required to repay the full amount of the signing bonus to us on the last day of his employment if he terminates his employment with us voluntarily for any reason other than good reason (as defined in Mr. Szlosek's EVP Employment Agreement) during the 12 months following his start date.

Pursuant to their respective EVP Employment Agreements, each applicable named executive officer is also provided with all standard benefits that we normally provide to other similarly-situated executives. Each named executive officer is provided with four weeks (or 25 days in the case of Mr. Vanderhaegen and 5 weeks in the case of Mr. Cowan) of, paid vacation per year. As discussed above, following our acquisition of VWR, in lieu of continuing to provide certain executive benefits and perquisites that were provided to Mr. Cowan pursuant to his Legacy VWR Employment Letter, we provided him with a special cash bonus equal to 1.5 times the value of the annual executive perquisite and benefits value that were foregone. Each EVP Employment Agreement also provides for certain payments and benefits in the event that the applicable named executive officer's employment is terminated under specified circumstances. See the additional information provided under "—Termination and Change of Control Arrangements."

In addition, as provided in each of their Vail Employment Agreements and as described above, we provided each of Messrs. Hofman, Brophy, Vanderhaegen and Szlosek with a grant of stock options, as described in "—Long-Term Incentive Programs."

[Table of Contents](#)
Outstanding Equity Awards at December 31, 2018

The following table provides information as of December 31, 2018, regarding the outstanding equity awards of our named executive officers under the Vail Holdco Corp Equity Incentive Plan and Legacy Avantor Equity Plan. See “Long Term Incentive Program” for more information.

Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Awards			Stock Awards	
				Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)(2)	Market Value of Shares or Units of Stock That Have Not Vested (\$)(3)
Michael Stubblefield	12/13/2017	507,030	1,521,090	1,352,080	23.21	12/13/2027		
	9/30/2016	375,000	375,000	—	13.11	9/30/2026		
	1/20/2016	7,375	50,000	—	4.19	1/20/2026		
	5/12/2014	1,290,970	—	—	1.60	5/12/2024		
	5/12/2014	430,325	—	—	3.13	5/12/2024		
	3/24/2015	—	—	—			14,880	209,272
		2,610,700	1,946,090	1,352,080				
Thomas Szlosek	12/3/2018	—	811,250	540,830	23.21	12/3/2028		
		—	811,250	540,830				
Bjorn Hofman	12/13/2017	202,815	608,435	540,830	23.21	12/13/2027		
	9/30/2016	137,500	137,500	—	13.11	9/30/2026		
	9/18/2014	860,645	—	—	1.60	9/18/2024		
		1,200,960	745,935	540,830				
Gerard Brophy	7/30/2018	—	324,500	216,330	23.21	7/30/2028		
		—	324,500					
Frederic Vanderhaegen	10/8/2018	—	324,500	216,330	23.21	10/8/2028		
		—	324,500					
Gregory Cowan		—	—					

- (1) The stock options granted in 2017 and 2018 vest as follows: 60% vest annually on the date of grant over four years and the remaining 40% vests upon the occurrence of a change in control or a public offering (including this offering) prior to December 13, 2020 (or 20% if such event occurs after December 13, 2020 and prior to December 13, 2021), in each case subject to the executive’s continued employment. In the event of a change in control prior to an applicable vesting date, any then unvested time-vesting options shall vest, subject to the named executive officer’s continued employment through each such date. All other stock options vest 25% per year commencing on the first anniversary of the date of grant, subject to the executive’s continued employment. In November 2017, in connection with the VWR Acquisition and the subsequent restructuring, the Company exercised its right to repurchase a portion of Messrs. Stubblefield and Hofman’s vested and unvested options and restricted shares, as applicable, in exchange for a combination of cash, our common stock and shares of our junior convertible preferred stock. The table reflects the effects of these repurchases and the repricing of any options in connection therewith.
- (2) Reflects 14,880 restricted shares granted to Mr. Stubblefield on March 24, 2015 that had not vested as of December 31, 2018. A total of 59,525 restricted shares were granted to Mr. Stubblefield on March 24, 2015, which vested 25% per year on the first four anniversaries of the grant date. All such restricted shares granted to Mr. Stubblefield have vested as of March 24, 2019.
- (3) There is no established public trading market for the Company’s common shares. Based on the most recent valuation of the “fair market value” of a share of the Company’s common stock of \$70.32 (calculated without giving effect to the 5-for-1 stock split effected on May 16, 2019) as determined on November 21, 2017. Giving effect to such stock split, the “fair market value” per share would be \$14.06.

[Table of Contents](#)

Options Exercised and Stock Vested

None of the outstanding stock options held by our named executive officers were exercised in 2018. See “Long Term Incentive Program” for more information regarding the vesting schedule of the awards granted under the Vail Plan and the Legacy Avantor Equity Plan. The table below reflects the vesting on March 24, 2018 of restricted shares granted to Mr. Stubblefield on March 24, 2015.

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)	Number of Shares Acquired on Vesting	Value Realized on Vesting (\$)(1)
Michael Stubblefield	—	—	2,195	30,871
Thomas Szlosek	—	—	—	—
Bjorn Hofman	—	—	—	—
Gerard Brophy	—	—	—	—
Frederic Vanderhaegen	—	—	—	—
Gregory Cowan	—	—	—	—

- (1) There is no established public trading market for the Company’s common stock. Based on the most recent valuation of the “fair market value” of a share of the Company’s common stock of \$70.32 (calculated without giving effect to the 5-for-1 stock split effected on May 16, 2019) as determined on November 21, 2017. Giving effect to such stock split, the “fair market value” per share would be \$14.06.

Pension Benefits

United States

The Company sponsors the U.S. Pension Plan, which is a funded and tax-qualified defined benefit retirement plan. The U.S. Pension Plan provides for two types of benefits based on (i) years of service for substantially all full-time U.S. employees of the legacy VWR business who completed one full year of service by May 31, 2005 and (ii) beginning in 2016, an annual company contribution that grows at a defined rate for substantially all full-time U.S. employees of the legacy VWR business (the “Cash Balance Contribution”). The U.S. Pension Plan excludes employees of the legacy Avantor business or that are covered by a collective bargaining agreement. The U.S. Pension Plan was frozen on May 31, 2005 but re-opened in 2016 solely for purposes of making Cash Balance Contributions. Cash Balance Contributions under the U.S. Pension Plan were closed to new entrants as of January 1, 2019.

In 2018, Cash Balance Contributions were made to each eligible U.S. employee in an amount equal to 2% such eligible employee’s compensation and allocated to the U.S. Pension Plan on a quarterly basis. This cash balance benefit replaces performance-based contributions made by the Company under the Savings Plan. All Cash Balance Contributions are fully-vested upon contribution. The defined rate of growth for Cash Balance Contributions will be equal to the average yield on the 2-year treasury constant maturity rate for the second month preceding the first day of the plan year.

Switzerland

Each year, contributions equal to 13% of Mr. Vanderhaegen’s base salary are made to the plan, with 5.5% of such amount being contributed by Mr. Vanderhaegen and the remaining amount being contributed by us. Amounts in the plan bear interest depending on the annual performance of the pension plan, including certain minimum amounts as set by Swiss law. Retirement benefits may be paid in the form of a lump-sum payment or a retirement pension when the employee reaches the normal retirement age under the plan of 65.

Table of Contents

The amount reported in the table below represents the present value of the accumulated pension benefit at December 31, 2018 for Mr. Cowan under the plans based upon the assumptions described in the footnote below. No payments were made in 2018 from the plans to any of our named executive officers.

<u>Name</u>	<u>Plan Name</u>	<u>Number of Years Credited Service</u>	<u>Present Value of Accumulated Pension Benefit (\$)</u>
Gregory Cowan(1)	U.S. Pension Plan	3	14,771
Frederic Vanderhaegen(2)	Swiss Pension Plan	0	13,888

- (1) The accumulated pension benefit for Mr. Cowan is based on eligible 2018 compensation. The present value has been calculated assuming Mr. Cowan will remain in service until age 65 at an interest rate of 3.53% and converted to a normal retirement annuity thereafter. The discount rate assumption is 4.37%. Mr. Cowan is not retirement eligible under the U.S. Pension Plan.
- (2) Amounts for Mr. Vanderhaegen reflect the actual amounts contributed in 2018 and have been converted from Swiss francs to U.S. dollars using the average of the monthly exchange rates for 2018 (1.02289).

Nonqualified Deferred Compensation Plan

Mr. Cowan was eligible to participate in the Nonqualified Deferred Compensation Plan. The Nonqualified Deferred Compensation Plan became effective May 1, 2007 and was terminated on January 31, 2018. Under the Nonqualified Deferred Compensation Plan, eligible participants were entitled to defer up to 50% of their base salaries and up to 100% of their annual bonus awards. Earnings and losses on each notional account are credited based on the performance of the benchmark funds available under the Nonqualified Deferred Compensation Plan that the participant selects. Any deferred amounts and earnings and losses thereon will be credited to a notional account for the applicable participant and become a liability for us to such participant.

Under the terms of the Nonqualified Deferred Compensation Plan, participants became entitled to distributions of their notional accounts upon a change in control of VWR. As a result, the entire amount credited to the account was distributed to each participant in a lump sum payment.

The table below provides information with respect to Mr. Cowan's Nonqualified Deferred Compensation Plan notional accounts.

<u>Name</u>	<u>Executive Contributions in Last FY (\$)</u>	<u>Registrant Contributions in Last FY (\$)</u>	<u>Aggregate Earnings in Last FY (\$)</u>	<u>Aggregate (Withdrawals) Distributions (\$)</u>	<u>Aggregate Balance at Last FYE (4)(\$)</u>
Gregory Cowan	—	—	—	(109,470)	—

Termination and Change of Control Arrangements

Stubblefield Agreement

Involuntary Termination without Cause (other than due to death or Disability) or Voluntary Termination for Good Reason. In the event Mr. Stubblefield's employment is terminated by us without "cause" or he resigns for "good reason" (as such terms are defined in the Stubblefield Agreement), in each case, subject to continued compliance with the restrictive covenants described below and the execution and non-revocation of a release of claims against us, we will provide him with:

- an amount equal to two times his then-current base salary, paid in equal installments in accordance with our standard payroll policies, for a period of 24 months, beginning on the first payroll date following the 45th day after the termination date;
- an amount equal to his then-current target bonus opportunity (or two times if such termination occurs within a two-year period following a "change in control" (as defined in the Vail Plan)), paid in equal

Table of Contents

installments in accordance with our standard payroll policies, for a period of 12 months (or 24 months if such termination occurs within a two year period following a “change in control” (as defined in the Vail Plan)), beginning on the first payroll date following the 45th day after the termination date;

- continued medical insurance benefits that Mr. Stubblefield would otherwise be eligible to receive as an active employee for 12 months (or 24 months if such termination occurs within a two year period following a “change in control”) following the termination date, or, if earlier, until the date upon which Mr. Stubblefield becomes eligible to receive medical benefits from a subsequent employer.

Restrictive Covenants. As a result of the restrictive covenants contained in the Stubblefield Agreement, Mr. Stubblefield agreed not to disclose our confidential information at any time, and for the period during which he is employed by us and for the one-year period thereafter, he has also agreed not to solicit our employees or customers, compete with us, or interfere with our business. In addition, Mr. Stubblefield has agreed not to disparage us at any time, and we have agreed to instruct our officers and directors not to publicly disparage Mr. Stubblefield.

Section 280G “Golden Parachute” Treatment. The Stubblefield Agreement provides that if any payments or benefits to which he becomes entitled would be considered “excess parachute payments” under Section 280G of the Code, then the amount of such payments will be reduced to avoid such characterization and the resulting excise taxes if such reduction in payments will put Mr. Stubblefield in a better net after tax position.

2019 Adjustments

As described above, in April 2019, in consultation with FW Cook and as recommended by our Compensation Committee, our Board of Directors approved adjustments to Mr. Stubblefield’s termination and change of control benefits, as follows:

- an increase in the multiple for Mr. Stubblefield’s base salary and target bonus opportunity in the event of a termination by us without “cause” or Mr. Stubblefield’s resignation for “good reason” within a two-year period following a “change in control” from two to three, with such amounts payable over the 36 month period following such termination; and
- an increase in the period during which Mr. Stubblefield will be entitled to continued medical insurance benefits following a termination by us without “cause” or Mr. Stubblefield’s resignation for “good reason” from 12 months to 24 months (and from 24 to 36 months if such termination occurs within a two-year period following a “change in control”).

Such changes to Mr. Stubblefield’s termination and change of control benefits were reflected by amending and restating the Stubblefield Agreement on April 10, 2019.

Vail Employment Agreements with Messrs. Szlosek, Hofman, Brophy and Vanderhaegen

Involuntary Termination without “Cause” Not Following a Change in Control. In the event that any of Messrs. Hofman, Brophy, Vanderhaegen or Szlosek is terminated by us without “cause,” other than within a two-year period following a “change in control” (as such terms are defined in their Vail Employment Agreements), subject to continued compliance with the restrictive covenants described below and the execution and non-revocation of a release of claims against us, we will provide him with:

- an amount equal to one times (one and a half times in the case of Messrs. Hofman and Szlosek) his then-current base salary, paid in equal installments in accordance with our standard payroll policies, for a period of 12 months;
- an amount equal to one times (one and a half times in the case of Messrs. Hofman and Szlosek) his then-current target bonus opportunity, prorated for the year of such termination, paid in equal installments in accordance with our standard payroll policies, for a period of 12 months

Table of Contents

- continued medical insurance benefits that the applicable named executive officer (other than Mr. Vanderhaegen) would otherwise be eligible to receive as an active employee for 6 months (12 months in the case of Messrs. Hofman and Szlosek) following the termination date, or, if earlier, until the date upon which the applicable named executive officer becomes eligible to receive medical benefits from a subsequent employer.

Involuntary Termination without Cause or Voluntary Termination for Good Reason Following a Change in Control. In the event that any of Messrs. Hofman, Brophy, Vanderhaegen or Szlosek are terminated by us without “cause” or resigns for “good reason,” in each case within a two-year period following a “change in control” (as such terms are defined in their Vail Employment Agreements) and subject to continued compliance with the restrictive covenants described below and the execution and non-revocation of a release of claims against us, we will provide him with:

- an amount equal to one times (two times in the case of Messrs. Hofman and Szlosek) his then-current base salary, paid in equal installments in accordance with our standard payroll policies, for a period of 12 months;
- an amount equal to one times (two times in the case of Messrs. Hofman and Szlosek) his then-current target bonus opportunity, paid in equal installments in accordance with our standard payroll policies, for a period of 12 months;
- continued medical insurance benefits that the applicable named executive officer (other than Mr. Vanderhaegen) would otherwise be eligible to receive as an active employee for 12 months following the termination date, or, if earlier, until the date upon which the applicable named executive officer becomes eligible to receive medical benefits from a subsequent employer.

Restrictive Covenants. As a result of the restrictive covenants contained in their Vail Employment Agreements, each of Messrs. Hofman, Brophy, Vanderhaegen and Szlosek, agreed not to disclose our confidential information at any time. Each has also agreed for the period they are employed by us and for the one-year (two years with respect to the solicitation of our employees or customers in the case of Messrs. Hofman, Brophy, and Szlosek) period thereafter, not to, compete with us or solicit our employees or customers. Mr. Vanderhaegen’s Vail Employment Agreement provides that in exchange for his covenant not to compete with us following the period he is employed by us, in accordance with applicable law, we will pay him an amount equal to 50% of his last annual base salary, payable in equal installments at the end of each month during the period of his non-competition; *provided, however,* that to the extent that Mr. Vanderhaegen receives severance payments as described above, the payments in respect of his non-competition covenant will be deemed paid up to the amount of the severance payment. We may, by written notice, release Mr. Vanderhaegen from his non-competition obligations, in which case we would be released from making payments to Mr. Vanderhaegen in respect of his non-competition obligations three months after the date of such notice. Mr. Vanderhaegen’s Vail Employment Agreement also provides for liquidated damages in the event of breaches of either his non-solicitation or non-competition covenants. Messrs. Hofman, Brophy, and Szlosek have also agreed not to disparage us at any time.

2019 Adjustments

As described above, in April 2019, in consultation with FW Cook and as recommended by our Compensation Committee, our Board of Directors approved adjustments to the termination and change of control benefits for Messrs. Brophy and Vanderhaegen, as follows:

- an increase in the multiple for Messrs. Brophy and Vanderhaegen’s base salary and target bonus opportunity in the event of a termination by us without “cause” or their resignation for “good reason” within a two-year period following a “change in control” from one to one and a half, with such amounts payable over the 12 month period following such termination; and

[Table of Contents](#)

- an increase in the period during which Mr. Brophy will be entitled to continued medical insurance benefits following a termination by us without “cause” from 6 months to 12 months (and from 12 to 18 months if such termination (or a resignation by Mr. Brophy for “good reason”) occurs within a two-year period following a “change in control”).

Such changes to Messrs. Brophy’s and Vanderhaegen’s termination and change of control benefits were reflected by amending and restating Mr. Brophy’s EVP Employment Agreement on April 2, 2019 and entering into an addendum to Mr. Vanderhaegen’s EVP Employment Agreement on April 10, 2019.

Legacy VWR Employment Letter with Mr. Cowan

Involuntary Termination without Cause or Voluntary Termination for Good Reason. In the event that Mr. Cowan was terminated by us without “cause” or resigned for “good reason (as such terms are defined in the Legacy VWR Employment Letter) and subject to continued compliance with the restrictive covenants described below and the execution and non-revocation of a release of claims against us, we would have provided him with:

- an amount equal to one and a half times his then-current base salary, paid in equal installments in accordance with our standard payroll policies, for a period of 12 months;
- an amount equal to one and a half times his then-current target bonus opportunity, paid in equal installments in accordance with our standard payroll policies, for a period of 12 months;
- continued medical insurance benefits that he would otherwise be eligible to receive as an active employee for 12 months following the termination date.

Death and Disability. In the event that Mr. Cowan was terminated by us as a result of his death or disability, we would have paid to him or his estate, as applicable, a prorated portion of his target bonus opportunity for the year in which such termination occurred. Additionally, in the event of termination of employment due to disability, Mr. Cowan would have been entitled to continued payment of his base salary until the earlier of (x) the date that is 18 months following such termination and (y) the date that he began receiving payments under our long-term disability plan.

Restrictive Covenants. As a result of the restrictive covenants contained in the Legacy VWR Employment Letter, Mr. Cowan agreed not to disclose our confidential information at any time. He has also agreed for the period that he was employed by us and for the one-year (eighteen months with respect to the solicitation of our employees or customers) period thereafter, not to, compete with us or solicit our employees or customers. Restrictions on Mr. Cowan’s competition are limited to distributors with annual sales revenue exceeding \$200,000,000 in the laboratory supplies industry.

For a description of the treatment of equity awards held by our named executive officers upon termination of employment, please see “—Long-Term Incentive Programs” above.

Departure of Mr. Cowan

In connection with the VWR Acquisition, we agreed with Mr. Cowan that he would be entitled to (i) full severance payments upon any termination (A) by us other than for cause or (B) due to death or disability and (ii) after June 30, 2018, full severance payments upon a termination by Mr. Cowan, provided he gives six months’ prior written notice after such date, and (iii) a gross-up payment to the extent that any payments under the Legacy VWR Employment Letter trigger excise taxes as a result of the application of Sections 280G and 4999 of the Code. Mr. Cowan retired effective December 31, 2018 and, Mr. Cowan is entitled to such agreed to severance, as follows:

Cash severance	\$ 819,000
Annual cash incentive	\$ 614,250
Estimated Health & Welfare Benefits	\$ 10,860
Total	\$ 1,444,110

Payment of Mr. Cowan’s severance benefits commenced in January 2019.

[Table of Contents](#)***Potential Payments Upon Termination or Change of Control***

The following table describes the potential payments and benefits that would have been payable to our named executive officers (other than Mr. Cowan) assuming an eligible termination (as described above under “Termination and Change of Control Arrangements”) of their employment on the last business day of 2018 and a change in control also occurring on such date. Amounts reflect the adjustments to these benefits made in April 2019, as described above, but are calculated utilizing compensation levels at December 31, 2018. See “Termination and Change of Control Arrangements—Departure of Mr. Cowan” above for details regarding severance payable to Mr. Cowan in connection with his retirement.

The amounts shown in the table below do not include:

- payments and benefits to the extent they are provided generally to all salaried employees upon termination of employment and do not discriminate in scope, terms or operation in favor of the named executive officers; or

Table of Contents

- distributions of previously vested plan balances under the Savings Plan and the Deferred Compensation Plan (see the “Nonqualified Deferred Compensation” section above for information about the Deferred Compensation Plan).

Name	Involuntary Termination without Cause (\$)(1)	Termination Due to Death or Disability (\$)(2)	Change of Control(3)	
			Without Termination (\$)	With Involuntary Termination Without Cause or Resignation for Good Reason (\$)
Michael Stubblefield				
Cash severance	1,400,000	—	—	2,100,000
Annual cash incentive	1,155,000	—	—	3,465,000
Equity Awards	—	—	—	—
Estimated Health & Welfare Benefits	29,217	—	—	43,826
Total	2,584,217	—	—	5,608,826
Thomas Szlosek				
Cash severance	900,000	—	—	1,200,000
Annual cash incentive	1,350,000	—	—	1,800,000
Equity Awards	—	—	—	—
Estimated Health & Welfare Benefits	15,538	—	—	15,538
Total	2,265,538	—	—	3,015,538
Bjorn Hofman				
Cash severance	675,000	—	—	900,000
Annual cash incentive	540,000	—	—	720,000
Equity Awards	—	—	—	—
Estimated Health & Welfare Benefits	15,745	—	—	15,745
Total	1,230,745	—	—	1,635,745
Gerard Brophy				
Cash severance	435,000	—	—	652,500
Annual cash incentive	326,250	—	—	489,375
Equity Awards	—	—	—	—
Estimated Health & Welfare Benefits	15,328	—	—	22,992
Total	776,578	—	—	1,164,867
Frederic Vanderhaegen				
Cash severance(4)	374,585	—	—	561,878
Annual cash incentive(4)	278,294	—	—	417,441
Equity Awards	—	—	—	—
Estimated Health & Welfare Benefits	—	—	—	—
Total	652,879	—	—	979,319

- (1) Upon termination without “cause” (as such term is defined in the Stubblefield Agreement or the Employment Letter Agreements, as applicable), (i) Mr. Stubblefield is generally entitled to (a) two times the sum of his then current base salary payable in equal installments over the 24-month period following termination, (b) one times his target bonus for the year in which the termination occurs payable in equal installments over the 12-month period following termination and (c) continued health benefits for up to 24 months following termination, (ii) Messrs. Szlosek and Hofman are generally entitled to (a) one and a half times the sum of (x) the executive’s then current base salary plus (y) his target bonus for the year (prorated for the year of termination) in which termination occurs, payable in equal installments over the 12-month period following termination and (b) continued health benefits for up to 12 months following termination and (iii) Messrs. Brophy and Vanderhaegen are generally entitled to one times the sum of (x) the executive’s then current base salary plus (y) his target bonus for the year (prorated for the year of termination) in which termination occurs, payable in equal installments over the 12-month period following termination, and Mr. Brophy is entitled to continued health benefits for up to 12 months following

Table of Contents

- termination. Mr. Stubblefield is entitled to the same payments and benefits upon a termination by him for “good reason” (as such term is defined in the Stubblefield Agreement).
- (2) Upon termination by reason of death, the named executive officer’s beneficiary or estate, as applicable, will be entitled to receive compensation and benefits accrued prior to the death. Upon termination by reason of disability, the named executive officer will be entitled to receive compensation and benefits accrued prior to the disability.
 - (3) Upon an involuntary termination within two years of a change of control or a resignation for “good reason” (such good reason termination within two years of a change in control) (as each such term is defined in the Stubblefield Agreement or the Employment Letter Agreements, as applicable), (i) Mr. Stubblefield, is generally entitled to (a) three times the sum of the executive’s then current base salary plus target bonus for the year in which the termination or resignation occurs payable in equal installments over the 36-month period following termination and (b) continued health benefits for up to 36 months following termination; and (ii) Messrs. Szlosek, Hofman, Brophy and Vanderhaegen are generally entitled to two times (one and a half times in the case of Messrs. Brophy and Vanderhaegen) the sum of (x) the executive’s then current base salary plus (y) his target bonus for the year in which termination or resignation occurs, payable in equal installments over the 12-month period following termination, and Messrs. Szlosek, Hofman and Brophy are entitled to continued health benefits for up to 12 months (18 months in the case of Mr. Brophy) following termination. Subject to the named executive officer’s continued employment with us through such date upon a “change in control” (as defined in the Vail Plan), any then unvested time-vesting options granted under the Vail Plan will vest. Subject to the named executive officer’s continued employment with us through such date, upon a “change in control” or public offering (including this offering) prior to December 13, 2020, 100% of the then unvested performance vesting options granted under the Vail Plan will vest, and upon a “change in control” or public offering following December 13, 2020, but prior to December 13, 2021, 50% of the then unvested performance vesting options granted under the Vail Plan will vest. As the options granted pursuant to the Vail Plan were granted with an exercise price of \$23.21, which is in excess of the most recent fair market valuation of our common stock, we have not attributed any value to the acceleration of the options in the event of a “change of control” (as defined in the applicable award agreement). The Stubblefield Agreement provides that if any payments or benefits to which he becomes entitled would be considered “excess parachute payments” under Section 280G of the Code, then the amount of such payments will be reduced to avoid such characterization and the resulting excise taxes if such reduction in payments will put Mr. Stubblefield in a better net after tax position. The amount above reflects no reduction of payments.
 - (4) The cash severance and annual cash incentive amounts for Mr. Vanderhaegen have been converted from Swiss francs to U.S. dollars based on the exchange rate as of the close of business on December 31, 2018 (1.01660).

2019 Equity Incentive Plan

As noted above, in connection with this offering, our Board of Directors expects to adopt, and we expect our stockholders to approve, the 2019 Equity Incentive Plan prior to the completion of this offering.

Purpose. The purpose of the 2019 Equity Incentive Plan is to provide a means through which to attract and retain key personnel and to provide a means whereby our directors, officers, employees, consultants and advisors can acquire and maintain an equity interest in us, or be paid incentive compensation, including incentive compensation measured by reference to the value of our shares of common stock, thereby strengthening their commitment to our welfare and aligning their interests with those of our stockholders.

Administration. The 2019 Equity Incentive Plan will be administered by the Compensation Committee, or any properly delegated subcommittee thereof, or if no such committee or subcommittee exists, our Board of Directors (such administering body referred to herein, for purposes of this description of the 2019 Equity Incentive Plan, as the “Committee”). Except to the extent prohibited by applicable law or the applicable rules and regulations of any securities exchange or interdealer quotation system on which our securities are listed or traded,

Table of Contents

the Committee may allocate all or any portion of its responsibilities and powers to any one or more of its members and may delegate all or any part of its responsibilities and powers to any person or persons selected by it in accordance with the terms of the 2019 Equity Incentive Plan. The Committee is authorized to: (i) designate participants; (ii) determine the type or types of awards to be granted to a participant; (iii) determine the number of shares of common stock to be covered by, or with respect to which payments, rights or other matters are to be calculated in connection with, awards; (iv) determine the terms and conditions of any award; (v) determine whether, to what extent and under what circumstances awards may be settled in, or exercised for, cash, shares of common stock, other securities, other awards or other property, or canceled, forfeited or suspended and the method or methods by which awards may be settled, exercised, canceled, forfeited or suspended; (vi) determine whether, to what extent, and under what circumstances the delivery of cash, shares of common stock, other securities, other awards, or other property and other amounts payable with respect to an award will be deferred either automatically or at the election of the participant or of the Committee; (vii) interpret, administer, reconcile any inconsistency in, correct any defect in, and/or supply any omission in the 2019 Equity Incentive Plan and any instrument or agreement relating to, or award granted under, the 2019 Equity Incentive Plan; (viii) establish, amend, suspend, or waive any rules and regulations and appoint such agents as the Committee may deem appropriate for the proper administration of the 2019 Equity Incentive Plan; and (ix) make any other determination and take any other action that the Committee deems necessary or desirable for the administration of the 2019 Equity Incentive Plan. Unless otherwise expressly provided in the 2019 Equity Incentive Plan, all designations, determinations, interpretations and other decisions under or with respect to the 2019 Equity Incentive Plan or any award or any documents evidencing awards granted pursuant to the 2019 Equity Incentive Plan are within the sole discretion of the Committee, may be made at any time, and are final, conclusive and binding upon all persons or entities, including, without limitation, us, any participant, any holder or beneficiary of any award and any of our stockholders.

Awards Subject to the 2019 Equity Incentive Plan. The 2019 Equity Incentive Plan provides that the total number of shares of common stock that may be issued under the 2019 Equity Incentive Plan is 23,500,000, or the "Absolute Share Limit"; *provided, however*, that the Absolute Share Limit shall be increased on the first day of each fiscal year beginning with the fiscal year following the fiscal year in which the Effective Date (as defined in the 2019 Equity Incentive Plan) falls, in an amount equal to the lower of (x) 1% of the total number of shares of common stock outstanding on the last day of the immediately preceding fiscal year and (y) a lower number of shares of common stock as determined by our Board of Directors. Of this amount, the maximum number of shares of common stock for which incentive stock options may be granted is equal to the Absolute Share Limit; and during a single fiscal year, each non-employee director shall be granted a number of shares of common stock subject to awards, taken together with any cash fees paid to such non-employee director during the fiscal year, equal to a total value of \$750,000 or such lower amount as determined by our Board of Directors. Except for "Substitute Awards" (as described below), to the extent that an award expires or is canceled, forfeited, terminated, settled in cash, or otherwise is settled without issuance to the participant of the full number of shares of common stock to which the award related, the unissued shares will again be available for grant under the 2019 Equity Incentive Plan. Shares of common stock withheld in payment of the exercise price, or taxes relating to an award, and shares equal to the number of shares surrendered in payment of any exercise price, or taxes relating to an award, shall be deemed to constitute shares not issued; *provided, however*, that such shares shall not become available for issuance if either: (i) the applicable shares are withheld or surrendered following the termination of the 2019 Equity Incentive Plan or (ii) at the time the applicable shares are withheld or surrendered, it would constitute a material revision of the 2019 Equity Incentive Plan subject to stockholder approval under any then-applicable rules of the national securities exchange on which the common stock is listed. No award may be granted under the 2019 Equity Incentive Plan after the tenth anniversary of the Effective Date, but awards granted before then may extend beyond that date. Awards may, in the sole discretion of the Committee, be granted in assumption of, or in substitution for, outstanding awards previously granted by an entity directly or indirectly acquired by us or with which we combine, or Substitute Awards, and such Substitute Awards will not be counted against the Absolute Share Limit, except that Substitute Awards intended to qualify as "incentive stock options" will count against the limit on incentive stock options described above.

Table of Contents

Options. Under the 2019 Equity Incentive Plan, the Committee may grant non-qualified stock options and incentive stock options with terms and conditions determined by the Committee that are not inconsistent with the 2019 Equity Incentive Plan; provided, that all stock options granted under the 2019 Equity Incentive Plan are required to have a per share exercise price that is not less than 100% of the fair market value of our shares of common stock underlying such stock options on the date such stock options are granted (other than in the case of options that are Substitute Awards), and all stock options that are intended to qualify as incentive stock options must be granted pursuant to an award agreement expressly stating that the options are intended to qualify as incentive stock options, and will be subject to the terms and conditions that comply with the rules as may be prescribed by Section 422 of the Code. The maximum term for stock options granted under the 2019 Equity Incentive Plan will be ten years from the initial date of grant, or with respect to any stock options intended to qualify as incentive stock options, such shorter period as prescribed by Section 422 of the Code. However, if a non-qualified stock option would expire at a time when trading of our shares of common stock is prohibited by our insider trading policy (or “blackout period” imposed by us), the term will automatically be extended to the 30th day following the end of such period. The purchase price for the shares of common stock as to which a stock option is exercised may be paid to us, to the extent permitted by law (i) in cash, check, cash equivalent and/or shares of common stock valued at the fair market value at the time the option is exercised; provided, that such shares of common stock are not subject to any pledge or other security interest and have been held by the participant for at least six months (or such other period as established from time to time by the Committee in order to avoid adverse accounting treatment applying generally accepted accounting principles) or (ii) by such other method as the Committee may permit in its sole discretion, including, without limitation: (a) in other property having a fair market value on the date of exercise equal to the exercise price, (b) if there is a public market for the shares of common stock at such time, by means of a broker-assisted “cashless exercise” pursuant to which we are delivered (including telephonically to the extent permitted by the Committee) a copy of irrevocable instructions to a stockbroker to sell the shares of common stock otherwise issuable upon the exercise of the option and to deliver promptly to us an amount equal to the exercise price or (c) a “net exercise” procedure effected by withholding the minimum number of shares of common stock otherwise issuable in respect of an option that is needed to pay the exercise price. Any fractional shares of common stock shall be settled in cash. Unless otherwise provided by the Committee, in the event that we terminate a participant’s employment for Cause (as defined in the 2019 Equity Incentive Plan), all of such participant’s outstanding stock options shall immediately terminate and expire.

Stock Appreciation Rights. The Committee may grant stock appreciation rights (“SARs”) under the 2019 Equity Incentive Plan, with terms and conditions determined by the Committee that are not inconsistent with the 2019 Equity Incentive Plan. The Committee may award SARs in tandem with options, and may also award SARs independent of any option. Generally, each SAR will entitle the participant upon exercise to an amount (in cash, shares of common stock or a combination of cash and shares, as determined by the Committee) equal to the product of (i) the excess of (a) the fair market value on the exercise date of one share of common stock over (b) the strike price per share of common stock covered by the SAR, times (ii) the number of shares of common stock covered by the SAR, less any taxes required to be withheld. The strike price per share of common stock covered by a SAR will be determined by the Committee at the time of grant but in no event may such amount be less than 100% of the fair market value of a share of common stock on the date the SAR is granted (other than in the case of SARs granted in substitution of previously granted awards). Unless otherwise provided by the Committee, in the event that we terminate a participant’s employment for Cause, all of such participant’s outstanding SARs shall immediately terminate and expire.

Restricted Stock and Restricted Stock Units. The Committee may grant restricted shares of our shares of common stock or restricted stock units, representing the right to receive, upon vesting and the expiration of any applicable restricted period, one share of common stock for each restricted stock unit, or, in the sole discretion of the Committee, the cash value thereof (or any combination thereof). As to restricted shares of our shares of common stock, subject to the other provisions of the 2019 Equity Incentive Plan, the holder will generally have the rights and privileges of a stockholder as to such restricted shares of common stock, including, without limitation, the right to vote such restricted shares of common stock and receive dividends in respect of such restricted stock, subject to the limitations described below.

Table of Contents

Other Equity-Based Awards and Other Cash-Based Awards. The Committee may grant other equity-based or cash-based awards under the 2019 Equity Incentive Plan, with terms and conditions determined by the Committee that are not inconsistent with the 2019 Equity Incentive Plan.

Effect of Certain Events on the 2019 Equity Incentive Plan and Awards. In the event of (i) any dividend (other than regular cash dividends) or other distribution (whether in the form of cash, shares of common stock, other securities or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, split-off, spin-off, combination, repurchase or exchange of shares of common stock or other securities, issuance of warrants or other rights to acquire shares of common stock or other securities or other similar corporate transaction or event that affects the shares of common stock (including a “Change in Control,” as defined in the 2019 Equity Incentive Plan); or (ii) unusual or nonrecurring events affecting us, including changes in applicable rules, rulings, regulations, or other requirements, that the Committee determines, in its sole discretion, could result in substantial dilution or enlargement of the rights intended to be granted to, or available for, participants (any event in (i) or (ii), an “Adjustment Event”), the Committee will, in respect of any such Adjustment Event, make such proportionate substitution or adjustment, if any, as it deems equitable, to any or all of (a) the Absolute Share Limit, or any other limit applicable under the 2019 Equity Incentive Plan with respect to the number of awards which may be granted thereunder; (b) the number of our shares of common stock or other of our securities (or number and kind of other securities or other property) which may be issued in respect of awards or with respect to which awards may be granted under the 2019 Equity Incentive Plan; and (c) the terms of any outstanding award, including, without limitation, (x) the number of our shares of common stock or other of our securities (or number and kind of other securities or other property) subject to outstanding awards or to which outstanding awards relate; (y) the exercise price or strike price with respect to any award; or (z) any applicable performance measures; provided, that in the case of any “equity restructuring,” (within the meaning of the FASB ASC Topic 718 (or any successor pronouncement thereto)) the Committee will make an equitable or proportionate adjustment to outstanding awards to reflect such equity restructuring. In connection with any Adjustment Event, the Committee may, in its sole discretion, provide for any one or more of the following: (i) substitution or assumption of awards, acceleration of the exercisability of, lapse of restrictions on, or termination of, awards or a period of time for participants to exercise outstanding awards prior to the occurrence of such event; and (ii) subject to any limitations or reductions as may be necessary to comply with Section 409A of the Code, cancellation of any one or more outstanding awards and payment to the holders of such awards that are vested as of such cancellation (including, without limitation, any awards that would vest as a result of the occurrence of such event but for such cancellation or for which vesting is accelerated by the Committee in connection with such event) the value of such awards, if any, as determined by the Committee (which value, if applicable, may be based upon the price per share of common stock received or to be received by other holders of our shares of common stock in such event), including, without limitation, in the case of stock options and SARs, a cash payment equal to the excess, if any, of the fair market value of the shares of common stock subject to the option or SAR over the aggregate exercise price or strike price thereof, or, in the case of restricted stock, Restricted stock units, or other equity-based awards that are not vested as of such cancellation, a cash payment or equity subject to deferred vesting and delivery consistent with the vesting restrictions applicable to such award prior to cancellation of the underlying shares in respect thereof.

Nontransferability of Awards. No award will be permitted to be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered by a participant other than by will or by the laws of descent and distribution and any such purported assignment, alienation, pledge, attachment, sale, transfer or encumbrance will be void and unenforceable against us or any of our subsidiaries. However, the Committee may, in its sole discretion, permit awards (other than incentive stock options) to be transferred, including transfers to a participant’s family members, any trust established solely for the benefit of a participant or such participant’s family members, any partnership or limited liability company of which a participant, or such participant and such participant’s family members, are the sole member(s), and a beneficiary to whom donations are eligible to be treated as “charitable contributions” for tax purposes.

Table of Contents

Amendment and Termination. Our Board of Directors may amend, alter, suspend, discontinue or terminate the 2019 Equity Incentive Plan or any portion thereof at any time; provided, that no such amendment, alteration, suspension, discontinuance or termination may be made without stockholder approval if (i) such approval is necessary to comply with any regulatory requirement applicable to the 2019 Equity Incentive Plan or for changes in GAAP to new accounting standards; (ii) it would materially increase the number of securities which may be issued under the 2019 Equity Incentive Plan (except for adjustments in connection with certain corporate events); or (iii) it would materially modify the requirements for participation in the 2019 Equity Incentive Plan; provided, further, that any such amendment, alteration, suspension, discontinuance or termination that would materially and adversely affect the rights of any participant or any holder or beneficiary of any award will not to that extent be effective without such individual's consent.

The Committee may, to the extent consistent with the terms of any applicable award agreement, waive any conditions or rights under, amend any terms of, or alter, suspend, discontinue, cancel or terminate, any award granted or the associated award agreement, prospectively or retroactively (including after a Termination); provided, that, except as otherwise permitted in the 2019 Equity Incentive Plan, any such waiver, amendment, alteration, suspension, discontinuance, cancellation or termination that would materially and adversely affect the rights of any participant with respect to such award will not to that extent be effective without such individual's consent; provided, further, that without stockholder approval, except as otherwise permitted in the 2019 Equity Incentive Plan, (i) no amendment or modification may reduce the exercise price of any option or the strike price of any SAR; (ii) the Committee may not cancel any outstanding option or SAR and replace it with a new option or SAR (with a lower exercise price or strike price, as the case may be) or other award or cash payment that is greater than the intrinsic value of the cancelled option or SAR; and (iii) the Committee may not take any other action which is considered a "repricing" for purposes of the stockholder approval rules of any securities exchange or inter-dealer quotation system on which our securities are listed or quoted.

Dividends and Dividend Equivalents. The Committee in its sole discretion may provide as part of an award dividends or dividend equivalents, on such terms and conditions as may be determined by the Committee in its sole discretion. Any dividends payable in respect of restricted stock awards that remain subject to vesting conditions shall be retained by the Company and delivered to the participant within 15 days following the date on which such restrictions on such restricted stock awards lapse and, if such restricted stock is forfeited, the participant shall have no right to such dividends. Dividends attributable to restricted stock units shall be distributed to the participant in cash or, in the sole discretion of the Committee, in shares of common stock having a fair market value equal to the amount of such dividends, upon the settlement of the restricted stock units and, if such restricted stock units are forfeited, the participant shall have no right to such dividends.

Clawback/Repayment. All awards are subject to reduction, cancellation, forfeiture or recoupment to the extent necessary to comply with (i) any clawback, forfeiture or other similar policy adopted by our Board of Directors or the Committee and as in effect from time to time and (ii) applicable law. To the extent that a participant receives any amount in excess of the amount that the participant should otherwise have received under the terms of the award for any reason (including, without limitation, by reason of a financial restatement, mistake in calculations or other administrative error), the participant will be required to repay us any such excess amount.

Detrimental Activity. If a participant has engaged in any detrimental activity, as defined in the 2019 Equity Incentive Plan, as determined by the Committee, the Committee may, in its sole discretion, provide for one or more of the following: (i) cancellation of any or all of such participant's outstanding awards or (ii) forfeiture and repayment to us on any gain realized on the vesting, exercise or settlement of any awards previously granted to such participant.

2019 Employee Stock Purchase Plan

As noted above, in connection with this offering, our Board of Directors expects to adopt, and we expect our stockholders to approve, the ESPP prior to the completion of this offering. Although we expect the ESPP to be

Table of Contents

effective as of the consummation of this offering, the first option period under the ESPP will not commence until specifically authorized by the ESPP Committee (as defined below).

The purpose of the ESPP is to encourage employee participation in the ownership and economic progress of the Company. It is the Company's intention to have the ESPP qualify as an "employee stock purchase plan" under Section 423 of the Code. Accordingly, the provisions of the ESPP will be administered in a manner that is consistent with the requirements of Section 423 of the Code.

Administration. The ESPP will be administered by the Compensation Committee, and any successor committee thereto or such other committee of the Board of Directors as may be designated by the Board of Directors to administer the ESPP in whole or in part, including any subcommittee of the Board of Directors as designated by the Board of Directors, which Committee or sub-committee will administer the ESPP (such administering body referred to herein, for purposes of this description of the ESPP, as the "ESPP Committee"). Subject to oversight by the Board of Directors or the Compensation Committee, as applicable, the ESPP Committee will have the authority to administer the ESPP and to make and adopt rules and regulations not inconsistent with the provisions of the ESPP or the Code. Its interpretations and decisions in respect of the ESPP will, subject to the aforesaid, be final and conclusive. The ESPP Committee will have the authority to appoint an employee as plan manager and to delegate to the plan manager such authority with respect to the administration of the ESPP as the ESPP Committee, in its sole discretion, deems advisable from time to time. The ESPP Committee will also have the power and authority at any time to (i) modify the terms and conditions of the ESPP as applicable to individuals outside the United States to comply with applicable foreign laws or regulations, tax policy, accounting principles or customs or to facilitate administration of the ESPP; (ii) establish sub-plans and modify administrative procedures and other terms and procedures, to the extent such actions may be necessary or advisable; and (iii) take any action that it deems advisable to obtain approval or comply with any necessary local governmental regulatory exemptions or approvals or any applicable laws. To the extent any sub-plans are established, the rules of such sub-plans may take precedence over other provisions of the ESPP, with the exception of the number of shares reserved for issuance pursuant to the ESPP, but unless otherwise superseded by the terms of such sub-plan, the provisions of the ESPP shall govern the operation of such sub-plan. Notwithstanding the foregoing, the ESPP Committee may not take any actions hereunder that would violate the Exchange Act, the Code, any securities law or governing statute or any other applicable law or cause the ESPP not to comply with Section 423 of the Code.

Eligible Employees. Under the ESPP, any individual who is an employee of ours (or any subsidiary corporation of the Company that has been designated by the Committee to participate in the ESPP, which we refer to herein, for the purposes of this description of the ESPP, as a "Designated Subsidiary") who customarily works for the Company or a Designated Subsidiary for a minimum of 18 hours per week and has completed at least 180 days of continuous service is generally eligible to participate in the ESPP. Employees who are included in a unit of employees covered by a collective bargaining agreement subject to the National Labor Relations Act, 29 U.S.C. §§ 151-169, will be eligible to participate in the ESPP if such agreement provides that the employees shall be covered by the ESPP or the collective bargaining representatives and us or a Designated Subsidiary, as applicable, have otherwise agreed to extend coverage under the ESPP to such employees. In no event will an employee who owns 5% or more of the total combined voting power or value of all classes of our stock be eligible to participate in the ESPP, and no employee may purchase shares of our common stock that, following the purchase (and including all options held by such employee), would cause him or her to own 5% or more of the total combined voting power or value of all classes of our stock. Eligible employees of the Company and our Designated Subsidiaries will be given the opportunity to purchase shares of our common stock through payroll deductions from the eligible employee's salary. Participants may not acquire rights to purchase shares of our common stock under the ESPP and any employee stock purchase plans of the Company that may be adopted by the Company which accrue at a rate that exceeds \$25,000 of the fair market value of such shares in the aggregate, determined at the time such option is granted, for each calendar year in which such option is outstanding at any time.

Table of Contents

Shares Subject to the ESPP. The total number of shares of our common stock which may be issued under the ESPP is 2,000,000. The shares may consist, in whole or in part, of newly issued shares, existing treasury shares, or new purchases in the open market. The issuance of shares pursuant to the ESPP will reduce the total number of shares available under the ESPP.

Option Periods and Option Price. Unless otherwise determined by the ESPP Committee, option periods under the ESPP will last six months and commence on each January 1 and July 1 (or, if such date is a day in which the national stock exchange upon which our stock is listed is not open for trading, the next such date that such exchange is open for trading), although we anticipate that the first option period under the ESPP will not commence prior to 2020. The ESPP Committee may terminate or change the duration and/or frequency of an option period. Eligible employees who participate in the ESPP elect to purchase shares of our common stock at a purchase price (which we refer to herein as the “option price”) equal to the lesser of (x) 85% of the closing price per share on the last day of the applicable option period and (y) 85% of the closing price per share on the first day of the applicable option period (or, in each case, such greater percentage as is determined by the ESPP Committee in advance of an option period), but in no event shall the option price be less than the par value of our common stock. Eligible employees participate by submitting instructions authorizing payroll deductions before the beginning of an option period.

Cancellation or Adjustments of Election to Purchase. A participant may cancel his or her participation in the ESPP, but may not increase his or her contributions during an option period; provided that no more than once per option period, a participant may decrease the deduction (no later than 30 days prior to the end of the option period) by completing any forms prescribed by, or on behalf of, the ESPP Committee or the plan manager, as revised from time to time. Notwithstanding the foregoing, in the event that the participant ceases to be eligible for any reason, participation will immediately terminate and the participant will be entitled to receive a refund of the funds collected on his or her behalf.

Merger or Change in Control. Unless otherwise provided in the applicable agreement, the consummation of which would result in a change in control (as defined in the ESPP), in the event of a change in control, the applicable option period will be shortened by setting a new exercise date on which such option period will end, and each participant’s option will be exercised automatically. Alternatively, the ESPP Committee and the successor corporation may provide that each outstanding option under the ESPP will be assumed or an equivalent option substituted by the successor corporation or a parent or subsidiary of the successor corporation.

Adjustments to Shares. In the event that adjustments are made in the number of outstanding shares of common stock or such shares are exchanged for a different class of stock of the Company or for shares of stock of any other corporation by reason of merger, consolidation, stock dividend, extraordinary cash dividend, stock split or otherwise, the ESPP Committee may make appropriate adjustments in (i) the number and class of shares of common stock or other securities that may be reserved for purchase or purchased pursuant to the ESPP, and (ii) the option price. The Board of Directors may at any time terminate an option period then in progress and provide, in its discretion, that participants’ then outstanding account balances shall be used to purchase shares or returned to the applicable participants.

Rights as Stockholder. The shares of common stock purchased by a participant on an exercise date will, for all purposes, be deemed to have been issued and sold as of the close of business on such exercise date. Prior to that time, none of the rights or privileges of a shareholder of the Company will exist with respect to such shares (including right to vote or receive dividends) and a participant shall only have the rights of an unsecured creditor with respect to such shares of common stock.

Rights Not Transferable. A participant’s rights under the ESPP are exercisable only by the participant and may not be assigned, transferred, pledged, or otherwise disposed of in any manner other than by will or the laws of descent and distribution or to a designated beneficiary following the participant’s death. Unless otherwise determined by the ESPP Committee, shares of our common stock delivered to a participant hereunder may not be

[Table of Contents](#)

assigned, transferred, pledged or otherwise disposed of in any way by the participant during the six month period following such delivery to the participant (other than by will or the laws of descent and distribution, to a designated beneficiary following the participant's death or in connection with a change in control).

Amendment or Termination. The Board of Directors or the ESPP Committee may at any time, or from time to time, amend the ESPP in any respect, except that, without approval of the shareholders, no amendment may (a) increase the aggregate number of shares reserved under the ESPP other than in connection with the adjustments described above or (b) materially increase the benefits accruing to participants or materially modify the requirements as to eligibility for participation in the ESPP. Any amendment of the ESPP must be made in accordance with applicable provisions of the Code and/or any regulations issued thereunder, any other applicable law or regulations and the requirements of the principal exchange upon which the common stock is listed. The ESPP may not be amended in any way that will cause rights issued under the ESPP to fail to meet the requirements for employee stock purchase plans as defined in Section 423 of the Code or any successor thereto.

Term. The ESPP will continue for ten years, unless earlier terminated by our Board of Directors or the ESPP Committee or automatically upon the issuance of all of the shares available for issuance under the ESPP.

Director Compensation

Historical

We do not currently pay our directors who are either employed by us, by New Mountain Capital, by Goldman Sachs or by PSP Investments, any compensation for their service as directors. For those directors receiving compensation, our standard director compensation program during 2018 consisted of a combination of an annual cash retainer of \$50,000, paid quarterly, and a stock option grant. For service as Chairman of the Audit and Finance Committee, Mr. Peacock received an additional \$20,000 annual cash retainer. For service as Chairman of the Innovation and Growth Committee, Charles Kummeth (one of our directors until April 2019) received an additional \$15,000 annual cash retainer. Our chairman of the board, Mr. Gupta, received an annual cash fee of \$250,000 for his service as chairman and director. In addition, for 2018, Mr. Gupta is eligible for variable incentive compensation with an annual target amount of \$250,000. In April 2019, our Board of Directors approved the lump sum payment of such variable incentive compensation in an amount equal to \$287,500. Mr. Gupta is also entitled to an \$800 monthly payment to cover miscellaneous expenses.

Mr. Sachdev joined the Board in April 2019. It is expected that Mr. Sachdev will receive compensation under the director compensation program to be adopted following this offering. See "Director Compensation Following This Offering."

We also reimburse our non-employee directors for all reasonable out-of-pocket travel expenses incurred in connection with attendance at meetings of the Board of Directors.

[Table of Contents](#)

The following table provides summary information concerning the compensation of the members of our Board of Directors for the year ended December 31, 2018. The compensation paid to Mr. Stubblefield, our President and Chief Executive Officer, is presented in the Summary Compensation Table and the other compensation tables above. During 2018, Mr. Stubblefield did not receive additional compensation for his services as a director.

Name	Fees Earned or Paid in Cash \$(1)	Stock Awards (\$)	Option Awards \$(2)	Non-Equity Incentive Plan Compensation \$(3)	All Other Compensation \$(4)	Total (\$)
Rajiv Gupta	250,000	—	—	287,500	9,600	547,100
Thomas Connolly	—	—	—	—	—	—
Robert Fine	—	—	—	—	—	—
Matthew Holt	—	—	—	—	—	—
Charles Kummeth	65,000	—	1,154,614	—	—	1,219,614
Faisal Masud	29,166	—	793,680	—	—	822,846
Andre Moura	—	—	—	—	—	—
Jo Natauri	—	—	—	—	—	—
Jonathan Peacock	70,000	—	769,762	—	—	839,762
Christi Shaw	7,250	—	789,726	—	—	796,976

- (1) Amounts reflect the director's cash retainer earned for 2018. For Mr. Masud the amount reflects pro-rated amounts earned since he joined us in May 2018. For Ms. Shaw, the amount reflects pro-rated amounts earned since she joined us in September 2018.
- (2) Amounts reflect stock options granted in 2018 computed utilizing grant date fair value in accordance with Topic 718, disregarding the effect of estimated forfeitures. This valuation is based upon several assumptions that are found in Note 18 to our audited financial statements included elsewhere in this prospectus. As of December 31, 2018, the aggregate number of equity awards outstanding for our non-management directors were as follows: 202,810 options outstanding for Mr. Kummeth; and 135,210 options outstanding for each of Messrs. Masud and Peacock and Ms. Shaw. Terms of these stock options are described below in greater detail.
- (3) Amount reflects Mr. Gupta's variable incentive compensation for 2018.
- (4) Amount reflects Mr. Gupta's \$800 monthly payment to cover miscellaneous expenses.

On January 27, 2018, we granted to each of Messrs. Kummeth and Peacock 202,810 and 135,210 options, respectively, pursuant to the Vail Plan, with an exercise price of \$23.21 per share. In addition, on their respective commencement dates, we granted to each of Mr. Masud and Ms. Shaw 135,210 options pursuant to the Vail Plan, with an exercise price of \$23.21 per share. Mr. Masud left the Board of Directors effective February 5, 2019 and, as such, all options held by him were forfeited. In connection with Mr. Kummeth's resignation from the Board of Directors, we entered into an amendment to his option agreement which provided that all of his options would be deemed vested and exercisable as of the date he resigned from the Board of Directors, and his options will remain exercisable until the 10th anniversary of the date of grant of such options.

The options granted to our directors under the Vail Plan have a ten-year term, with 60 percent of each grant vesting quarterly over four years, and the remaining 40 percent vesting upon the occurrence of a "change in control" (as defined in the Vail Plan) or a public offering (including this offering), in each case, prior to December 13, 2020 (or 20 percent, if such event occurs after December 13, 2020 and prior to December 13, 2021). In the event of a "change in control" prior to an applicable vesting date, any then unvested time-vesting options will vest. In the event that such director's service terminates, any then-unvested options will be immediately forfeited for no consideration, and any then-vested options will remain outstanding and exercisable for 180 days following such termination, subject to earlier expiration of the option.

[Table of Contents](#)

We also reimburse our non-employee directors for all reasonable out-of-pocket travel expenses incurred in connection with attendance at meetings of the Board of Directors.

Director Compensation Following This Offering

In connection with this offering and with assistance from FW Cook, we have developed a market-based director compensation program for our non-employee directors (other than the directors employed by New Mountain Capital, by Goldman Sachs or by PSP Investments). The program will provide eligible directors with annual compensation of approximately \$275,000, consisting of \$75,000 as an annual cash retainer (payable in quarterly installments in arrears) and approximately \$200,000 in the form of restricted stock units, which will vest in full on the earlier of (x) the first anniversary of the Vesting Start Date (as defined in the restricted stock unit agreement) and (y) the date of our first regular annual meeting of stockholders following the grant date of the restricted stock units; provided, that if the director has continuously provided service to us upon the occurrence of a change in control prior to such dates, all then-unvested restricted stock units will vest. If an eligible director begins service after the start of a fiscal year but prior to the award of the annual equity-based retainer for such fiscal year, he or she will be eligible to receive the full amount of such retainer. Otherwise, the annual equity-based retainer will be pro-rated for partial years of service. As described above under “—IPO Equity Awards,” we intend to make these grants upon completion of this offering. The non-executive chairperson of the Board of Directors will receive an additional \$150,000, and the respective chairpersons of the audit and finance committee, compensation and human resources committee and nominating and governance committee will receive an additional \$20,000, \$15,000 and \$10,000, respectively. In addition, each member of the Audit and Finance Committee, other than the chairperson, will receive an additional \$10,000.

Each eligible director will also be entitled to receive reimbursement for reasonable travel, lodging and other expenses which they properly incur in connection with their functions and duties as a director.

In connection with this offering we have also adopted equity ownership guidelines for our non-employee directors (other than the directors employed by New Mountain Capital, by Goldman Sachs or by PSP Investments) in order to better align our eligible directors' financial interests with those of our shareholders. Each such director must own shares of Common Stock in an amount equal to four times (4x) his or her base annual cash retainer (excluding additional annual cash retainers for service as the Chairman of the Board of Directors, committee chairpersons and committee members). Such directors are required to achieve the applicable level of ownership within five years of becoming subject to the requirements.

[Table of Contents](#)**PRINCIPAL AND SELLING STOCKHOLDERS**

The following table and accompanying footnotes set forth information with respect to the beneficial ownership of our common stock as of March 31, 2019 by (1) each individual or entity known by us to beneficially own more than 5% of our outstanding common stock, including the selling stockholder in this offering, (2) each of our named executive officers, (3) each of our directors and (4) all of our directors and our executive officers as a group.

A person is a “beneficial owner” of a security if that person has or shares “voting power,” which includes the power to vote or to direct the voting of the security, or “investment power,” which includes the power to dispose of or to direct the disposition of the security or has the right to acquire such powers within 60 days.

To our knowledge, unless otherwise noted in the footnotes to the following table, and subject to applicable community property laws, the persons named in the table have sole voting and investment power with respect to their beneficially owned common stock.

Securities subject to option grants that have vested or will vest within 60 days are deemed outstanding for calculating the percentage ownership of the person holding the options, but are not deemed outstanding for calculating the percentage ownership of any other person. In addition, common stock issuable pursuant to the exercise of warrants that are immediately exercisable or exercisable within 60 days are deemed outstanding for calculating the percentage ownership of the person holding the warrants, but are not deemed outstanding for calculating the percentage ownership of any other person.

The percentages of shares outstanding provided in the table below are based on 132,829,622 shares of our common stock, par value \$0.01 per share, outstanding as of March 31, 2019, and assuming the full conversion of the Existing Junior Convertible Preferred Stock as described below.

The shares beneficially owned prior to this offering assumes the full conversion of the Existing Junior Convertible Preferred Stock into 194,464,286 shares of common stock based on the initial public offering price of \$14.00 per share of common stock. The number of shares of common stock received upon conversion of the Existing Junior Convertible Preferred Stock will be based on the aggregate liquidation preference of such stock of \$2,722,500,000 divided by the initial public offering price. See “Description of Capital Stock—Preferred Stock—Existing Junior Convertible Preferred Stock.” The shares beneficially owned after this offering is based on 534,293,808 shares outstanding, after giving effect to the sale of 207,000,000 shares of our common stock by us and the selling stockholder in this offering and assuming no exercise of the underwriters’ option to purchase additional shares in this offering.

Table of Contents

Except as otherwise indicated in the footnotes below, the address of each beneficial owner is c/o Avantor, Inc., Radnor Corporate Center, Building One, Suite 200, 100 Matsonford Road, Radnor, PA 19087.

Name of Beneficial Owner	Shares Beneficially Owned After this Offering(1)			
	Shares Beneficially Owned Prior to this Offering(1)		Assuming No Exercise of the Underwriters' Over-Allotment Option	Assuming Full Exercise of the Underwriters' Over-Allotment Option
	Number	Percentage of Total Common Stock	Percentage of Total Common Stock	Percentage of Total Common Stock
Greater than 5% Stockholders:				
Entities affiliated with New Mountain Capital(2)	110,478,090	34%	21%	20%
Entities affiliated with The Goldman Sachs Group, Inc. (3)	67,605,349	21%	13%	12%
Entities affiliated with PSP(4)	24,389,119	7%	5%	4%
NuSil, LLC (5)	16,275,637	5%	3%	3%
Named Executive Officers and Directors(6):				
Michael Stubblefield	4,021,931	1%	*	*
Thomas Szlosek	540,832	*	*	*
Bjorn Hofman	1,741,790	*	*	*
Gerard Brophy	216,332	*	*	*
Frederic Vanderhaegen	216,332	*	*	*
Rajiv Gupta(2)(7)	2,674,901	1%	*	*
Thomas Connolly(3)	—	—	—	—
Robert Fine(4)	—	—	—	—
Matthew Holt(2)	—	—	—	—
Andre Moura(2)	—	—	—	—
Jo Natauri(3)	—	—	—	—
Jonathan Peacock	202,081	*	*	*
Rakesh Sachdev	—	—	—	—
Christi Shaw	54,084	*	*	*
All directors and executive officers as a group (22 persons)(6)	9,668,283	3%	2%	2%

* Less than one percent.

- (1) The percentage of shares beneficially owned before and after this offering assumes the full conversion of the Existing Junior Convertible Preferred Stock at the initial public offering price in this offering.
- (2) The general partner of New Mountain Partners III, L.P. is New Mountain Investments III, L.L.C. and the manager of New Mountain Partners III, L.P. is New Mountain Capital, L.L.C. Steven B. Klinsky is the managing member of New Mountain Investments III, L.L.C. Rajiv Gupta, Matthew Holt and Andre Moura, each members of our Board of Directors, are members of New Mountain Investments III, L.L.C. New Mountain Investments III, L.L.C. has decision-making power over the disposition and voting of shares of portfolio investments of New Mountain Partners III, L.P. New Mountain Capital, L.L.C. also has voting power over the shares of portfolio investments of New Mountain Partners III, L.P. Steven B. Klinsky, as the managing member of New Mountain Investments III, L.L.C., has voting and investment power over the shares held by New Mountain Investments III, L.L.C. In connection with this offering, New Mountain Partners III, L.P. is selling 100 shares of common stock, which is reflected in its shares beneficially owned after this offering.

The managing member of New Mountain Capital, L.L.C. is New Mountain Capital Group, L.P. The general partner of New Mountain Capital Group, L.P. is NM Holdings GP, L.L.C. Steven B. Klinsky is the managing member of NM Holdings GP, L.L.C. Since (a) New Mountain Investments III, L.L.C. has decision-making power over New Mountain Partners III, L.P. and (b) New Mountain Capital, L.L.C. has voting power over the shares of portfolio investments of New Mountain Partners III, L.P., Mr. Klinsky may be deemed to beneficially own the shares that New Mountain Partners III, L.P. holds of record or may be deemed to beneficially own.

Table of Contents

- Mr. Klinsky, Mr. Gupta, Mr. Holt, Mr. Moura, New Mountain Investments III, L.L.C. and New Mountain Capital, L.L.C. expressly disclaim beneficial ownership over the shares held by New Mountain Partners III, L.P. The address of each of the foregoing is c/o New Mountain Capital, L.L.C., 787 Seventh Avenue, 49th Floor, New York, New York 10019.
- (3) Consists of (i) 26,576,786 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock and 1,080,595 warrants to purchase 1,080,595 shares of common stock held by Broad Street Principal Investments, L.L.C., (ii) 806,025 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock and 36,475 warrants to purchase 36,475 shares of common stock held by StoneBridge 2017, L.P., (iii) 372,546 shares of common stock issuable upon conversion of Existing Junior Convertible Preferred Stock and 16,850 warrants to purchase 16,850 shares of common stock held by StoneBridge 2017 Offshore, L.P., (iv) 2,074,050 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock held by StoneBridge 2018, L.P., (v) 872,379 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock held by StoneBridge 2018 Offshore, L.P., and (vi) 35,769,643 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock held by VWR Partners, L.P. (collectively, the “GS Entities”). Affiliates of Goldman Sachs and The Goldman Sachs Group, Inc. are the general partner, managing partner, managing member or investment manager of each of the GS Entities, and the GS Entities may share voting and investment power with certain of their respective affiliates. Goldman Sachs is a direct and indirect wholly owned subsidiary of The Goldman Sachs Group, Inc. Tom Connolly and Jo Natauri are Managing Directors of Goldman Sachs and may be deemed to have beneficial ownership of the shares held by the GS Entities. Each of the GS Entities, Mr. Connolly and Ms. Natauri disclaim beneficial ownership over the shares described above except to the extent of their pecuniary interest therein. The address of the GS Entities, Mr. Connolly and Ms. Natauri is 200 West Street, New York, NY 10282. Broad Street Principal Investments, L.L.C. is purchasing 5 million shares of our common stock in this offering at the initial public offering price. Amounts shown in the table do not give effect to any shares purchased in the offering.
- (4) Consists of (i) 23,571,429 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock and (ii) 817,690 warrants to purchase 817,690 shares of common stock held by Galvaude Private Investments Inc. (“PSP”). Neil Cunningham, as President of PSP and Guthrie Stewart, as Director and Vice President of PSP, in such capacities have investment control over such securities, and Stéphanie Lachance, as Vice President, Responsible Investment of PSP Investments, has voting control over such securities on behalf of PSP Investments. Each of Messrs. Cunningham and Stewart and Ms. Lachance disclaim beneficial ownership of such securities. The principal business address of PSP is 1250 René Lévesque Boulevard West, Suite 1400, Montreal, Quebec, Canada, H3B 4WB.
- (5) Tom Banigan, Richard Compton, Dawn Howard, Scott Mraz, Brian Nash, Keith Reichel and Jim Yabsley (i) are members of the board of managers of NuSil, LLC, (ii) are the managing members of NuSil, LLC and (iii) have shared voting and investment power over the shares of common stock held by NuSil, LLC. As a result, Mr. Banigan, Mr. Compton, Ms. Howard, Mr. Mraz, Mr. Nash, Mr. Reichel and Mr. Yabsley may be deemed to possess beneficial ownership of the shares of common stock held by NuSil, LLC. The address of NuSil, LLC and each of the foregoing is c/o Reicker Pfau Pyle & McRoy LLP, Attention: Michael E. Pfau, Esq., 1421 State Street, Suite B, Santa Barbara, CA 93101.
- (6) The number of shares reported includes shares covered by options that are exercisable within 60 days.
- (7) Includes of (i) 320,505 shares of common stock held by The Gupta Family Trust, (ii) 1,290,969 shares of common stock issuable upon exercise of options that have vested or will vest within 60 days and (iii) 523,286 shares of common stock issuable upon conversion of the Existing Junior Convertible Preferred Stock held by The Gupta Family Trust. Kamla Gupta, the wife of Rajiv Gupta, is the sole trustee of The Gupta Family Trust and has voting and investment power over the shares of common stock held by The Gupta Family Trust.

Table of Contents

The following table sets forth information with respect to the beneficial ownership of our Existing Junior Convertible Preferred Stock as of March 31, 2019 by (1) each of the individuals or entities set forth above, (2) each of our named executive officers, (3) each of our directors and (4) all of our directors and our executive officers as a group.

<u>Name of Beneficial Owner</u>	<u>Shares Beneficially Owned</u>	
	<u>Number</u>	<u>Percentage of Total Existing Junior Convertible Preferred Stock</u>
Greater than 5% Stockholders:		
Entities affiliated with New Mountain Capital(1)	—	—
Entities affiliated with The Goldman Sachs Group, Inc.(2)	564,000	34.18%
Entities affiliated with PSP(3)	200,000	12.12%
Named Executive Officers and Directors:		
Michael Stubblefield	—	—
Thomas Szlosek	—	—
Bjorn Hofman	—	—
Gerard Brophy	—	—
Frederic Vanderhaegen	—	—
Rajiv Gupta(1)(4)	4,440	*
Thomas Connolly(2)	—	—
Robert Fine(3)	—	—
Matthew Holt(1)	—	—
Andre Moura(1)	—	—
Jo Natauri(2)	—	—
Jonathan Peacock	1,000	*
Rakesh Sachdev	—	—
Christi Shaw	—	—
All directors and executive officers as a group (22 persons)	6,440	*

* Less than one percent.

- (1) The general partner of New Mountain Partners III, L.P. is New Mountain Investments III, L.L.C. and the manager of New Mountain Partners III, L.P. is New Mountain Capital, L.L.C. Steven B. Klinsky is the managing member of New Mountain Investments III, L.L.C. Rajiv Gupta, Matthew Holt and Andre Moura, each members of our Board of Directors, are members of New Mountain Investments III, L.L.C. New Mountain Investments III, L.L.C. has decision-making power over the disposition and voting of shares of portfolio investments of New Mountain Partners III, L.P. New Mountain Capital, L.L.C. also has voting power over the shares of portfolio investments of New Mountain Partners III, L.P. Steven B. Klinsky, as the managing member of New Mountain Investments III, L.L.C., has voting and investment power over the shares held by New Mountain Investments III, L.L.C.

The managing member of New Mountain Capital, L.L.C. is New Mountain Capital Group, L.P. The general partner of New Mountain Capital Group, L.P. is NM Holdings GP, L.L.C. Steven B. Klinsky is the managing member of NM Holdings GP, L.L.C. Since (a) New Mountain Investments III, L.L.C. has decision-making power over New Mountain Partners III, L.P. and (b) New Mountain Capital, L.L.C. has voting power over the shares of portfolio investments of New Mountain Partners III, L.P., Mr. Klinsky may be deemed to beneficially own the shares that New Mountain Partners III, L.P. holds of record or may be deemed to beneficially own.

Mr. Klinsky, Mr. Gupta, Mr. Holt, Mr. Moura, New Mountain Investments III, L.L.C. and New Mountain Capital, L.L.C. expressly disclaim beneficial ownership over the shares held by New Mountain Partners III, L.P. The address of each of the foregoing is c/o New Mountain Capital, L.L.C., 787 Seventh Avenue, 49th Floor, New York, New York 10019.

- (2) Consists of (i) 225,500 shares of Existing Junior Convertible Preferred Stock held by Broad Street Principal Investments, L.L.C., (ii) 6,839 shares of Existing Junior Convertible Preferred Stock held by StoneBridge 2017, L.P., (iii) 3,161 shares of Existing Junior Convertible Preferred Stock held by StoneBridge 2017 Offshore, L.P., (iv) 17,598 shares of Existing Junior Convertible Preferred Stock held by StoneBridge 2018,

Table of Contents

L.P., (v) 7,402 shares of Existing Junior Convertible Preferred Stock held by StoneBridge 2018 Offshore, L.P., and (vi) 303,500 shares of Existing Junior Convertible Preferred Stock held by VWR Partners, L.P. (collectively, the "GS Entities"). Affiliates of Goldman Sachs and The Goldman Sachs Group, Inc. are the general partner, managing partner, managing member or investment manager of each of the GS Entities, and the GS Entities may share voting and investment power with certain of their respective affiliates. Goldman Sachs is a direct and indirect wholly owned subsidiary of The Goldman Sachs Group, Inc. Tom Connolly and Jo Natauri are Managing Directors of Goldman Sachs and may be deemed to have beneficial ownership of the shares held by the GS Entities. Each of the GS Entities, Mr. Connolly and Ms. Natauri disclaim beneficial ownership over the shares described above except to the extent of their pecuniary interest therein. The address of the GS Entities, Mr. Connolly and Ms. Natauri is 200 West Street, New York, NY 10282.

- (3) Consists of 200,000 shares of Existing Junior Convertible Preferred Stock held by PSP. Neil Cunningham, as President of PSP and Guthrie Stewart, as Director and Vice President of PSP, in such capacities have investment control over such securities, and Stéphanie Lachance, as Vice President, Responsible Investment of PSP Investments, has voting control over such securities on behalf of PSP Investments. Each of Messrs. Cunningham and Stewart and Ms. Lachance disclaim beneficial ownership of such securities. The principal business address of PSP is 1250 René Lévesque Boulevard West, Suite 1400, Montreal, Quebec, Canada, H3B 4WB.
- (4) Consists of (i) 2,440 shares of Existing Junior Convertible Preferred Stock held by Rajiv Gupta and (ii) 2,000 shares of Existing Junior Convertible Preferred Stock held by The Gupta Family Trust. Kamla Gupta, the wife of Rajiv Gupta, is the sole trustee of The Gupta Ttee Gupta Family Trust and has voting and investment power over the shares of Existing Junior Convertible Preferred Stock held by The Gupta Family Trust.

[Table of Contents](#)**CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS****Arrangements with Affiliates of New Mountain Capital, PSP and Affiliates of Goldman Sachs**

We and certain of our subsidiaries entered into various related party agreements in the ordinary course of business and in contemplation of the VWR Acquisition and this offering:

Stockholders Agreement

In connection with the VWR Acquisition, we entered into a stockholders agreement with affiliates of New Mountain Capital, affiliates of Goldman Sachs and certain other co-investors, which provides for, among other things, the election of our Board of Directors, restrictions on the transferability of our equity, preemptive rights, bring-along rights, tag-along rights, preemptive rights and information rights for the benefit of New Mountain Capital, Goldman Sachs and certain other co-investors, including PSP.

This agreement requires us to nominate a number of individuals directly or indirectly designated by affiliates of each of New Mountain Capital, Goldman Sachs, and, one other appointing stockholder, which initially has been PSP, as our directors. Specifically, New Mountain Capital may, through its ownership of a majority of our common stock, effectively designate five directors, affiliates of Goldman Sachs may designate two directors (along with having a right to nominate another two directors with New Mountain Capital's consent) and PSP may designate one director. Prior to the consummation of this offering, pursuant to this agreement each of Matthew Holt and Andre Moura were designated as directors by New Mountain Capital, Thomas Connolly and Jo Natauri were designated as directors by affiliates of Goldman Sachs and Robert Fine was designated as a director by PSP.

Portions of the Stockholders Agreement terminate in connection with this offering, including the preemptive rights and the board designation rights of each of New Mountain Capital and PSP discussed above. Following this offering, both directors nominated by affiliates of Goldman Sachs are expected to remain on the Board of Directors and affiliates of Goldman Sachs will continue to have a contractual right to designate a director to the Board for so long as it holds at least 50% of the number of shares of common stock that will be issued to Goldman Sachs and its affiliates upon conversion of the Existing Junior Convertible Preferred Stock. Following this offering, New Mountain Capital will have additional director nomination rights under the Investor Rights Agreement. See “—Investor Rights Agreement.”

In addition, portions of the Stockholders Agreement will survive following this offering, including restrictions on transferability of our equity, rights and obligations of transferees, existing stockholder piggyback rights, certain tag-along rights and certain other covenants. Specifically, following this offering, our equity securities may be sold by the parties to the Stockholders Agreement only to (i) affiliates, subject to certain restrictions, or (ii) in a transaction that is exempt under the Securities Act or that is made through the exercise of registration rights provided in the Registration Rights Agreement. The parties to the Stockholders Agreement will continue to be provided with “piggyback” rights to participate in a registered offering of the Company's securities by affiliates of New Mountain Capital. Similarly, the parties to the Stockholders Agreement will continue to have tag-along rights in connection with any transfers by affiliates of New Mountain Capital of our equity securities in an unregistered offering to a third-party investor, except for a broker-dealer transaction.

Investor Rights Agreement

In connection with this offering, we intend to enter into an investor rights agreement with affiliates of New Mountain Capital. This agreement will grant New Mountain Capital the right to nominate directors to our board of directors as follows: so long as affiliates of New Mountain Capital continue to own (i) at least 50% of the shares of our common stock that it owned immediately following the consummation of this offering, New Mountain Capital shall be entitled to nominate three directors; (ii) at least 25% but less than 50% of the shares of

[Table of Contents](#)

our common stock that it owned immediately following the consummation of this offering, New Mountain Capital shall be entitled to nominate two directors; and (iii) at least 10% but less than 25% of the shares of our common stock that it owned immediately following the consummation of this offering, New Mountain Capital shall be entitled to nominate one director. For so long as we maintain a compensation and human resources committee and a nominating and governance committee, such committees shall each include at least one New Mountain Capital director designee, but only if New Mountain Capital is then entitled to nominate at least one director and, to the extent then required under the applicable NYSE rules, such director is an “Independent Director” under the applicable NYSE rules.

In addition, pursuant to this agreement, we will waive to the fullest extent permitted by law any interest or expectancy that we may have in specified corporate opportunities that may be offered to New Mountain Capital and its affiliates other than any corporate opportunity that is expressly offered to a New Mountain Capital director designee solely in his or her capacity as one of our directors.

Registration Rights Agreement

In connection with the VWR Acquisition, we entered into a registration rights agreement with affiliates of New Mountain Capital, Goldman Sachs and its affiliates and certain other co-investors. Subject to certain conditions, the registration rights agreement provides certain affiliates of New Mountain Capital and Goldman Sachs, as well as holders of a majority of the voting power of our warrants, with an unlimited number of “demand” registrations following an initial public offering, permitting the demanding party to request the registration of shares of our common stock held by such party in an offering registered under the Securities Act. In addition, under the registration rights agreement, all holders of registrable securities party thereto are provided with customary “piggyback” registration rights following an initial public offering, permitting such party to participate in offerings of shares of our common stock initiated by other parties. The registration rights agreement also provides that we will pay certain expenses of these holders relating to such registrations and indemnify them against certain liabilities which may arise under the Securities Act.

Advisory Agreement

Avantor Funding, Inc. entered into an amended and restated advisory agreement with New Mountain Capital on September 30, 2016 (the “Advisory Agreement”) pursuant to which New Mountain Capital has provided, on a nonexclusive basis, management, financial and investment banking advisory services to Avantor and its subsidiaries. The Advisory Agreement requires us to pay New Mountain Capital (i) an annual advisory fee of \$1.0 million; (ii) a fee equal to 2% of the value of any acquisitions or financing transactions if their value is greater than \$20.0 million; and (iii) reimbursement of certain immaterial out-of-pocket expenses. In November 2017, the advisory agreement was amended so that any future transaction fees, other than defined exit events, are payable in shares of our common stock instead of cash. The Advisory Agreement is expected to be terminated in connection with this offering, without any fee paid.

The following table presents the payments we have made under the advisory agreement (including under the predecessor agreement for 2014 and 2015) in each of the following periods indicated:

<i>(in millions)</i>	Year ended December 31,					Three months
	2018	2017	2016	2015	2014	ended March 31, 2019
Annual advisory fees	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	\$ —
Transaction fees:						
VWR Acquisition	—	180.0	—	—	—	—
Debt refinancings	—	12.5	27.3	—	—	—
Total	<u>\$ 1.0</u>	<u>\$193.5</u>	<u>\$28.3</u>	<u>\$ 1.0</u>	<u>\$ 1.0</u>	<u>\$ —</u>

[Table of Contents](#)**CPECS**

New Mountain Capital was the primary holder of convertible preferred equity certificates (“CPECs”) that were part of our previous capital structure. The CPECs were redeemable for cash based on a contractual formula. Under that formula, the redemption value of the CPECs increased significantly over their term. In 2016, we paid New Mountain Capital \$691.0 million to redeem some of its CPECs, and the rest of the CPECs held by New Mountain Capital, totaling \$1,487.7 million, were converted and, together with all of New Mountain Capital’s other ordinary shares of Avantor, S.A. held by New Mountain Capital, immediately exchanged for 30 million shares of legacy common stock of Avantor Funding, Inc., our former parent company.

Existing Senior Preferred Stock

Concurrently with the consummation of the VWR Acquisition, we issued shares of series A senior preferred stock with an initial aggregate liquidation preference of \$2.0 billion to investors, including affiliates of Goldman Sachs. We intend to redeem outstanding shares of the Existing Senior Preferred Stock with the proceeds of this offering and the concurrent offering of Mandatory Convertible Preferred Stock. The redemption will require payment of a make-whole premium of approximately \$220.4 million. See “Description of Capital Stock—Preferred Stock—Existing Senior Preferred Stock.”

Approximately 318,950 shares and 230,000 shares of Existing Senior Preferred Stock were issued to affiliates of Goldman Sachs and PSP, respectively, in consideration for \$318,950,000.00 and \$230,000,000.00 paid to the Company. As of March 31, 2019, there were 2,338,155 shares of Existing Senior Preferred Stock outstanding, with affiliates of Goldman Sachs and PSP owning approximately 372,872 shares and 268,885 shares, respectively.

Existing Junior Convertible Preferred Stock

Concurrently with the consummation of the VWR Acquisition, we issued shares of our series A junior convertible preferred stock (the “Existing Junior Convertible Preferred Stock”) for an initial aggregate purchase price of \$1.65 billion to investors, including affiliates of Goldman Sachs. The shares of the Existing Junior Convertible Preferred Stock will automatically convert into our common stock upon the consummation of this offering. See “Description of Capital Stock—Preferred Stock—Existing Junior Convertible Preferred Stock.”

Approximately 415,000 shares, 200,000 shares and 1,000 shares of Existing Junior Convertible Preferred Stock were issued to affiliates of Goldman Sachs, PSP and Charles Kummeth (one of our directors until April 2019), respectively, in consideration for \$415,000,000, \$200,000,000, and \$1,000,000, respectively, paid to the Company. As of March 31, 2019 affiliates of Goldman Sachs, PSP, Charles Kummeth, Jonathan Peacock and Rajiv Gupta owned approximately 564,000 shares, 200,000 shares, 1,000 shares, 1,000 shares and 4,440 shares, respectively, of Existing Junior Convertible Preferred Stock. In addition, as part of the consideration in the VWR Acquisition, we issued shares of Existing Junior Convertible Preferred Stock to New Mountain Capital and certain members of management and directors. See “—Internal Reorganization.”

Arrangements with NuSil and other Prior Equityholders**Internal Reorganization**

In connection with the VWR Acquisition, we completed an internal reorganization, including a series of internal mergers. As consideration for this transaction, common and restricted stockholders existing prior to the consummation of the VWR Acquisition, including affiliates of New Mountain Capital and certain directors and officers, received a mix of the Existing Junior Convertible Preferred Stock, common stock and cash (including certain payments attributable to our prior TRA). The holders of equity awards existing prior to the consummation of the VWR Acquisition, including certain directors and officers, received a combination of Existing Junior Convertible Preferred Stock, replacement awards exercisable into common stock of Avantor, as well as cash (including certain payments attributable to our prior TRA). Specifically, affiliates of New Mountain Capital

[Table of Contents](#)

received 260,496,871 shares of Existing Junior Convertible Preferred Stock, 110,478,090 shares of common stock and \$964,335,128. Certain members of management, including Michael Stubblefield, Bjorn Hofman, Ashish Kulkarni, Eric McAllister, Devashish Ohri and Corey Walker, and directors, including Rajiv Gupta and Jonathan Peacock, also received 12,361,290 shares of Existing Junior Convertible Preferred Stock, 1,053,495 shares of common stock, 6,674,530 shares of replacement awards exercisable into common stock and \$52,976,655 in the aggregate. In connection with these transactions, our prior TRA was terminated.

NuSil Merger Agreement

We acquired all the direct and indirect interests in NuSil Investments, LLC on September 30, 2016. This acquisition was effected pursuant to a merger agreement entered into on August 30, 2016, by Avantor SA, Alphanumeric Merger Sub 1, Inc., Alphanumeric Merger Sub 2, LLC, NuSil Investments, LLC and NuSil Acquisition Corp. Prior to the consummation of the NuSil Merger, Avantor Performance Materials Holdings, LLC was a direct wholly-owned subsidiary of Avantor SA and owned 100% of the interests in Alphanumeric Merger Sub 1, Inc. and Alphanumeric Merger Sub 2, LLC.

Immediately prior to the NuSil Merger, NuSil Acquisition Corp., NuSil LLC, a California limited liability company, and NuSil 2.0 LLC, a Delaware limited liability company, owned all of the outstanding interests in NuSil Investments. At the time of the NuSil Merger, New Mountain Partners III L.P., an entity affiliated with New Mountain Capital, previously held 100% of the equity interests of NuSil Acquisition Corp. through its wholly-owned subsidiary NuSil Holdings LLC. This transaction constituted an affiliate transaction due to New Mountain Capital's ownership interest in each company. The total aggregate consideration of approximately 15,530,267 shares of legacy equity in our former parent paid to the stockholders of NuSil Investments, LLC was based on the enterprise value of NuSil Investments, LLC at the time of the transaction. The terms and consideration of the NuSil Merger were negotiated on an arms-length basis between affiliates of New Mountain Capital, in their capacity as stockholders in the Company, and the non-New Mountain Capital stockholders in NuSil Investments, LLC. In addition, NuSil Investments, LLC engaged a third-party advisor to evaluate the transaction.

Upon the consummation of the NuSil Merger, (i) Alphanumeric Merger Sub 1, Inc. merged with and into NuSil Acquisition Corp. and (ii) Alphanumeric Merger Sub 2, LLC merged with and into NuSil Investments. In order to effect the NuSil Merger, our former parent company issued equity to the then existing owners of NuSil Acquisition Corp. and NuSil Investments in exchange for such owners' respective ownership interests in NuSil Acquisition Corp. and NuSil Investments. As a result of these mergers, both NuSil Acquisition Corp. and NuSil Investments became subsidiaries of Avantor Performance Materials Holdings, LLC and NuSil Acquisition Corp. retained majority ownership in NuSil Investments. In connection with the NuSil Merger and a related internal restructuring, affiliates of New Mountain Capital received approximately 38,509,939 shares of legacy equity in our former parent company and its subsidiary, representing approximately 77% ownership upon consummation of the transaction. In addition, affiliates of New Mountain Capital received (i) a cash distribution and (ii) fees related to the associated debt financing under the Advisory Agreement, in each case, in connection with the NuSil Merger and related internal restructuring. See “—Distributions” and “—Arrangements with Affiliates of New Mountain Capital, PSP and Affiliates of Goldman Sachs—Advisory Agreement.”

Distributions

On October 14, 2016, in connection with the NuSil Merger and related internal restructuring, a subsidiary of our former parent company made cash distributions to its equity holders totaling \$112.8 million, which in turn were used in part to make a cash dividend to common stockholders and optionholders of our former parent company. Such distributions included \$98.0 million allocated to affiliates of New Mountain Capital and \$1.3 million allocated to certain members of management and directors, including Michael Stubblefield, Bjorn Hofman and Rajiv Gupta.

[Table of Contents](#)

On March 17, 2017, a subsidiary of our former parent company made cash distributions to its equity holders totaling \$459.9 million, which in turn were used in part to make a cash dividend to common stockholders and vested optionholders of our former parent company. Such distributions included \$385.1 million allocated to affiliates of New Mountain Capital and \$5.7 million allocated to certain members of management and directors, including Michael Stubblefield, Bjorn Hofman, Devashish Ohri and Rajiv Gupta. In addition, as described under “—Internal Reorganization,” New Mountain Capital received \$964,335,128 in connection with the VWR Acquisition. No other distributions were made to affiliates of New Mountain Capital in the last five fiscal years or in the three months ended March 31, 2019.

NuSil Technology Real Estate Leases

1150 Mark Avenue, Carpinteria, California

Pursuant to a lease agreement, which expired on June 30, 2015 and which we are operating under on a month-to-month basis, or the “Mark Avenue Lease,” we lease office space at 1150 Mark Avenue, Carpinteria, California from Siloxy Group, a company that is approximately 38% owned by a shareholder of the NuSil Investors.

The Mark Avenue Lease had a five year term commencing in 1990, with four additional five year renewal options. We anticipate entering into a new lease with Siloxy Group prior to the consummation of this offering. Under the Mark Avenue Lease, rent increased annually and we also paid the landlord the property taxes incurred. In July of 2016, rent increased to \$23,593 per month pursuant to the Consumer Price Index. For the years ended December 31, 2018, December 31, 2017 and December 31, 2016, we paid \$296,000, \$283,000 and \$279,000 under the Mark Avenue Lease, respectively. For the three months ended March 31, 2019, we paid \$95,584 under the Mark Avenue Lease.

1045 Cindy Lane, Carpinteria, California

Pursuant to a lease agreement, dated January 1, 2016, or the “Cindy Lane Lease,” we lease industrial space at 1045 Cindy Lane, Carpinteria, California from a shareholder of the NuSil Investors.

The Cindy Lane Lease has a ten-year term, with two five-year renewal options. Under the Cindy Lane Lease, rent increases annually. For the years ended December 31, 2018, December 31, 2017 and December 31, 2016, we paid \$273,000, \$263,000 and \$260,000 under the Cindy Lane Lease, respectively. For the three months ended March 31, 2019, we paid \$64,880 under the Cindy Lane Lease.

2343 Pegasus Road, Bakersfield, California

Pursuant to a lease agreement, dated January 1, 2016, or the “Pegasus Road Lease,” we lease industrial space at 2343 Pegasus Road, Bakersfield, California from a shareholder of the NuSil Investors.

The Pegasus Road Lease has a ten-year term, with two five-year renewal options. Under the Pegasus Road Lease, rent increases annually. For the years ended December 31, 2018, December 31, 2017 and December 31, 2016, we paid \$743,000, \$716,000 and \$705,000 under the Pegasus Road Lease, respectively. For the three months ended March 31, 2019, we paid \$194,216 under the Pegasus Road Lease.

NuSil Stock Compensation and Equity Incentive Plans

NuSil LLC Equity Incentive Plan

NuSil LLC, one of our existing stockholders, maintains a performance incentive plan, or the “2005 NuSil Plan,” under which member units and SARs were granted to employees and consultants of NuSil Technology.

Table of Contents

The SARs act as membership unit appreciation rights which entitle the holder to receive a cash distribution in the amount of the excess of the fair value of the units over a base price. There is also a buy-back feature associated with these awards, as NuSil LLC has the right from time to time to repurchase all or any number of units purchased by employees upon exercise of the options at fair value. Vested options and appreciation rights are repurchased by NuSil LLC at fair value. Unvested options are repurchased by NuSil LLC at the exercise price of \$0.001 and unvested SARs are considered to be forfeited.

The options are subject to a five year service and performance based vesting period (10% per year vest based on service and 10% per year vest based on individual performance). Options granted terminate on the earlier of the date of expiration or 30 days after the termination of a member's employment from NuSil Investments and its subsidiaries. The SARs are subject to a five year service based vesting, and are measured at intrinsic value, which is equal to fair value due to the awards being fully vested, and remeasured at each reporting date until the date of settlement.

NuSil LLC bears responsibility for settling the obligations that arise upon exercise of the options and SARs and neither the Company nor NuSil Investments are responsible for reimbursing NuSil LLC. The Company bears no obligation under the plan to distribute equity or other assets to settle the awards. For the years ended December 31, 2018, December 31, 2017 and December 31, 2016, we incurred \$(0.9) million, \$4.8 million and \$1.9 million on a consolidated basis in share-based compensation expense related to the 2005 Plan, respectively. No share-based compensation expense was recorded related to the 2005 Plan in the three months ended March 31, 2019.

NuSil 2.0 LLC Equity Incentive Plan

Prior to the VWR Acquisition, NuSil 2.0 LLC, one of our existing stockholders, maintained an equity incentive plan, or the "NuSil 2.0 Plan," which provided for the issuance of Class B-1, Class B-2 and Class B-3 Mirror Units to employees of NuSil Technology, LLC and its subsidiaries. NuSil Investments served as the manager of NuSil 2.0 LLC. In connection with the VWR Acquisition, the awards outstanding vested on an accelerated basis and each Class B-1 and Class B-2 Mirror Unit was converted into a Vail A Mirror Unit. In addition, each Class B-3 Mirror Unit was converted into a new Vail B Mirror Unit. We refer to these Vail A and Vail B Mirror Units as "Mirror Units." As a result of these conversions, holders of Class B-1, Class B-2 and Class B-3 Mirror Units no longer have the right to receive cash distributions and are no longer classified by the Company as liability awards.

All Vail A Mirror Units were subject to a four year vesting term beginning on the second anniversary of the vesting commencement date with the settlement price being fair value as defined in the NuSil 2.0 Plan. At September 30, 2016, all outstanding units were fully vested. Vail B Mirror Units track shares of our Class B Common Stock and are performance-based and vest in the event New Mountain Capital achieves a 30% internal rate of return on its investment in NuSil upon a subsequent liquidity event by us. However, if the price per share of Class A common stock sold in our initial public offering or in the sale of 100% of our equity does not achieve a 30% internal rate of return, each outstanding Vail B Mirror Unit along with the underlying shares of Class B Common Stock shall be canceled without any further consideration. In the event that, in connection with or following an IPO, NuSil 2.0 LLC redeems or otherwise exchanges any Unit it holds for a share of common stock, the Class A Mirror Unit corresponding to such Unit so redeemed or otherwise exchanged shall derive its economic characteristics from such share of common stock in lieu of the redeemed or otherwise exchanged Unit (and the holder of such Class A Mirror Unit shall have the right to receive, through his, her or its ownership of such Class A Mirror Unit, dividends paid upon, and/or sale proceeds resulting from the sale by the NuSil 2.0 LLC of, such share of common stock).

No compensation expense was recorded related to the vested Class A Mirror units under the NuSil 2.0 Plan in 2018 or in the three months ended March 31, 2019.

Table of Contents

Arrangements with affiliates of Goldman Sachs & Co. LLC

As described above and elsewhere in this prospectus, affiliates of Goldman Sachs collectively beneficially own 21% of our outstanding common stock by virtue of their ownership of our Existing Junior Convertible Preferred Stock, which will convert automatically upon consummation of this offering into 66,471,429 shares of our common stock based on the initial public offering price of \$14.00 per share and our outstanding warrants. See “Description of Capital Stock.”

We engaged Goldman Sachs as financial advisor for the VWR Acquisition and the financial structuring to fund the VWR Acquisition. For the financial advisory and structuring services provided, Goldman Sachs was paid fees totaling \$165.0 million. We also agreed to offer Goldman Sachs the right to act as (i) a lead book-running manager in the event of a future initial public offering or (ii) a financial advisor in the case of another type of sale or disposition. In accordance with that arrangement, we offered, and Goldman Sachs accepted our offer, to become a co-lead book-running manager for this initial public offering.

In connection with the issuance of our Existing Junior Convertible Preferred Stock, our Existing Senior Preferred Stock, our Senior Secured Notes and our Senior Unsecured Notes, as well as the establishment of our Senior Secured Credit Facilities, Goldman Sachs & Co. LLC and its affiliates acted as placement agent, initial purchaser and joint lead arranger, joint bookrunner and administrative agent, respectively. For these services, Goldman Sachs & Co. LLC, together with its affiliates who provided these services, was paid underwriting, commitment, placement and other fees of \$88.5 million.

As described elsewhere in this prospectus, in 2017 we entered into a series of foreign currency forward contracts with affiliates of Goldman Sachs & Co. LLC, which were settled in 2017. See note 21 to the audited financial statements included elsewhere in this prospectus. We also entered into a repricing amendment to our Senior Secured Credit Facilities in November 2018. An affiliate of Goldman Sachs & Co. LLC received a fee of \$1.0 million in connection with this repricing as joint lead arranger, joint bookrunner and administrative agent.

In addition, affiliates of Goldman Sachs & Co. LLC are holders of our Existing Senior Preferred Stock, which accumulates yield payable in additional shares according to the terms and conditions of the security. Affiliates of Goldman Sachs & Co. LLC are also holders of our Existing Junior Convertible Preferred Stock, which will convert into shares of our common stock according to its terms upon consummation of this offering. Affiliates of Goldman Sachs & Co. LLC also hold warrants to purchase 1,133,920 shares of our common stock. Certain of the affiliates of Goldman Sachs & Co. LLC that hold the Existing Senior Preferred Stock, the Existing Junior Convertible Preferred Stock and warrants are funds whose limited partners are current and former employees of Goldman Sachs & Co. LLC; these current employees include individuals who are providing services on behalf of Goldman Sachs & Co. LLC in connection with this offering and the concurrent offering of Mandatory Convertible Preferred Stock.

In addition, we expect that affiliates of Goldman Sachs will receive approximately \$421.9 million (or 11.5%) of the net proceeds in this offering and the concurrent offering of Mandatory Convertible Preferred Stock (or 10.0% of the net proceeds of this offering and the concurrent offering of Mandatory Convertible Preferred Stock if the underwriters exercise their over-allotment options in full in both offerings) as a result of the redemption of the Existing Senior Preferred Stock and repayment of a portion of the outstanding indebtedness under the Dollar Term Loan Facility and the Euro Term Loan Facility. See “Underwriting (Conflicts of Interest).” These affiliates collectively benefit from the rights described above under “—Stockholders Agreement” and “—Registration Rights Agreement.” Pursuant to the nomination rights granted pursuant to the Stockholders Agreement, affiliates of Goldman Sachs nominated two directors to the Board of Directors. Each of these directors, Tom Connolly and Jo Natauri, is employed by Goldman Sachs.

Arrangements with PSP

In November 2017, we paid legal fees of \$0.6 million on behalf of affiliates of PSP related to the financial structuring to fund the VWR Acquisition.

[Table of Contents](#)

Arrangements with our Directors and Officers

In addition, we have certain agreements with our directors and officers which are described in the sections entitled “Management—Director Compensation” and “Management—Executive Compensation.”

We intend to enter into indemnification agreements with our officers and directors. These agreements and our amended and restated bylaws will require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. The indemnification provided under the indemnification agreements will not be exclusive of any other indemnity rights. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, we have been informed that in the opinion of the SEC such indemnification is against public policy and is therefore unenforceable.

There is currently no pending material litigation or proceeding involving any of our directors for which indemnification is sought.

In addition, Christi Shaw, one of our directors, is a senior vice president of Eli Lilly Company, which purchased goods and services from us in the year ended December 31, 2018 and the three months ended March 31, 2019. Eli Lilly Company purchased \$11.4 million and \$3.0 million of goods and services from the Company during the year ended December 31, 2018 and the three months ended March 31, 2019, respectively.

Further, Charles Kummeth, one of our directors until April 2019, is President and Chief Executive Officer of Bio-Techne Corporation, which purchased goods and services from us and also provided goods and services to us in the year ended December 31, 2018 and the three months ended March 31, 2019. Bio-Techne Corporation purchased \$1.2 million and \$0.4 million of goods and services from us during the year ended December 31, 2018 and the three months ended March 31, 2019, respectively. Bio-Techne Corporation sold us \$7.0 million and \$1.6 million of goods and services during the year ended December 31, 2018 and the three months ended March 31, 2019, respectively.

Related Persons Transaction Policy

Our Board of Directors intends to adopt a written related person transaction policy, to be effective upon the consummation of this offering, to set forth the policies and procedures for the review and approval or ratification of related person transactions. This policy covers, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we were or are to be a participant, where the amount involved exceeds \$120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. No related person transaction subject to this policy entered into following this offering will be executed without the approval or ratification of our Board of Directors or a duly authorized committee of our Board of Directors. The Board of Directors or applicable committee will not approve or ratify a related person transaction unless it determines in good faith that, upon consideration of all relevant information, the related person transaction is in, or is not inconsistent with, the best interests of the Company. It is our policy that directors interested in a related person transaction will recuse themselves from any vote on a related person transaction in which they have an interest.

[Table of Contents](#)**MANDATORY CONVERTIBLE PREFERRED STOCK OFFERING**

Unless converted earlier as described below, each share of the Mandatory Convertible Preferred Stock will automatically convert on the mandatory conversion date, which is expected to be May 15, 2022, into a number of shares of our common stock equal to the conversion rate described below.

The “Conversion Rate,” which is the number of shares of our common stock issuable upon conversion of each share of the Mandatory Convertible Preferred Stock on the mandatory conversion date (excluding any shares of our common stock issued in respect of accrued and unpaid dividends, as described below), will be as follows:

- if the Applicable Market Value (as defined below) of our common stock is greater than \$16.45 (the “Threshold Appreciation Price”), then the Conversion Rate will be 3.0395 shares of our common stock per share of the Mandatory Convertible Preferred Stock (the “Minimum Conversion Rate”), which is approximately equal to \$50.00 divided by the Threshold Appreciation Price;
- if the Applicable Market Value of our common stock is less than or equal to the Threshold Appreciation Price but equal to or greater than \$14.00 (the “Initial Price”), then the Conversion Rate will be equal to \$50.00 divided by the Applicable Market Value of our common stock, rounded to the nearest ten-thousandth of a share; or
- if the Applicable Market Value of our common stock is less than the Initial Price, then the Conversion Rate will be 3.5714 shares of our common stock per share of the Mandatory Convertible Preferred Stock (the “Maximum Conversion Rate”).

For the avoidance of doubt, the Conversion Rate per share of the Mandatory Convertible Preferred Stock will in no event exceed the Maximum Conversion Rate, subject to anti-dilution adjustments described in the certificate of designations setting forth the terms of the Mandatory Convertible Preferred Stock (the “Certificate of Designations”).

The “Threshold Appreciation Price” is calculated by dividing \$50.00 by the Minimum Conversion Rate, and represents approximately 17.5% appreciation over the Initial Price. The “Initial Price” is calculated by dividing \$50.00 by the Maximum Conversion Rate and initially equals \$14.00, which is the public offering price of common stock in this offering.

“Applicable Market Value” means the Average VWAP per share of our common stock over the Settlement Period.

“Settlement Period” means the 20 consecutive Trading Day (as defined in the Certificate of Designations) period beginning on, and including, the 21st Scheduled Trading Day (as defined in the Certificate of Designations) immediately preceding May 15, 2022.

“VWAP” per share of our common stock on any Trading Day means the per share volume-weighted average price as displayed on Bloomberg page “AVTR <EQUITY> AQR” (or its equivalent successor if such page is not available) in respect of the period from the scheduled open of trading until the scheduled close of trading of the primary trading session on such Trading Day (or, if such volume weighted average price is not available, the market value per share of our common stock on such Trading Day as determined, using a volume-weighted average method, by a nationally recognized independent investment banking firm retained by us for this purpose, which may include any of the underwriters for this offering). The “Average VWAP” per share over a certain period means the arithmetic average of the VWAP per share for each Trading Day in the relevant period.

Accordingly, assuming that the market price of our common stock on the mandatory conversion date is the same as the Applicable Market Value of our common stock, the aggregate market value of our common stock

Table of Contents

that holders of the Mandatory Convertible Preferred Stock will receive upon mandatory conversion of a share of Mandatory Convertible Preferred Stock (excluding any shares of our common stock such holders receive in respect of accrued and unpaid dividends) will be:

- greater than the \$50.00 liquidation preference of the share of Mandatory Convertible Preferred Stock, if the Applicable Market Value is greater than the Threshold Appreciation Price;
- equal to the \$50.00 liquidation preference of the share of Mandatory Convertible Preferred Stock, if the Applicable Market Value is less than or equal to the Threshold Appreciation Price and greater than or equal to the Initial Price; and
- less than the \$50.00 liquidation preference of the share of Mandatory Convertible Preferred Stock, if the Applicable Market Value is less than the Initial Price.

At any time prior to May 15, 2022, holders may elect to convert each share of the Mandatory Convertible Preferred Stock into shares of our common stock at the Minimum Conversion Rate. If holders elect to convert any shares of the Mandatory Convertible Preferred Stock during a specified period beginning on the effective date of a fundamental change (as defined in the Certificate of Designations), such shares of the Mandatory Convertible Preferred Stock will be converted into shares of our common stock at a Conversion Rate including a make-whole amount based on the present value of future dividend payments.

Dividends on the Mandatory Convertible Preferred Stock will be payable on a cumulative basis when, as and if declared by our Board of Directors, or an authorized committee thereof, at an annual rate of 6.250% on the liquidation preference of \$50.00 per share of Mandatory Convertible Preferred Stock. We may pay any declared dividend on the shares of Mandatory Convertible Preferred Stock (whether for a current dividend period or any prior dividend period, including in connection with the payment of declared and unpaid dividends), determined in our sole discretion (i) in cash; (ii) subject to certain limitations, by delivery of shares of our common stock; or (iii) through any combination of cash and shares of our common stock. Dividend payments on the Mandatory Convertible Preferred Stock will be made on February 15, May 15, August 15 and November 15 of each year, commencing on August 15, 2019 (each, a "Dividend Payment Date"). If we elect to make any such payment of a declared dividend, or any portion thereof, in shares of our common stock, such shares will be valued for such purpose at 97% of the average volume weighted average price per share of our common stock over the five consecutive trading day period beginning on, and including, the seventh scheduled trading day prior to the applicable Dividend Payment Date (with each term defined in the Certificate of Designations), subject to certain limitations described in the Certificate of Designations.

Our common stock will rank junior to the Mandatory Convertible Preferred Stock with respect to the payment of dividends and amounts payable in the event of our liquidation, dissolution or winding-up of our affairs. This means that, unless accumulated and unpaid dividends have been declared and paid, or set aside for payment, on all outstanding shares of the Mandatory Convertible Preferred Stock for all preceding dividend periods, no dividends may be declared or paid on our common stock, and no common stock may be purchased, redeemed or otherwise acquired for consideration by us, in each case, subject to certain exceptions. Likewise, in the event of our voluntary or involuntary liquidation, winding-up or dissolution, no distribution of our assets may be made to holders of our common stock until we have paid to holders of the Mandatory Convertible Preferred Stock a liquidation preference equal to \$50.00 per share plus accumulated and unpaid dividends.

Except as specifically required by Delaware law or our amended and restated certificate of incorporation, and except as described below, the holders of Mandatory Convertible Preferred Stock will have no voting rights or powers.

Whenever dividends on any shares of the Mandatory Convertible Preferred Stock have not been declared and paid for the equivalent of six or more dividend periods, whether or not for consecutive dividend periods (a "Nonpayment"), the authorized number of directors on our Board of Directors will, at the next annual meeting of

Table of Contents

stockholders or at a special meeting of stockholders as provided below, automatically be increased by two and the holders of such shares of the Mandatory Convertible Preferred Stock, voting together as a single class with holders of any and all other series of Voting Preferred Stock (as defined below) then outstanding, will be entitled, at our next annual meeting of stockholders or at a special meeting of stockholders, if any, as provided below, to vote for the election of a total of two additional members of our Board of Directors (the “Preferred Stock Directors”); *provided, however*, that the election of any such Preferred Stock Directors will not cause us to violate the corporate governance requirements of the NYSE (or any other exchange or automated quotation system on which our securities may be listed or quoted) that requires listed or quoted companies to have a majority of independent directors; and *provided, further*, that our Board of Directors shall, at no time, include more than two Preferred Stock Directors.

In the event of a Nonpayment, the holders of record of at least 25% of the shares of the Mandatory Convertible Preferred Stock and any other series of Voting Preferred Stock may request that a special meeting of stockholders be called to elect such Preferred Stock Directors (*provided, however*, that if our next annual or a special meeting of stockholders is scheduled to be held within 90 days of the receipt of such request, the election of such Preferred Stock Directors, to the extent otherwise permitted by our amended and restated bylaws, will, instead, be included in the agenda for and will be held at such scheduled annual or special meeting of stockholders). The Preferred Stock Directors will stand for reelection annually, and at each subsequent annual meeting of the stockholders, so long as the holders of the Mandatory Convertible Preferred Stock continue to have such voting powers.

At any meeting at which the holders of the Mandatory Convertible Preferred Stock are entitled to elect Preferred Stock Directors, the holders of record of a majority in voting power of the then outstanding shares of the Mandatory Convertible Preferred Stock and all other series of Voting Preferred Stock, present in person or represented by proxy, will constitute a quorum and the vote of the holders of a majority in voting power of such shares of the Mandatory Convertible Preferred Stock and other Voting Preferred Stock so present or represented by proxy at any such meeting at which there shall be a quorum shall be sufficient to elect the Preferred Stock Directors.

As used in this section, “Voting Preferred Stock” means any other class or series of our preferred stock, other than the Mandatory Convertible Preferred Stock, ranking equally with the Mandatory Convertible Preferred Stock as to dividends and to the distribution of assets upon liquidation, dissolution or winding-up and upon which like voting powers for the election of directors have been conferred and are exercisable. Whether a plurality, majority or other portion in voting power of the Mandatory Convertible Preferred Stock and any other Voting Preferred Stock have been voted in favor of any matter shall be determined by reference to the respective liquidation preference amounts of the Mandatory Convertible Preferred Stock and such other Voting Preferred Stock voted.

If and when all accumulated and unpaid dividends on the Mandatory Convertible Preferred Stock have been paid in full, or declared and a sum or number of shares of our common stock sufficient for such payment shall have been set aside for the benefit of the holders thereof on the applicable Regular Record Date (as defined in the Certificate of Designations) (a “Nonpayment Remedy”), the holders of the Mandatory Convertible Preferred Stock shall immediately and, without any further action by us, be divested of the foregoing voting powers, subject to the revesting of such powers in the event of each subsequent Nonpayment. If such voting powers for the holders of the Mandatory Convertible Preferred Stock and all other holders of Voting Preferred Stock have terminated, each Preferred Stock Director then in office shall automatically be disqualified as a director and shall no longer be a director and the term of office of each such Preferred Stock Director so elected will terminate at such time and the authorized number of directors on our Board of Directors shall automatically decrease by two.

Any Preferred Stock Director may be removed at any time, with or without cause, by the holders of record of a majority in voting power of the outstanding shares of the Mandatory Convertible Preferred Stock and any other series of Voting Preferred Stock then outstanding (voting together as a single class) when they have the

[Table of Contents](#)

voting powers described above. In the event that a Nonpayment shall have occurred and there shall not have been a Nonpayment Remedy, any vacancy in the office of a Preferred Stock Director (other than prior to the initial election of Preferred Stock Directors after a Nonpayment) may be filled by the written consent of the Preferred Stock Director remaining in office, except in the event that such vacancy is created as a result of such Preferred Stock Director being removed, or if no Preferred Stock Director remains in office, by a vote of the holders of record of a majority in voting power of the outstanding shares of the Mandatory Convertible Preferred Stock and any other series of Voting Preferred Stock then outstanding (voting together as a single class) when they have the voting powers described above; *provided, however*, that the election of any such Preferred Stock Directors will not cause us to violate the corporate governance requirements of the NYSE (or any other exchange or automated quotation system on which our securities may be listed or quoted) that requires listed or quoted companies to have a majority of independent directors. The Preferred Stock Directors will each be entitled to one vote per director on any matter that comes before our Board of Directors for a vote.

The Mandatory Convertible Preferred Stock will have certain other voting powers with respect to certain amendments to our amended and restated certificate of incorporation or the Certificate of Designations establishing the terms of the Mandatory Convertible Preferred Stock or certain other transactions as described in such Certificate of Designations.

The foregoing description of the proposed Mandatory Convertible Preferred Stock is not complete and is subject to, and qualified in its entirety by reference to, the provisions of the Certificate of Designations establishing the terms of the Mandatory Convertible Preferred Stock, a copy of which will be filed as an exhibit to the registration statement of which this prospectus forms a part and which may be obtained as described under "Where You Can Find More Information." In addition, a description of the proposed Mandatory Convertible Preferred Stock is set forth in the separate prospectus pursuant to which such preferred stock is being offered.

[Table of Contents](#)**DESCRIPTION OF INDEBTEDNESS****Senior Secured Credit Facilities**

In connection with the VWR Acquisition, Avantor Funding entered into (i) the Term Loan Facility, under which Avantor Funding, Inc. borrowed approximately \$3,154.3 million, including a U.S. dollar tranche and a euro tranche and (ii) the Revolver, with borrowing capacity of up to \$250.0 million, each with a syndicate of financial institutions led by Goldman Sachs Bank USA, as administrative agent and collateral agent, having the terms described below. On November 27, 2018, Avantor Funding entered into a repricing amendment to the Term Loan Facility (the "Repricing Amendment") to lower the applicable interest rate margin for each of the Dollar Term Loan Facility and the Euro Term Loan Facility.

The Senior Secured Credit Facilities consist of the seven-year \$1,953.1 million Dollar Term Loan Facility, a seven-year €1,000 million Euro Term Loan Facility and a five-year Revolver of up to \$250.0 million. As of March 31, 2019, we had \$233.3 million of additional capacity thereunder (after giving effect to \$16.7 million of issued but undrawn letters of credit). The Revolver includes availability for the issuance of letters of credit and a swingline subfacility. The Senior Secured Credit Facilities also include an uncommitted incremental facility, which, subject to certain conditions, provides for additional term loans or an increase of existing term loans, and/or additional revolving commitments and/or an increase in commitments under the Revolver in an aggregate amount of up to (a) \$600 million, plus (b) an amount equal to all voluntary prepayments, repurchases and redemptions of the term loans under the Credit Agreement and certain other incremental equivalent debt and permanent revolving credit commitment reductions under the Credit Agreement, in each case, prior to or simultaneous with the date of any such incurrence (to the extent not funded with the proceeds of long-term debt other than revolving loans) plus (c) an additional unlimited amount so long as Avantor Funding (I) in the case of incremental indebtedness that is secured by the collateral on a pari passu basis with the Senior Secured Credit Facilities, the pro forma first lien secured net leverage ratio does not exceed 5.00:1.00, (II) in the case of incremental indebtedness that is secured on the collateral on a junior basis with respect to the Senior Secured Credit Facilities, the pro forma secured net leverage ratio does not exceed 5.00:1.00 and (III) in the case of unsecured incremental indebtedness, the total net leverage ratio does not exceed 6.90:1.00. Because this incremental facility is uncommitted, in order to incur any additional loans in compliance with the ratios discussed above, we must find a willing lender to provide them. As of March 31, 2019, the incremental amounts available to borrow under the Senior Secured Credit Facilities were (a) in the case of incremental indebtedness that is secured by the collateral on a pari passu basis with the Senior Secured Credit Facilities, approximately \$1,493.3 million (assuming no incremental borrowings as described in clauses (b) and (c)), (b) in the case of incremental indebtedness that is secured by the collateral on a junior basis with respect to the Senior Secured Credit Facilities, approximately \$1,493.3 million (assuming no incremental borrowings as described in clauses (a) and (c)) and (c) in the case of incremental indebtedness that is unsecured, approximately \$1,724.3 million (assuming no incremental borrowings as described in clauses (a) and (b)), assuming we are able to find one or more lenders willing to provide such amounts. Amounts borrowed under the Term Loan Facility amortize in equal quarterly installments in aggregate annual amounts equal to 1.00% of the original principal amount of Term Loan Facility, with the balance payable on the maturity date for the Term Loan Facility.

Interest Rates and Fees

The Dollar Term Loan Facility and the Revolver each bear interest on the outstanding unpaid principal amount at a rate equal to an applicable margin plus, at Avantor Funding's option, either (a) a base rate or (b) a LIBOR rate, in each case subject to interest rate floors. The Euro Term Loan Facility bears interest on the outstanding unpaid principal amount at a rate equal to an applicable margin plus the EURIBO Rate, subject to an interest rate floor. The applicable margin for the term loans under the Dollar Term Loan Facility, after giving effect to the Repricing Amendment, is 3.75%, with respect to LIBOR borrowings, and 2.75%, with respect to base rate borrowings. The applicable margin under the Euro Term Loan Facility is 3.75%. The applicable margin under the Revolver is 2.50 to 3.00%, with respect to LIBOR borrowings, and 1.50 to 2.00%, with respect to base rate borrowings, depending on specified first lien secured net leverage ratio levels.

Table of Contents

In addition to paying interest on outstanding principal amounts under Avantor Funding's Senior Secured Credit Facilities, Avantor Funding, Inc. is required to pay a commitment fee, in respect of the unutilized commitments under the Revolver, of 0.50% per annum declining to 0.375% per annum on the undrawn portion upon the achievement of a specified first lien secured net leverage ratio, payable quarterly in arrears. Avantor Funding is also required to pay customary letter of credit fees.

Mandatory Prepayments

Subject to certain exceptions and limitations, term loans under the Senior Secured Credit Facilities are required to be prepaid with:

- (a) an amount equal to 75% of Excess Cash Flow (as defined in the Senior Secured Credit Facilities) during such fiscal year (and, at the option of the borrower, made after year-end and prior to the payment due date) in excess of \$15.0 million, with step-downs to 50%, 25% and 0% based upon the achievement and maintenance of specified first lien secured net leverage ratios;
- (b) an amount equal to 100% of the net cash proceeds of non-ordinary course asset sales or other dispositions by the borrower and its restricted subsidiaries after the closing date in excess of an amount to be agreed for each individual asset sale or disposition and an amount to be agreed in the aggregate for any fiscal year and subject to the right of the borrower and its restricted subsidiaries to reinvest 100% of such proceeds, if such proceeds are reinvested (or committed to be reinvested) within 18 months of the receipt of such net cash proceeds and, if so committed to be reinvested, so long as such reinvestment is actually completed within 180 days thereafter; and
- (c) 100% of net cash proceeds from any issuance of indebtedness (other than indebtedness permitted to be incurred under the Senior Secured Credit Facilities and other specified exceptions) by the borrower or its restricted subsidiaries.

Security and Guarantees

Avantor Funding's obligations under the Senior Secured Credit Facilities are guaranteed by certain of our direct and indirect wholly-owned domestic restricted subsidiaries, subject to certain exceptions. All obligations under the Senior Secured Credit Facilities and the related guarantees are secured by a perfected first priority lien on substantially all of Avantor Funding's and the guarantors' tangible and intangible assets, in each case, subject to permitted liens and certain exceptions.

Covenants

The Senior Secured Credit Facilities contain customary affirmative and negative covenants, including limitations on indebtedness; limitations on liens; limitations on certain fundamental changes (including, without limitation, mergers, consolidations, liquidations and dissolutions); limitations on dispositions; limitations on dividends, other payments in respect of capital stock and other restricted payments; limitations on investments, loans, advances and acquisitions; limitations on transactions with affiliates; limitations on changes in fiscal periods; limitations on prepayments of subordinated indebtedness; limitations on agreements restricting liens and/or dividends; and limitations on changes in lines of business. In addition, the Revolver contains a financial covenant requiring that Avantor Funding's first lien secured net leverage ratio not exceed a level to be agreed, which is tested on the last day of a fiscal quarter only in the event that the aggregate amount of outstanding revolving loans, swingline loans and letters of credit (excluding certain letters of credit) exceed 35% of the total commitments under the Revolver on the last day of such quarter.

Events of Default

Events of default under the Senior Secured Credit Facilities include, among others, nonpayment of principal when due; nonpayment of interest, fees or other amounts; cross-defaults; covenant defaults; material inaccuracy

[Table of Contents](#)

of representations and warranties; bankruptcy events with respect to the Borrower, Vail Holdco Sub LLC, Borrower's immediate parent company, or any of their material restricted subsidiaries; monetary judgments in an amount agreed; certain ERISA events; a change of control; or actual or asserted invalidity of any material guarantee or security document.

A/R Facility

VWR and PNC Bank, National Association, as administrator under the A/R Facility, entered into an amendment and restatement to the A/R Facility in connection with the VWR Acquisition. The amended and restated A/R Facility provides us with borrowing capacity in an aggregate principal amount of up to \$250.0 million. As of March 31, 2019, we had \$234.4 million of additional capacity thereunder (after giving effect to \$12.6 million of issued but undrawn letters of credit). The A/R Facility currently matures on November 20, 2020. In connection with the amended and restated A/R Facility, accounts receivables and related assets of VWR International, LLC and certain of its domestic wholly-owned subsidiaries will be transferred to VWR Receivables Funding, LLC (which is not a guarantor of the notes or the Senior Secured Credit Facilities) and otherwise secure the A/R Facility. In connection with the amended and restated A/R Facility, accounts receivables and related assets of certain Avantor entities are also transferred to VWR Receivables Funding, LLC (which is not a guarantor of the notes or the Senior Secured Credit Facilities) and otherwise become subject to and secure the amended and restated A/R Facility. Accounts receivables and related assets that secure the A/R Facility, are not permitted to be subject to any other liens. Accordingly, such receivables and related assets will not constitute collateral securing the Senior Secured Notes or the Senior Secured Credit Facilities. The amended and restated A/R Facility accrues interest at a variable rate.

The amended and restated A/R Facility includes representations and covenants that we consider usual and customary for arrangements of this type.

Senior Secured Notes

Avantor Funding issued \$1.5 billion aggregate principal amount of the Dollar Notes and €500 million aggregate principal amount of the Euro Notes in an exempt offering pursuant to Rule 144A and Regulation S under the Securities Act that was completed on October 2, 2017. The Dollar Notes and the Euro Notes were issued as separate series, but, except as provide below, are treated as a single class under the Secured Indenture.

Interest and Maturity

The Senior Secured Notes mature on October 1, 2024. The Dollar Notes bear interest at a rate of 6.000% per annum and the Euro Notes bear interest at a rate of 4.750% per annum. Interest on the Senior Secured Notes is payable in cash semi-annually, in arrears, on April 1 and October 1 of each year.

Redemption

Avantor Funding may, at its option and on one or more occasions, redeem the Senior Secured Notes, all or a part of a series of the Notes, (1) prior to October 1, 2020, at a redemption price equal to 100% of the principal amount of the Senior Secured Notes of the applicable series, plus a "make-whole" premium as set forth in the Secured Indenture and accrued and unpaid interest, if any, to, but excluding the redemption date; and (2) on and after October 1, 2020, at the redemption prices set forth below, plus accrued and unpaid interest, if any, to, but excluding, the redemption date:

<u>Date (if redeemed during the twelve month period beginning on October 1 of the years indicated below)</u>	<u>Dollar Notes Redemption Price</u>	<u>Euro Notes Redemption Price</u>
2020	104.500%	103.563%
2021	103.000%	102.375%
2022	101.500%	101.188%
2023 and thereafter	100.000%	100.000%

Table of Contents

In addition, prior to October 1, 2020, Avantor Funding may redeem on one or more occasions up to 40% of the original aggregate principal amount of the Dollar Notes and up to 40% of the original aggregate principal amount of the Euro Notes with the net cash proceeds of one or more equity offerings to the extent such net cash proceeds from such equity offering is received by or contributed to Avantor Funding, as described in the Secured Indenture, at a redemption price equal to 106.000% of the principal amount thereof, in the case of the Dollar Notes, and 104.750% of the principal amount thereof, in the case of the Euro Notes, in each case, plus accrued and unpaid interest, if any, to, but excluding, the redemption date, provided that at least 50% of the aggregate original principal amount of the Senior Secured Notes issued under the Secured Indenture remains outstanding after each such redemption and the redemption occurs within 180 days after the closing of such equity offering.

If Avantor Funding experiences certain change of control events, Avantor Funding must offer to repurchase all of the Senior Secured Notes (unless otherwise called for redemption) at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but excluding, the repurchase date. If Avantor Funding sells certain assets and does not reinvest the net proceeds or repay senior debt in compliance with the Secured Indenture and the excess proceeds exceeds \$100.0 million from such asset sale, it must offer to repurchase the Senior Secured Notes, and in the case of an asset sale of collateral, if required or permitted by the terms of other first lien obligations, to the holders of such other first lien obligations, at 100% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but excluding, the repurchase date.

In addition, Avantor Funding may redeem the Euro Notes in whole, but not in part, at any time, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest, if any, to but not including the redemption date and all additional amounts, if any, as a result of a change in, or amendment to the law or treaties of a relevant taxing jurisdiction or any amendment to, or change in an official written application, administration or interpretation of such laws, treaties, regulations or rulings.

Covenants

The Secured Indenture contains restrictive covenants that limit the ability of Avantor Funding and its restricted subsidiaries to, among other things, make certain restricted payments; incur (or guarantee) additional indebtedness or issue certain preferred stock; create certain liens; merge, consolidate, amalgamate or sell all or substantially all assets; enter into certain transactions with affiliates; create restrictions on the ability of such restricted subsidiaries to pay dividends or make other payments to Avantor Funding; and allow certain subsidiaries to guarantee indebtedness. These covenants are subject to a number of important exceptions and qualifications as set forth in the Secured Indenture. Certain of these covenants will be suspended if the Senior Secured Notes achieve investment grade ratings from two of three rating agencies and no default or event of default has occurred and is continuing.

Security and Guarantees

Avantor Funding's obligations under the Senior Secured Notes are guaranteed by certain of our direct and indirect wholly-owned domestic restricted subsidiaries, subject to certain exceptions. All obligations under the Senior Secured Notes and the related guarantees are secured by a perfected first priority lien on substantially all of Avantor Funding's and the guarantors' tangible and intangible assets, in each case, subject to permitted liens and certain exceptions.

Events of Default

The Secured Indenture provides for events of default (subject in certain cases to customary grace and cure periods), which include, among others, nonpayment of principal or interest when due, breach of covenants or other agreements in the indenture, defaults in payment of certain other indebtedness and certain events of bankruptcy or insolvency. Generally, if an event of default occurs, the indenture trustee or the holders of at least 30% in aggregate principal amount of the then outstanding Senior Secured Notes may declare the principal of and accrued but unpaid interest on all of the Senior Secured Notes to be due and payable immediately.

[Table of Contents](#)

Senior Unsecured Notes

Avantor Funding issued \$2 billion aggregate principal amount of the Senior Unsecured Notes in an exempt offering pursuant to Rule 144A and Regulation S under the Securities Act that was completed on October 2, 2017.

Interest and Maturity

The Senior Unsecured Notes mature on October 1, 2025 and bear interest at a rate of 9.000% per annum Interest on the Senior Unsecured Notes is payable in cash semi-annually, in arrears, on April 1 and October 1 of each year.

Redemption

Avantor Funding may, at its option and on one or more occasions, redeem all or a part of the Senior Unsecured Notes, (1) prior to October 1, 2020, at a redemption price equal to 100% of the principal amount of the Senior Unsecured Notes, plus a “make-whole” premium as set forth in the Unsecured Indenture and accrued and unpaid interest, if any, to, but excluding the redemption date; and (2) on and after October 1, 2020, at the redemption prices set forth below, plus accrued and unpaid interest, if any, to, but excluding, the redemption date:

<u>Date (if redeemed during the twelve month period beginning on October 1 of the years indicated below)</u>	<u>Redemption Price</u>
2020	106.750%
2021	104.500%
2022	102.250%
2023 and thereafter	100.000%

In addition, prior to October 1, 2020, Avantor Funding may redeem on one or more occasions up to 40% of the original aggregate principal amount of the Senior Unsecured Notes with the net cash proceeds of one or more equity offerings to the extent such net cash proceeds from such equity offering is received by or contributed to Avantor Funding, as described in the Unsecured Indenture, at a redemption price equal to 109.000% of the principal amount thereof plus accrued and unpaid interest, if any, to, but excluding, the redemption date, provided that at least 50% of the aggregate original principal amount of the Senior Unsecured Notes issued under the Unsecured Indenture remains outstanding after each such redemption and the redemption occurs within 180 days after the closing of such equity offering.

If Avantor Funding experiences certain change of control events, Avantor Funding must offer to repurchase all of the Senior Unsecured Notes (unless otherwise called for redemption) at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but excluding, the repurchase date. If Avantor Funding sells certain assets and does not reinvest the net proceeds or repay senior debt in compliance with the Unsecured Indenture and the excess proceeds exceeds \$100.0 million from such asset sale, it must offer to repurchase the Senior Unsecured Notes at 100% of the principal amount thereof, plus accrued and unpaid interest, if any, to but excluding the repurchase date.

Covenants

The Unsecured Indenture contains restrictive covenants that limit the ability of Avantor Funding and its restricted subsidiaries to, among other things, make certain restricted payments; incur (or guarantee) additional indebtedness or issue certain preferred stock; create certain liens; merge, consolidate, amalgamate or sell all or substantially all assets; enter into certain transactions with affiliates; create restrictions on the ability of such restricted subsidiaries to pay dividends or make other payments to Avantor Funding; and allow certain

Table of Contents

subsidiaries to guarantee indebtedness; These covenants are subject to a number of important exceptions and qualifications as set forth in the Unsecured Indenture. Certain of these covenants will be suspended if the Senior Unsecured Notes achieve investment grade ratings from two of three rating agencies and no default or event of default has occurred and is continuing.

Guarantees

Avantor Funding's obligations under the Senior Unsecured Notes are guaranteed by us and certain of our direct and indirect wholly-owned domestic restricted subsidiaries, subject to certain exceptions.

Events of Default

The Unsecured Indenture provides for events of default (subject in certain cases to customary grace and cure periods), which include, among others, nonpayment of principal or interest when due, breach of covenants or other agreements in the indenture, defaults in payment of certain other indebtedness and certain events of bankruptcy or insolvency. Generally, if an event of default occurs, the indenture trustee or the holders of at least 30% in aggregate principal amount of the then outstanding Senior Unsecured Notes may declare the principal of and accrued but unpaid interest on all of the Senior Unsecured Notes to be due and payable immediately.

[Table of Contents](#)**DESCRIPTION OF CAPITAL STOCK**

The following is a description of the material terms of, and is qualified in its entirety by, our amended and restated certificate of incorporation and amended and restated bylaws, each of which will be in effect upon the consummation of this offering, the forms of which are filed as exhibits to the registration statement of which this prospectus is a part.

Our purpose is to engage in any lawful act or activity for which corporations may now or hereafter be organized under the DGCL. Upon the consummation of this offering, our authorized capital stock will consist of 750,000,000 shares of common stock, par value \$0.01 per share, and 75,000,000 shares of preferred stock, par value \$0.01 per share (including 25,000,000 shares of Mandatory Convertible Preferred Stock).

As of March 31, 2019, and after giving effect to the 5-for-1 split of our common stock effected on May 16, 2019, there will be 132,829,622 shares of common stock held by 29 holders of record, 261,874 shares of class B common stock held by one holder of record, 2,338,155 shares of Existing Senior Preferred Stock and 1,650,000 shares of Existing Junior Convertible Preferred Stock outstanding as of the date of this prospectus. We expect to redeem Existing Senior Preferred Stock using the net proceeds of this offering and the concurrent offering of the Mandatory Convertible Preferred Stock. See "Use of Proceeds." The Existing Junior Convertible Preferred Stock will automatically convert into shares of common stock upon consummation of this offering on the terms described below under "Preferred Stock—Existing Junior Convertible Preferred Stock." We will also have outstanding 18,000,000 shares of the Mandatory Convertible Preferred Stock (or 20,700,000 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), which will be convertible into up to 64,285,200 shares of our common stock (or up to 73,927,980 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), subject to anti-dilution, make-whole and other adjustments or any shares of our common stock that may be issued in payment of a dividend, fundamental change dividend make-whole amount or accumulated dividend amount. No other shares of preferred stock will be issued or outstanding immediately after this offering. As of March 31, 2019, there were 28,305,213 shares of common stock subject to outstanding options, restricted shares, restricted stock units and warrants.

Unless our Board of Directors determines otherwise, we will issue all shares of our capital stock in uncertificated form.

Common Stock

Holders of our common stock are entitled to one vote for each share held of record on all matters on which stockholders are entitled to vote generally, including the election or removal of directors, subject to certain limitations. The holders of our common stock do not have cumulative voting rights in the election of directors. Upon our liquidation, dissolution or winding up or the sale of all or substantially all of our assets and after payment in full of all amounts required to be paid to creditors and to the holders of preferred stock having liquidation preferences, if any, the holders of our common stock will be entitled to receive our remaining assets available for distribution on a pro rata basis. Holders of our common stock do not have preemptive, subscription, redemption or conversion rights. The common stock will not be subject to further calls or assessment by us. There will be no redemption or sinking fund provisions applicable to the common stock. All shares of our common stock that will be outstanding at the time of the completion of this offering will be fully paid and non-assessable. The rights, powers, preferences and privileges of holders of our common stock will be subject to those of the holders of any shares of our preferred stock we may authorize and issue in the future.

Class B Stock

Shares of class B stock have no voting or economic rights. If certain performance thresholds are met, upon consummation of this offering, each share of our existing Class B common stock is convertible into five shares of

[Table of Contents](#)

common stock. Otherwise upon consummation of this offering, shares of our class B common stock will be automatically redeemed without consideration.

For so long as the initial public offering price per share of the common stock in this offering is less than \$51.40, the shares shall be automatically redeemed without consideration.

Preferred Stock

Our amended and restated certificate of incorporation will authorize our Board of Directors to establish one or more series of preferred stock (including convertible preferred stock). Unless required by law or by the rules of the NYSE, the authorized shares of preferred stock will be available for issuance without further stockholder action. Our Board of Directors is able to determine, with respect to any series of preferred stock, the terms and rights of that series, including:

- the designation of the series;
- the number of shares of the series, which our Board of Directors may, except where otherwise provided in the preferred stock designation, increase (but not above the total number of authorized shares of the class) or decrease (but not below the number of shares then outstanding);
- whether dividends, if any, will be cumulative or non-cumulative and the dividend rate of the series;
- the dates at which dividends, if any, will be payable;
- the redemption rights and price or prices, if any, for shares of the series;
- the terms and amounts of any sinking fund provided for the purchase or redemption of shares of the series;
- the amounts payable on shares of the series in the event of any voluntary or involuntary liquidation, dissolution or winding-up of the affairs of our company;
- whether the shares of the series will be convertible into shares of any other class or series, or any other security, of our company or any other corporation, and, if so, the specification of the other class or series or other security, the conversion price or prices or rate or rates, any rate adjustments, the date or dates as of which the shares will be convertible and all other terms and conditions upon which the conversion may be made;
- restrictions on the issuance of shares of the same series or of any other class or series; and
- the voting rights, if any, of the holders of the series.

We could issue a series of preferred stock that could, depending on the terms of the series, impede or discourage an acquisition attempt or other transaction that some, or a majority, of you might believe to be in your best interests or in which you might receive a premium for your common stock over the market price of the common stock. Additionally, the issuance of preferred stock may adversely affect the holders of our common stock by restricting dividends on the common stock, diluting the voting power of the common stock or subordinating the liquidation rights of the common stock. As a result of these or other factors, the issuance of preferred stock could have an adverse impact on the market price of our common stock.

Mandatory Convertible Preferred Stock

We will also have outstanding 18,000,000 shares of the Mandatory Convertible Preferred Stock (or 20,700,000 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), which will be convertible into up to 64,285,200 shares of our common stock (or up to 73,927,980 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), subject to anti-dilution, make-whole and

[Table of Contents](#)

other adjustments or any shares of our common stock that may be issued in payment of a dividend, fundamental change dividend make-whole amount or accumulated dividend amount. See “Mandatory Convertible Preferred Stock Offering.”

Existing Senior Preferred Stock

Concurrently with the consummation of the acquisition of VWR, we issued an aggregate of 2,000,000 shares of series A senior preferred stock, with a liquidation preference of \$1,000 per share. There were 2,338,155 shares of Existing Senior Preferred Stock outstanding as of March 31, 2019. We intend to use the net proceeds to us from this offering and the concurrent offering of the Mandatory Convertible Preferred Stock to redeem all outstanding shares of Existing Senior Preferred Stock. See “Use of Proceeds.”

Existing Junior Convertible Preferred Stock

Concurrently with the consummation of the acquisition of VWR, we issued an aggregate of 1,650,000 shares of our junior convertible preferred stock with a liquidation preference of \$1,650 per share, all of which remain currently outstanding as of the date of this prospectus. Pursuant to the terms of the Existing Junior Convertible Preferred Stock, these shares will convert into shares of our common stock upon consummation of this offering.

The number of shares of common stock to be received upon conversion of the Existing Junior Convertible Preferred Stock will be based on the aggregate liquidation preference of such stock of \$2,722,500,000 divided by the initial public offering price. No regular dividend is payable on shares of Existing Junior Convertible Preferred Stock but, until the conversion date and subject to certain exceptions, any dividends declared on the common stock must be shared pro rata with shares of Existing Junior Convertible Preferred Stock on an as converted basis.

In addition, shares of our Existing Junior Convertible Preferred Stock convert into shares of common stock upon the occurrence of certain other events, including a change in control of the company.

Each holder of our Existing Junior Convertible Preferred Stock is entitled to vote together with the holders of outstanding shares of common stock, together as a single class, with respect to all matters submitted to common stockholders for their consideration. In addition, holders of our Existing Junior Convertible Preferred Stock have certain rights to nominate directors to our board, as set forth in our Stockholders Agreement. See “Certain Relationships and Related Party Transactions—Stockholders Agreement.”

Warrants

Concurrently with the consummation of the VWR Acquisition, we issued warrants to purchase an aggregate of 7,110,225 shares of common stock at an exercise price of \$0.002, all of which remain currently outstanding and exercisable as of the date of this prospectus. Pursuant to the terms of the warrants, these warrants will continue to be exercisable into shares of our common stock following the consummation of this offering.

Dividends

The DGCL permits a corporation to declare and pay dividends out of “surplus” or, if there is no “surplus,” out of its net profits for the fiscal year in which the dividend is declared and/or the preceding year. “Surplus” is defined as the excess of the net assets of the corporation over the amount determined to be the capital of the corporation by the Board of Directors. The capital of the corporation is typically calculated to be (and cannot be less than) the aggregate par value of all issued shares of capital stock. Net assets equal the fair value of the total assets minus total liabilities. The DGCL also provides that dividends may not be paid out of net profits if, after the payment of the dividend, capital is less than the capital represented by the outstanding stock of all classes having a preference upon the distribution of assets.

[Table of Contents](#)

Declaration and payment of any dividend will be subject to the discretion of our Board of Directors. The time and amount of dividends will be dependent upon our financial condition, operations, cash requirements and availability, debt repayment obligations, capital expenditure needs and restrictions in our debt instruments, industry trends, the provisions of Delaware law affecting the payment of dividends to stockholders and any other factors our Board of Directors may consider relevant.

Anti-Takeover Effects of Our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws and Certain Provisions of Delaware Law

Our amended and restated certificate of incorporation, amended and restated bylaws and the DGCL, which are summarized in the following paragraphs, contain provisions that are intended to enhance the likelihood of continuity and stability in the composition of our Board of Directors. These provisions are intended to avoid costly takeover battles, reduce our vulnerability to a hostile change of control and enhance the ability of our Board of Directors to maximize stockholder value in connection with any unsolicited offer to acquire us. However, these provisions may have an anti-takeover effect and may delay, deter or prevent a merger or acquisition of our company by means of a tender offer, a proxy contest or other takeover attempt that a stockholder might consider is in its best interest, including those attempts that might result in a premium over the prevailing market price for the shares of common stock held by stockholders.

Authorized but Unissued Capital Stock

Delaware law does not require stockholder approval for any issuance of authorized shares. However, the listing requirements of the NYSE, which would apply if and so long as our common stock remains listed on the NYSE, require stockholder approval of certain issuances equal to or exceeding 20% of the then outstanding voting power or then outstanding number of shares of common stock. These additional shares may be used for a variety of corporate purposes, including future public offerings, to raise additional capital or to facilitate acquisitions.

Our Board of Directors may issue shares of preferred stock on terms calculated to discourage, delay or prevent a change of control of our company or the removal of our management. Moreover, our authorized but unissued shares of preferred stock will be available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans.

One of the effects of the existence of unissued and unreserved common stock or preferred stock may be to enable our Board of Directors to issue shares to persons friendly to current management, which issuance could render more difficult or discourage an attempt to obtain control of our company by means of a merger, tender offer, proxy contest or otherwise, and thereby protect the continuity of our management and possibly deprive our stockholders of opportunities to sell their shares of common stock at prices higher than prevailing market prices.

Classified Board

Our amended and restated certificate of incorporation will provide that our Board of Directors will initially be divided into three classes of directors, with the classes to be as nearly equal in number as possible, and with each class consisting of one-third of the total number of directors. At the first and second annual meetings of stockholders following the date of this offering, successors to the class of directors whose term expires at such annual meeting will be elected for a term expiring at the third annual meeting of stockholders following the date of this offering. From and after the third annual meeting of stockholders following the date of this offering, there will only be one class of directors, with each director serving one-year terms expiring at the next annual meeting of stockholders. Following this offering, the classification of directors will have the effect of making it more difficult for stockholders to change the composition of our Board of Directors. Our amended and restated certificate of incorporation and amended and restated bylaws will provide that, subject to any rights of holders of

[Table of Contents](#)

preferred stock to elect additional directors under specified circumstances, the number of directors will be fixed from time to time exclusively pursuant to a resolution adopted by the Board of Directors.

Business Combinations

We have opted out of Section 203 of the DGCL; however, our amended and restated certificate of incorporation will contain similar provisions providing that we may not engage in certain “business combinations” with any “interested stockholder” for a three-year period following the time that the stockholder became an interested stockholder, unless:

- prior to such time, our Board of Directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of our voting stock outstanding at the time the transaction commenced, excluding certain shares; or
- at or subsequent to that time, the business combination is approved by our Board of Directors and by the affirmative vote of holders of at least 66 $\frac{2}{3}$ % of the outstanding voting stock that is not owned by the interested stockholder.

However, such restrictions will not apply if a stockholder becomes an interested stockholder inadvertently and (i) as soon as practicable divests itself of ownership of sufficient shares so that the stockholder ceases to be an interested stockholder and (ii) would not, at any time within the three-year period immediately prior to a business combination between the Company and such stockholder, have been an interested stockholder but for the inadvertent acquisition of ownership.

Generally, a “business combination” includes a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. Subject to certain exceptions, an “interested stockholder” is a person who, together with that person’s affiliates and associates, owns, or within the previous three years owned, 15% or more of our voting stock. For purposes of this section only, “voting stock” has the meaning given to it in Section 203 of the DGCL.

Under certain circumstances, this provision will make it more difficult for a person who would be an “interested stockholder” to effect various business combinations with a corporation for a three-year period. This provision may encourage companies interested in acquiring our company to negotiate in advance with our Board of Directors because the stockholder approval requirement would be avoided if our Board of Directors approves either the business combination or the transaction which results in the stockholder becoming an interested stockholder. These provisions also may have the effect of preventing changes in our Board of Directors and may make it more difficult to accomplish transactions which stockholders may otherwise deem to be in their best interests.

Our amended and restated certificate of incorporation will provide that New Mountain Capital and its affiliates and any of its direct or indirect transferees and any group as to which such persons are a party do not constitute “interested stockholders” for purposes of this provision.

Removal of Directors; Vacancies

Our amended and restated certificate of incorporation and amended and restated bylaws will provide that directors may be removed either with or without cause upon the affirmative vote of at least 66 $\frac{2}{3}$ % in voting power of all outstanding shares of stock entitled to vote generally in the election of directors, voting together as a single class. In addition, our amended and restated certificate of incorporation and our amended and restated bylaws will also provide that, subject to the rights granted to one or more series of preferred stock then

[Table of Contents](#)

outstanding or the rights granted to certain of our existing shareholders pursuant to contractual agreements in effect on or prior to this offering, any vacancies on our Board of Directors will be filled only by the affirmative vote of a majority of the remaining directors, even if less than a quorum, or by a sole remaining director.

No Cumulative Voting

Under Delaware law, the right to vote cumulatively does not exist unless the certificate of incorporation specifically authorizes cumulative voting. Our amended and restated certificate of incorporation will not authorize cumulative voting. Therefore, stockholders holding a majority in voting power of the shares of our stock entitled to vote generally in the election of directors will be able to elect all our directors.

Special Stockholder Meetings

Our amended and restated certificate of incorporation will provide that special meetings of our stockholders may be called at any time only by or at the direction of the Board of Directors or the chairman of the Board of Directors. These provisions may have the effect of deferring, delaying or discouraging hostile takeovers, or changes in control or management of our company.

Requirements for Advance Notification of Director Nominations and Stockholder Proposals

Our amended and restated bylaws will establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the Board of Directors or a committee of the Board of Directors. In order for any matter to be "properly brought" before a meeting, a stockholder will have to comply with advance notice requirements and provide us with certain information. Generally, to be timely, a stockholder's notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the immediately preceding annual meeting of stockholders. Our amended and restated bylaws will also specify requirements as to the form and content of a stockholder's notice.

Our amended and restated bylaws will allow the chairman of the meeting at a meeting of the stockholders to adopt rules and regulations for the conduct of meetings which may have the effect of precluding the conduct of certain business at a meeting if the rules and regulations are not followed. These provisions may defer, delay or discourage a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to influence or obtain control of our company.

Stockholder Action by Written Consent

Pursuant to Section 228 of the DGCL, any action required to be taken at any annual or special meeting of the stockholders may be taken without a meeting, without prior notice and without a vote if a consent or consents in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares of our stock entitled to vote thereon were present and voted, unless our amended and restated certificate of incorporation provides otherwise.

Supermajority Provisions

Our amended and restated certificate of incorporation and amended and restated bylaws will provide that the Board of Directors is expressly authorized to make, alter, amend, change, add to, rescind or repeal, in whole or in part, our amended and restated bylaws without a stockholder vote in any matter not inconsistent with the laws of the State of Delaware or our amended and restated certificate of incorporation. Any amendment, alteration, change, addition, rescission or repeal of our amended and restated bylaws by our stockholders will require the affirmative vote of the holders of at least 66 $\frac{2}{3}$ % in voting power of all the then-outstanding shares of stock entitled to vote generally in the election of directors, voting together as a single class.

Table of Contents

The DGCL provides generally that the affirmative vote of a majority of the outstanding shares entitled to vote thereon, voting together as a single class, is required to amend a corporation's certificate of incorporation, unless the certificate of incorporation requires a greater percentage.

The following provisions in our amended and restated certificate of incorporation may be amended, altered, repealed or rescinded only by the affirmative vote of the holders of at least 66 $\frac{2}{3}$ % in the voting power of all outstanding shares of stock entitled to vote generally in the election of directors, voting together as a single class:

- the provision requiring a 66 $\frac{2}{3}$ % supermajority vote for stockholders to amend our amended and restated bylaws;
- the provisions providing for an initial classification of our Board of Directors (the election and term of our directors);
- the provisions regarding resignation and removal of directors;
- the provisions regarding entering into business combinations with interested stockholders;
- the provisions regarding stockholder action by written consent;
- the provisions regarding calling special meetings of stockholders;
- the provisions regarding filling vacancies on our Board of Directors and newly created directorships;
- the provisions eliminating monetary damages for breaches of fiduciary duty by a director; and
- the amendment provision requiring that the above provisions be amended only with a 66 $\frac{2}{3}$ % supermajority vote.

The combination of the initial classification of our Board of Directors, the lack of cumulative voting and the supermajority voting requirements will make it more difficult for our existing stockholders to replace our Board of Directors as well as for another party to obtain control of us by replacing our Board of Directors. Because our Board of Directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management.

These provisions may have the effect of deterring hostile takeovers, delaying, or preventing changes in control of our management or our company, such as a merger, reorganization or tender offer. These provisions are intended to enhance the likelihood of continued stability in the composition of our Board of Directors and its policies and to discourage certain types of transactions that may involve an actual or threatened acquisition of us. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions are also intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts. Such provisions may also have the effect of preventing changes in management.

Dissenters' Rights of Appraisal and Payment

Under the DGCL, with certain exceptions, our stockholders will have appraisal rights in connection with a merger or consolidation of us. Pursuant to the DGCL, stockholders who properly request and perfect appraisal rights in connection with such merger or consolidation will have the right to receive payment of the fair value of their shares as determined by the Delaware Court of Chancery.

Stockholders' Derivative Actions

Under the DGCL, any of our stockholders may bring an action in our name to procure a judgment in our favor, also known as a derivative action, provided that the stockholder bringing the action is a holder of our shares at the time of the transaction to which the action relates or such stockholder's stock thereafter devolved by operation of law.

[Table of Contents](#)

Exclusive Forum

Our amended and restated certificate of incorporation will provide that unless we consent to the selection of an alternative forum, the state or federal courts (as appropriate) located within the State of Delaware shall, to the fullest extent permitted by law, be the sole and exclusive forum for any (i) derivative action or proceeding brought on behalf of our company, (ii) action asserting a claim of breach of a fiduciary duty owed by any director, officer, or other employee or stockholder of our company to us or our stockholders, creditors or other constituents, (iii) action against us or any of our directors or officers involving a claim or defense arising pursuant to any provision of the DGCL or our amended and restated certificate of incorporation or our amended and restated bylaws, (iv) action against us or any director or officer of the Company involving a claim or defense implicating the internal affairs doctrine, or (v) action against us or any of our directors or officers involving a claim or defense arising pursuant to the Exchange Act or the Securities Act. It is possible that these exclusive forum provisions may be challenged in court and may be deemed unenforceable in whole or in part. Our exclusive forum provision shall not relieve the company of its duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations.

Conflicts of Interest

Delaware law permits corporations to adopt provisions renouncing any interest or expectancy in certain opportunities that are presented to the corporation or its officers, directors or stockholders.

Limitations on Liability and Indemnification of Officers and Directors

The DGCL authorizes corporations to limit or eliminate the personal liability of directors to corporations and their stockholders for monetary damages for breaches of directors' fiduciary duties, subject to certain exceptions. Our amended and restated certificate of incorporation will include a provision that eliminates the personal liability of directors for monetary damages for any breach of fiduciary duty as a director, except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL. The effect of these provisions is to eliminate the rights of us and our stockholders, through stockholders' derivative suits on our behalf, to recover monetary damages from a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior. However, exculpation does not apply to any director if the director has acted in bad faith, knowingly or intentionally violated the law, authorized illegal dividends or redemptions or derived an improper benefit from his or her actions as a director.

Our amended and restated bylaws will provide that we must generally indemnify, and advance expenses to, our directors and officers to the fullest extent authorized by the DGCL. We also are expressly authorized to carry directors' and officers' liability insurance providing indemnification for our directors, officers and certain employees for some liabilities. We also intend to enter into indemnification agreements with our directors, which agreements will require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. We believe that these indemnification and advancement provisions and insurance are useful to attract and retain qualified directors and executive officers.

The limitation of liability, indemnification and advancement provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. In addition, your investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

There is currently no pending material litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought.

[Table of Contents](#)

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC.

Listing

Our common stock has been approved for listing on the NYSE under the symbol "AVTR."

[Table of Contents](#)**SHARES ELIGIBLE FOR FUTURE SALE**

Upon completion of this offering, we will have a total of 534,293,808 shares of our common stock outstanding (565,343,808 shares if the underwriters exercise in full their over-allotment option to purchase additional shares in this offering). Such amount includes 194,464,286 shares of our common stock issuable upon the conversion of the Existing Junior Convertible Preferred Stock upon consummation of this offering based on the initial public offering price of \$14.00 per share in this offering. See “Description of Capital Stock—Preferred Stock—Existing Junior Convertible Preferred Stock.” Of the outstanding shares of common stock, the 207,000,000 shares sold in this offering by us or the selling stockholder (or 238,050,000 shares if the underwriters exercise in full their over-allotment option to purchase additional shares in this offering) will be freely tradable without restriction or further registration under the Securities Act, except that any shares held by our affiliates, as that term is defined under Rule 144 of the Securities Act, or Rule 144, including our directors, executive officers and other affiliates (including affiliates of New Mountain Capital and affiliates of Goldman Sachs), may be sold only in compliance with the limitations described below.

We will also have outstanding 18,000,000 shares of the Mandatory Convertible Preferred Stock (or 20,700,000 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full), which will be convertible into up to 64,285,200 shares of our common stock (or up to 73,927,980 shares if the underwriters in the concurrent offering of Mandatory Convertible Preferred Stock exercise their over-allotment option in full) conversion based on an applicable market value of our common stock equal to the initial public offering, subject to anti-dilution, make-whole and other adjustments or any shares of our common stock that may be issued in payment of a dividend, fundamental change dividend make-whole amount or accumulated dividend amount. In addition, restricted stock units, options and warrants to purchase an aggregate of approximately 28,305,213 shares of our common stock will be outstanding as of the consummation of this offering along with, based on the initial public offering price of \$14.00 per share, (i) options to purchase an aggregate of 3,154,267 shares of our common stock to be awarded to certain employees and (ii) an aggregate of 5,281,683 restricted stock units to be awarded to certain directors, executive officers and other employees, in each case, upon consummation of this offering.

The 178,489,878 shares of common stock held by affiliates of New Mountain Capital and affiliates of Goldman Sachs and by certain of our directors and executive officers after this offering, representing 33% of the total outstanding shares of our common stock following this offering and the conversion of our Existing Junior Convertible Preferred Stock, will be deemed “restricted securities” under the meaning of Rule 144 and may be sold in the public market only if registered under the Securities Act or if an exemption from registration is available, including the exemptions pursuant to Rule 144 and Rule 701 under the Securities Act, which we summarize below. In addition, shares of our common stock will be authorized and reserved for issuance in relation to potential future awards under the 2019 Equity Incentive Plan to be adopted in connection with this offering.

The Stockholders Agreement imposes certain restrictions on transfers of shares of our common stock held by the parties thereto. See “Certain Relationships and Related Party Transactions—Stockholders Agreement.”

Prior to this offering, there has not been a public market for our common stock, and we cannot predict what effect, if any, market sales of shares of common stock or the availability of shares of common stock for sale will have on the market price of our common stock prevailing from time to time. Nevertheless, sales of substantial amounts of common stock, including shares issued upon the exercise of outstanding options and warrants, and conversion of our Existing Junior Convertible Preferred Stock and the Mandatory Convertible Preferred Stock, in the public market, or the perception that such sales could occur, could materially and adversely affect the market price of our common stock and could impair our future ability to raise capital through the sale of our equity or equity-related securities at a time and price that we deem appropriate. See “Risk Factors—Risks Related to this Offering and Ownership of Our Common Stock—Future sales, or the perception of future sales, by us or our existing stockholders in the public market following this offering could cause the market price for our common stock to decline.”

[Table of Contents](#)

Rule 144

In general, under Rule 144, as currently in effect, once we have been subject to public company reporting requirements for at least 90 days, a person (or persons whose shares are aggregated) who is not deemed to be or have been one of our affiliates for purposes of the Securities Act at any time during 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than an affiliate, is entitled to sell such shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of a prior owner other than an affiliate, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares of our common stock on behalf of our affiliates, who have met the six month holding period for beneficial ownership of “restricted shares” of our common stock, are entitled to sell upon the expiration of the lock-up agreements described below, within any three-month period beginning 90 days after the date of this prospectus, a number of shares that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately 5,342,938 shares immediately after this offering (or 5,653,438 shares if the underwriters exercise in full their over-allotment option to purchase additional shares); or
- the average reported weekly trading volume of our common stock on the NYSE during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us. The sale of these shares, or the perception that sales will be made, could adversely affect the price of our common stock after this offering because a great supply of shares would be, or would be perceived to be, available for sale in the public market.

Rule 701

In general, under Rule 701 as currently in effect, any of our employees, directors, officers, consultants or advisors who received shares from us in connection with a compensatory stock or option plan or other written agreement before the effective date of this offering are entitled to sell such shares 90 days after the effective date of this offering in reliance on Rule 144, in the case of affiliates, without having to comply with the holding period requirements of Rule 144 and, in the case of non-affiliates, without having to comply with the public information, holding period, volume limitation or notice filing requirements of Rule 144.

Lock-Up Agreements

In connection with this offering, we, our directors and executive officers and certain holders of our outstanding common stock prior to this offering will sign lock-up agreements with the underwriters that will, subject to certain exceptions, restrict the disposition of, or hedging with respect to, the shares of our common stock or securities convertible into or exchangeable for shares of our common stock, each held by them, during the period ending 180 days after the date of this prospectus, except with the prior written consent of Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC. See “Underwriting (Conflicts of Interest)” for a description of these lock-up agreements.

Registration Rights

For a description of rights some holders of common stock have to require us to register the shares of common stock they own, see “Certain Relationships and Related Party Transactions—Registration Rights

[Table of Contents](#)

Agreement” and “Certain Relationships and Related Party Transactions—Stockholders Agreement.” Registration of these shares under the Securities Act would result in these shares becoming freely tradable immediately upon effectiveness of such registration.

Following completion of this offering and the conversion of our Existing Junior Convertible Preferred Stock, the shares of our common stock covered by registration rights would represent approximately 57% of our outstanding common stock (or 54%, if the underwriters exercise in full their over-allotment option to purchase additional shares). These shares also may be sold under Rule 144 under the Securities Act, depending on their holding period and subject to restrictions in the case of shares held by persons deemed to be our affiliates and restrictions in the Stockholders Agreement.

Registration Statement on Form S-8

We intend to file one or more registration statements on Form S-8 under the Securities Act to register all of the shares of common stock subject to outstanding stock options and the shares of common stock subject to issuance under the Legacy Avantor Plan, the Vail Plan and the 2019 Equity Incentive Plan to be adopted in connection with this offering. We expect to file these registration statements as promptly as possible after the completion of this offering. Any such Form S-8 registration statements will automatically become effective upon filing. Accordingly, shares registered under such registration statements will be available for sale in the open market. We expect that the initial registration statement on Form S-8 relating to the outstanding rollover options, restricted stock, restricted stock units and performance stock units issued under the Legacy Avantor Plan, the Vail Plan and the 2019 Equity Incentive Plan will cover 44,540,810 shares.

[Table of Contents](#)

**CERTAIN UNITED STATES FEDERAL INCOME AND ESTATE TAX
CONSEQUENCES TO NON-U.S. HOLDERS**

The following is a summary of certain United States federal income and estate tax consequences to non-U.S. holders, defined below, of the purchase, ownership and disposition of shares of our common stock as of the date hereof. Except where noted, this summary relates only to shares of common stock purchased in this offering that are held as capital assets by a non-U.S. holder.

A “non-U.S. holder” means a beneficial owner of shares of our common stock (other than an entity treated as a partnership for United States federal income tax purposes) that, for United States federal income tax purposes, is not any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation (or any other entity treated as a corporation for United States federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate the income of which is subject to United States federal income taxation regardless of its source; or
- a trust if it (1) is subject to the primary supervision of a court within the United States and one or more United States persons have the authority to control all substantial decisions of the trust or (2) has a valid election in effect under applicable United States Treasury regulations to be treated as a United States person.

This summary is based upon provisions of the United States Internal Revenue Code of 1986, as amended, or the Code, applicable United States Treasury regulations, rulings and judicial decisions, all as of the date hereof. Those authorities are subject to different interpretations and may be changed, perhaps retroactively, so as to result in United States federal income and estate tax consequences different from those summarized below. This summary does not address all aspects of United States federal income and estate taxes and does not deal with foreign, state, local, alternative minimum or other tax considerations that may be relevant to non-U.S. holders in light of their particular circumstances (including the Medicare contribution tax on net investment income). In addition, this summary does not represent a detailed description of the United States federal income and estate tax consequences applicable to you if you are subject to special treatment under the United States federal income tax laws (including if you are a United States expatriate, financial institution, insurance company, tax-exempt organization, trader, broker or dealer in securities, “controlled foreign corporation,” “passive foreign investment company,” a partnership or other pass-through entity for United States federal income tax purposes (or an investor in such a pass-through entity), a person who acquired shares of our common stock as compensation or otherwise in connection with the performance of services, or a person who has acquired shares of our common stock as part of a straddle, hedge, conversion transaction or other integrated investment). We cannot assure you that a change in law will not alter significantly the tax considerations that we describe in this summary.

If any entity or arrangement treated as a partnership for United States federal income tax purposes holds shares of our common stock, the tax treatment of a partner will generally depend upon the status of the partner and the activities of the partnership. If you are a partner of a partnership holding shares of our common stock, you should consult your tax advisors.

If you are considering the purchase of shares of our common stock, you should consult your own tax advisors concerning the particular United States federal income and estate tax consequences to you of the ownership and disposition of the shares of common stock, as well as the consequences to you arising under the laws of any other applicable taxing jurisdiction in light of your particular circumstances.

[Table of Contents](#)

Dividends

Cash distributions on shares of our common stock will constitute dividends for United States federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under United States federal income tax principles. To the extent those distributions exceed both our current and our accumulated earnings and profits, they will constitute a return of capital and will first reduce your tax basis in our common stock, but not below zero, and then will be treated as gain from the sale of stock.

Dividends paid to a non-U.S. holder generally will be subject to withholding of United States federal income tax at a 30% rate, or such lower rate as may be specified by an applicable income tax treaty. However, dividends that are effectively connected with the conduct of a trade or business by the non-U.S. holder within the United States (and, if required by an applicable income tax treaty, are attributable to a United States permanent establishment) generally will not be subject to such withholding tax, provided certain certification and disclosure requirements are satisfied. Instead, such dividends generally will be subject to United States federal income tax on a net income basis in the same manner as if the non-U.S. holder were a United States person as defined under the Code. A corporate non-U.S. holder may be subject to an additional “branch profits tax” at a 30% rate (or such lower rate as may be specified by an applicable income tax treaty) on earnings and profits attributable to such dividends that are effectively connected with its United States trade or business (and, if an income tax treaty applies, are attributable to its United States permanent establishment).

A non-U.S. holder of shares of our common stock who wishes to claim the benefit of an applicable treaty rate and avoid backup withholding, as discussed below, for dividends will be required (a) to complete the applicable Internal Revenue Service, or IRS, Form W-8 and certify under penalty of perjury that such holder is not a United States person as defined under the Code and is eligible for treaty benefits or (b) if shares of our common stock are held through certain foreign intermediaries, to satisfy the relevant certification requirements of applicable United States Treasury regulations. Special certification and other requirements apply to certain non-U.S. holders that are pass-through entities rather than corporations or individuals.

A non-U.S. holder of shares of our common stock eligible for a reduced rate of United States withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

Gain on Disposition of Common Stock

Subject to the discussion of backup withholding below, any gain realized by a non-U.S. holder on the disposition of shares of our common stock generally will not be subject to United States federal income tax unless:

- the gain is effectively connected with a trade or business of the non-U.S. holder in the United States (and, if required by an applicable income tax treaty, is attributable to a United States permanent establishment of the non-U.S. holder);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of that disposition, and certain other conditions are met; or
- we are or have been a “United States real property holding corporation” for United States federal income tax purposes and certain other conditions are met.

In the case of a non-U.S. holder described in the first bullet point above, any gain will be subject to United States federal income tax on a net income basis generally in the same manner as if the non-U.S. holder were a United States person as defined under the Code, and a non-U.S. holder that is a foreign corporation may also be subject to the branch profits tax equal to 30% of its effectively connected earnings and profits attributable to such gain (or, if an income tax treaty applies, at such lower rate as may be specified by the treaty on its gains attributable to its United States permanent establishment). Except as otherwise provided by an applicable income

[Table of Contents](#)

tax treaty, an individual non-U.S. holder described in the second bullet point above will be subject to a 30% tax on any gain derived from the sale, which may be offset by certain United States source capital losses, even though the individual is not considered a resident of the United States under the Code.

We believe we are not, and do not anticipate becoming, a “United States real property holding corporation” for United States federal income tax purposes.

Federal Estate Tax

Shares of our common stock that are owned (or treated as owned) by an individual who is not a citizen or resident of the United States (as specially defined for United States federal estate tax purposes) at the time of death will be included in such individual’s gross estate for United States federal estate tax purposes, unless an applicable estate or other tax treaty provides otherwise, and therefore may be subject to United States federal estate tax.

Information Reporting and Backup Withholding

Dividends paid to a non-U.S. holder and the amount of any tax withheld with respect to such dividends generally will be reported to the IRS, regardless of whether withholding was required. Copies of the information returns reporting such dividends and withholding may also be made available to the tax authorities in the country in which the non-U.S. holder resides under the provisions of an applicable income tax treaty or agreement.

A non-U.S. holder will be subject to backup withholding for dividends paid to such holder unless such holder certifies under penalty of perjury that it is not a United States person as defined under the Code (and the payor does not have actual knowledge or reason to know that such holder is a United States person as defined under the Code), or such holder otherwise establishes an exemption.

Information reporting and, depending on the circumstances, backup withholding will apply to the proceeds of a sale of shares of our common stock within the United States or conducted through certain United States-related financial intermediaries, unless the beneficial owner certifies under penalty of perjury that it is not a United States person as defined under the Code (and the payor does not have actual knowledge or reason to know that the beneficial owner is a United States person as defined under the Code), or such owner otherwise establishes an exemption.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a non-U.S. holder’s United States federal income tax liability provided the required information is timely furnished to the IRS.

Additional FATCA Withholding Requirements

Under Sections 1471 through 1474 of the Code (such Sections commonly referred to as “FATCA”), a 30% United States federal withholding tax may apply to any dividends paid on our common stock to (i) a “foreign financial institution” (as specifically defined in the Code) which does not provide sufficient documentation, typically on IRS Form W-8BEN-E, evidencing either (x) an exemption from FATCA, or (y) its compliance (or deemed compliance) with FATCA (which may alternatively be in the form of compliance with an intergovernmental agreement with the United States) in a manner that avoids withholding, or (ii) a “non-financial foreign entity” (as specifically defined in the Code) which does not provide sufficient documentation, typically on IRS Form W-8BEN-E, evidencing either (x) an exemption from FATCA, or (y) adequate information regarding certain substantial United States beneficial owners of such entity (if any). If a dividend payment is both subject to withholding under FATCA and subject to the withholding tax discussed above under “—Dividends,” the withholding under FATCA may be credited against, and therefore reduce, such other withholding tax. You should consult your own tax advisor regarding these requirements and whether they may be relevant to your ownership and disposition of our common stock.

[Table of Contents](#)

UNDERWRITING (CONFLICTS OF INTEREST)

We and the selling stockholder have entered into an underwriting agreement with the underwriters named below with respect to the shares being offered. Subject to certain conditions, each underwriter has severally agreed to purchase the number of shares indicated in the following table. Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC are the representatives of the underwriters.

Underwriters	<u>Number of Shares</u>
Goldman Sachs & Co. LLC	42,248,700
J.P. Morgan Securities LLC	42,248,700
BofA Securities, Inc.	15,835,500
Barclays Capital Inc.	15,835,500
Jefferies LLC	15,835,500
Credit Suisse Securities (USA) LLC	6,872,400
Deutsche Bank Securities Inc.	6,872,400
Evercore Group L.L.C.	6,872,400
Guggenheim Securities, LLC	6,872,400
Morgan Stanley & Co. LLC	6,872,400
UBS Securities LLC	6,872,400
Cowen and Company, LLC	4,222,800
Citigroup Global Markets Inc.	3,167,100
Piper Jaffray & Co.	2,111,400
RBC Capital Markets, LLC	2,111,400
Robert W. Baird & Co. Incorporated	2,111,400
William Blair & Company, L.L.C.	2,111,400
Janney Montgomery Scott LLC	2,111,400
KeyBanc Capital Markets Inc.	2,111,400
PJT Partners LP	2,111,400
Raymond James & Associates, Inc.	2,111,400
Stephens Inc.	2,111,400
Stifel, Nicolaus & Company, Incorporated	2,111,400
SunTrust Robinson Humphrey, Inc.	2,111,400
Wells Fargo Securities, LLC	2,111,400
Drexel Hamilton, LLC	1,035,000
Total	<u>207,000,000</u>

The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the over-allotment option described below unless and until this over-allotment option is exercised.

The underwriters have an over-allotment option to buy up to an additional 31,050,000 shares from us to cover sales by the underwriters of a greater number of shares than the total number set forth in the table above. They may exercise that over-allotment option for 30 days. If any shares are purchased pursuant to this over-allotment option, the underwriters will severally purchase shares in approximately the same proportion as set forth in the table above.

[Table of Contents](#)

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by us and the selling stockholder. Such amounts are shown assuming both no exercise and full exercise of the underwriters' over-allotment option to purchase 31,050,000 additional shares.

<u>Paid by us</u>	<u>No Exercise</u>	<u>Full Exercise</u>
Per Share	\$ 0.385	\$ 0.385
Total	\$ 79,695,000	\$ 91,649,250

<u>Paid by the selling stockholder</u>	<u>No Exercise</u>
Per Share	\$0.385
Total	\$38.50

Shares sold by the underwriters to the public will initially be offered at the initial public offering price shown on the cover page of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to \$0.231 per share from the initial public offering price. After the initial offering of the shares, the representatives may change the offering price and the other selling terms. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

We, our executive officers, directors and certain holders of our common stock, including the selling stockholder, prior to this offering have agreed with the underwriters, subject to certain exceptions, not to dispose of or hedge any shares of our common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC. This agreement does not apply to any existing employee benefit plans. See "Shares Eligible for Future Sale" for a discussion of certain transfer restrictions.

Prior to the offering, there has been no public market for the shares. The initial public offering price has been negotiated among us and the representatives. Among the factors to be considered in determining the initial public offering price of the shares, in addition to prevailing market conditions, will be our historical performance, estimates of our business potential and earnings prospects, an assessment of management and the consideration of the above factors in relation to market valuation of companies in related businesses.

Our common stock has been approved for listing on the NYSE under the symbol "AVTR." In order to meet one of the requirements for listing the common stock on the NYSE, the underwriters have undertaken to sell lots of 100 or more shares to a minimum of 400 beneficial holders.

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering, and a short position represents the amount of such sales that have not been covered by subsequent purchases. A "covered short position" is a short position that is not greater than the amount of additional shares for which the underwriters' over-allotment option described above may be exercised. The underwriters may cover any covered short position by either exercising their over-allotment option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to cover the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the over-allotment option described above. "Naked" short sales are any short sales that create a short position greater than the amount of additional shares for which the over-allotment option described above may be exercised. The underwriters must cover any such naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward

Table of Contents

pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of our stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. The underwriters are not required to engage in these activities and may end any of these activities at any time. These transactions may be effected on the NYSE, in the over-the-counter market or otherwise.

We estimate that our share of the total expenses of the offering and the concurrent offering of Mandatory Convertible Preferred Stock, excluding underwriting discounts and commissions, will be approximately \$10.4 million. We have agreed to pay certain offering expenses for the selling stockholder incurred in connection with the sale. We have also agreed to reimburse the underwriters for up to \$75,000 of expenses relating to clearance of this offering and the concurrent offering with the Financial Industry Regulatory Authority. The underwriters have agreed to reimburse us for certain expenses in connection with this offering.

We and the selling stockholder have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act.

Certain affiliates of Goldman Sachs & Co. LLC (i) will receive approximately \$421.9 million (or 11.5%) of the net proceeds of this offering and the concurrent offering of Mandatory Convertible Preferred Stock due to the redemption of outstanding shares of our Existing Senior Preferred Stock they own and repayment of a portion of the outstanding indebtedness under the Dollar Term Loan Facility and the Euro Term Loan Facility with the net proceeds of this offering and the concurrent offering (or 10.0% of the net proceeds of this offering and the concurrent offering if the underwriters exercise their over-allotment options in full in both offerings), (ii) currently own 372,872 shares of our Existing Senior Preferred Stock, 564,000 shares of our Existing Junior Convertible Preferred Stock and warrants to purchase 1,133,920 shares of our common stock and (iii) currently have two director appointees on our Board of Directors, both of whom are expected to remain on our Board of Directors following this offering, as well as other rights. Certain of the affiliates of Goldman Sachs & Co. LLC that hold the Existing Senior Preferred Stock, the Existing Junior Convertible Preferred Stock and warrants are funds whose limited partners are current and former employees of Goldman Sachs & Co. LLC; these current employees include individuals who are providing services on behalf of Goldman Sachs & Co. LLC in connection with this offering and the concurrent offering. See "Certain Relationships and Related Party Transactions." During the period that affiliates of Goldman Sachs & Co. LLC have held outstanding shares of Existing Senior Preferred Stock, all dividends paid in respect of the Existing Senior Preferred Stock have, in accordance with the terms of the Existing Senior Preferred Stock, been paid in kind in the form of 53,922 additional shares of Existing Senior Preferred Stock. See "Dividends." In addition, as holders of our Existing Junior Convertible Preferred Stock, affiliates of Goldman Sachs & Co. LLC will receive 66,471,429 shares of common stock upon the automatic conversion of our Existing Junior Convertible Preferred Stock upon consummation of this offering based on the initial public offering price of \$14.00 per share of common stock in this offering. Therefore, Goldman Sachs & Co. LLC is deemed to have a conflict of interest within the meaning of Rule 5121. Accordingly, this offering is being conducted in accordance with Rule 5121, which requires, among other things, that a "qualified independent underwriter" participate in the preparation of, and exercise the usual standards of "due diligence" with respect to, the registration statement and this prospectus. J.P. Morgan Securities LLC has agreed to act as a qualified independent underwriter for this offering and to undertake the legal responsibilities and liabilities of an underwriter under the Securities Act, specifically including those inherent in Section 11

Table of Contents

thereof. J.P. Morgan Securities LLC will not receive any additional fees for serving as a qualified independent underwriter with this offering. We have agreed to indemnify J.P. Morgan Securities LLC against liabilities incurred in connection with acting as a qualified independent underwriter, including liabilities under the Securities Act.

Pursuant to Rule 5121 Goldman Sachs & Co. LLC will not confirm any sales to any account over which it exercises discretionary authority without the specific written approval of the account holder. See “Use of Proceeds” for additional information.

BSPI, an affiliate of Goldman Sachs & Co. LLC, has agreed to purchase 5 million shares of our common stock in this offering at the initial public offering price. BSPI has agreed, pursuant to FINRA Rule 5110(g), that such shares of common stock purchased by BSPI in this offering (the “Securities”), shall not be sold, transferred, assigned, pledged or hypothecated or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of the Securities by any person for a period of 180 days immediately following the commencement of sales of common stock in this offering, except as permitted by FINRA Rule 5110(g)(2).

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, brokerage and other financial and non-financial activities and services. Certain of the underwriters and their respective affiliates have provided, and may in the future provide, a variety of these services to the issuer and to persons and entities with relationships with the issuer, for which they received or will receive customary fees and expenses. For example, Goldman Sachs & Co. LLC and J.P. Morgan Securities LLC acted as initial purchasers in connection with the offering of both our Senior Secured Notes and our Senior Unsecured Notes. An affiliate of Goldman Sachs & Co. LLC was engaged as a financial advisor in connection with the VWR Acquisition and acts as a joint lead arranger, joint bookrunner and administrative agent in connection with our Senior Secured Credit Facilities. In addition, an affiliate of Goldman Sachs continues to serve as administrative agent and is a lender under our Senior Secured Credit Facilities. An affiliate of J.P. Morgan Securities LLC acts as joint lead arranger and joint lead bookrunner in connection with our Senior Secured Credit Facilities.

In the ordinary course of their various business activities, the underwriters and their respective affiliates, officers, directors and employees may purchase, sell or hold a broad array of investments and actively trade securities, derivatives, loans, commodities, currencies, credit default swaps and other financial instruments for their own account and for the accounts of their customers, and such investment and trading activities may involve or relate to assets, securities and/or instruments of the issuer (directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships with the issuer. The underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relative Member State”) an offer to the public of our common shares may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of our common shares may be made at any time under the following exemptions under the Prospectus Directive:

- To any legal entity which is a qualified investor as defined in the Prospectus Directive;
- To fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Representatives for any such offer; or
- In any other circumstances falling within Article 3(2) of the Prospectus Directive;

[Table of Contents](#)

provided that no such offer or shares of our common stock shall result in a requirement for the publication by us or any Brazilian placement agent of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an “offer to public” in relation to our common shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and our common shares to be offered so as to enable an investor to decide to purchase our common shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression “Prospectus Directive” means Directive 2003/71/EC (as amended), including by Directive 2010/73/EU and includes any relevant implementing measure in the Relevant Member State.

This European Economic Area selling restriction is in addition to any other selling restrictions set out below.

United Kingdom

In the United Kingdom, this prospectus is only addressed to and directed as qualified investors who are (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order); or (ii) high net worth entities and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”). Any investment or investment activity to which this prospectus relates is available only to relevant persons and will only be engaged with relevant persons. Any person who is not a relevant person should not act or rely on this prospectus or any of its contents.

Canada

The securities may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions, and Ongoing Registrant Obligations. Any resale of the securities must be made in accordance with an exemption form, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser’s province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser’s province or territory of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Hong Kong

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong) (“Companies (Winding Up and Miscellaneous Provisions) Ordinance”) or which do not constitute an invitation to the public within the meaning of the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) (“Securities and Futures Ordinance”), or (ii) to “professional investors” as defined in the Securities and Futures Ordinance and any rules

Table of Contents

made thereunder, or (iii) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance, and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” in Hong Kong as defined in the Securities and Futures Ordinance and any rules made thereunder.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined under Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”)) under Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for 6 months after that corporation has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer in that corporation’s securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore (“Regulation 32”).

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries’ rights and interest (howsoever described) in that trust shall not be transferable for 6 months after that trust has acquired the shares under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than S\$200,000 (or its equivalent in a foreign currency) for each transaction (whether such amount is to be paid for in cash or by exchange of securities or other assets), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA, or (6) as specified in Regulation 32.

Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended), or the FIEA. The securities may not be offered or sold, directly or indirectly, in Japan or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan.

[Table of Contents](#)**LEGAL MATTERS**

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Simpson Thacher & Bartlett LLP, New York, New York. Certain legal matters relating to this offering will be passed upon for the underwriters by Ropes & Gray LLP, New York, New York.

EXPERTS

The consolidated financial statements as of December 31, 2018 and 2017, and for each of the three years in the period ended December 31, 2018, included in this Prospectus, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report appearing herein. Such consolidated financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

The consolidated financial statements of VWR Corporation as of December 31, 2016 and 2015, and for each of the years in the three-year period ended December 31, 2016, have been included herein and in the registration statement in reliance upon the report of KPMG LLP, an independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Securities and Exchange Commission a registration statement on Form S-1 under the Securities Act with respect to the common stock offered in this prospectus. This prospectus, filed as part of the registration statement, does not contain all of the information set forth in the registration statement and its exhibits and schedules, portions of which have been omitted as permitted by the rules and regulations of the Securities and Exchange Commission. For further information about us and our common stock, we refer you to the registration statement and to its exhibits and schedules. Statements in this prospectus about the contents of any contract, agreement or other document are not necessarily complete and, in each instance, we refer you to the copy of such contract, agreement or document filed as an exhibit to the registration statement, with each such statement being qualified in all respects by reference to the document to which it refers. You may inspect these reports and other information without charge at a website maintained by the Securities and Exchange Commission. The address of this site is <http://www.sec.gov>.

Upon completion of this offering, we will become subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and will be required to file reports, proxy statements and other information with the Securities and Exchange Commission. You will be able to inspect and copy these reports, proxy statements and other information at the public reference facilities maintained by the Securities and Exchange Commission at the address noted above or inspect them without charge at the Securities and Exchange Commission's website. We intend to furnish our stockholders with annual reports containing consolidated financial statements audited by an independent registered public accounting firm.

[Table of Contents](#)

INDEX TO FINANCIAL STATEMENTS

AVANTOR, INC.	
Glossary	F-2
Audited Consolidated Financial Statements as of December 31, 2018 and 2017 and for each of the three years in the period ended December 31, 2018	
Report of Independent Registered Public Accounting Firm	F-3
Consolidated balance sheets	F-4
Consolidated statements of operations	F-5
Consolidated statements of comprehensive loss	F-6
Consolidated statements of stockholders' deficit	F-7
Consolidated statements of cash flows	F-8
Notes to consolidated financial statements	F-9
Unaudited Condensed Consolidated Financial Statements as of March 31, 2019 and December 31, 2018 and for the three months ended March 31, 2019 and 2018	
Condensed consolidated balance sheets	F-56
Condensed consolidated statements of operations	F-58
Condensed consolidated statements of comprehensive income or loss	F-58
Condensed consolidated statements of redeemable equity and stockholders' deficit	F-59
Condensed consolidated statements of cash flows	F-60
Notes to unaudited condensed consolidated financial statements	F-61
VWR CORPORATION	
Glossary	F-73
Audited Consolidated Financial Statements as of December 31, 2016 and 2015 and for each of the three years in the period ended December 31, 2016	
Report of Independent Registered Public Accounting Firm	F-74
Consolidated balance sheets	F-75
Consolidated income statements	F-76
Consolidated statements of comprehensive income or loss	F-77
Consolidated statements of redeemable equity and stockholders' equity	F-78
Consolidated statements of cash flows	F-79
Notes to consolidated financial statements	F-80
Unaudited Condensed Consolidated Financial Statements as of September 30, 2017 and December 31, 2016 and for the three and nine months ended September 30, 2017 and 2016	
Condensed consolidated balance sheets	F-110
Condensed consolidated income statements	F-111
Condensed consolidated statements of comprehensive income or loss	F-112
Condensed consolidated statements of redeemable equity and stockholders' equity	F-113
Condensed consolidated statements of cash flows	F-114
Notes to condensed consolidated financial statements	F-115

[Table of Contents](#)

Avantor, Inc. and subsidiaries
Glossary

	Description
we, us, our	Avantor, Inc. and its subsidiaries and certain predecessor entities that held our business as described in note 1
2017 Plan	the Vail Holdco Corp Equity Incentive Plan, a share-based compensation plan
AA	accumulated amortization
AMEA	Asia, Middle-East and Africa
AOCI	accumulated other comprehensive income or loss
Avantor Funding	Avantor Funding, Inc. and subsidiaries
Avantor S.A.	Avantor Performance Materials Holdings, S.A. and subsidiaries
cGMP	current good manufacturing practices as defined by the United States Food and Drug Administration
CPEC	convertible preferred equity certificate
EURIBOR	the basic rate of interest used in lending between banks on the European Union interbank market
FASB	the Financial Accounting Standards Board of the United States
GAAP	United States generally accepted accounting principles
Goldman Sachs	an investment banking firm and its affiliates
LIBOR	the basic rate of interest used in lending between banks on the London interbank market
LIFO	last in, first out method of removing items from inventory
Management EBITDA	earnings before interest, income taxes, depreciation, amortization and certain other items, our segment profitability measurement under GAAP
New Mountain Capital	a private equity investor and its affiliates
NuSil	NuSil Acquisition Corp, NuSil Investments LLC and subsidiaries, a business organization with which we merged in 2016
NuSil Investors	NuSil LLC and NuSil 2.0 LLC, former owners of NuSil that are controlled by its former management
PSP Investments	a pension investment manager and its affiliates
SAR	stand-alone appreciation right
SEC	the United States Securities and Exchange Commission
VWR	VWR Corporation and its subsidiaries

[Table of Contents](#)**Report of Independent Registered Public Accounting Firm**

To the stockholders and the Board of Directors of Avantor, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Avantor, Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders' deficit, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Philadelphia, Pennsylvania

March 15, 2019 (May 16, 2019 as to the effect of the stock split described in Note 27)

We have served as the Company's auditor since 2010.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Consolidated balance sheets

<i>(in millions)</i>	December 31,	
	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	\$ 184.7	\$ 185.4
Accounts receivable, net of allowances of \$10.9 and \$7.3	931.2	875.0
Inventory	671.1	695.1
Other current assets	112.6	78.3
Total current assets	1,899.6	1,833.8
Property, plant and equipment, net of accumulated depreciation of \$225.8 and \$170.5	598.6	663.5
Customer relationships, net of accumulated amortization of \$412.5 and \$181.7	4,159.8	4,490.0
Other intangible assets, net of accumulated amortization of \$146.7 and \$63.5	405.9	499.3
Goodwill	2,784.7	2,847.3
Other assets	63.0	112.6
Total assets	\$ 9,911.6	\$10,446.5
Liabilities, redeemable equity and stockholders' deficit		
Current liabilities:		
Current portion of debt	\$ 142.4	\$ 109.0
Accounts payable	557.4	542.0
Employee-related liabilities	144.9	178.8
Accrued interest	76.6	79.0
Other current liabilities	174.9	195.5
Total current liabilities	1,096.2	1,104.3
Debt, net of current portion	6,782.3	7,008.8
Deferred income tax liabilities	907.5	1,051.1
Other liabilities	318.0	312.7
Total liabilities	9,104.0	9,476.9
Commitments and contingencies, see note 12		
Redeemable equity:		
Series A preferred stock at redemption value, 2.3 and 2.0 shares outstanding	2,297.3	2,027.8
Junior convertible preferred stock, 1.7 shares outstanding, liquidation value \$2,722.5	1,562.0	1,562.0
Total redeemable equity	3,859.3	3,589.8
Stockholders' deficit:		
Common stock including paid-in capital, 132.8 and 132.6 shares outstanding	(2,746.8)	(2,490.3)
Accumulated deficit	(238.4)	(156.3)
Accumulated other comprehensive (loss) income	(66.5)	26.4
Total stockholders' deficit	(3,051.7)	(2,620.2)
Total liabilities, redeemable equity and stockholders' deficit	\$ 9,911.6	\$10,446.5

The accompanying notes are an integral part of these consolidated financial statements.

[Table of Contents](#)

Avantor, Inc. and subsidiaries
Consolidated statements of operations

	Year ended December 31,		
	2018	2017	2016
<i>(in millions, except per share data)</i>			
Net sales	\$5,864.3	\$1,247.4	\$691.3
Cost of sales	4,044.5	814.6	371.6
Gross profit	1,819.8	432.8	319.7
Selling, general and administrative expenses	1,405.3	449.7	281.5
Fees to New Mountain Capital	1.0	193.5	28.3
Operating income (loss)	413.5	(210.4)	9.9
Interest expense	(523.8)	(257.3)	(80.3)
Other (expense) income, net	(3.5)	7.5	(0.2)
Loss before income taxes	(113.8)	(460.2)	(70.6)
Income tax benefit (expense)	26.9	314.9	(10.1)
Net loss	<u>\$ (86.9)</u>	<u>\$ (145.3)</u>	<u>\$ (80.7)</u>
Net loss	\$ (86.9)	\$ (145.3)	\$ (80.7)
Net loss attributable to noncontrolling interests	—	(32.6)	(38.3)
Net loss attributable to Avantor, Inc.	(86.9)	(112.7)	(42.4)
Accumulation of yield on series A preferred stock	(269.5)	(27.8)	—
Adjustment of series A preferred stock to redemption value	—	(274.4)	—
Net loss available to common stockholders of Avantor, Inc.	<u>\$ (356.4)</u>	<u>\$ (414.9)</u>	<u>\$ (42.4)</u>
Loss per share information, basic and diluted:			
Loss per share	\$ (2.69)	\$ (2.75)	\$ (0.28)
Weighted average shares outstanding	132.7	151.1	152.6
Unaudited pro forma loss per share, see note 4	\$ (0.18)		

The accompanying notes are an integral part of these consolidated financial statements.

[Table of Contents](#)

Avantor, Inc. and subsidiaries

Consolidated statements of comprehensive loss

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Net loss	\$ (86.9)	\$ (145.3)	\$ (80.7)
Other comprehensive (loss) income:			
Foreign currency translation — unrealized (loss) gain	(82.7)	71.0	(6.0)
Derivative instruments:			
Unrealized gain	3.0	0.3	—
Reclassification of (gain) loss into earnings	(1.9)	0.1	—
Defined benefit plans:			
Unrealized (loss) gain	(16.9)	2.2	5.0
Reclassification of loss (gain) into earnings	2.3	(3.2)	(2.2)
Other comprehensive (loss) income before income taxes	(96.2)	70.4	(3.2)
Income tax benefit (expense)	3.3	0.1	(0.7)
Other comprehensive (loss) income	(92.9)	70.5	(3.9)
Comprehensive loss	(179.8)	(74.8)	(84.6)
Comprehensive loss attributable to noncontrolling interests	—	(29.4)	(39.3)
Comprehensive loss attributable to Avantor, Inc.	\$ (179.8)	\$ (45.4)	\$ (45.3)

The accompanying notes are an integral part of these consolidated financial statements.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Consolidated statements of stockholders' deficit

	Avantor, Inc.						
	Combined deficit	Common stock including paid-in capital	Accum- ulated deficit	AOCI	Total	Non- controlling interest	Total
<i>(in millions)</i>							
Balance at December 31, 2015	\$ (697.7)	\$ —	\$ —	\$(40.2)	\$ (737.9)	\$ 123.6	\$ (614.3)
Distributions, see note 7	(31.9)	(81.0)	—	—	(112.9)	(45.8)	(158.7)
Comprehensive loss	(36.7)	—	(5.7)	(2.9)	(45.3)	(39.3)	(84.6)
Share-based compensation expense from equity-classified awards	79.8	1.1	—	—	80.9	1.9	82.8
CPECS:							
Adjustment to redemption value	(1,177.1)	—	—	—	(1,177.1)	—	(1,177.1)
Conversion to common equity	1,512.9	—	—	—	1,512.9	—	1,512.9
Effects of legal entity restructuring, see note 14	340.6	(260.4)	—	12.7	92.9	(175.6)	(82.7)
Other	10.1	1.5	—	—	11.6	(0.5)	11.1
Balance at December 31, 2016	—	(338.8)	(5.7)	(30.4)	(374.9)	(135.7)	(510.6)
Issuance of warrants, net of fees	—	90.8	—	—	90.8	—	90.8
Distributions, see note 7	—	(1,539.5)	—	—	(1,539.5)	(162.4)	(1,701.9)
Comprehensive (loss) income	—	—	(112.7)	67.3	(45.4)	(29.4)	(74.8)
Share-based compensation expense from equity-classified awards	—	31.6	—	—	31.6	0.2	31.8
Effects of legal entity restructuring, see note 14	—	(432.2)	(37.9)	(10.5)	(480.6)	327.0	(153.6)
Series A preferred stock:							
Accumulation of yield	—	(27.8)	—	—	(27.8)	—	(27.8)
Adjustment to redemption value	—	(274.4)	—	—	(274.4)	—	(274.4)
Other	—	—	—	—	—	0.3	0.3
Balance at December 31, 2017	—	(2,490.3)	(156.3)	26.4	(2,620.2)	—	(2,620.2)
Cumulative effect of adoption of new revenue recognition standard	—	—	4.8	—	4.8	—	4.8
Comprehensive loss	—	—	(86.9)	(92.9)	(179.8)	—	(179.8)
Share-based compensation expense from equity-classified awards	—	13.0	—	—	13.0	—	13.0
Accumulation of yield on series A preferred stock	—	(269.5)	—	—	(269.5)	—	(269.5)
Balance at December 31, 2018	<u>\$ —</u>	<u>\$(2,746.8)</u>	<u>\$(238.4)</u>	<u>\$(66.5)</u>	<u>\$(3,051.7)</u>	<u>\$ —</u>	<u>\$(3,051.7)</u>

The accompanying notes are an integral part of these consolidated financial statements.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Consolidated statements of cash flows

(in millions)	Year ended December 31,		
	2018	2017	2016
Cash flows from operating activities:			
Net loss	\$ (86.9)	\$ (145.3)	\$ (80.7)
Reconciling adjustments:			
Depreciation and amortization	404.6	99.2	60.3
Share-based compensation expense	18.4	48.2	98.7
Non-cash restructuring charges	28.4	—	—
Provision for doubtful accounts and inventory	25.7	5.1	5.2
Deferred income tax benefit	(103.9)	(430.6)	(30.7)
Effect of one-time transition tax	(35.8)	107.0	—
Amortization of deferred financing costs	41.4	11.7	5.1
Loss on extinguishment of debt	—	56.4	19.9
Changes in assets and liabilities:			
Accounts receivable	(83.4)	14.1	(7.9)
Inventory	(41.1)	19.7	(13.0)
Accounts payable	29.4	31.8	5.5
Other assets and liabilities	1.3	7.0	3.9
Other	2.4	8.2	6.6
Net cash provided by (used in) operating activities	<u>200.5</u>	<u>(167.5)</u>	<u>72.9</u>
Cash flows from investing activities:			
Capital expenditures	(37.7)	(25.2)	(29.9)
Cash paid for acquisitions, net of cash acquired	—	(6,660.7)	—
Other	14.5	9.9	—
Net cash used in investing activities	<u>(23.2)</u>	<u>(6,676.0)</u>	<u>(29.9)</u>
Cash flows from financing activities:			
Issuance of series A preferred stock and warrants, net of issuance costs	—	1,816.4	—
Issuance of junior convertible preferred stock, net of issuance costs	—	1,232.6	—
Debt borrowings	35.7	9,249.5	1,600.6
Debt repayments	(185.5)	(3,290.6)	(703.7)
Redemption of CPECs	—	—	(702.2)
Cash paid for debt financing costs	—	(318.6)	(56.4)
Distributions, see note 7	—	(1,701.9)	(158.7)
Payments of contingent consideration	(20.5)	(22.7)	(29.3)
Other	—	0.3	6.2
Net cash (used in) provided by financing activities	<u>(170.3)</u>	<u>6,965.0</u>	<u>(43.5)</u>
Effect of currency rate changes on cash	(7.8)	1.0	(0.7)
Net change in cash and cash equivalents	(0.8)	122.5	(1.2)
Cash, cash equivalents and restricted cash, beginning of year	188.5	66.0	67.2
Cash, cash equivalents and restricted cash, end of year	<u>\$ 187.7</u>	<u>\$ 188.5</u>	<u>\$ 66.0</u>
Supplemental disclosures of cash flow information:			
Cash paid for income taxes	\$ 65.6	\$ 31.5	\$ 28.6
Cash paid for interest	481.3	137.2	54.9

The accompanying notes are an integral part of these consolidated financial statements.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Notes to consolidated financial statements
1. Organization, consolidation and presentation of financial statements

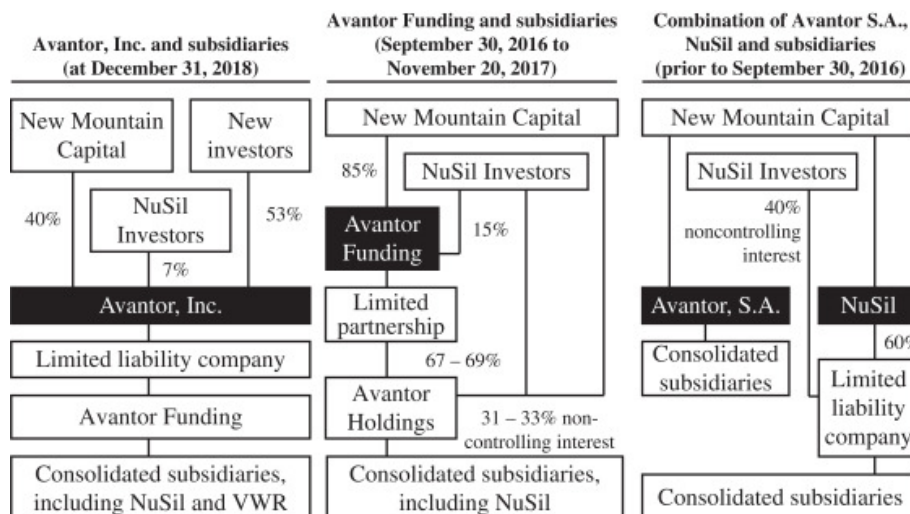
We are a global manufacturer, distributor and service provider that develops integrated solutions for the biopharmaceutical, healthcare, education & government and advanced technologies & applied materials industries. We have global operations and an extensive product portfolio. We strive to enable customer success through innovation, cGMP manufacturing and comprehensive service offerings.

We are controlled by a group of investors led by New Mountain Capital. New investors joined the group in 2017 through significant investments in our preferred stock.

Basis of presentation

Avantor, Inc. is the latest in a succession of reporting entities for the business known as “Avantor,” the two most recent predecessors being Avantor Funding and the combination of Avantor S.A. and NuSil. The financial statements are presented for all periods as a single continuous entity named Avantor, Inc. due to New Mountain Capital’s continuous control of the Avantor business during those periods.

On November 21, 2017 and September 30, 2016, we restructured our legal organization to facilitate two significant combinations with VWR and NuSil, respectively. The following chart depicts the reported entities in black with selected ownership amounts as if the junior convertible preferred stock and other instruments were converted into common stock:



On November 21, 2017, we acquired VWR (see note 20). Under GAAP, VWR is consolidated with us prospectively since the acquisition date of November 21, 2017.

On September 30, 2016, we combined with NuSil (see note 20). Since we were both controlled by New Mountain Capital, our historical financial statements have been combined with NuSil’s into a single presentation for all periods presented, with paid-in capital and accumulated deficit presented as a single combined deficit prior to the combination.

[Table of Contents](#)

Principles of consolidation and combination

All intercompany balances and transactions among the consolidated and combined companies have been eliminated from the financial statements.

Use of estimates

The preparation of financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the amounts reported throughout the financial statements. Actual results could differ from those estimates.

We have provided additional disclosures about the following significant estimates for which it is at least reasonably possible that a change in estimate will occur in the near term:

- The fair value of reporting units and asset groups tested for impairment in note 5;
- The valuation allowance on deferred tax assets in note 19;
- Assumptions used to measure our defined benefit plans in note 16;
- The likelihood of occurrence of loss contingencies in note 12; and
- Other accounts measured at fair value based on unobservable inputs in note 21.

2. Summary of significant accounting policies

Earnings or loss per share

Earnings or loss per share is computed by dividing net income or loss available to common stockholders by the weighted average number of common shares outstanding during the reporting period. Net income or loss available to common stockholders includes the accumulation of dividends and changes to redemption value of preferred stocks and excludes net income or loss attributable to noncontrolling interests.

The basis for determining basic earnings or loss per share varies across the periods due to the changes in the reported entity described in note 1:

- For periods since November 21, 2017, it is calculated under a two-class method based on the weighted average number of outstanding shares of Avantor, Inc. common stock during the reporting period.
- For the period September 30, 2016 to November 20, 2017, it is based on the weighted average number of outstanding shares of Avantor Funding class A common shares during the reporting period. Class B common shares of Avantor Funding are not included because they did not participate in earnings.
- For periods prior to September 30, 2016, it is based on the number of shares of Avantor Funding class A common stock outstanding on September 30, 2016 because the combined presentation of entities under common control does not include a unified capital structure.
- For periods spanning more than one of the above, it is based on the weighted average of the results determined from those approaches.

The two-class method is applied in periods since November 21, 2017 because junior convertible preferred stockholders and warrant holders participate in dividends with the common stockholders. The two-class method is an earnings allocation formula that works as follows:

- In periods of net income available to common stockholders, earnings are allocated to the holders of common stock, junior convertible preferred stock and warrants based on their respective weighted average common shares outstanding during the period on an as-converted basis. Diluted earnings per share is computed using the more dilutive of the two-class method or the if-converted method.

Table of Contents

- In periods of net loss available to common stockholders, the entire loss is allocated to the common stockholders. No effect is given to the junior convertible preferred stockholders or the warrant holders because they do not participate in losses.

Diluted earnings or loss per share reflects the potential dilution that could occur if convertible instruments were converted into shares of common stock. In periods of net loss available to common stockholders, diluted calculations are equal to basic calculations because the inclusion of convertible instruments would be anti-dilutive.

Segment reporting

We report based on three geographic segments based on customer location: Americas, Europe and AMEA. With the acquisition of VWR in November 2017, we made a strategic decision to manage our combined business geographically to improve our focus on growing regions. We have been transitioning our operations and financial reporting to align to that strategy. The transition included reorganizing the management team, implementing new processes, systems and internal controls and designing new internal reports for our Chief Executive Officer to manage the business. We completed this transition during the fourth quarter of 2018 and have retrospectively presented the segment information in these financial statements. We determined that our operating segments are the same as our reportable segments. Our Chief Executive Officer evaluates segment profitability using Management EBITDA.

We disclose geographic data for our two largest countries as a percentage of consolidated net sales, the United States and Germany. No other countries were individually material. We also disclose certain regional data because of differences in geopolitical and / or competitive conditions. We disclose property and equipment by geographic area because many of these assets cannot be readily moved and are illiquid, subjecting them to geographic risk. None of our other long-lived assets are subject to significant geopolitical risk. None of our customers contributed more than 10% to our net sales. We determined that disclosing net sales for groups of similar products was impracticable prior to January 1, 2018, but implementation of the new revenue recognition standard made this practicable beginning January 1, 2018. We do not manage total assets on a segment basis.

Cash and cash equivalents

Cash equivalents are comprised of highly-liquid investments with original maturities of three months or less. Bank overdrafts are classified as current liabilities, and changes to bank overdrafts are presented as a financing activity on our consolidated statements of cash flows.

Accounts receivable and allowance for doubtful accounts

Substantially all of our accounts receivable are trade accounts that are recorded at the invoiced amount and generally do not bear interest. Accounts receivable are presented net of an allowance representing our estimate of amounts that will not be collected or sales that will be returned to us. We consider many factors in estimating our reserve including the age of our receivables, historical collections experience, customer types, creditworthiness and economic trends. Account balances are written off against the allowance when we determine it is probable that the receivable will not be recovered.

Inventory

Inventory consists of merchandise inventory related to our distribution business and finished goods, raw materials and work in process related to our manufacturing business. Goods are removed from inventory as follows:

- Merchandise inventory purchased by certain U.S. subsidiaries using the LIFO method.

Table of Contents

- All other merchandise inventory using the first-in, first-out method.
- Manufactured inventories using an average cost method.

Inventory is valued at the lower of cost or net realizable value. Cost for manufactured goods is determined using standard costing methods to estimate raw materials, labor and overhead consumed. Variances from actual cost are recorded to inventory at period-end. Cost for other inventory is based on amounts invoiced by suppliers plus freight. If net realizable value is less than carrying value, we reduce the carrying amount to net realizable value and record a loss in cost of sales.

Property, plant and equipment

Property, plant and equipment are stated at cost. Depreciation is recognized using the straight-line method over estimated useful lives of 3 to 40 years for buildings and related improvements, 3 to 20 years for machinery and equipment and 3 to 10 years for capitalized software. Leasehold improvements are depreciated on a straight-line basis over the shorter of the estimated useful lives of the assets or the estimated remaining life of the lease. Depreciation is classified as cost of sales or selling, general and administrative expense based on the use of the underlying asset. Property, plant and equipment held under capital leases were not material for any periods presented.

Impairment of long-lived assets

Long-lived assets include property, plant and equipment, finite-lived intangible assets and certain other assets. For impairment testing purposes, long-lived assets may be grouped with working capital and other types of assets or liabilities if they generate cash flows on a combined basis.

We evaluate long-lived assets or asset groups for impairment whenever events or changes in circumstances indicate a potential inability to recover their carrying amounts. Impairment is determined by comparing their carrying value to their estimated undiscounted future cash flows. If assets or asset groups are impaired, the loss is measured as the amount by which their carrying values exceed their fair values.

Goodwill and other intangible assets

Goodwill represents the excess of the price of an acquired business over the aggregate fair value of its net assets. Other intangible assets consist of both finite-lived and indefinite-lived intangible assets.

Goodwill and other indefinite-lived intangible assets are tested annually for impairment on October 1 of each year. Goodwill impairment testing is performed at the reporting unit level. Our reporting units at October 1, 2018 were Americas, Europe and AMEA.

All of our intangible assets, including goodwill, are tested for impairment whenever an impairment indicator arises. Examples of impairment indicators include unexpected adverse business conditions, economic factors, unanticipated technological changes or competitive activities, loss of key personnel and acts or anticipated acts by governments and courts.

The impairment analysis for goodwill and indefinite-lived intangible assets consists of an optional qualitative assessment potentially followed by a quantitative analysis. If we determine that the carrying value of a reporting unit or an indefinite-lived intangible asset exceeds its fair value, an impairment charge is recorded for the excess.

Indefinite-lived intangible assets are not amortized. Annually, we evaluate whether these assets continue to have indefinite lives, considering whether they have any legal, regulatory, contractual, competitive or economic limitations and whether they are expected to contribute to the generation of cash flows indefinitely.

[Table of Contents](#)

Finite-lived intangible assets are amortized over their estimated useful lives on a straight-line basis, with customer relationships amortized over lives of 10 to 20 years, developed technology amortized over lives of three to 20 years and other finite-lived intangible assets amortized over lives of two to 20 years. Amortization is classified in selling, general and administrative expenses. We reevaluate the estimated useful lives of our finite-lived intangible assets annually.

Finite-lived intangible assets are evaluated for impairment in the same way as other long-lived assets.

Restructuring and severance charges

We have been realizing commercial and cost synergies from the acquisition of VWR, the combination with NuSil and other initiatives. To realize those synergies, we implement restructuring and severance plans. Those plans are designed to improve gross margins and reduce operating costs over time. We typically incur upfront charges to implement those plans related to employee severance, facility closure and other actions:

- *Employee severance and related* — Employee severance programs can be voluntary or involuntary. Voluntary severances are recorded at their reasonably estimated amount when associates accept severance offers. Involuntary severances covered by plan or statute are recorded at estimated amounts when probable and reasonably estimable. Significant judgment is required to determine probability and whether the amount can be reasonably estimated. Involuntary severances requiring continuing service are recognized at fair value as of the termination date and recognized on a straight-line basis over the service period. Other involuntary severances are recognized at fair value on the date we notify associates of the severance plan.
- *Facility closure* — Charges to close facilities are recognized on the date we cease using the facilities and are recorded net of any rental income we are permitted to earn.
- *Other* — Other charges may be incurred to write down assets, divest businesses or for other reasons. Any such charges are accounted for in accordance with applicable other GAAP.

Restructuring and severance charges are classified as selling, general and administrative expenses. Accrued restructuring and severance charges are classified as employee-related current liabilities if we anticipate settlement within one year, otherwise they are included in other liabilities.

Contingencies

Our business exposes us to various contingencies including compliance with environmental laws and regulations, legal exposures related to the manufacture and sale of products and other matters. Loss contingencies are reflected in the financial statements based on our assessments of their expected outcome or resolution:

- They are recognized as liabilities on our balance sheet and disclosed if the potential loss is material and is considered probable and the amount can be reasonably estimated.
- They are only disclosed if the potential loss is material and is considered reasonably possible.

Significant judgment is required to determine probability and whether the amount can be reasonably estimated. Due to uncertainties related to these matters, accruals are based only on the information available at the time. As additional information becomes available, we reassess potential liabilities and may revise our previous estimates.

Debt

Borrowings under lines of credit are stated at their face amount. Borrowings under term debt are stated at their face amounts net of unamortized deferred financing costs, including any original issue discounts or premiums.

The accounting for financing costs depends on whether debt is newly issued, extinguished or modified. That determination is made on an individual lender basis. When new debt is issued, financing costs and discounts are

[Table of Contents](#)

deferred and recognized as interest expense through maturity of the debt. When debt is extinguished, unamortized deferred financing costs and discounts are written off as interest expense. When debt is modified, new financing costs and prior unamortized deferred financing costs may be either (i) immediately recognized as interest expense or selling, general and administrative expense or (ii) deferred and recognized as interest expense through maturity of the modified debt, depending on the type of cost and whether the modification was substantial or insubstantial.

Borrowings and repayments under lines of credit are short-term in nature and presented on the statement of cash flow on a net basis. Capital lease obligations were not material for any periods presented.

Redeemable equity and stockholders' deficit

Redeemable equity includes ownership interests that are redeemable or become redeemable in a way that is not solely within our control. Redeemable equity is: (i) initially recorded at fair value, net of issuance costs, and (ii) subsequently stated at its redemption value unless the redemption feature is triggered by a contingency that is not probable of occurring. Any such adjustments are offset to common stock including paid-in capital. Redeemable equity is presented between the liabilities and stockholders' deficit sections of the balance sheet.

The following table presents key facts and policies for redeemable equity instruments, with dashes indicating not applicable items:

	<u>Issuer</u>	<u>Classification</u>	<u>Included in net loss available to common stockholders</u>	
			<u>Yield</u>	<u>Adjustments to redemption value</u>
Series A preferred stock	Avantor, Inc.	Preferred	Yes	Yes
Junior convertible preferred stock	Avantor, Inc.	Preferred	—	—
CPECs	Avantor S.A.	Common	—	No

Stockholders' deficit includes nonredeemable ownership interests. Common stock is presented at par value plus additional paid-in amounts, net of issuance costs. Disclosures about certain classes of stock are provided in the footnotes and not stated separately on the balance sheet or statement of stockholders' deficit when those presentations are not deemed to be material.

Distributions are accounted for as reductions to common stock including paid-in capital and are classified as financing activities on the statement of cash flows.

For certain periods presented, a portion of the consolidated comprehensive loss of Avantor Holdings LP and NuSil was allocated to the noncontrolling interest based on its ownership percentage. Distributions and other changes to stockholders' deficit, such as those arising from share-based compensation, were attributed to the noncontrolling interest based on actual amounts.

Upon issuance, paid-in capital is allocated among host stock instruments and detachable warrants on a relative fair value basis.

Revenue recognition

We recognize revenue by applying a five-step process: (i) identify the contract with a customer, (ii) identify the performance obligation in the contract, (iii) determine the transaction price, (iv) allocate the transaction price to the performance obligations and (v) recognize revenue as the performance obligations are satisfied by transferring control of the performance obligation through delivery of a promised product or service to a customer.

Table of Contents

Control of a performance obligation may transfer to the customer either at a point in time or over time depending on an evaluation of the specific facts and circumstances for each contract, including the terms and conditions of the contract as agreed with the customer, as well as the nature of the products or services to be provided. The substantial majority of our net sales are recognized at a point in time based upon the delivery of products to customers pursuant to purchase orders. We recognize service revenues and sales of certain of our custom-manufactured products over time as control passes to the customer concurrent with our performance. We are able to fulfill most purchase orders rapidly, and service and custom-manufacturing cycles are short. As a result, we do not record material contract assets or liabilities.

We have elected to use the practical expedient not to adjust the transaction price of a contract for the effects of a significant financing component if, at the inception of the contract, we expect that the period between when we transfer a promised good or service to a customer and when the customer pays for that good or service will be one year or less.

Some customer contracts include variable consideration, such as rebates, some of which depend upon our customers meeting specified performance criteria, such as a purchasing level over a period of time. We use judgment to estimate the value of these pricing arrangements at each reporting date and record contract assets or liabilities to the extent that estimated values are recognized at a different time than the revenue for the related products. When estimating variable consideration, we also apply judgment when considering the probability of whether a reversal of revenue could occur and only recognize revenue subject to this constraint.

The only significant costs we incur to obtain contracts are related to sales commissions. These commissions are primarily based on purchase order amounts, not recoverable and not applicable to periods greater than one year. We elected to apply the practical expedient to expense these costs as incurred as if the amortization period of the asset that would have otherwise been recognized is one year or less.

Performance obligations following the delivery of products, such as rights of return and warranties, are not material. No other types of revenue arrangements were material to our consolidated financial statements.

Classification of expenses

Cost of sales includes the cost of the product, depreciation of production assets, supplier rebates, shipping and receiving charges and inventory adjustments. For manufactured products, the cost of the product includes direct and indirect manufacturing costs, plant administrative expenses and the cost of raw materials consumed in the manufacturing process.

Selling, general and administrative expenses include personnel and facility costs, amortization of intangible assets, depreciation of non-production assets, research and development costs, advertising expense, promotional charges and other charges related to our global operations.

Employee benefit plans

Some of our employees participate in defined benefit plans that we sponsor. We present these plans as follows due to their differing geographies, characteristics and actuarial assumptions:

- *U.S. plans* — Two plans based in the United States, one of which we acquired from VWR in 2017. Another plan acquired from VWR was merged with ours in 2018. The U.S. plans are frozen with no accrual of future pension benefits for participating employees.
- *Non-U.S. plans* — Eight plans for our employees around the world that we acquired from VWR in 2017, most of which continue to accrue future pension benefits.
- *Medical plan* — A post-retirement medical plan for certain employees in the United States. The medical plan is frozen with no accrual of future pension benefits for participating employees.

Table of Contents

We sponsor a number of other defined benefit plans around the world that are not material to our financial statements individually or in the aggregate. Defined contribution and other employee benefit plans are not material to the financial statements.

The cost of our defined benefit plans is incurred systematically over expected employee service periods. We use actuarial methods and assumptions to determine expense each period and the value of projected benefit obligations. Actuarial changes in the projected value of defined benefit obligations are deferred to AOCI and recognized in earnings systematically over future periods. The portion of cost attributable to continuing employee service is included in selling, general and administrative expenses. The rest of the cost is included in other income or expense, net.

Share-based compensation expense

Some of our management and directors are compensated with share-based awards. We currently sponsor the 2017 Plan, an active plan with awards currently available for issuance. Other awards were issued under legacy plans sponsored by Avantor Funding, NuSil and the NuSil Investors; no new awards are being issued under any of those plans.

Share-based compensation expense is included in selling, general and administrative expenses on the statement of operations. The following table provides additional information about the accounting treatment of share-based awards:

	<u>Accounting treatment</u>
Stock options	Awards are equity-classified and recognized ratably over service periods based on their grant-date fair value
Optionholder awards	Awards are liability-classified and recognized ratably over service periods based on their fair value on a stock option modification date
Phantom units	Awards are liability-classified with expense recognized at fair value on a recurring basis
SARs	Awards are equity-classified with expense pushed down from a NuSil investor to state the awards at fair value on a recurring basis
Mirror units	Awards are treated as permanent equity since September 2016. Prior to September 2016, awards were liability-classified with expense pushed down from a NuSil investor to state the awards at fair value on a recurring basis

Stock options

We measure the expense of stock options based on their grant-date fair values. These awards typically vest with continuing service, so expense is recognized on a straight-line basis from the date of grant through the end of the requisite service period. We recognize expense based on the number of awards ultimately expected to vest by use of an estimated forfeiture rate. The estimated forfeiture rate is based on historical data for the employee group awarded options and expected employee turnover rates, which management reevaluates each period. We typically issue new shares of common stock upon exercise or vesting of awards.

The grant-date fair value of stock options is measured using a closed-form pricing model using assumptions based on the terms of each stock option agreement, the expected behavior of grant recipients and peer company data. We have limited historical data about our own awards upon which to base our assumptions. Expected volatility is calculated based on the observed equity volatility for a peer group over a period of time equal to the expected life of the stock options. The risk-free interest rate is based on U.S. Treasury observed market rates continuously compounded over the duration of the expected life. The expected life of stock options is estimated as the midpoint of the weighted average vesting period and the contractual term.

Table of Contents

Optionholder awards

Optionholder awards are rights for holders of stock options to receive cash with continuing service. Those rights are granted by our Board of Directors in accordance with anti-dilution provisions contained in the stock option agreements.

We account for optionholder awards as a modification of stock options. On the modification date, we estimate the value of the anti-dilution clause included in the grant-date fair value of stock options. We reclassify this amount from the grant-date fair value of the equity award to the value of the optionholder award and add any additional amount needed to arrive at the total grant-date fair value of the optionholder award, which is its cash value. That value is recognized as expense on a straight-line basis over the same remaining schedule as the underlying stock options.

Optionholder expense is classified as share-based compensation because its value is based in part on a portion of the underlying stock option that was reclassified from equity. Optionholder award liabilities are payable in cash the quarter after each vesting date and are classified as other current liabilities.

Phantom units, SARs and mirror units

Phantom units were issued to our employees by a consolidated subsidiary and can only be settled in cash. They follow an employee payment model, requiring classification as a liability that is measured at fair value at the end of each reporting period. Changes to fair value are recognized as cumulative adjustments to expense each period.

SARs were issued to our employees by a NuSil investor. They follow a non-employee payment model, requiring classification as contributed capital that is measured at fair value at the end of each reporting period. That contribution was included in the noncontrolling interest until it was derecognized in November 2017 in connection with a legal entity restructuring. Since then, the contribution has been included within the common stock including paid-in capital. Changes to fair value are recognized as cumulative adjustments to expense each period.

Mirror units were issued to our employees by a NuSil investor but are designed to mirror the rights and privileges of an instrument that a NuSil investor holds in a member of our consolidated group. Prior to September 2016, these units mirrored an instrument that only entitled the holder to a cash payment, requiring classification as a liability that was measured at fair value at the end of each reporting period. Changes to fair value were recognized as cumulative adjustments to expense each period. Since September 2016, these units are mirroring permanent equity instruments and are no longer being remeasured or expensed.

We estimate the fair value of the awards using a multi-step process. First, we measure equity value of the applicable company using generally accepted valuation techniques based on discounted cash flows, comparable public companies and comparable acquisitions. The equity value is then allocated among the units of the issuer using an option-pricing method that assumes a near-zero holding period. Finally, we evaluate the likelihood of achieving any market conditions associated with the awards. Units with a remote chance of achieving the market conditions are judged to have a fair value of zero.

Award modifications

When share-based compensation arrangements are modified, we treat the modification as an exchange of the original award for a new award and immediately recognize expense for the incremental value of the new award. The incremental value is measured as the excess of the fair value of new awards over the fair value of the original awards, each based on circumstances and assumptions as of the modification date. Fair value is measured using the same methods previously described for phantom units, SARs and mirror units.

[Table of Contents](#)

Income taxes

Our worldwide income is subject to the income tax regulations of many governments. Income tax expense is calculated using an estimated global rate with recognition of deferred tax assets and liabilities for expected temporary differences between taxable and reported income. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income when those temporary differences are expected to reverse. We record a valuation allowance to reduce deferred tax assets to the amount that is more likely than not to be realized.

Income tax regulations change from time to time. The effect of a change in tax law on deferred tax assets and liabilities is recognized as a cumulative adjustment to income tax expense or benefit in the period of enactment. The effect of a change in tax law on the income tax expense or benefit itself is recognized prospectively for the applicable tax years.

Income tax regulations can be complex, requiring us to interpret tax law and take positions. Upon audit, tax authorities may challenge our positions. We regularly assess the outcome of potential examinations and only recognize positions that are more likely than not to be sustained. Recognized income tax positions are measured at the largest amount that is more likely than not of being realized. Changes in recognition or measurement are reflected in the period in which a change in judgment occurs, as a result of information that arises or when a tax position is effectively settled. We recognize accrued interest and penalties related to unrecognized tax benefits as a component of income tax expense in our consolidated financial statements.

As a result of tax reform in the United States (see note 19), certain foreign income on intangible assets may be required to be included currently in United States taxable income. We account for any such taxes due in the United States as a current period expense when incurred.

Business combinations

The purchase price of an acquired business is allocated to the individual assets acquired and liabilities assumed based on their fair values at the date of acquisition. Those fair values are determined using income, cost and market approaches, most of which depend upon significant inputs that are not observable in the market, or level 3 measurements. The excess of purchase price over the fair value of assets acquired and liabilities assumed is allocated to goodwill. Costs associated with business combinations are expensed as incurred.

The purchase price for some business combinations includes consideration that is contingent on the achievement of net sales or earnings targets by the acquired business. Contingent consideration is measured initially and on a recurring basis at fair value. Payments to settle the acquisition-date fair value of contingent consideration are presented as financing activities on the statement of cash flows; any payments in excess of the acquisition-date fair value are presented as operating activities.

Fair value measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at a measurement date. We classify fair value measurements based on the lowest of the following levels that is significant to the measurement:

- *Level 1* — Quoted prices in active markets for identical assets or liabilities
- *Level 2* — Inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability
- *Level 3* — Inputs that are unobservable for the asset or liability based on our evaluation of the assumptions market participants would use in pricing the asset or liability

[Table of Contents](#)

We exercise considerable judgment when estimating fair value, particularly when evaluating what assumptions market participants would likely make. The use of different assumptions or estimation methodologies could have a material effect on the estimated fair values.

Foreign currency translation

Our operations span the globe, so we are impacted by changes in foreign currency exchange rates. We determine the functional currency of our subsidiaries based upon the primary currency used to generate and expend cash, which is usually the currency of the country in which the subsidiary is located. For subsidiaries with functional currencies other than the U.S. dollar, assets and liabilities are translated into U.S. dollars using period-end exchange rates, and revenues, expenses, income and losses of our subsidiaries are translated into U.S. dollars using monthly average exchange rates. The resulting foreign currency translation gains or losses are deferred as AOCI and reclassified to earnings only upon sale or liquidation of those businesses.

Gains and losses related to the remeasurement of debt and intercompany financing into functional currencies are reported in earnings as other income or expense, net. Gains and losses associated with the remeasurement of operating assets and liabilities into functional currencies are reported within the applicable component of operating income.

3. New accounting standards

In February 2016, the FASB issued comprehensive new guidance about leases. Under the new guidance, most leases will be recognized as liabilities with corresponding right-of-use assets. The new guidance carries forward a similar method of expense recognition for lessees. The new guidance is effective for us beginning January 1, 2019 and must be adopted using a modified retrospective approach. As permitted under the new guidance, we intend to use the effective date as our date of initial application. As a result, neither updated financial information nor disclosures will be provided for dates or periods prior to January 1, 2019. The new guidance provides a number of optional practical expedients in transition that we are still evaluating. We recently accelerated our implementation of this standard in contemplation of an initial public offering, so we are still early in evaluating its impact. Based on current available data about our leases, we estimate that the adoption of this new guidance will cause us to recognize new assets and new liabilities of \$160 to \$185 million. We do not expect the new guidance to materially impact our earnings upon adoption.

In May 2014, the FASB issued comprehensive new revenue recognition guidance. The guidance provides a new model for revenue recognition that supersedes most current guidance and requires more disclosures about revenue, including the components of revenue that are communicated to investors. We adopted the new guidance on January 1, 2018 using a modified retrospective method applied to contracts that were not completed as of that date. On the adoption date, we: (i) recorded a \$4.8 million cumulative effect adjustment to decrease accumulated deficit, (ii) established \$13.0 million of contract assets, classified as other current assets, and derecognized \$6.5 million of custom-manufactured inventory where control had passed to the customer and (iii) recognized a \$1.7 million deferred tax liability. New disclosures required under this guidance are included in notes 2 and 6.

There were no other new accounting standards that we expect to have a material impact to our financial position or results of operations upon adoption.

4. Loss per share

For all periods presented, basic and diluted loss per share calculations were the same. Stock options for 21.1 million, 19.6 million and 18.9 million shares of common stock were excluded from the calculations of diluted loss per share for the years ended December 31, 2018, 2017 and 2016, respectively, because the effect would have been anti-dilutive.

[Table of Contents](#)
Pro forma loss per share

Unaudited pro forma loss per share was computed to give effect to the conversion of the junior convertible preferred stock and redemption of the series A preferred stock with a portion of net proceeds from the initial public offering. The following table presents the reconciliation of diluted loss per share to unaudited pro forma loss per share for the year ended December 31, 2018 as if the conversion and redemption had occurred on January 1, 2018:

<i>(in millions, except per share data)</i>	<u>Loss</u>	<u>Weighted average shares outstanding</u>	<u>Loss per share</u>
Diluted	\$(356.4)	132.7	\$ (2.69)
Assumed redemption of series A preferred stock	269.5	164.1	
Assumed conversion of junior convertible preferred stock	—	194.5	
Unaudited pro forma	<u>\$ (86.9)</u>	<u>491.3</u>	\$(0.18)

5. Risks and uncertainties***Remeasurement of foreign currency transactions***

Our operations span the globe, so changes in foreign currency exchange rates, particularly the euro, can have a significant impact on our results of operations.

Our U.S. subsidiaries carry significant amounts of euro-denominated debt, and many of our subsidiaries carry foreign currency denominated intercompany loans. We remeasure these positions into local currencies each period, and the effect is recognized immediately in earnings. Our foreign currency denominated intercompany loan exposure at December 31, 2018 was €250 million of unhedged intercompany loans receivable. A one percent decrease to the price of the euro in U.S. dollars at December 31, 2018 would have required us to reduce our 2018 pretax income by \$2.8 million to remeasure that net position.

We are not able to predict future changes to foreign currency exchange rates or what impact they may have on our operating results. Historical changes to foreign currency exchange rates that were included in other income or expense, net are disclosed in note 18.

Impairment testing

We perform impairment testing on October 1 of each year for goodwill and other intangible assets with indefinite lives. We also perform impairment testing on any long-lived assets when we determine that indicators of impairment are present. Impairment testing requires us to estimate the fair value of these assets. Those estimates frequently require the use of unobservable inputs such as forecasted earnings and discount rates. Determining these inputs requires management to exercise significant judgment.

On October 1, 2018, we performed quantitative annual impairment testing of goodwill for each of our reporting units. We did not record any impairment charges. Each reporting unit had a fair value that was substantially in excess of the carrying value.

Unfavorable changes to forecasted results and other assumptions used to determine the fair values of reporting units could put goodwill at risk of impairment in future periods.

Collective bargaining arrangements

As of December 31, 2018, less than 7% of our employees in North America were represented by unions, and a majority of our employees in Europe are represented by workers' councils or unions.

[Table of Contents](#)

6. Segment financial information

We report based on three geographic segments based on customer location: Americas, Europe and AMEA. Each segment manufactures and distributes solutions for the life sciences and advanced technologies & applied materials industries. Corporate costs are managed on a standalone basis and not allocated to segments.

The following tables present information by reportable segment:

<i>(in millions)</i>	Net sales Year ended December 31,			Management EBITDA Year ended December 31,		
	2018	2017	2016	2018	2017	2016
Americas	\$ 3,460.9	\$ 688.1	\$ 394.5	\$ 651.6	\$ 196.8	\$ 171.0
Europe	2,095.3	381.4	155.6	349.6	103.4	63.6
AMEA	308.1	177.9	141.2	73.8	43.3	42.1
Corporate	—	—	—	(69.0)	(19.5)	(26.5)
Total	<u>\$ 5,864.3</u>	<u>\$ 1,247.4</u>	<u>\$ 691.3</u>	<u>\$ 1,006.0</u>	<u>\$ 324.0</u>	<u>\$ 250.2</u>

<i>(in millions)</i>	Capital expenditures Year ended December 31,			Depreciation and amortization Year ended December 31,		
	2018	2017	2016	2018	2017	2016
Americas	\$ 20.4	\$ 16.5	\$ 17.7	\$ 252.2	\$ 75.4	\$ 52.3
Europe	14.0	6.3	7.5	145.7	19.8	4.7
AMEA	3.3	2.4	4.7	6.7	4.0	3.3
Total	<u>\$ 37.7</u>	<u>\$ 25.2</u>	<u>\$ 29.9</u>	<u>\$ 404.6</u>	<u>\$ 99.2</u>	<u>\$ 60.3</u>

The amounts above exclude inter-segment activity because it is not material. All of the net sales for each segment are from external customers.

Table of Contents

The following table presents the reconciliation of Management EBITDA from net loss, the nearest measurement under GAAP:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Net loss	\$ (86.9)	\$(145.3)	\$(80.7)
Interest expense	523.8	257.3	80.3
Income tax (benefit) expense	(26.9)	(314.9)	10.1
Depreciation and amortization	404.6	99.2	60.3
Net foreign currency loss from financing activities	6.5	5.5	0.4
Gain on derivative instruments	—	(9.6)	—
Share-based compensation expense	18.4	48.2	98.7
Restructuring and severance charges	81.2	29.6	11.1
Purchase accounting adjustments	(1.0)	41.8	4.5
Fees to New Mountain Capital	1.0	193.5	28.3
Impairment charges	2.9	5.0	—
VWR transaction expenses	0.4	40.7	—
VWR integration and planning expenses	35.8	33.0	—
Other transaction and integration expenses	1.1	25.0	11.5
Environmental remediation costs	—	—	4.6
Debt refinancing fees	—	3.1	4.7
Business performance improvement programs	7.1	0.3	6.5
Write-offs of working capital and other assets	22.1	—	1.0
Long-term incentive plan	9.6	3.2	1.5
Other	6.3	8.4	7.4
Management EBITDA	<u>\$1,006.0</u>	<u>\$ 324.0</u>	<u>\$250.2</u>

The following table presents net sales by product line:

<i>(in millions)</i>	Year ended December 31, 2018
Proprietary materials & consumables	\$ 1,933.9
Third party materials & consumables	2,686.5
Services	341.9
Equipment & instrumentation	902.0
Total	<u>\$ 5,864.3</u>

The following table presents information by geographic area:

<i>(in millions)</i>	Net sales Year ended December 31,			Property, plant and equipment, net December 31,	
	2018	2017	2016	2018	2017
United States	\$3,126.5	\$ 631.8	\$379.2	\$ 398.5	\$ 435.9
Germany	507.6	78.8	17.9	19.8	21.7
Other countries in Europe	1,587.7	299.4	137.7	124.0	139.8
All other countries	642.5	237.4	156.5	56.3	66.1
Total	<u>\$5,864.3</u>	<u>\$1,247.4</u>	<u>\$691.3</u>	<u>\$ 598.6</u>	<u>\$ 663.5</u>

Table of Contents
7. Supplemental disclosures of cash flow information

The following table presents the balance sheet classification of the components of cash, cash equivalents and restricted cash shown in the statements of cash flows:

<i>(in millions)</i>	December 31,	
	2018	2017
Cash and cash equivalents	\$184.7	\$185.4
Restricted cash classified as other assets	3.0	3.1
Total	<u>\$187.7</u>	<u>\$188.5</u>

The following table presents detail for cash distributions paid:

<i>(in millions)</i>	Year ended December 31,	
	2017	2016
Payments to stockholders	\$ 1,531.5	\$ 121.9
Settlement of tax receivable agreement	90.5	—
Repurchase of common shares	58.7	—
Payments to holders of vested stock options	21.2	36.8
Total	<u>\$ 1,701.9</u>	<u>\$ 158.7</u>

No distributions were made during 2018. In September 2016, we entered into a tax receivable agreement under which we were required to distribute cash to our stockholders based on the value of certain income tax benefits we realized. In November 2017, we fully settled the tax receivable agreement by paying the distribution noted above.

The following table presents the classification on the statements of cash flows of contingent consideration payments, as discussed in note 21.

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Operating activities, other reconciling adjustments	\$ 1.9	\$ 1.0	\$ 8.0
Financing activities	20.5	22.7	29.3
Total	<u>\$22.4</u>	<u>\$23.7</u>	<u>\$37.3</u>

8. Inventory

The following table presents components of inventory:

<i>(in millions)</i>	December 31,	
	2018	2017
Merchandise inventory	\$409.0	\$468.7
Finished goods	122.9	109.5
Raw materials	105.2	87.1
Work in process	34.0	29.8
Total	<u>\$671.1</u>	<u>\$695.1</u>
Inventory under the LIFO method:		
Percentage of total inventory	32%	29%
Excess of current cost over carrying value	\$ 2.4	\$ —

[Table of Contents](#)
9. Property, plant and equipment

The following table presents the components of property, plant and equipment:

<i>(in millions)</i>	December 31,	
	2018	2017
Buildings and related improvements	\$ 329.1	\$ 345.4
Machinery, equipment and other	341.0	333.2
Software	77.1	66.6
Land	47.2	51.2
Assets not yet placed into service	30.0	37.6
Property, plant and equipment, gross	824.4	834.0
Accumulated depreciation	(225.8)	(170.5)
Property, plant and equipment, net	<u>\$ 598.6</u>	<u>\$ 663.5</u>

Depreciation was \$83.3 million in 2018, \$34.0 million in 2017 and \$28.4 million in 2016.

10. Goodwill and other intangible assets

The following tables present information about goodwill by segment:

<i>(in millions)</i>	Not allocated	Americas	Europe	AMEA	Total
Balance at December 31, 2016, net	\$ 186.1	\$ —	\$ —	\$ —	\$ 186.1
Acquisitions	2,639.7	—	—	—	2,639.7
Currency translation	21.5	—	—	—	21.5
Balance at December 31, 2017, net	2,847.3	—	—	—	2,847.3
Accumulated impairment losses	38.8	—	—	—	38.8
Balance at December 31, 2017, gross	<u>\$ 2,886.1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$2,886.1</u>
Balance at December 31, 2017, net	\$ 2,847.3	\$ —	\$ —	\$ —	\$2,847.3
Reporting unit allocation	(2,803.0)	1,609.4	1,164.0	29.6	—
Currency translation	(41.9)	(5.7)	(14.0)	0.4	(61.2)
Other	(2.4)	1.0	—	—	(1.4)
Balance at December 31, 2018, net	—	1,604.7	1,150.0	30.0	2,784.7
Accumulated impairment losses	—	21.0	6.7	11.1	38.8
Balance at December 31, 2018, gross	<u>\$ —</u>	<u>\$1,625.7</u>	<u>\$1,156.7</u>	<u>\$ 41.1</u>	<u>\$2,823.5</u>

Effective October 1, 2018, we established three new reporting units aligned to geographic operating segments based on customer location: Americas, Europe and AMEA. Upon the establishment of these new reporting units, we allocated goodwill to each reporting unit based on its relative fair value. Prior to this date, goodwill was not allocated to any specific reporting unit.

[Table of Contents](#)

The following table presents the components of other intangible assets:

	December 31, 2018			December 31, 2017		
	Gross value	AA	Carrying value	Gross value	AA	Carrying value
<i>(in millions)</i>						
Customer relationships	\$ 4,572.3	\$ 412.5	\$ 4,159.8	\$ 4,671.7	\$ 181.7	\$ 4,490.0
VWR trade name	266.3	65.4	200.9	273.3	6.5	266.8
Other	194.0	81.3	112.7	197.2	57.0	140.2
Total finite-lived	<u>\$ 5,032.6</u>	<u>\$ 559.2</u>	4,473.4	<u>\$ 5,142.2</u>	<u>\$ 245.2</u>	4,897.0
Indefinite-lived			92.3			92.3
Total			<u>\$ 4,565.7</u>			<u>\$ 4,989.3</u>

Amortization was \$321.3 million in 2018, \$65.2 million in 2017 and \$31.9 million in 2016.

The following table presents estimated future amortization:

<i>(in millions)</i>	December 31, 2018
2019	\$ 315.1
2020	309.5
2021	262.2
2022	258.8
2023	246.5
Thereafter	3,081.3
Total	<u>\$ 4,473.4</u>

11. Restructuring and severance

The following table presents restructuring and severance charges by plan:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
2017 value capture program	\$78.3	\$17.5	\$ —
Other	2.9	12.1	11.1
Total	<u>\$81.2</u>	<u>\$29.6</u>	<u>\$11.1</u>

2017 value capture program

We have implemented a program to spend up to \$215 million over a three-year period to optimize our sales, gross margins and operating costs. The spending will include up to \$90 million for capital expenditures and up to \$125 million for employee severance and related costs, facility closure and other charges. Our plans include combining sales and marketing resources, eliminating redundant corporate functions, optimizing procurement and our manufacturing footprint, and implementing best practices throughout the organization. We currently expect all synergies and cost savings to be fully realized by 2021.

[Table of Contents](#)

The following table presents information about charges under the 2017 value capture program:

<i>(in millions)</i>	Year ended December 31,		December 31, 2018		
	2018	2017	Charges incurred to date	Expected remaining charges	Total expected charges
Employee severance and related	\$48.7	\$17.5	\$ 66.2	\$ 26.8	\$ 93.0
Facility closure	1.2	—	1.2	0.8	2.0
Other	28.4	—	28.4	1.6	30.0
Total	<u>\$78.3</u>	<u>\$17.5</u>	<u>\$ 95.8</u>	<u>\$ 29.2</u>	<u>\$ 125.0</u>
Americas	\$37.4	\$ 3.2	\$ 40.6	\$ 6.4	\$ 47.0
Europe	39.1	1.5	40.6	13.4	54.0
AMEA	0.8	—	0.8	1.2	2.0
Corporate	1.0	12.8	13.8	8.2	22.0
Total	<u>\$78.3</u>	<u>\$17.5</u>	<u>\$ 95.8</u>	<u>\$ 29.2</u>	<u>\$ 125.0</u>

Other charges in the table above were to write-down the carrying value of assets we plan to close or sell under the program, the largest of which is a charge of \$20.2 million to record on-hand stock of a discontinued product at net realizable value. Other charges also include \$2.5 million of expense related to a voluntary early retirement program under one of our pension plans in the United States. These charges do not impact the accrued restructuring charges shown below.

The following table presents changes to accrued employee severance and related charges under the 2017 value capture program, which are primarily classified as employee-related current liabilities:

<i>(in millions)</i>	Employee severance and related Year ended December 31,	
	2018	2017
Beginning balance	\$ 15.0	\$ —
Restructuring charges	48.7	17.5
Cash payments	(29.2)	(2.5)
Currency translation	(0.9)	—
Ending balance	<u>\$ 33.6</u>	<u>\$ 15.0</u>

12. Commitments and contingencies

Our business involves commitments and contingencies related to compliance with environmental laws and regulations, the manufacture and sale of products, employment arrangements, litigation and a recently announced initial public offering. We have also entered into operating lease commitments as disclosed in note 22. The ultimate resolution of contingencies is subject to significant uncertainty, and it is reasonably possible that contingencies could be decided unfavorably for us.

Environmental laws and regulations

Our environmental liabilities are subject to changing governmental policy and regulations, discovery of unknown conditions, judicial proceedings, method and extent of remediation, existence of other potentially responsible parties and future changes in technology. We believe that known and unknown environmental matters, if not resolved favorably, could have a material effect on our financial position, liquidity and profitability.

Table of Contents

Mallinckrodt indemnification

In 2010, New Mountain Capital acquired 100% ownership of us from Covidien plc in accordance with a stock purchase agreement dated May 25, 2010. At that time, we were organized as Mallinckrodt Baker, Inc. or MBI. Pursuant to the terms of that agreement, we are entitled to various levels of indemnification with respect to environmental liabilities involving the former MBI operations. In 2013, in connection with the Covidien plc divestiture of Mallinckrodt Group S.a.r.l and to Mallinckrodt LLC, together "Mallinckrodt," and by a second amendment to the stock purchase agreement dated June 6, 2013, but effective upon the consummation of the divestiture, Covidien plc assigned its obligations as described herein to Mallinckrodt, and Mallinckrodt assumed those obligations from Covidien plc. As a result of the stock purchase agreement and assignment, Mallinckrodt is contractually obligated to indemnify and defend us for all off-site environmental liabilities (for example, Superfund or Comprehensive Environmental Response, Compensation, and Clean-up Act type liabilities) arising from the pre-closing disposal of chemicals or wastes by former MBI operations.

In connection with environmental liabilities arising from pre-closing noncompliance with environmental laws, Mallinckrodt is contractually obligated to reimburse us for a percentage of the total liability, with such reimbursements made through disbursements from a \$30.0 million environmental escrow established at the time of the closing. Specifically, Mallinckrodt will be responsible for reimbursement of 80% of the total costs up to \$40.0 million of such environmental liabilities. Mallinckrodt will then be responsible for reimbursement of 50% of the next \$40.0 million of such environmental liabilities. If such environmental liabilities exceed \$80.0 million in the aggregate, Mallinckrodt will be responsible for reimbursement of 100% of such liabilities up to the next \$30.0 million in the aggregate. Currently, reimbursements are 80% of the amounts spent by us, with reimbursements and settlements to date exceeding \$12.0 million. In addition, in connection with operation and maintenance activities required pursuant to administrative consent orders and subsequently issued remedial action permits involving our Phillipsburg, New Jersey, facility, amounts in excess of \$0.3 million per year are also subject to reimbursement, currently at the 80% level.

In a separate matter, in 2013, we reached a settlement with Mallinckrodt whereby in exchange for a payment of \$4.0 million, all claims regarding non-compliance with process safety management laws and regulations are deemed resolved. We used the \$4.0 million of settlement proceeds to establish a reserve and have since identified \$1.4 million of costs to address safety related matters, which has reduced the balance of the reserve to \$2.6 million as of December 31, 2018.

Other noteworthy matters

The New Jersey Department of Environmental Protection has ordered us to remediate groundwater conditions near our plant in Phillipsburg, New Jersey. This matter is covered by the indemnification arrangement previously described. At December 31, 2018, our accrued obligation under this order is \$3.5 million, which is calculated based on expected cash payments discounted at rates ranging from 2.0% in 2018 to 3.0% in 2045. The undiscounted amount of that obligation is \$4.7 million.

In 2016, we assessed the environmental condition of our chemical manufacturing site in Gliwice, Poland. Our assessment revealed specific types of soil and groundwater contamination throughout the site. We are also monitoring the condition of a closed landfill on that site. These matters are not covered by our indemnification arrangement because they relate to an operation we subsequently acquired. At December 31, 2018, our balance sheet includes a liability of \$3.6 million for remediation and monitoring costs. That liability is estimated primarily on expected remediation payments discounted through 2020 and is not materially different than its undiscounted amount.

Manufacture and sale of products

Our business involves risk of product liability, patent infringement and other claims in the ordinary course of business arising from the products that we produce ourselves or obtain from our suppliers, as well as from the

Table of Contents

services we provide. Our exposure to such claims may increase to the extent that we expand our manufacturing operations or service offerings.

We maintain insurance policies to protect us against these risks, including product liability insurance. In many cases the suppliers of products we distribute have indemnified us against such claims. Our insurance coverage or indemnification agreements with suppliers may not be adequate in all pending or any future cases brought against us. Furthermore, our ability to recover under any insurance or indemnification arrangements is subject to the financial viability of our insurers, our suppliers and our suppliers' insurers, as well as legal enforcement under the local laws governing the arrangements.

We have entered into indemnification agreements with customers of our self-manufactured products to protect them from liabilities and losses arising from our negligence, willful misconduct or sale of defective products. To date, we have not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions.

Employment agreements

The employment agreements with our executive officers include provisions for the payment of severance and continuing health benefits in the event of their termination without cause, resignation for good reason or termination or resignation in connection with a change of control, as each of those terms are defined in the employment agreements. The aggregate of potential payments for all executive officers under these provisions was \$18.8 million at December 31, 2018.

Litigation

At December 31, 2018, there was no outstanding litigation that we believe would result in material losses if decided against us, and we do not believe that there are any unasserted matters that are reasonably possible to result in a material loss.

13. Debt

In November 2017, we refinanced substantially all of our debt through our wholly-owned subsidiary Avantor Funding. The refinancing resulted in payments of \$283.1 million to fund debt issuance costs, \$273.5 million of which was deferred and is being recognized as interest expense through the maturity dates of our debt. We also incurred a loss on extinguishment of debt of \$34.6 million. Each of those amounts excludes transaction fees paid to New Mountain Capital (see note 23).

Table of Contents

The following table presents information about our debt:

<i>(dollars in millions)</i>	December 31, 2018			December 31,
	Interest terms	Rate	Amount	2017
Receivables facility	LIBOR plus 1.75%	4.25%	\$ 104.0	\$ 70.8
Senior secured credit facilities:				
Euro term loans	EURIBOR plus 3.75%	3.75%	1,078.0	1,201.2
U.S. dollar term loans	LIBOR plus 3.75%	6.57%	1,838.9	1,953.1
4.75% secured notes	fixed rate	4.75%	572.5	600.6
6% secured notes	fixed rate	6.00%	1,500.0	1,500.0
9% unsecured notes	fixed rate	9.00%	2,000.0	2,000.0
Other			69.5	70.4
Total debt, gross			7,162.9	7,396.1
Less: unamortized deferred financing costs			(238.2)	(278.3)
Total debt			<u>\$6,924.7</u>	<u>\$ 7,117.8</u>
Classification on balance sheets:				
Current portion of debt			\$ 142.4	\$ 109.0
Debt, net of current portion			6,782.3	7,008.8

The following table presents mandatory future repayments of debt principal:

<i>(in millions)</i>	December 31,
	2018
2019	\$ 38.6
2020	138.3
2021	33.5
2022	32.8
2023	32.0
Thereafter	6,887.7
Total debt, gross	<u>\$ 7,162.9</u>

Credit facilities

The following table presents availability under our credit facilities:

<i>(in millions)</i>	December 31, 2018		
	Receivables facility	Revolving credit facility	Total
Current availability	\$ 250.0	\$ 250.0	\$ 500.0
Undrawn letters of credit outstanding	(12.3)	(17.2)	(29.5)
Outstanding borrowings	(104.0)	—	(104.0)
Unused availability	<u>\$ 133.7</u>	<u>\$ 232.8</u>	<u>\$ 366.5</u>
Maximum availability	\$ 250.0	\$ 250.0	\$ 500.0

Current availability under the receivables facility depends upon maintaining a sufficient borrowing base of eligible accounts receivable. At December 31, 2018, \$387.4 million of accounts receivable were available as collateral under the facility.

Receivables facility

In connection with the VWR acquisition in November 2017, we amended and restated VWR's receivable facility. The receivables facility is with a commercial bank, functions like a line of credit and matures in November 2020.

Table of Contents

Borrowings are secured by accounts receivable which are sold by certain of our domestic subsidiaries to a special-purpose consolidated subsidiary. As a result, those receivables are not available to satisfy the claims of other creditors. We bear the risk of collection on those receivables and account for the receivables facility as a secured borrowing.

The receivables facility includes representations and covenants that we consider usual and customary, including a financial covenant. When applicable, that covenant requires that we may not have total borrowings in excess of a pro forma net leverage ratio, as defined. That covenant becomes applicable for periods in which we have drawn more than 35% of our revolving credit facility under the senior secured credit facilities. This covenant has not yet become applicable.

Senior secured credit facilities

The senior secured credit facilities consist of a \$250.0 million revolving credit facility that expires in November 2022 as well as €1,000.0 million of euro term loans and \$1,953.1 million of U.S. dollar term loans that mature in November 2024. The revolving credit facility allows us to issue letters of credit and also to issue short term notes. Borrowings under the facilities are guaranteed by substantially all of our domestic subsidiaries and secured by substantially all of their assets except for the accounts receivable that secure the receivables facility.

The senior secured credit facilities bear interest at variable rates. The margin on the revolving credit facility declines if certain net leverage ratios are achieved. Various other immaterial fees are payable under the facilities.

We began repaying the term loans on March 31, 2018 in quarterly installments of 0.25% of the original principal amount, with the balance due on the maturity date. We are required to make additional prepayments if: (i) we generate excess cash flows, as defined, at specified percentages that decline if certain net leverage ratios are achieved; or (ii) we receive cash proceeds from certain types of asset sales or debt issuances. No additional required prepayments have become due since the inception of the credit facilities. We may also prepay the term loans at our option. In December 2018, we prepaid €48.5 million of euro term loans and \$94.8 million of U.S. dollar term loans.

The senior secured credit facilities include representations and covenants that we consider usual and customary, including a financial covenant. When applicable, that covenant requires that we may not have total borrowings in excess of a pro forma net leverage ratio, as defined. That covenant becomes applicable in periods when we have drawn more than 35% of our revolving credit facility. This covenant has not yet become applicable.

In November 2018, we amended our senior secured credit facilities to reduce the annual interest rate margins on our euro term loans by 0.50% and our U.S. dollar term loans by 0.25%. The cost to complete the amendment was not material.

Prior credit facilities

Prior to November 2017, we were party to other credit facilities which had been amended or refinanced at various times to fund mergers and acquisitions, distributions, the redemption of our CPECs and costs associated with those activities. As a result of those amendments and refinancings, we paid fees of \$35.5 million in 2017 and \$56.4 million in 2016, and we incurred losses on extinguishment of debt of \$21.8 million in 2017 and \$19.9 million in 2016, each excluding transaction fees paid to New Mountain Capital (see note 23).

Secured and unsecured notes

We have issued €500.0 million of secured notes at 4.75% and \$1,500.0 million of secured notes at 6% that are due October 2024 and \$2,000.0 million of unsecured notes at 9% that are due October 2025. Interest on the notes is payable semi-annually in arrears on April 1 and October 1. The secured notes are guaranteed and secured in the same way as the senior secured credit facilities. Each note features optional redemption at varying prices based on form and timing.

[Table of Contents](#)

The indentures governing the notes include representations and covenants that we consider usual and customary.

14. Redeemable equity and stockholders' deficit

Avantor, Inc. is the latest in a succession of reporting entities for the business known as "Avantor," the most two recent predecessors being Avantor Funding and the combination of Avantor S.A. and NuSil. The changes to the reporting entities were each the result of two legal entity restructurings.

Avantor, Inc.

Avantor, Inc. was established as the reporting entity following the November 2017 legal entity restructuring described below.

The following table presents the equity capitalization of Avantor, Inc.:

(shares in millions)	Equity classification	Par value per share	Shares authorized	Shares issued and outstanding December 31,	
				2018	2017
Series A preferred stock	Redeemable	\$ 0.01	25.0	2.3	2.0
Junior convertible preferred stock	Redeemable	0.01	5.0	1.7	1.7
Undesignated preferred stock		0.01	45.0	—	—
Common stock	Stockholders'	0.01	750.0	132.8	132.6
Class B stock	Stockholders'	0.01	0.3	0.3	0.3
Total			<u>825.3</u>	<u>137.1</u>	<u>136.6</u>

Series A preferred stock

In November 2017, we issued 2.0 million shares of series A preferred stock and detachable warrants to purchase 7.1 million shares of common stock for cash proceeds of \$2,000.0 million. Those proceeds were reduced for issuance costs of \$183.6 million, resulting in net proceeds of \$1,816.4 million. The net proceeds were then allocated to the series A preferred stock and the warrants based on their relative fair value. As a result, \$1,725.6 million was allocated to the series A preferred stock, and \$90.8 million was allocated to the warrants and recorded as an addition to common stock including paid-in capital.

The series A preferred stock is redeemable for \$1,000 per share. Holders have the option to redeem their shares upon a qualified initial public offering, a change of control or certain other defined events. Holders also have a "forced exit" option that vests November 21, 2027 and would require us to begin a multi-step process to secure funding for the redemption of their shares.

We also have the option to redeem the series A preferred stock at premiums to the redemption value according to the following schedule:

	Redemption price	
	Following a qualified initial public offering	Otherwise
Prior to November 21:		
2019	104%*	
2020	104%	102%*
2021	102%	102%
2022	101%	101%
Thereafter	100%	100%

Table of Contents

* Indicates that an additional make whole premium is applicable, which is approximately equal to the amount of dividends payable through November 21, 2019 or 2020.

Holders of the series A preferred stock are entitled to receive quarterly cumulative dividends payable in additional shares of series A preferred stock at a rate of 12.5%. Cumulative dividends in arrears as of December 31, 2018 and 2017 were \$31.5 million and \$27.8 million, respectively.

In the event of any bankruptcy, liquidation, dissolution or winding up, the holders of series A preferred stock are entitled to a liquidation preference of \$1,000 in cash per share before any payment or distribution is made to holders of other classes of preferred or common stock.

The following table presents the rollforward of the series A preferred stock:

<i>(in millions)</i>	Year ended December 31, 2018		Year ended December 31, 2017	
	Shares	Amount	Shares	Amount
Beginning balance	2.0	\$2,027.8	—	\$ —
Issuances, net of costs and warrant value	—	—	2.0	1,725.6
Adjustment to redemption value	—	—	—	274.4
Accumulation of yield	0.3	269.5	—	27.8
Ending balance	<u>2.3</u>	<u>\$2,297.3</u>	<u>2.0</u>	<u>\$2,027.8</u>

Junior convertible preferred stock

In November 2017, we issued 1.3 million shares of junior convertible preferred stock for cash proceeds of \$1,320.6 million. The proceeds were reduced for issuance costs of \$88.0 million resulting in net proceeds of \$1,232.6 million. We issued an additional 0.4 million shares in exchange for legacy equity interests in connection with the November 2017 legal entity restructuring discussed below.

The junior convertible preferred stock automatically converts into common stock following the occurrence of a qualified initial public offering or a change of control. Each share converts into a number of shares of common stock equal to the greater of (i) \$1,650 divided by the applicable common stock price or (ii) the number of shares that, immediately after conversion, would represent a 46.97% share of the total common stock. The conversion feature places no limit on the possible number of shares to be issued, so settlement in shares cannot be assured. Accordingly, we present the junior convertible preferred stock as redeemable equity. It is not subsequently remeasured at redemption value because the events giving rise to the redeemable equity classification are not deemed probable under GAAP until they occur.

Holders are entitled to vote with the common stockholders as a single class with the number of votes determined on an if-converted basis. The holders also have the right to appoint five members to the Board of Directors. Holders of junior convertible preferred stock are entitled to participate in dividends and distributions as declared by the Board of Directors on an if-converted basis with the holders of outstanding shares of common stock and warrants.

In the event of any bankruptcy, liquidation, dissolution or winding up of the Company, the holders are entitled to a liquidation preference of \$1,650 in cash per share before any payment or distribution is made to holders of common stock.

[Table of Contents](#)

The following table presents the rollforward of the junior convertible preferred stock:

<i>(in millions)</i>	Year ended December 31, 2018		Year ended December 31, 2017	
	Shares	Amount	Shares	Amount
Beginning balance	1.7	\$1,562.0	—	\$ —
Issuances, net of costs	—	—	1.3	1,232.6
Effects of legal entity restructuring	—	—	0.4	329.4
Ending balance	<u>1.7</u>	<u>\$1,562.0</u>	<u>1.7</u>	<u>\$1,562.0</u>

Common stock

Each share of common stock entitles the holder to one vote for applicable matters. The holders also have the right to appoint five members to the Board of Directors. Holders are entitled to receive dividends declared by the Board of Directors and a pro rata share of assets available for distribution after satisfaction of the rights of the preferred stockholders.

Warrants

As noted above, in November 2017 we issued detachable warrants to purchase 7.1 million shares of common stock with the series A preferred stock. Holders of warrants are entitled to participate in dividends and distributions as declared by the Board of Directors on an if-converted basis with the holders of outstanding shares of junior convertible preferred stock and common stock. Each warrant is exercisable for a share of common stock at a price of \$0.002 per share.

Class B stock

Shares of class B stock have no voting or economic rights. Shares of class B stock are each convertible into five shares of common stock upon a change of control or a qualified initial public offering if a certain performance threshold is met. Otherwise, shares of class B stock will be automatically redeemed without consideration upon the change of control or qualifying initial public offering. We have determined that the likelihood of achieving the performance threshold is remote.

November 2017 legal entity restructuring

The purpose of the November 2017 legal entity restructuring was to create a new capital structure for new debt and equity investors to fund the VWR acquisition. A new parent was formed for this purpose named Avantor Inc., as previously described. The legal entity restructuring also simplified the corporate structure. The effects of the legal entity restructuring are illustrated in note 1 and explained as follows:

- *Exchange of legacy common stock and noncontrolling interest* — Common shares of Avantor Funding and the approximately one-third noncontrolling interest in Avantor Holdings LP were exchanged for 0.4 million shares of junior convertible preferred stock and 132.6 million shares of common stock of Avantor, Inc., causing Avantor Holdings LP to become our wholly-owned subsidiary. As a result, a legacy noncontrolling interest was derecognized.
- *Deferred tax effects* — We increased common stock including paid-in capital and reduced our deferred income tax liabilities to derecognize the temporary differences related to the noncontrolling interest, which included an outside basis difference adjustment of \$54.6 million, a step-up basis adjustment of \$118.0 million and an adjustment to a net operating loss carryforward of \$3.2 million.

Table of Contents

The following table presents the financial effects of the November 2017 legal entity restructuring as summarized on the statement of stockholders' deficit:

<i>(in millions)</i>	<u>Avantor, Inc. stockholders' deficit</u>				<u>Non-controlling interest</u>	<u>Total</u>
	<u>Common stock including paid-in capital</u>	<u>Accumulated deficit</u>	<u>AOCI</u>	<u>Total</u>		
Exchange of legacy common stock	\$ (329.4)	\$ —	\$ —	\$(329.4)	\$ —	\$(329.4)
Exchange of legacy non controlling interest	(278.6)	(37.9)	(10.5)	(327.0)	327.0	—
Deferred tax effects	175.8	—	—	175.8	—	175.8
Total	<u>\$ (432.2)</u>	<u>\$(37.9)</u>	<u>\$(10.5)</u>	<u>\$(480.6)</u>	<u>\$ 327.0</u>	<u>\$(153.6)</u>

Avantor Funding

Avantor Funding was established as the reporting entity following the September 2016 legal entity restructuring described below. It ceased to be the reporting entity following the November 2017 legal entity restructuring described above.

The following table presents the equity capitalization of Avantor Funding at December 31, 2016:

<i>(shares in millions)</i>	<u>Par value per share</u>	<u>Shares issued and outstanding</u>
Undesignated preferred stock	\$ 0.01	—
Common stock, class A	0.01	153.0
Common stock, class B	0.01	77.0
Total		<u>230.0</u>

In September 2016 we issued 77.0 million shares of Class B common stock and subsequently canceled those shares in November 2017 in connection with a legal entity restructuring. There were no other material changes to shares outstanding for any classes of stock of Avantor Funding for the periods presented.

Common stock

Each share of class A and B common stock entitled the holder to one vote for applicable matters. Holders of class A common stock were also entitled to receive dividends declared by the Board of Directors and a pro rata share of assets available for distribution after the satisfaction of liabilities and the rights of preferred stockholders. Holders of class B common stock did not have either of those rights.

September 2016 legal entity restructuring

The purpose of the September 2016 legal entity restructuring was to create a new unified capital structure in anticipation of an equity offering, which was not consummated. A new parent was formed for this purpose named Avantor Funding, as previously described. The legal entity restructuring also improved the tax efficiency of our organization.

The effects of the legal entity restructuring are illustrated in note 1 and explained as follows:

- *Exchange of legacy equity* — New Mountain Capital and the NuSil Investors exchanged their prior equity holdings for 152.5 million shares of class A common stock and 77.0 million shares of class B common stock. They also acquired an approximately one-third interest in Avantor Holdings LP, one of our consolidated subsidiaries, which established a noncontrolling interest.

Table of Contents

- *Deferred tax effects* — We reduced common stock including paid-in capital and increased deferred income tax liabilities for an outside basis difference caused by the legal entity restructuring.

The following table presents the components of the effect of legal entity restructuring presented on the statement of stockholders' deficit:

<i>(in millions)</i>	Avantor, Inc. stockholders' deficit					
	Combined deficit	Common stock including paid-in capital	AOCI	Total	Non-controlling interest	Total
Exchange of legacy equity for noncontrolling interest	\$ 340.6	\$ (177.7)	\$12.7	\$175.6	\$ (175.6)	\$ —
Deferred tax effects	—	(95.1)	—	(95.1)	—	(95.1)
Other effects	—	12.4	—	12.4	—	12.4
Total	<u>\$ 340.6</u>	<u>\$ (260.4)</u>	<u>\$12.7</u>	<u>\$ 92.9</u>	<u>\$ (175.6)</u>	<u>\$(82.7)</u>

Combination of Avantor S.A. and NuSil

For periods prior to September 30, 2016, Avantor S.A. and NuSil had simple capital structures except for the CPECs discussed below. On September 30, 2016, these two entities were merged. As a result, we combined their stockholders' deficits into a single combined deficit. In addition, NuSil Investors held a 40% interest in a NuSil subsidiary during those periods which is presented as a noncontrolling interest.

CPECs were part of the historical capital structure of Avantor S.A. They were redeemable for cash, convertible into common units of Avantor S.A. and contractually linked to common units at a fixed ratio. Accordingly, the CPECs and the common units are accounted for as a single unit following GAAP applicable to redeemable common stock.

The following table presents the rollforward of CPECs:

<i>(in millions)</i>	Year ended December 31, 2016	
	Certificates	Amount
Balance at January 1, 2016	274.4	\$ 1,038.0
Adjustment to redemption value	—	1,177.1
Redemptions	(119.7)	(702.2)
Conversions to common equity	(154.7)	(1,512.9)
Balance at December 31, 2016	<u>—</u>	<u>\$ —</u>

[Table of Contents](#)
15. Accumulated other comprehensive income or loss

The following table presents changes in the components of AOCI, inclusive of noncontrolling interests:

<i>(in millions)</i>	<u>Foreign currency translation</u>	<u>Derivative instruments</u>	<u>Defined benefit plans</u>	<u>Total</u>
Balance at December 31, 2015	\$ (41.3)	\$ —	\$ 1.1	\$(40.2)
Unrealized (loss) gain	(6.0)	—	5.0	(1.0)
Reclassification of gain into earnings	—	—	(2.2)	(2.2)
Income tax effects	—	—	(0.7)	(0.7)
Balance at December 31, 2016	<u>(47.3)</u>	<u>—</u>	<u>3.2</u>	<u>(44.1)</u>
Unrealized gain	71.0	0.3	2.2	73.5
Reclassification of loss (gain) into earnings	—	0.1	(3.2)	(3.1)
Income tax effects	—	(0.1)	0.2	0.1
Balance at December 31, 2017	<u>23.7</u>	<u>0.3</u>	<u>2.4</u>	<u>26.4</u>
Unrealized (loss) gain	(82.7)	3.0	(16.9)	(96.6)
Reclassification of gain into earnings	—	(1.9)	2.3	0.4
Income tax effects	—	(0.3)	3.6	3.3
Balance at December 31, 2018	<u>\$ (59.0)</u>	<u>\$ 1.1</u>	<u>\$ (8.6)</u>	<u>\$(66.5)</u>

The reclassifications and income tax effects shown above were immaterial to the financial statements. The reclassifications were made to either cost of sales or selling, general and administrative expense depending upon the nature of the underlying transaction.

16. Employee benefit plans

We sponsor many defined benefit plans across the globe. Those plans have resulted in significant obligations to pay benefits to current and former employees, many of which are at least partially funded with plan assets. Unless required otherwise, we typically seek to freeze the growth of defined benefit plans and close them to new participants. Defined benefit plans do not materially impact our earnings, and as a result, certain disclosures have been omitted.

[Table of Contents](#)

The following table presents information about our defined benefit plans:

	U.S. plans		Non-U.S. plans		Medical plan	
	Year ended December 31,		Year ended December 31,		Year ended December 31,	
(in millions)	2018	2017	2018	2017	2018	2017
Benefit obligation:						
Beginning balance	\$221.4	\$ 10.6	\$291.0	\$ 47.6	\$ 18.6	\$ 16.7
Acquisitions	—	208.9	—	226.9	—	0.9
Service cost	3.1	0.7	4.5	1.2	0.3	0.2
Interest cost	7.7	1.1	5.2	1.3	0.6	0.6
Employee contributions	—	—	4.2	0.8	0.1	0.1
Actuarial (gain) loss	(12.8)	2.2	(13.3)	4.0	(1.4)	0.7
Benefits paid	(18.5)	(2.1)	(5.9)	(1.7)	(0.5)	(0.6)
Settlements and curtailments	—	—	(52.1)	(1.1)	—	—
Currency translation	—	—	(11.8)	12.0	—	—
Other	2.4	—	(2.3)	—	(1.1)	—
Ending balance	<u>203.3</u>	<u>221.4</u>	<u>219.5</u>	<u>291.0</u>	<u>16.6</u>	<u>18.6</u>
Fair value of plan assets:						
Beginning balance	262.8	6.7	191.2	43.8	—	—
Acquisitions	—	250.7	—	132.9	—	—
(Loss) return on plan assets	(21.9)	6.9	(0.9)	4.5	—	—
Employer contributions	0.8	0.6	3.8	1.5	0.5	0.5
Employee contributions	—	—	4.2	0.8	—	0.1
Benefits paid	(18.5)	(2.1)	(5.9)	(1.7)	(0.5)	(0.6)
Settlements and curtailments	—	—	(51.9)	—	—	—
Currency translation	—	—	(7.7)	9.4	—	—
Other	—	—	(0.5)	—	—	—
Ending balance	<u>223.2</u>	<u>262.8</u>	<u>132.3</u>	<u>191.2</u>	<u>—</u>	<u>—</u>
Funded status at end of year	<u>\$ 19.9</u>	<u>\$ 41.4</u>	<u>\$(87.2)</u>	<u>\$(99.8)</u>	<u>\$(16.6)</u>	<u>\$(18.6)</u>
Accumulated benefit obligation	\$196.4	\$220.9	\$211.6	\$ 280.2	\$ 16.6	\$ 17.6
Amounts recorded in balance sheet:						
Other assets	\$ 29.6	\$ 55.8	\$ 5.4	\$ 3.8	\$ —	\$ —
Other current liabilities	(0.5)	(0.5)	(1.8)	(0.9)	(0.8)	(0.8)
Other liabilities	(9.2)	(13.9)	(90.8)	(102.7)	(15.8)	(17.8)
Funded status	<u>\$ 19.9</u>	<u>\$ 41.4</u>	<u>\$(87.2)</u>	<u>\$(99.8)</u>	<u>\$(16.6)</u>	<u>\$(18.6)</u>
Components of AOCI, excluding tax effects:						
Actuarial (loss) gain	(22.1)	1.9	4.1	(5.2)	6.7	5.5
Prior service (loss) gain	—	—	(0.1)	0.8	0.8	1.0

The following table presents the assumptions used to determine the benefit obligation:

	U.S. plans		Non-U.S. plans		Medical plan	
	December 31,		December 31,		December 31,	
	2018	2017	2018	2017	2018	2017
Discount rate	4.4%	3.7%	2.3%	2.0%	4.2%	3.5%
Annual rate of salary increase	—	—	2.5%	1.6%	—	—
Health care cost trends:						
Initial rate	—	—	—	—	6.8%	7.0%
Ultimate rate	—	—	—	—	4.5%	4.5%
Year ultimate rate is reached	—	—	—	—	2031	2030

[Table of Contents](#)

The effect of a one percent increase or decrease to health care cost trends at December 31, 2018 was not material to our benefit obligations.

The following table presents future benefits expected to be paid as of December 31, 2018:

<i>(in millions)</i>	<u>U.S. plans</u>	<u>Non-U.S. plans</u>	<u>Medical plan</u>
2019	\$ 13.5	\$ 6.9	\$ 0.8
2020	13.3	6.4	0.9
2021	13.1	7.3	0.9
2022	12.8	7.6	1.0
2023	12.7	8.2	1.1
2024 – 2028	64.3	39.8	5.9

We do not expect to make any material contributions to our defined benefit plans in 2019.

The following tables present information about plan assets by type:

<i>(in millions)</i>	<u>December 31, 2018</u>				<u>December 31, 2017</u>			
	<u>Total</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
U.S. plans:								
Cash	\$ 1.2	\$ 1.2	\$ —	\$ —	\$ 1.4	\$ 1.4	\$ —	\$ —
Fixed income	153.5	—	153.5	—	189.7	1.3	188.4	—
Equity	68.5	22.9	42.0	3.6	69.7	22.2	44.2	3.3
Other	—	—	—	—	2.0	2.0	—	—
Total	<u>\$223.2</u>	<u>\$ 24.1</u>	<u>\$195.5</u>	<u>\$ 3.6</u>	<u>\$262.8</u>	<u>\$ 26.9</u>	<u>\$232.6</u>	<u>\$ 3.3</u>
Non-U.S. plans:								
Cash	\$ 2.3	\$ 0.9	\$ 1.4	\$ —	\$ 0.8	\$ 0.8	\$ —	\$ —
Fixed income	34.2	—	34.2	—	37.7	—	37.7	—
Equity	25.2	—	25.2	—	70.3	—	70.3	—
Other	37.0	—	37.0	—	—	—	—	—
Insurance contracts	33.6	—	—	33.6	82.4	—	—	82.4
Total	<u>\$132.3</u>	<u>\$ 0.9</u>	<u>\$ 97.8</u>	<u>\$ 33.6</u>	<u>\$191.2</u>	<u>\$ 0.8</u>	<u>\$108.0</u>	<u>\$ 82.4</u>

For the U.S. plans, our primary investment strategy is to match the duration of plan assets with benefit obligations. This strategy, utilizing diversified fixed income funds, attempts to hedge the rate used to discount pension obligations. The fixed income funds invest in long duration investment grade corporate bonds primarily across industrial, financial and utilities sectors and is managed by a single institution. Surplus assets are invested in equity funds. We estimate the expected long-term rate of return on plan assets considering prior performance, the mix of assets and expectations for the long-term returns on those asset classes. Assets measured using Level 3 inputs were not material to the portfolio.

For the non-U.S. plans, in many cases we enter into insurance contracts to guarantee payment of benefits for an annual fee. Otherwise, our primary investment strategy is to seek a return on plan assets sufficient to achieve our long-term funding objectives. To seek this return, the non-U.S. plans invest significantly in global equity funds. Secondly, we invest in fixed income funds to mitigate inflation and interest rate risk. These funds primarily invest in inflation-linked and other types of government bonds. We estimate the expected long-term rate of return on plan assets in a similar manner to the U.S. plans.

[Table of Contents](#)

The following table presents changes to plan assets of non-U.S. plans that were measured using level 3 inputs:

<i>(in millions)</i>	Year ended December 31,	
	2018	2017
Beginning balance	\$ 82.4	\$ 43.8
Acquisitions	—	29.4
Purchases	6.4	2.0
Actual returns	1.2	1.1
Settlements	(54.8)	(1.1)
Currency translation	(1.6)	7.2
Ending balance	<u>\$ 33.6</u>	<u>\$ 82.4</u>

17. Share-based compensation

The following table presents information about stock-based compensation expense:

<i>(in millions)</i>	Classification	Year ended December 31,		
		2018	2017	2016
2017 Plan and predecessors:				
Stock options	Equity	\$13.6	\$23.7	\$10.1
Optionholder awards	Liability	5.2	15.6	9.0
Other	Equity	0.3	3.3	0.1
NuSil plans:				
Phantom units	Liability	0.2	0.8	6.9
Mirror units	Equity	—	—	70.7
SARs	Equity	(0.9)	4.8	1.9
Total		<u>\$18.4</u>	<u>\$48.2</u>	<u>\$98.7</u>
Financial statement classification:				
Equity-classified		\$13.0	\$31.8	\$82.8
Liability-classified		5.4	16.4	15.9

At December 31, 2018, unvested awards have remaining share-based compensation expense of \$46.8 million to be recognized over a weighted average period of 2.8 years.

2017 Plan and predecessors

The 2017 Plan and its predecessors are a succession of three equity incentive plans sponsored by the ultimate parent of our business, which is currently Avantor, Inc. The 2017 Plan is our current, active plan that we use to provide share-based awards to management and consultants.

Under the 2017 Plan and its predecessors, awards for up to 33.0 million shares may be awarded to our management, directors and consultants. At December 31, 2018, 1.5 million shares were available for future issuance. The 2017 Plan will automatically terminate on December 13, 2027, and no award may be granted after this date.

Table of Contents

The following table presents the types of expense recognized for each award:

<i>(in millions)</i>	Vesting from continuing service Year ended December 31,			Modifications Year ended December 31,	
	2018	2017	2016	2017	2016
Stock options	\$ 13.6	\$ 5.3	\$ 3.0	\$ 18.4	\$ 7.1
Optionholder awards	5.2	15.6	9.0	—	—
Other	0.3	0.7	0.1	2.6	—
Total	<u>\$ 19.1</u>	<u>\$ 21.6</u>	<u>\$ 12.1</u>	<u>\$ 21.0</u>	<u>\$ 7.1</u>

There were no modifications to share-based awards during 2018.

Stock options

The following table presents information about outstanding stock options:

<i>(options and intrinsic value in millions)</i>	Number of options	Weighted average exercise price per option	Aggregate intrinsic value	Weighted average remaining term
Outstanding at December 31, 2017	19.5	\$ 14.12		
Granted	3.5	23.21		
Forfeited	(2.0)	23.08		
Outstanding at December 31, 2018	<u>21.0</u>	15.12	\$ 84.9	7.5 years
Expected to vest	13.0	20.75	11.4	8.8 years
Exercisable	8.0	6.26	73.5	5.5 years

Stock options issued under the 2017 Plan vest 60% based on service conditions and 40% based on performance conditions. The service condition vests in equal annual installments over four years. The performance conditions relate to the completion of a qualified initial public offering or a change of control prior to a certain date. No expense has been recognized to date for the portion of outstanding options that vests based on performance conditions. That portion had a grant date fair value of \$31.6 million at December 31, 2018. Stock options issued under the predecessor plans generally vest in equal annual installments over four years. All options expire ten years after the date of grant and are net settled in shares upon exercise.

The following table presents weighted-average information about options granted:

	Year ended December 31,		
	2018	2017	2016
Grant date fair value per option	\$ 5.53	4.61	\$ 2.85
Assumptions used to determine grant date fair value:			
Expected stock price volatility	51.3%	44.9%	25.0%
Risk free interest rate	2.9%	2.2%	1.5%
Expected dividend rate	nil	nil	nil
Expected life of options	6.3 years	6.3 years	6.3 years

The following table presents other information about stock options:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Fair value of options vested	\$47.4	\$29.0	\$37.9
Intrinsic value of options exercised	2.0	83.6	2.9
Tax benefit of options exercised	0.5	33.5	1.2

[Table of Contents](#)

We modified outstanding stock options in 2017 and 2016 in connection with two legal entity restructurings and four distributions.

In the case of the two legal entity restructurings, the outstanding equity awards of predecessor plans were ultimately converted into awards of Avantor, Inc. common stock on a one-for-one basis. Significant amounts of expense were immediately recognized due to the acceleration of vesting terms and increases in the fair value of the business following the combination with NuSil and the VWR acquisition.

In the case of the four distributions, the Board of Directors determined that it would take the following actions in accordance with anti-dilution clauses in the option agreements:

- In each case, cash was paid to vested optionholders as disclosed in note 7. We accounted for the cash payments as partial settlements of the options, not modifications, so no incremental expense was recognized.
- For two of the four distributions, the exercise prices of the awards were reduced, which we accounted for as modifications that resulted in additional expense being immediately recognized.

Optionholder awards

The following table presents information about outstanding optionholder awards:

<i>(dollars in millions)</i>	<u>Grant date fair value</u>	<u>Weighted average remaining term</u>
Outstanding at December 31, 2017	\$ 15.5	
Payments	(6.3)	
Forfeitures	(1.6)	
Outstanding at December 31, 2018	<u>\$ 7.6</u>	0.9 years

Of the outstanding amount at December 31, 2018 shown above, \$3.0 million was included in other current liabilities representing unvested awards for which partial service had been provided.

NuSil plans

The NuSil plans comprise two individual plans of the NuSil Investors and one plan of NuSil under which employees, non-employees and consultants were issued awards in exchange for services. New awards are no longer being issued under these plans, and all outstanding awards under these plans have fully vested. Awards issued under the NuSil plans are no longer material following the September 2016 legal entity restructuring, so certain disclosures have been omitted on that basis.

The following table presents the types of expense recognized for each award:

<i>(in millions)</i>	<u>Recurring fair value measurements</u>			<u>Modifications</u>	
	<u>Year ended December 31,</u>			<u>Year ended December 31,</u>	
	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
Phantom units	\$ 0.2	\$ —	\$ 1.9	\$ 0.8	\$ 5.0
SARs	(0.9)	4.8	1.9	—	—
Mirror units	—	—	30.0	—	40.7
Total	<u>\$ (0.7)</u>	<u>\$ 4.8</u>	<u>\$ 33.8</u>	<u>\$ 0.8</u>	<u>\$ 45.7</u>

There were no modifications to share-based awards during 2018.

[Table of Contents](#)

Phantom units are rights to receive a cash payment based on the value of investments held by one of the NuSil Investors. Currently their value is based on shares of Avantor, Inc. junior convertible preferred stock and common stock, but previously their value was based on investments in other subsidiaries in our consolidated group. Phantom units also include rights to receive distributions on the related shares of our preferred and common stock. These units fully vested in connection with the September 2016 combination with NuSil. We classify these awards as liabilities and record expense each period to remeasure them at their fair value. At December 31, 2018, outstanding phantom units had an aggregate fair value of \$3.1 million with no expiration. We are required to settle the phantom units in cash upon the earlier of the holder's termination of employment or a change of control, each as defined in the NuSil plans. We paid cash of \$0.6 million in 2018, \$4.8 million in 2017 and \$0.3 million in 2016 to settle phantom units for terminated employees.

SARs are fully-vested rights for the holder to receive cash from a NuSil investor equal to the excess of the fair value of the units of that investor over a base price. We classify these awards as equity and record expense each period to remeasure them at fair value. At December 31, 2018, outstanding SARs had an aggregate fair value of \$21.8 million with no expiration. We have no obligation to pay cash to the holders upon settlement of these awards.

Mirror units grant holders the same rights and privileges as investments held by one of the NuSil Investors. These units fully vested in connection with the September 2016 merger with NuSil. Expense is no longer being recognized on these units, and we have no obligations to settle these units in cash.

We modified the phantom units and mirror units in November 2017 and September 2016 by changing the investments on which their value is based. Additional expense was immediately recognized for the phantom units at both times and for the mirror units in September 2016 due to increases in the fair value of those investments following the merger with NuSil and the VWR acquisition. The September 2016 modification to the mirror units additionally changed their classification from liability to equity.

18. Other income or expense

The following table presents the components of other income or expense, net:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Net foreign currency loss from financing activities	<u>\$(6.5)</u>	<u>\$(5.5)</u>	<u>\$(0.4)</u>
Income related to defined benefit plans	3.4	3.4	0.2
Net gain on settlement of derivatives, see note 21	—	9.6	—
Other	<u>(0.4)</u>	<u>—</u>	<u>—</u>
Other (expense) income, net	<u>\$(3.5)</u>	<u>\$ 7.5</u>	<u>\$(0.2)</u>

Most of the net foreign currency remeasurement loss from financing activities in 2018 and 2017 was caused by the weakening of the U.S. dollar on unhedged intercompany loan positions as disclosed in note 5.

The income related to defined benefit plans primarily includes income from the expected return on defined benefit plan assets, partially offset by interest cost on defined benefit plan obligations.

19. Income taxes

In 2017, tax reform legislation was enacted in the United States. The new legislation included a broad range of corporate tax reforms including:

- a reduction of the U.S. federal corporate tax rate from 35% to 21% beginning in 2018;

Table of Contents

- a one-time transition tax on undistributed foreign earnings and profits (15.5% for liquid assets and 8% for illiquid assets);
- ongoing anti-base erosion provisions designed to tax foreign earnings generated without a large fixed asset base; and
- new limitations on deductions for interest expense and net operating losses.

As a result of the new legislation, we recognized a provisional one-time income tax benefit in 2017 of \$126.7 million, of which a \$285.5 million benefit was caused by the remeasurement of our deferred tax assets and liabilities at the new corporate tax rate and a \$158.8 million expense was caused by the one-time transition tax on our accumulated foreign undistributed earnings and profits.

In 2018, we finalized our provisional accounting, which included interpreting new transition tax regulations issued in 2018. In connection with this, we recorded an income tax benefit of \$51.0 million related to the one-time transition tax and an income tax provision of \$21.5 million related to deferred tax remeasurement. We utilized certain other tax attributes to further reduce our transition tax payable, resulting in a transition tax payable of \$71.1 million at December 31, 2018.

Information about the statements of operations

The following table presents detail about captions appearing on the statements of operations:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
(Loss) income before income taxes:			
United States	\$ (78.4)	\$(441.8)	\$(84.0)
Foreign	(35.4)	(18.4)	13.4
Total	<u>\$(113.8)</u>	<u>\$(460.2)</u>	<u>\$(70.6)</u>
Income tax (expense) benefit:			
Current income tax expense:			
Federal	\$ (25.4)	\$(101.1)	\$(26.7)
State	(5.4)	(0.3)	(6.0)
Foreign	(46.2)	(14.3)	(8.1)
Total	<u>(77.0)</u>	<u>(115.7)</u>	<u>(40.8)</u>
Deferred income tax benefit:			
Federal	64.5	349.8	21.7
State	3.7	22.9	4.4
Foreign	35.7	57.9	4.6
Total	<u>103.9</u>	<u>430.6</u>	<u>30.7</u>
Total income tax benefit (expense)	<u>\$ 26.9</u>	<u>\$ 314.9</u>	<u>\$(10.1)</u>

Table of Contents

The following table presents the reconciliation of the income tax provision calculated at the United States federal corporate rate, which was 21% for 2018 and 35% for 2017 and 2016, to the amounts presented in the statements of operations:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Income tax (benefit) provision at federal corporate rate	\$(23.9)	\$(161.1)	\$(24.7)
Noncontrolling interests not subject to tax	—	—	13.4
State income taxes, net of federal benefit	2.3	(15.8)	1.6
Share-based compensation expense	—	—	17.1
Transaction costs	—	16.1	2.9
Rate changes related to U.S. tax reform	21.5	(285.5)	—
Rate changes related to foreign jurisdictions	—	(53.5)	—
Effect of one-time transition tax	(51.0)	158.8	—
Foreign taxes	—	4.1	—
Valuation allowance	23.7	12.8	—
Changes to uncertain tax positions	5.6	(0.8)	2.2
Foreign-derived intangible income deduction	(3.7)	—	—
Other, net	(1.4)	10.0	(2.4)
Income tax (benefit) provision	<u>\$(26.9)</u>	<u>\$(314.9)</u>	<u>\$ 10.1</u>

Deferred taxes

The following table presents the significant components of deferred tax assets and liabilities:

<i>(in millions)</i>	December 31,	
	2018	2017
Deferred tax assets:		
Reserves and accrued expenses	\$ 50.1	\$ 55.5
Pension, postretirement, and environmental liabilities	16.6	16.6
Net operating loss and research and development carryforwards	291.6	236.2
Other	13.3	16.0
Deferred tax assets, gross	<u>371.6</u>	<u>324.3</u>
Less: valuation allowances	197.8	183.9
Deferred tax assets, net	<u>173.8</u>	<u>140.4</u>
Deferred tax liabilities:		
Intangibles	1,014.8	1,107.0
Property, plant and equipment	57.6	57.4
Other	—	2.0
Deferred tax liabilities	<u>1,072.4</u>	<u>1,166.4</u>
Net deferred tax liability	<u>\$ (898.6)</u>	<u>\$(1,026.0)</u>
Classification in the consolidated balance sheets:		
Other assets	\$ 8.9	\$ 25.1
Deferred income tax liabilities	(907.5)	(1,051.1)
Net deferred tax liability	<u>\$ (898.6)</u>	<u>\$(1,026.0)</u>

The increase (decrease) to the valuation allowance was \$13.9 million in 2018, \$181.1 million in 2017 and \$(4.2) million in 2016. The 2017 increase resulted from the VWR acquisition.

[Table of Contents](#)

At December 31, 2018, \$164.1 million of the valuation allowances presented above relate to foreign net operating loss carryforwards that are not expected to be realized. We evaluate the realization of deferred tax assets by considering such factors as the reversal of existing taxable temporary differences, expected profitability by tax jurisdiction and available carryforward periods. The extent and timing of any such reversals will influence the extent of tax benefits recognized in a particular year. Should applicable losses, credits and deductions ultimately be realized, the resulting reduction in the valuation allowance would generally be recognized as an income tax benefit.

Uncertain tax positions

We file federal income tax returns in the United States and other tax returns in various states and international jurisdictions. In the normal course of business, we are subject to examination by taxing authorities throughout the world. We provide reserves for positions that are more likely than not to be overturned by a tax authority upon examination. Tax years are subject to examination in the United States since 2006 at federal level and since 2008 for certain states and in certain international jurisdictions since 2008.

The following table reflects changes to the reserve for uncertain tax positions, excluding accrued interest and penalties:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Beginning balance	\$79.6	\$10.7	\$ 8.1
Additions:			
Acquisitions	—	64.3	—
Tax positions related to the current year	6.9	6.4	0.7
Tax positions related to prior years	0.5	0.1	1.9
Reductions:			
Tax positions related to prior years	(0.2)	(0.6)	—
Settlements with taxing authorities	—	(0.6)	—
Lapse of statutes of limitations	(1.3)	(1.2)	—
Currency translation	(1.2)	0.5	—
Ending balance	<u>\$84.3</u>	<u>\$79.6</u>	<u>\$10.7</u>

Accrued interest and penalties related to the reserve for uncertain tax positions were immaterial for all periods presented. We expect the change to the reserve for uncertain tax positions to be immaterial over the next twelve months.

The development of reserves for uncertain tax positions requires judgments about tax issues, potential outcomes and the timing of settlement discussions with tax authorities. If we were to prevail on all uncertain tax positions, we would recognize an income tax benefit.

Other matters

Undistributed earnings of foreign subsidiaries that are deemed to be permanently invested amount to \$2,941.9 million at December 31, 2018. In addition to the one-time transition tax imposed on all accumulated foreign undistributed earnings through December 31, 2017, undistributed earnings of foreign subsidiaries as of December 31, 2018 may still be subject to certain taxes upon repatriation, primarily where foreign withholding taxes apply. We assert indefinite reinvestment related to investments in foreign subsidiaries. It is not practicable to calculate the unrecognized deferred tax liability on undistributed foreign earnings due to the complexity of the hypothetical calculation.

At December 31, 2018, we had federal net operating loss carryforwards of \$138.1 million that primarily expire in 2037 and state net operating loss carryforwards of \$419.4 million that expire at various times through 2037. In addition, we had foreign net operating loss carryforwards of \$691.9 million, which predominantly have indefinite expirations.

[Table of Contents](#)
20. Business combinations

The following table presents cash paid for acquisitions, net of cash acquired:

<i>(in millions)</i>	Year ended December 31, 2017
VWR	\$ 6,579.8
Other	80.9
Total	<u>\$ 6,660.7</u>

VWR

On November 21, 2017, we acquired VWR. We determined that we were the accounting acquirer because: (i) we obtained control of VWR by transferring cash to purchase all of VWR's issued and outstanding shares of common stock, and (ii) we satisfied all but one of the other qualitative criteria provided under GAAP.

VWR is a global manufacturer and distributor of laboratory and production products and services. We acquired VWR to improve our access to certain customers and geographies, to create a robust offering for the entire biopharmaceutical value chain and to generate significant cost synergies. We incurred transaction costs of \$40.7 million in 2017 to complete the acquisition of VWR, excluding fees paid to New Mountain Capital and to refinance our debt and equity. The transaction costs are included in selling, general and administrative expenses on our statement of operations.

The following table presents the purchase price for VWR:

<i>(in millions)</i>	November 21, 2017
Cash paid to VWR stockholders	\$ 4,460.6
Cash paid to extinguish debt and other liabilities	2,256.2
Less: cash acquired	(137.0)
Total	<u>\$ 6,579.8</u>

The following table presents the allocation of the purchase price to the assets acquired and liabilities assumed:

<i>(in millions)</i>	November 21, 2017
Accounts receivable	\$ 784.9
Inventory	585.3
Other current assets	24.3
Property, plant and equipment	457.1
Goodwill	2,581.3
Other intangible assets	4,534.1
Other assets	69.3
Accounts payable	(455.1)
Other current liabilities	(295.8)
Capital lease obligations	(67.9)
Deferred income tax liabilities	(1,486.0)
Other liabilities	(151.7)
Total	<u>\$ 6,579.8</u>

The purchase price was allocated to identifiable assets acquired and liabilities assumed based on their fair value. The fair value of inventory was determined using a comparative sales method that stated inventory at its expected

[Table of Contents](#)

selling price less estimated selling costs and a reasonable profit on the selling effort, a level 3 measurement. The fair value of property, plant and equipment was determined at the individual asset level using a combination of cost, sales and income approaches, which we consider to be level 3 measurements. The fair value of other intangible assets was determined as follows:

- Customer relationships were valued using the income approach, a level 3 measurement that assumed a weighted-average discount rate of 9.9% and a customer retention rate of 98%.
- The VWR trade name was valued using the relief-from-royalty method, a level 3 measurement that assumed a weighted-average royalty rate of 2.2%.
- Other identifiable intangible assets were valued primarily using a replacement cost method, a level 3 measurement.

The fair values of all other identifiable assets acquired and liabilities assumed were primarily based on their carrying values, which we consider to be level 2 measurements.

The purchase price for VWR was higher than the fair value of the acquired identifiable assets, resulting in goodwill, due to the value of anticipated commercial and cost synergies, the existence of intangible assets not recognizable under GAAP and other market factors. On October 1, 2018, we allocated goodwill of \$1,412.1 million to the Americas, \$1,156.9 million to Europe and \$12.3 million to AMEA based on measurements performed on the acquisition date. We did not record any goodwill that we expect to be deductible for tax purposes.

The following table presents information about acquired identifiable intangible assets:

<i>(dollars in millions)</i>	<u>Fair value</u>	<u>Weighted average estimated life in years</u>
Customer relationships	\$4,160.0	20.0
VWR trade name	270.0	6.4
Developed technology	94.6	8.0
Other	9.5	6.6
Total	<u>\$4,534.1</u>	18.9

Our 2017 results included net sales of \$552.0 million and operating loss of \$39.4 million from VWR.

The following table presents unaudited supplemental pro forma financial information as if the VWR acquisition had occurred on January 1, 2016:

<i>(in millions)</i>	<u>Year ended December 31,</u>	
	<u>2017</u>	<u>2016</u>
Net sales	\$5,398.7	\$5,135.9
Net loss	(120.8)	(343.3)

The pro forma financial information presented above has been prepared by combining our historical results and the historical results of VWR and further reflects the effect of purchase accounting adjustments. These results do not purport to be indicative of the results of operations which actually would have resulted had the acquisitions occurred on the date indicated above, or that may result in the future, and does not reflect potential synergies.

NuSil

On September 30, 2016, we merged with NuSil, a manufacturer of medical and space-grade silicones with applications in drug delivery, medical implants, general healthcare, skin care and advanced engineering. Because

Table of Contents

New Mountain Capital controlled both NuSil and us, we paid no cash to complete the combination. The combination was accounted for as a combination of entities under common control as described in note 1.

Other

Except for their impact on investing cash flows, no other business combinations nor their related costs were material individually or in the aggregate.

21. Financial instruments and fair value measurements

Our financial instruments include cash and cash equivalents, accounts receivable, accounts payable, debt, contingent consideration arrangements and derivative instruments.

Assets and liabilities for which fair value is only disclosed

The carrying amount of cash and cash equivalents was the same as its fair value and is a Level 1 measurement. The carrying amounts for trade accounts receivable and accounts payable approximated fair value due to their short-term nature and are Level 2 measurements.

The following table presents the carrying amounts and fair values of debt instruments:

<i>(in millions)</i>	<u>December 31, 2018</u>		<u>December 31, 2017</u>	
	<u>Carrying amount</u>	<u>Fair value</u>	<u>Carrying amount</u>	<u>Fair value</u>
Receivables facility	\$ 104.0	\$ 104.0	\$ 70.8	\$ 70.8
Senior secured credit facilities:				
Euro term loans	1,078.0	1,063.2	1,201.2	1,210.2
U.S. dollar term loans	1,838.9	1,786.0	1,953.1	1,962.9
4.75% secured notes	572.5	581.2	600.6	605.7
6% secured notes	1,500.0	1,467.8	1,500.0	1,505.8
9% unsecured notes	2,000.0	1,998.5	2,000.0	1,982.6
Other	69.5	69.5	70.4	70.4
Total	<u>\$ 7,162.9</u>	<u>\$ 7,070.2</u>	<u>\$ 7,396.1</u>	<u>\$ 7,408.4</u>

The fair values of debt instruments are based on standard pricing models that take into account the present value of future cash flows, and in some cases private trading data, which are Level 2 measurements.

Recurring fair value measurements with significant unobservable inputs

Certain of the business acquisitions we completed entitle the sellers to contingent consideration based on sales or earnings during a period of time following the acquisition.

The following table presents changes to contingent consideration liabilities:

<i>(in millions)</i>	<u>Year ended</u> <u>December 31,</u>	
	<u>2018</u>	<u>2017</u>
Beginning balance	\$ 25.7	\$ 19.1
Acquisitions	—	30.5
Changes to estimated fair value	1.5	(0.4)
Cash payments	(22.4)	(23.7)
Currency translation	(0.4)	0.2
Ending balance	<u>\$ 4.4</u>	<u>\$ 25.7</u>

[Table of Contents](#)

We estimate the fair value of contingent consideration on a recurring basis using the average of probability-weighted potential payments specified in the purchase agreements, which are Level 3 measurements. Changes to the estimated fair value are recorded as earnings within selling, general and administrative expenses. The significant assumptions used in these calculations include forecasted results and the estimated likelihood for each performance scenario.

Derivative instruments and hedging activities

We engage in hedging activities to reduce our exposure to foreign currency exchange rates. Our hedging activities are designed to manage specific risks according to our strategies, as summarized below, which may change from time to time. Our hedging activities consist of the following:

- *Hedges of forecasted debt extinguishment* — In 2017, we entered into foreign currency forward contracts to hedge foreign currency risks associated with the anticipated repayment of a portion of VWR's euro-denominated debt in connection with our acquisition of VWR;
- *Economic hedges* — We experience foreign currency exchange rate effects on our euro-denominated term loans and notes that move oppositely from a portfolio of euro-denominated intercompany loans. The currency effects for these non-derivative instruments are recorded through earnings in the period of change and significantly offset one another. Additional disclosures are provided in note 5; and
- *Other hedging activities* — Some of our subsidiaries hedge short-term foreign-denominated business transactions and intercompany financing transactions using foreign currency forward contracts. These activities were not material to our consolidated financial statements.

Hedge of forecasted debt extinguishment

From August to November 2017, we entered into a series of foreign currency forward contracts with Goldman Sachs as previously described. None of these contracts were designated as hedges, so no amounts were deferred to AOCI. All of the contracts were settled in 2017.

The following table presents the classification and the amount of gain recognized in earnings:

<i>(in millions)</i>	<u>Income statement classification</u>	<u>Year ended December 31, 2017</u>
Foreign currency forward contracts	Other income or expense, net	\$ 9.6

22. Leases

We lease offices, manufacturing plants, warehouses, vehicles, computers and equipment under operating leases. Operating lease expense was \$48.4 million in 2018, \$13.4 million in 2017 and \$9.5 million in 2016.

The following table presents future minimum lease payments under operating leases:

<i>(in millions)</i>	<u>December 31, 2018</u>
2019	\$ 44.2
2020	34.1
2021	29.2
2022	25.7
2023	20.9
Thereafter	58.9
Total minimum payments	<u>\$ 213.0</u>

[Table of Contents](#)

23. Related party disclosures

Related parties include our owners, directors, executive management and other parties that can exert influence on us. Transactions with related parties cannot be presumed to be carried out on an arm's-length basis. Related party transactions exclude transactions eliminated in consolidation, compensation arrangements and other transactions occurring in the ordinary course of business.

New Mountain Capital

We have been controlled by New Mountain Capital since 2010. It holds approximately 40% ownership interest in us on an as-converted, fully-diluted basis and has the right to appoint five of our eleven board seats, ten of which are currently filled.

During the periods presented, we have been party to advisory agreements with New Mountain Capital. Under those agreements, we have been required to pay New Mountain Capital (i) an annual advisory fee of \$1.0 million; (ii) a fee equal to 2% of the value of any acquisitions or financing transactions if the transaction value is greater than \$20.0 million; and (iii) reimbursement of certain immaterial out-of-pocket expenses. In November 2017, the advisory agreement was amended so that any future transaction fees, other than defined exit events, are payable in shares of our common stock instead of cash. The advisory agreement automatically terminates immediately before completion of a qualified initial public offering, with no transaction fee payable for the offering. The advisory agreement also automatically terminates in connection with certain other exit events for which a transaction fee would be payable.

The following table presents the payments we have made under the advisory agreement:

<i>(in millions)</i>	Year ended December 31,		
	2018	2017	2016
Annual advisory fees	\$ 1.0	\$ 1.0	\$ 1.0
Transaction fees:			
VWR acquisition	—	180.0	—
Debt refinancings	—	12.5	27.3
Total	<u>\$ 1.0</u>	<u>\$193.5</u>	<u>\$28.3</u>

Additionally, we paid New Mountain Capital distributions of \$1,278.9 million in 2017 and \$98.0 million in 2016. No distributions were paid to New Mountain Capital in 2018.

New Mountain Capital was the primary holder of CPECs that were part of our previous capital structure. The CPECs were redeemable for cash based on a contractual formula. Under that formula, the redemption value of the CPECs increased significantly over their term. In 2016, we paid New Mountain Capital \$691.0 million to redeem some of its CPECs, and the rest of the CPECs were converted to common equity.

Goldman Sachs

Goldman Sachs became a related party in 2017 in connection with our acquisition of VWR. It holds approximately 15% ownership interest in us on an as-converted, fully-diluted basis and has the right to appoint two of our eleven board seats, ten of which are currently filled.

We engaged Goldman Sachs as financial advisor for the VWR acquisition and the financial structuring to fund the acquisition. For the financial advisory and structuring services provided, Goldman Sachs was paid fees totaling \$165.0 million. We also agreed to offer Goldman Sachs the right to act as (i) a lead book-running manager in the event of a future initial public offering or (ii) a financial advisor in the case of another type of sale or disposition. In accordance with that arrangement, we offered, and Goldman Sachs accepted our offer, to become a co-lead book-running manager for the initial public offering described in note 12.

Table of Contents

In connection with the issuance of our junior convertible preferred stock, Series A preferred stock, our secured and unsecured notes, as well as with the establishment of our senior secured credit facilities, Goldman Sachs acted as placement agent, initial purchaser and joint lead arranger, joint book runner and administrative agent, respectively. For these services, Goldman Sachs was paid underwriting, commitment, placement and other fees of \$88.5 million. Goldman Sachs also executed our November 2018 debt repricing for a fee of \$1.0 million. In addition, Goldman Sachs continues to serve as administrative agent and is a lender under our senior secured credit facilities, for which it receives fees and earns interest according to the terms and conditions of the senior secured credit facilities.

Goldman Sachs is a holder of series A preferred stock for which it accumulates yield payable in additional shares according to the terms and conditions of that agreement. In addition, Goldman Sachs is a holder of our junior convertible preferred stock.

In 2017, we entered into a series of foreign currency forward contracts with Goldman Sachs as described further in note 21. We settled all of those contracts and realized an aggregate gain of \$9.6 million in 2017.

NuSil Investors

The NuSil Investors became a related party in 2016 in connection with our merger with NuSil. They hold approximately 7% ownership interest in us on an as-converted, fully-diluted basis but control none of our eleven board seats. The NuSil Investors sponsor two of our share-based compensation plans described in note 17. We did not engage in any other transactions with the NuSil Investors outside of the legal entity restructurings and distributions.

PSP Investments

PSP Investments became a related party in 2017 in connection with the financing for the VWR acquisition. It holds approximately 5% ownership interest in us on an as-converted, fully-diluted basis and controls one of our eleven board seats, ten of which are currently filled. It also holds a less than 5% portion of our U.S. dollar term loans.

In November 2017, we paid legal fees of \$0.6 million on behalf of PSP Investments related to the financial structuring to fund the VWR acquisition.

Other

Some of our operating facilities are leased from shareholders of the NuSil Investors. We paid annual rent of \$1.3 million each in 2018 and 2017 and \$1.8 million in 2016 to use those facilities.

[Table of Contents](#)
24. Unaudited quarterly financial information

<i>(in millions)</i>	<u>First quarter</u>	<u>Second quarter</u>	<u>Third quarter</u>	<u>Fourth quarter</u>
Year ended December 31, 2018:				
Net sales	\$1,418.3	\$1,477.9	\$1,494.2	\$1,473.9
Gross profit	440.3	468.0	478.7	432.8
Net (loss) income	(41.2)	(26.9)	34.5	(53.3)
Net loss available to common stockholders of Avantor, Inc.	(104.5)	(93.1)	(34.4)	(124.4)
Loss per share, basic and diluted	(0.79)	(0.70)	(0.26)	(0.94)
Year ended December 31, 2017:				
Net sales	151.8	182.9	183.0	729.7
Gross profit	66.5	87.2	85.9	193.2
Net (loss) income	(16.0)	(10.0)	6.1	(125.4)
Net loss available to common stockholders of Avantor, Inc.	(7.6)	(4.0)	4.3	(407.6)
(Loss) earnings per share:				
Basic	(0.05)	(0.03)	0.03	(2.82)
Diluted	(0.05)	(0.03)	0.03	(2.82)

25. Condensed unconsolidated financial information of Avantor, Inc.

Pursuant to SEC regulations, the following presents condensed unconsolidated financial information of the registrant, Avantor, Inc., since November 21, 2017.

Avantor, Inc. was organized on May 3, 2017 and had no operations or holdings until the acquisition of VWR on November 21, 2017. At that time, Avantor, Inc. was added as the parent of our consolidated group in connection with our November 2017 legal entity restructuring (see note 14). The acquisition of VWR was partially funded by the issuance of debt by Avantor Inc.'s wholly-owned subsidiary Avantor Funding. Certain of those debt agreements prevent Avantor Funding from paying dividends or making other payments to Avantor, Inc., subject to limited exceptions. At December 31, 2018 and 2017, substantially all of Avantor, Inc.'s net assets were subject to those restrictions.

The following condensed unconsolidated financial statements should be read in conjunction with our consolidated financial statements and notes thereto because certain applicable disclosures are provided there. In these condensed unconsolidated financial statements, all of our subsidiaries are wholly-owned for the periods presented and presented as investments of Avantor, Inc. under the equity method. Under that method, the equity interest in subsidiaries' assets and liabilities is stated as a net noncurrent asset at historical cost on the balance sheet.

No statements of operations are included because Avantor, Inc. had no revenues or expenses on a stand-alone basis for any of the periods presented. No statement of cash flows is presented for the year ended December 31, 2018 because Avantor Inc. had no cash activity on a stand-alone basis.

Table of Contents
Avantor, Inc.
Condensed unconsolidated balance sheet

<i>(in millions)</i>	December 31,	
	2018	2017
Assets		
Investment in unconsolidated subsidiaries	\$ 807.6	\$ 969.6
Total assets	<u>\$ 807.6</u>	<u>\$ 969.6</u>
Redeemable equity and stockholders' deficit		
Redeemable equity:		
Series A preferred stock at redemption value, 2.3 and 2.0 shares outstanding	\$ 2,297.3	\$ 2,027.8
Junior convertible preferred stock, 1.7 shares outstanding, liquidation value \$2,722.5	1,562.0	1,562.0
Total redeemable equity	<u>3,859.3</u>	<u>3,589.8</u>
Stockholders' deficit:		
Common stock including paid-in capital, 132.8 and 132.6 shares outstanding	(2,746.8)	(2,490.3)
Accumulated deficit	(238.4)	(156.3)
Accumulated other comprehensive (loss) income	(66.5)	26.4
Total stockholders' deficit	<u>(3,051.7)</u>	<u>(2,620.2)</u>
Total redeemable equity and stockholders' deficit	<u>\$ 807.6</u>	<u>\$ 969.6</u>

Avantor, Inc.
Condensed unconsolidated statement of cash flows

<i>(in millions)</i>	Forty-one days ended December 31, 2017
Cash flows from financing activities:	
Issuance of series A preferred stock and warrants, net of fees	\$ 1,816.4
Issuance of junior convertible preferred stock, net of fees	1,232.6
Contribution to unconsolidated subsidiaries	<u>(3,049.0)</u>
Net cash from financing activities	—
Cash, cash equivalents and restricted cash at beginning of period	—
Cash, cash equivalents and restricted cash at end of period	<u>\$ —</u>

[Table of Contents](#)
26. Valuation and qualifying accounts

The following table presents changes to our valuation and qualifying accounts:

<i>(in millions)</i>	Allowance for doubtful accounts receivable	Valuation allowances on deferred tax assets
Balance on December 31, 2015	\$ 7.9	\$ 7.0
Charged to costs and expenses	0.6	—
Deductions ⁽¹⁾	(1.2)	(4.2)
Balance on December 31, 2016	<u>7.3</u>	<u>2.8</u>
Acquisitions	—	81.2
Charged to costs and expenses	0.8	99.9
Deductions ⁽¹⁾	(0.9)	—
Currency translation	0.1	—
Balance on December 31, 2017	<u>7.3</u>	<u>183.9</u>
Charged to costs and expenses	3.6	18.8
Deductions ⁽¹⁾	0.6	—
Currency translation	(0.6)	(4.9)
Balance on December 31, 2018	<u>\$ 10.9</u>	<u>\$ 197.8</u>

(1) For the allowance for doubtful accounts, deductions represent bad debts charged off, net of recoveries.

27. Subsequent Events

We evaluated subsequent events through the original issuance date of March 15, 2019, the date on which the financial statements were issued, except for the stock split and authorized shares described below for which the date is May 16, 2019.

Announcement of initial public offering

We filed and subsequently amended a registration statement with the SEC. The registration statement, as amended, contains preliminary prospectuses, subject to completion, for the initial public offering of shares of our common stock, a secondary offering of common shares held by certain of our owners, and an offering of shares of mandatory convertible preferred stock. Among other things, we expect that the offering process would result in:

- Using a portion of the net proceeds to redeem outstanding shares of series A preferred stock at their redemption value plus a call premium (see note 14). Any remaining net proceeds would be used to repay indebtedness pro rata under our term loan facilities. The redemption of outstanding shares of series A preferred stock would eliminate the accumulation of yield on the series A preferred stock and provide additional income available to common stockholders;
- Automatic conversion of all shares of junior convertible preferred stock into common stock upon consummation of the offering of common stock;
- Satisfaction of a performance condition for certain of our share-based compensation awards, which will result in the immediate recognition of expense (see note 17); and
- Termination of the advisory agreement with New Mountain Capital (see note 23).

Each of these events and the completion of the offering of mandatory convertible preferred stock is contingent upon the completion of our initial public offering of common stock.

[Table of Contents](#)***Stock split and authorized shares***

On April 24, 2019, our Board of Directors approved a 5-for-1 split of our common stock, including outstanding stock-based instruments, and an increase to the authorized shares of our common stock and undesignated preferred stock to 750.0 million shares and 75.0 million shares, respectively. The stock split and changes to the authorized shares became effective on May 16, 2019. All shares of common stock, stock-based instruments and per-share data included in these financial statements give effect to the stock split, and the changes in authorized shares and have been adjusted retroactively for all periods presented.

F-55

[Table of Contents](#)

Avantor, Inc. and subsidiaries
Unaudited condensed consolidated balance sheets

<i>(in millions)</i>	March 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 143.9	\$ 184.7
Accounts receivable, net of allowances of \$11.6 and \$10.9	980.7	931.2
Inventory	702.7	671.1
Other current assets	112.4	112.6
Total current assets	<u>1,939.7</u>	<u>1,899.6</u>
Property, plant and equipment, net of accumulated depreciation of \$244.6 and \$225.8	585.6	598.6
Customer relationships, net of accumulated amortization of \$468.4 and \$412.5	4,075.3	4,159.8
Other intangible assets, net of accumulated amortization of \$166.8 and \$146.7	383.4	405.9
Goodwill	2,766.1	2,784.7
Other assets	263.8	63.0
Total assets	<u>\$10,013.9</u>	<u>\$ 9,911.6</u>

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)

Avantor, Inc. and subsidiaries
Unaudited condensed consolidated balance sheets

<i>(in millions)</i>	March 31, 2019	December 31, 2018
Liabilities, redeemable equity and stockholders' deficit		
Current liabilities:		
Current portion of debt	\$ 44.4	\$ 142.4
Accounts payable	564.8	557.4
Employee-related liabilities	121.7	144.9
Accrued interest	136.3	76.6
Other current liabilities	<u>240.2</u>	<u>174.9</u>
Total current liabilities	1,107.4	1,096.2
Debt, net of current portion	6,748.5	6,782.3
Deferred income tax liabilities	928.8	907.5
Other liabilities	<u>436.5</u>	<u>318.0</u>
Total liabilities	<u>9,221.2</u>	<u>9,104.0</u>
Commitments and contingencies, see note 9		
Redeemable equity:		
Series A preferred stock at redemption value, 2.3 shares outstanding	2,369.1	2,297.3
Junior convertible preferred stock, 1.7 shares outstanding, liquidation value \$2,722.5	<u>1,562.0</u>	<u>1,562.0</u>
Total redeemable equity	<u>3,931.1</u>	<u>3,859.3</u>
Stockholders' deficit:		
Common stock including paid-in capital, 132.8 shares outstanding	(2,814.6)	(2,746.8)
Accumulated deficit	(247.7)	(238.4)
Accumulated other comprehensive loss	<u>(76.1)</u>	<u>(66.5)</u>
Total stockholders' deficit	<u>(3,138.4)</u>	<u>(3,051.7)</u>
Total liabilities, redeemable equity and stockholders' deficit	<u>\$10,013.9</u>	<u>\$ 9,911.6</u>

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Unaudited condensed consolidated statements of operations

	Three months ended	
	March 31,	
	2019	2018
<i>(in millions, except per share data)</i>		
Net sales	\$1,480.1	\$1,418.3
Cost of sales	1,004.9	978.0
Gross profit	475.2	440.3
Selling, general and administrative expenses	337.6	352.7
Operating income	137.6	87.6
Interest expense	(128.6)	(128.3)
Other expense, net	(5.1)	(4.4)
Income (loss) before income taxes	3.9	(45.1)
Income tax (expense) benefit	(10.1)	3.9
Net loss	(6.2)	(41.2)
Accumulation of yield on series A preferred stock	(71.8)	(63.3)
Net loss available to common stockholders	\$ (78.0)	\$ (104.5)
Loss per share information, basic and diluted:		
Loss per share	\$ (0.59)	\$ (0.79)
Weighted average shares outstanding	132.8	132.6
Unaudited pro forma loss per share, see note 4	\$ (0.01)	

Avantor, Inc. and subsidiaries
Unaudited condensed consolidated statements of comprehensive income or loss

	Three months ended	
	March 31,	
	2019	2018
<i>(in millions)</i>		
Net loss	\$ (6.2)	\$ (41.2)
Other comprehensive (loss) income:		
Foreign currency translation — unrealized (loss) gain	(8.9)	28.2
Derivative instruments:		
Unrealized (loss) gain	(0.3)	1.0
Reclassification of gain into earnings	(0.3)	(0.3)
Defined benefit plans:		
Unrealized loss	(0.1)	(0.1)
Reclassification of gain into earnings	(0.2)	(0.3)
Other comprehensive (loss) income before income taxes	(9.8)	28.5
Income tax benefit (expense)	0.2	(0.2)
Other comprehensive (loss) income	(9.6)	28.3
Comprehensive loss	\$ (15.8)	\$ (12.9)

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Unaudited condensed consolidated statements of redeemable equity and stockholders' deficit

	Redeemable equity			Stockholders' deficit			
	Series A preferred stock	Junior convertible preferred stock	Total	Common stock including paid-in capital	Accumulated deficit	AOCI	Total
<i>(in millions)</i>							
Balance at December 31, 2018	\$2,297.3	\$ 1,562.0	\$3,859.3	\$(2,746.8)	\$ (238.4)	\$(66.5)	\$(3,051.7)
Cumulative effect of new accounting standard, see note 1	—	—	—	—	(3.1)	—	(3.1)
Comprehensive loss	—	—	—	—	(6.2)	(9.6)	(15.8)
Share-based compensation expense	—	—	—	4.0	—	—	4.0
Accumulation of yield	71.8	—	71.8	(71.8)	—	—	(71.8)
Balance at March 31, 2019	<u>\$2,369.1</u>	<u>\$ 1,562.0</u>	<u>\$3,931.1</u>	<u>\$(2,814.6)</u>	<u>\$ (247.7)</u>	<u>\$(76.1)</u>	<u>\$(3,138.4)</u>
Balance at December 31, 2017	\$2,027.8	\$ 1,562.0	\$3,589.8	\$(2,490.3)	\$ (156.3)	\$ 26.4	\$(2,620.2)
Cumulative effect of new accounting standard, see note 1	—	—	—	—	4.8	—	4.8
Comprehensive (loss) income	—	—	—	—	(41.2)	28.3	(12.9)
Share-based compensation expense	—	—	—	3.9	—	—	3.9
Accumulation of yield	63.3	—	63.3	(63.3)	—	—	(63.3)
Balance at March 31, 2018	<u>\$2,091.1</u>	<u>\$ 1,562.0</u>	<u>\$3,653.1</u>	<u>\$(2,549.7)</u>	<u>\$ (192.7)</u>	<u>\$ 54.7</u>	<u>\$(2,687.7)</u>

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)
Avantor, Inc. and subsidiaries
Unaudited condensed consolidated statements of cash flows

	Three months ended	
	March 31,	
	<u>2019</u>	<u>2018</u>
<i>(in millions)</i>		
Cash flows from operating activities:		
Net loss	\$ (6.2)	\$ (41.2)
Reconciling adjustments:		
Depreciation and amortization	98.3	101.8
Share-based compensation expense	4.8	4.5
Deferred income tax benefit	(21.5)	(21.4)
Amortization of deferred financing costs	10.4	10.4
Changes in assets and liabilities:		
Accounts receivable	(54.2)	(1.1)
Inventory	(41.2)	13.7
Accounts payable	10.2	(26.9)
Other assets and liabilities	65.2	0.5
Other, net	9.2	5.9
Net cash provided by operating activities	<u>75.0</u>	<u>46.2</u>
Cash flows from investing activities:		
Capital expenditures	(12.4)	(12.3)
Other	4.5	0.5
Net cash used in investing activities	<u>(7.9)</u>	<u>(11.8)</u>
Cash flows from financing activities:		
Debt borrowings	3.6	—
Debt repayments	(109.7)	(72.8)
Payments of contingent consideration	—	(5.0)
Net cash used in financing activities	<u>(106.1)</u>	<u>(77.8)</u>
Effect of currency rate changes on cash, restricted cash and equivalents	<u>(1.8)</u>	<u>2.9</u>
Net change in cash, restricted cash and equivalents	(40.8)	(40.5)
Cash, restricted cash and equivalents, beginning of period	<u>187.7</u>	<u>188.5</u>
Cash, restricted cash and equivalents, end of period	<u>\$ 146.9</u>	<u>\$ 148.0</u>

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)**Avantor, Inc. and subsidiaries****Notes to unaudited condensed consolidated financial statements****1. Nature of operations and presentation of financial statements**

We are a global manufacturer, distributor and service provider that develops integrated solutions for the biopharmaceutical, healthcare, education & government and advanced technologies & applied materials industries. We have global operations and an extensive product portfolio. We strive to enable customer success through innovation, cGMP manufacturing and comprehensive service offerings.

We are controlled by a group of investors led by New Mountain Capital.

Basis of presentation

We have prepared these condensed consolidated financial statements pursuant to SEC regulations whereby certain information normally included in GAAP financial statements has been condensed or omitted. The financial information presented herein reflects all adjustments (consisting only of normal, recurring adjustments) that are, in the opinion of management, necessary for a fair presentation of the results for the interim periods presented. The results for interim periods are not necessarily indicative of the results to be expected for the full year.

We believe that the disclosures included herein are adequate to make the information presented not misleading in any material respect when read in conjunction with the audited consolidated financial statements and notes thereto included elsewhere in this prospectus. Those audited consolidated financial statements include a summary of our significant accounting policies, updates to which are included in note 2.

We report three geographic segments based on customer location: the Americas, Europe and AMEA.

These financial statements reflect the adoptions of a new revenue recognition standard at January 1, 2018 and a new lease standard at January 1, 2019. Information about the new revenue recognition standard is disclosed in the audited consolidated financial statements and notes thereto included elsewhere in this prospectus. Information about the new lease standard is disclosed in note 3.

For all periods presented, except where indicated, all share and per share information has been adjusted for a proposed stock split that was approved by our board on April 24, 2019 (see note 16).

Principles of consolidation

All intercompany balances and transactions have been eliminated from the financial statements.

Use of estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues, expenses, income and loss during the reporting periods. Actual results could differ from those estimates.

2. Summary of significant accounting policies***Leases***

We primarily enter into real estate leases for manufacturing, warehousing and commercial office space to support our global operations. We also enter into vehicle and equipment leases to support those operations.

Table of Contents

We determine if an arrangement is a lease at inception. Short-term leases, defined as having an initial term of twelve months or less, are expensed as incurred and not recorded on the balance sheet. We record the value of all other leased assets and lease liabilities as assets and liabilities on the balance sheet. Information about the amount and classification of lease assets and liabilities is included in note 15.

At inception, lease assets and liabilities are measured at the present value of future lease payments over the lease term. As most of our leases do not provide an implicit rate, we exercise judgment in selecting the incremental borrowing rate based on the information available at inception to determine the present value of future payments. Operating lease assets are further adjusted for lease incentives and initial direct costs.

Our lease terms may include options to extend or terminate the lease. We exercise judgment to calculate the term of those leases when extension or termination options are present and include such options in the calculation of the lease term when it is reasonably certain that we will exercise those options. Operating lease expense is recognized on a straight-line basis over the lease term, except for variable rent which is expensed as incurred. Short-term lease and variable rent expense was immaterial to the financial statements and has been included within operating lease expense. Finance lease expense includes depreciation, which is recognized on a straight-line basis over the expected life of the leased asset, and interest expense, which is recognized following an effective interest rate method.

Some of our lease agreements include both lease and non-lease components. We account for those components separately for real estate leases and as a combined single lease component for all other types of leases.

3. New accounting standards

In February 2016, the FASB issued a new standard related to leases. Most prominent for us among the changes in the standard is the recognition of lease assets and lease liabilities for leases classified as operating leases. Our accounting for finance leases was substantially unchanged.

The standard also expanded disclosures to meet the objective of enabling users of financial statements to assess the amount, timing, and uncertainty of cash flows arising from leases. Those new disclosures are provided in notes 2 and 15. We adopted the standard effective January 1, 2019 using a modified retrospective transition approach by applying the new standard to all leases existing at January 1, 2019.

We elected to utilize the package of practical expedients permitted under the transition guidance in the standard which allowed us to not reassess (i) whether any expired or existing contracts contain leases, (ii) historical lease classification, and (iii) initial direct costs.

The most significant impacts upon adoption were: (i) a \$3.1 million cumulative effect adjustment to increase accumulated deficit and, (ii) recognition of \$155.0 million of operating lease assets and \$162.5 million of operating lease liabilities. Other impacts included adjustments to existing finance lease assets and liabilities, recognition of deferred income tax assets and a similar amount of deferred income tax liabilities, and derecognition of prepaid rent expense assets, none of which were material.

There were no other new accounting standards that had a material impact to our financial position or results of operations upon adoption in 2019.

4. Loss per share

For all periods presented, basic and diluted loss per share calculations were the same because we reported a net loss available to common stockholders.

Stock options for 21.0 million and 20.0 million shares of common stock were excluded from the calculations of diluted loss per share for the three months ended March 31, 2019 and 2018, respectively, because the effect would have been anti-dilutive.

[Table of Contents](#)
Pro forma loss per share

Unaudited pro forma loss per share was computed to give effect to the conversion of the junior convertible preferred stock and redemption of the series A preferred stock with a portion of net proceeds from the initial public offering. The following table presents the reconciliation of diluted loss per share to unaudited pro forma loss per share for the three months ended March 31, 2019 as if the conversion and redemption had occurred on January 1, 2019:

<i>(in millions, except per share data)</i>	<u>Loss</u>	<u>Weighted average shares outstanding</u>	<u>Loss per share</u>
Diluted	\$(78.0)	132.8	\$ (0.59)
Assumed redemption of series A preferred stock	71.8	169.2	
Assumed conversion of junior convertible preferred stock	—	194.5	
Unaudited pro forma	<u>\$ (6.2)</u>	<u>496.5</u>	\$ (0.01)

5. Segment financial information

The following tables present information by reportable segment:

<i>(in millions)</i>	Three months ended	
	March 31,	
	<u>2019</u>	<u>2018</u>
Net sales:		
Americas	\$ 857.3	\$ 807.4
Europe	542.1	538.1
AMEA	80.7	72.8
Total	<u>\$1,480.1</u>	<u>\$1,418.3</u>
Management EBITDA:		
Americas	\$ 173.1	\$ 134.3
Europe	93.2	88.9
AMEA	18.8	17.0
Corporate	(19.7)	(15.5)
Total	<u>\$ 265.4</u>	<u>\$ 224.7</u>

The amounts above exclude inter-segment activity because it is not material. All of the net sales for each segment are from external customers.

Table of Contents

The following table presents the reconciliation of Management EBITDA from net loss, the nearest measurement under GAAP:

<i>(in millions)</i>	Three months ended March 31,	
	2019	2018
Net loss	\$ (6.2)	\$ (41.2)
Interest expense	128.6	128.3
Income tax expense (benefit)	10.1	(3.9)
Depreciation and amortization	98.3	101.8
Net foreign currency loss from financing activities	6.2	6.9
Share-based compensation expense	4.8	4.5
Restructuring and severance charges	5.5	7.5
Purchase accounting adjustments	(0.8)	10.3
VWR transaction expenses	0.7	(0.1)
VWR integration and planning expenses	5.6	7.3
Write-offs of working capital and other assets	7.5	—
Other	5.1	3.3
Management EBITDA	<u>\$265.4</u>	<u>\$224.7</u>

The following table presents net sales by product line:

<i>(in millions)</i>	Three months ended March 31,	
	2019	2018
Proprietary materials & consumables	\$ 487.7	\$ 458.2
Third-party materials & consumables	698.6	679.7
Services	75.0	73.4
Equipment & instrumentation	218.8	207.0
Total	<u>\$1,480.1</u>	<u>\$1,418.3</u>

6. Supplemental disclosures of cash flow information

The following tables present supplemental disclosures of cash flow information:

<i>(in millions)</i>	March 31, 2019	December 31, 2018
Cash and cash equivalents	\$ 143.9	\$ 184.7
Restricted cash classified as other assets	3.0	3.0
Total	<u>\$ 146.9</u>	<u>\$ 187.7</u>

<i>(in millions)</i>	Three months ended March 31,	
	2019	2018
Cash flows from operating activities:		
Cash paid for income taxes, net	\$ 19.7	\$ 11.5
Cash paid for interest	58.6	61.2
Noncash financing activities:		
Deferred offering costs	5.7	—

[Table of Contents](#)

7. Inventory

The following table presents components of inventory:

<i>(in millions)</i>	<u>March 31, 2019</u>	<u>December 31, 2018</u>
Merchandise inventory	\$ 435.7	\$ 409.0
Finished goods	109.0	122.9
Raw materials	122.7	105.2
Work in process	35.3	34.0
Total	<u>\$ 702.7</u>	<u>\$ 671.1</u>

8. Restructuring and severance

The following table presents restructuring and severance charges by plan:

<i>(in millions)</i>	<u>Three months ended March 31,</u>	
	<u>2019</u>	<u>2018</u>
2017 value capture program	\$ 5.1	\$ 5.6
Other	0.4	1.9
Total	<u>\$ 5.5</u>	<u>\$ 7.5</u>

2017 value capture program

We have implemented a program to spend up to \$215 million over a three-year period to optimize our sales, gross margins and operating costs. The spending will include up to \$90 million for capital expenditures and up to \$125 million for employee severance and related costs, facility closure and other charges. Our plans include combining sales and marketing resources, eliminating redundant corporate functions, optimizing procurement and our manufacturing footprint, and implementing best practices throughout the organization. We expect all synergies and cost savings to be fully realized by 2021.

The following table presents information about charges under the 2017 value capture program:

<i>(in millions)</i>	<u>Three months ended March 31,</u>		<u>March 31, 2019</u>		
	<u>2019</u>	<u>2018</u>	<u>Charges incurred to date</u>	<u>Expected remaining charges</u>	<u>Total expected charges</u>
Employee severance and related	\$ 4.9	\$ 5.6	\$ 71.1	\$ 21.9	\$ 93.0
Facility closure	0.2	—	1.4	0.6	2.0
Other	—	—	28.4	1.6	30.0
Total	<u>\$ 5.1</u>	<u>\$ 5.6</u>	<u>\$ 100.9</u>	<u>\$ 24.1</u>	<u>\$ 125.0</u>
Americas	\$ 0.8	\$ 2.1	\$ 41.4	\$ 5.6	\$ 47.0
Europe	4.3	3.5	44.9	9.1	54.0
AMEA	—	—	0.8	1.2	2.0
Corporate	—	—	13.8	8.2	22.0
Total	<u>\$ 5.1</u>	<u>\$ 5.6</u>	<u>\$ 100.9</u>	<u>\$ 24.1</u>	<u>\$ 125.0</u>

Other charges in the table above were to write-down the carrying value of assets we plan to close or sell under the program as well as expense related to a voluntary early retirement program under one of our pension plans in the United States. These charges do not impact the accrued restructuring charges shown in the following table.

Table of Contents

The following table presents changes to accrued employee severance and related charges under the 2017 value capture program, which are primarily classified as employee-related current liabilities:

<i>(in millions)</i>	Employee severance and related
Balance at December 31, 2018	\$ 33.6
Charges	4.9
Cash payments	(12.4)
Currency translation	(0.5)
Balance at March 31, 2019	<u>\$ 25.6</u>

9. Commitments and contingencies

Our business involves commitments and contingencies related to compliance with environmental laws and regulations, the manufacture and sale of products, employment arrangements, litigation and a recently announced initial public offering. The ultimate resolution of contingencies is subject to significant uncertainty, and it is reasonably possible that contingencies could be decided unfavorably for us. We have also entered into lease commitments as disclosed in note 15.

Environmental laws and regulations

Our environmental liabilities are subject to changing governmental policy and regulations, discovery of unknown conditions, judicial proceedings, method and extent of remediation, existence of other potentially responsible parties and future changes in technology. We believe that known and unknown environmental matters, if not resolved favorably, could have a material effect on our financial position, liquidity and profitability.

Mallinckrodt indemnification

In 2010, New Mountain Capital acquired us from Covidien plc in accordance with a stock purchase agreement dated May 25, 2010. At that time, we were organized as Mallinckrodt Baker, Inc. or MBI. Pursuant to the terms of that agreement, we are entitled to various levels of indemnification with respect to environmental liabilities involving the former MBI operations. In 2013, in connection with the Covidien plc divestiture of Mallinckrodt Group S.a.r.l and Mallinckrodt LLC, together "Mallinckrodt," and by a second amendment to the stock purchase agreement dated June 6, 2013, but effective upon the consummation of the divestiture, Covidien plc assigned its obligations as described herein to Mallinckrodt, and Mallinckrodt assumed those obligations from Covidien plc. As a result of the stock purchase agreement and assignment, Mallinckrodt is contractually obligated to indemnify and defend us for all off-site environmental liabilities (for example, Superfund or Comprehensive Environmental Response, Compensation, and Clean-up Act type liabilities) arising from the pre-closing disposal of chemicals or wastes by former MBI operations.

In connection with environmental liabilities arising from pre-closing noncompliance with environmental laws, Mallinckrodt is contractually obligated to reimburse us for a percentage of the total liability, with such reimbursements made through disbursements from a \$30.0 million environmental escrow established at the time of the closing. Specifically, Mallinckrodt will be responsible for reimbursement of 80% of the total costs up to \$40.0 million of such environmental liabilities, 50% of the next \$40.0 million of such environmental liabilities and 100% of the next \$30.0 million of such environmental liabilities in the aggregate. Currently, reimbursements are 80% of the amounts spent by us, with reimbursements and settlements to date exceeding \$12.0 million. In addition, in connection with operation and maintenance activities required pursuant to administrative consent orders and subsequently issued remedial action permits involving our Phillipsburg, New Jersey, facility, amounts in excess of \$0.3 million per year are also subject to reimbursement, currently at the 80% level.

Table of Contents

In a separate matter, in 2013, we reached a settlement with Mallinckrodt whereby in exchange for a payment of \$4.0 million, all claims regarding non-compliance with process safety management laws and regulations are deemed resolved. We used the settlement proceeds to establish a reserve of \$4.0 million and have since made payments of \$1.4 million to address safety related matters, which has reduced the balance of the reserve to \$2.6 million as of March 31, 2019.

Other noteworthy matters

The New Jersey Department of Environmental Protection has ordered us to remediate groundwater conditions near our plant in Phillipsburg, New Jersey. This matter is covered by the indemnification arrangement previously described. At March 31, 2019, our accrued obligation under this order is \$3.5 million, which is calculated based on expected cash payments discounted at rates ranging from 2.0% in 2019 to 3.0% in 2045. The undiscounted amount of that obligation is \$4.7 million.

In 2016, we assessed the environmental condition of our chemical manufacturing site in Gliwice, Poland. Our assessment revealed specific types of soil and groundwater contamination throughout the site. We are also monitoring the condition of a closed landfill on that site. These matters are not covered by our indemnification arrangement because they relate to an operation we subsequently acquired. At March 31, 2019, our balance sheet includes a liability of \$3.6 million for remediation and monitoring costs. That liability is estimated primarily on expected remediation payments discounted through 2020 and is not materially different than its undiscounted amount.

Manufacture and sale of products

Our business involves risk of product liability, patent infringement and other claims in the ordinary course of business arising from the products that we produce ourselves or obtain from our suppliers, as well as from the services we provide. Our exposure to such claims may increase to the extent that we expand our manufacturing operations or service offerings.

We maintain insurance policies to protect us against these risks, including product liability insurance. In many cases the suppliers of products we distribute have indemnified us against such claims. Our insurance coverage or indemnification agreements with suppliers may not be adequate in all pending or any future cases brought against us. Furthermore, our ability to recover under any insurance or indemnification arrangements is subject to the financial viability of our insurers, our suppliers and our suppliers' insurers, as well as legal enforcement under the local laws governing the arrangements.

We have entered into indemnification agreements with customers of our self-manufactured products to protect them from liabilities and losses arising from our negligence, willful misconduct or sale of defective products. To date, we have not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions.

Litigation

At March 31, 2019, there was no outstanding litigation that we believe would result in material losses if decided against us, and we do not believe that there are any unasserted matters that are reasonably possible to result in a material loss.

[Table of Contents](#)

10. Debt

The following table presents information about our debt:

	March 31, 2019			December 31,
	Interest terms	Rate	Amount	2018
<i>(dollars in millions)</i>				
Receivables facility	LIBOR plus 1.75%	4.24%	\$ 3.0	\$ 104.0
Senior secured credit facilities:				
Euro term loans	EURIBOR plus 3.75%	3.75%	1,054.4	1,078.0
U.S. dollar term loans	LIBOR plus 3.75%	6.25%	1,834.0	1,838.9
4.75% secured notes	fixed rate	4.75%	561.5	572.5
6% secured notes	fixed rate	6.00%	1,500.0	1,500.0
9% unsecured notes	fixed rate	9.00%	2,000.0	2,000.0
Other			68.2	69.5
Total debt, gross			7,021.1	7,162.9
Less: unamortized deferred financing costs			(228.2)	(238.2)
Total debt			<u>\$6,792.9</u>	<u>\$ 6,924.7</u>
Classification on balance sheets:				
Current portion of debt			\$ 44.4	\$ 142.4
Debt, net of current portion			6,748.5	6,782.3

Credit facilities

The following table presents availability under our credit facilities:

	March 31, 2019		
	Receivables facility	Revolving credit facility	Total
<i>(in millions)</i>			
Current availability	\$ 250.0	\$ 250.0	\$500.0
Undrawn letters of credit outstanding	(12.6)	(16.7)	(29.3)
Outstanding borrowings	(3.0)	—	(3.0)
Unused availability	<u>\$ 234.4</u>	<u>\$ 233.3</u>	<u>\$467.7</u>
Maximum availability	\$ 250.0	\$ 250.0	\$500.0

Current availability under the receivables facility depends upon maintaining a sufficient borrowing base of eligible accounts receivable. At March 31, 2019, \$415.7 million of accounts receivable were available as collateral under the facility.

11. Accumulated other comprehensive income or loss

The following table presents changes in the components of AOCI:

	Foreign currency translation	Derivative instruments	Defined benefit plans	Total
<i>(in millions)</i>				
Balance at December 31, 2018	\$ (59.0)	\$ 1.1	\$ (8.6)	\$(66.5)
Unrealized loss	(8.9)	(0.3)	(0.1)	(9.3)
Reclassification of gain into earnings	—	(0.3)	(0.2)	(0.5)
Income tax benefit	—	0.2	—	0.2
Balance at March 31, 2019	<u>\$ (67.9)</u>	<u>\$ 0.7</u>	<u>\$ (8.9)</u>	<u>\$(76.1)</u>

Table of Contents

<i>(in millions)</i>	Foreign currency translation	Derivative instruments	Defined benefit plans	Total
Balance at December 31, 2017	\$ 23.7	\$ 0.3	\$ 2.4	\$26.4
Unrealized gain (loss)	28.2	1.0	(0.1)	29.1
Reclassification of gain into earnings	—	(0.3)	(0.3)	(0.6)
Income tax expense	—	(0.2)	—	(0.2)
Balance at March 31, 2018	<u>\$ 51.9</u>	<u>\$ 0.8</u>	<u>\$ 2.0</u>	<u>\$54.7</u>

The reclassifications and income tax effects shown above were immaterial to the financial statements. The reclassifications were made to either cost of sales or SG&A expenses depending upon the nature of the underlying transaction.

12. Other expense, net

The following table presents the components of other expense, net:

<i>(in millions)</i>	Three months ended March 31,	
	2019	2018
Net foreign currency loss from financing activities	\$ (6.2)	\$ (6.9)
Income related to defined benefit plans	1.3	2.5
Other	(0.2)	—
Other expense, net	<u>\$ (5.1)</u>	<u>\$ (4.4)</u>

13. Income taxes

The following table presents the relationship between income tax expense or benefit and income or loss before income taxes:

<i>(in millions)</i>	Three months ended March 31,	
	2019	2018
Income tax (expense) benefit	\$ (10.1)	\$ 3.9
Income (loss) before income taxes	3.9	(45.1)

Income tax expense or benefit in the quarter is based upon the estimated income or loss for the year. The composition of the income or loss in different countries, and adjustments, if any, in the applicable quarterly periods influences our expense or benefit. Because of the anomalies of losses to the effective rate and the inclusion in the prior year of the resolution of 2017 US tax law changes, a prior year comparison is not meaningful.

The relationship between pretax income or loss and income tax expense or benefit is greatly affected by the impact of losses for which we cannot claim tax benefit, non-deductible expenses, and other items that increase tax expense without a relationship to income such as withholding taxes and changes with respect to uncertain tax positions.

14. Financial instruments and fair value measurements

Our financial instruments include cash and cash equivalents, accounts receivable, accounts payable, debt, contingent consideration arrangements and derivative instruments.

[Table of Contents](#)
Assets and liabilities for which fair value is only disclosed

The carrying amount of cash and cash equivalents was the same as its fair value and is a Level 1 measurement. The carrying amounts for trade accounts receivable and accounts payable approximated fair value due to their short-term nature and are Level 2 measurements.

The following table presents the carrying amounts and fair values of debt instruments:

<i>(in millions)</i>	March 31, 2019		December 31, 2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Receivables facility	\$ 3.0	\$ 3.0	\$ 104.0	\$ 104.0
Senior secured credit facilities:				
Euro term loans	1,054.4	1,056.4	1,078.0	1,063.2
U.S. dollar term loans	1,834.0	1,830.6	1,838.9	1,786.0
4.75% secured notes	561.5	584.8	572.5	581.2
6% secured notes	1,500.0	1,558.2	1,500.0	1,467.8
9% unsecured notes	2,000.0	2,169.0	2,000.0	1,998.5
Other	68.2	68.2	69.5	69.5
Total	<u>\$7,021.1</u>	<u>\$7,270.2</u>	<u>\$7,162.9</u>	<u>\$7,070.2</u>

The fair values of debt instruments are based on standard pricing models that take into account the present value of future cash flows, and in some cases private trading data, which are Level 2 measurements.

15. Leases

The following table presents lease assets and liabilities and their balance sheet classification:

<i>(in millions)</i>	Classification	March 31, 2019
Operating leases:		
Lease assets	Other assets	\$ 150.5
Current portion of liability	Other current liabilities	39.3
Liability, net of current portion	Other liabilities	116.9
Finance leases:		
Lease assets	Property, plant and equipment, net	59.5
Current portion of liability	Current portion of debt	5.0
Liability, net of current portion	Debt, net of current portion	56.3

The following tables present information about lease expense:

<i>(in millions)</i>	Classification	Three months ended March 31, 2019
Operating lease expense	SG&A expenses	\$ 14.2
Finance lease expense:		
Amortization of lease assets	SG&A expenses	2.6
Interest on lease liabilities	Interest expense	1.1
Total		<u>\$ 17.9</u>

[Table of Contents](#)

	March 31, 2019
Weighted average remaining lease term, in years:	
Operating leases	5.8
Finance leases	16.6
Weighted average discount rate:	
Operating leases	5.4%
Finance leases	8.4%

The following table presents future payments due under leases reconciled to lease liabilities:

<i>(in millions)</i>	March 31, 2019	
	Operating leases	Finance leases
Nine months ending December 31, 2019	\$ 37.0	\$ 7.3
Year ending December 31,		
2020	37.4	7.3
2021	31.4	6.5
2022	23.2	5.8
2023	19.2	5.2
Thereafter	<u>36.3</u>	<u>88.8</u>
Total undiscounted lease payments	184.5	120.9
Difference between undiscounted and discounted lease payments	<u>(28.3)</u>	<u>(59.6)</u>
Lease liability	<u>\$ 156.2</u>	<u>\$ 61.3</u>

The following table presents future minimum payments under operating leases:

<i>(in millions)</i>	December 31, 2018
2019	\$ 44.2
2020	34.1
2021	29.2
2022	25.7
2023	20.9
Thereafter	<u>58.9</u>
Total minimum payments	<u>\$ 213.0</u>

The following tables present supplemental disclosures of cash flow information:

<i>(in millions)</i>	Three months ended March 31, 2019
Cash flows from operating activities:	
Cash paid under operating leases	\$ 13.5
Cash paid under finance leases	1.1
Cash flows from financing activities:	
Cash paid under finance leases	1.4

16. Subsequent events

We evaluated subsequent events through April 30, 2019, the date on which the financial statements were issued, except for the stock split and authorized shares described below for which the date is May 16, 2019.

[Table of Contents](#)

Announcement of initial public offering

We filed and subsequently amended a registration statement with the SEC. The registration statement, as amended, contains preliminary prospectuses, subject to completion, for the initial public offering of shares of our common stock, a secondary offering of common shares held by certain of our owners, and an offering of shares of mandatory convertible preferred stock. Among other things, we expect that the offering process would result in:

- Using a portion of the net proceeds to redeem outstanding shares of series A preferred stock at their redemption value plus a call premium. Any remaining net proceeds would be used to repay indebtedness pro rata under our term loan facilities. The redemption of outstanding shares of series A preferred stock would eliminate the accumulation of yield on the series A preferred stock and provide additional income available to common stockholders;
- Automatic conversion of all shares of junior convertible preferred stock into common stock upon consummation of the offering of common stock;
- Satisfaction of a performance condition for certain of our share-based compensation awards, which will result in the immediate recognition of expense; and
- Termination of the advisory agreement with New Mountain Capital.

Each of these events and the completion of the offering of mandatory convertible preferred stock is contingent upon the completion of our initial public offering of common stock.

Stock split and authorized shares

On April 24, 2019, our Board of Directors approved a 5-for-1 split of our common stock, including outstanding stock-based instruments, and an increase to the authorized shares of our common stock and undesignated preferred stock to 750.0 million shares and 75.0 million shares, respectively. The stock split and changes to the authorized shares became effective on May 16, 2019. All shares of common stock, stock-based instruments and per-share data based on common stock included in these financial statements give effect to the stock split, and the changes in authorized shares and have been adjusted retroactively for all periods presented.

[Table of Contents](#)

**VWR Corporation
Glossary**

	Description
Company, we, us, our	VWR Corporation and its consolidated subsidiaries
2014 Plan	the VWR Corporation 2014 Equity Incentive Plan
Americas	a segment covering North, Central and South America
A/R Facility	an accounts receivable securitization facility due 2018
AOCI	accumulated other comprehensive income or loss
Annual Report	our Annual Report on Form 10-K filed with the SEC on February 4, 2017
Avantor	Avantor, Inc., a company with which we are agreed to merge
Biopharma	the combination of the pharmaceutical and biotechnology sectors
Board	the Board of Directors of VWR Corporation
EMEA-APAC	a segment covering Europe, Middle East, Africa and Asia-Pacific
EURIBOR	the applicable interest rate determined by the Banking Federation of the European Union
FASB	the Financial Accounting Standards Board
GAAP	United States generally accepted accounting principles
German, French, and UK Plans	the defined benefit plans in Germany, France and the United Kingdom
IPO	our initial public offering which occurred in 2014
ITRA	the income tax receivable agreement between us and Varietal
LIBOR	the applicable British Bankers Association London Interbank Offered Rate
LIFO	last-in, first-out inventory method
SEC	the United States Securities and Exchange Commission
SG&A expenses	selling, general and administrative expenses
U.S. Retirement Plan	the defined benefit plan in the United States
Varietal	Varietal Distribution Holdings, LLC, a significant stockholder and affiliate
VWR Funding	VWR Funding, Inc., our wholly-owned subsidiary

[Table of Contents](#)

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
VWR Corporation:

We have audited the accompanying consolidated balance sheets of VWR Corporation and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income or loss, redeemable equity and stockholders' equity and cash flows for each of the years in the three-year period ended December 31, 2016. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of VWR Corporation and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

/s/ KPMG LLP

Philadelphia, Pennsylvania
February 24, 2017

F-74

[Table of Contents](#)
VWR Corporation and subsidiaries
Consolidated balance sheets

	December 31,	
	2016	2015
<i>(in millions, except per share data)</i>		
Assets		
Current assets:		
Cash and cash equivalents	\$ 168.7	\$ 136.3
Trade accounts receivable, net of reserves of \$10.5 and \$12.0	607.2	583.2
Inventories	483.1	424.0
Other current assets	93.1	89.5
Total current assets	<u>1,352.1</u>	<u>1,233.0</u>
Property and equipment, net of accumulated depreciation of \$248.9 and \$216.2	253.8	228.2
Goodwill	1,844.0	1,791.4
Other intangible assets, net	1,407.8	1,455.6
Other assets	104.8	85.6
Total assets	<u>\$4,962.5</u>	<u>\$4,793.8</u>
Liabilities, redeemable equity and stockholders' equity		
Current liabilities:		
Current portion of debt	\$ 250.1	\$ 92.8
Accounts payable	476.3	474.5
Employee-related liabilities	79.3	61.4
Current amount due to Varietal — ITRA	27.7	78.1
Other current liabilities	152.7	112.3
Total current liabilities	<u>986.1</u>	<u>819.1</u>
Debt, net of current portion	1,766.9	1,896.2
Amount due to Varietal — ITRA, net of current portion	57.3	85.0
Deferred income tax liabilities	477.2	459.5
Other liabilities	159.4	158.8
Total liabilities	<u>3,446.9</u>	<u>3,418.6</u>
Commitments and contingencies (Note 10)		
Redeemable equity, at redemption value	21.2	38.8
Stockholders' equity:		
Preferred stock, \$0.01 par value; 50.0 shares authorized, no shares issued or outstanding	—	—
Common stock, \$0.01 par value; 750.0 shares authorized, 131.6 and 131.4 shares issued and outstanding	1.3	1.3
Additional paid-in capital	1,766.0	1,735.1
Retained earnings	154.5	6.3
Accumulated other comprehensive loss	(427.4)	(406.3)
Total stockholders' equity	<u>1,494.4</u>	<u>1,336.4</u>
Total liabilities, redeemable equity and stockholders' equity	<u>\$4,962.5</u>	<u>\$4,793.8</u>

See accompanying notes to consolidated financial statements.

[Table of Contents](#)

VWR Corporation and subsidiaries
Consolidated income statements

	Year ended December 31,		
	2016	2015	2014
<i>(in millions, except per share data)</i>			
Net sales	\$4,514.2	\$4,318.8	\$4,375.3
Cost of goods sold	<u>3,252.4</u>	<u>3,121.7</u>	<u>3,131.9</u>
Gross profit	1,261.8	1,197.1	1,243.4
Selling, general and administrative expenses	<u>946.2</u>	<u>876.9</u>	<u>925.5</u>
Operating income	315.6	320.2	317.9
Interest expense	(79.7)	(102.8)	(166.3)
Other income (expense), net	(1.1)	45.4	90.9
Loss on extinguishment of debt	<u>(0.5)</u>	<u>(32.7)</u>	<u>(5.1)</u>
Income before income taxes	234.3	230.1	237.4
Income tax provision	<u>(86.1)</u>	<u>(75.8)</u>	<u>(84.8)</u>
Net income	148.2	154.3	152.6
Accretion of dividends on redeemable equity	—	—	(29.4)
Net income applicable to common stockholders	<u>\$ 148.2</u>	<u>\$ 154.3</u>	<u>\$ 123.2</u>
Earnings per share:			
Basic	\$ 1.13	\$ 1.17	\$ 2.50
Diluted	1.12	1.17	2.49
Weighted average shares outstanding:			
Basic	131.5	131.4	49.3
Diluted	131.8	131.8	49.5

See accompanying notes to consolidated financial statements.

[Table of Contents](#)
VWR Corporation and subsidiaries
Consolidated statements of comprehensive income or loss

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Net income	\$148.2	\$ 154.3	\$ 152.6
Other comprehensive loss:			
Foreign currency translation:			
Net unrealized loss arising during the period	(22.4)	(174.4)	(204.2)
Reclassification of net loss into earnings	1.2	—	—
Derivative instruments:			
Net unrealized gain arising during the period	9.1	3.0	0.7
Reclassification of net (gain) loss into earnings	(2.3)	(0.7)	1.1
Defined benefit plans:			
Net unrealized loss arising during the period	(9.4)	(7.0)	(27.0)
Reclassification of net loss (gain) into earnings	2.7	2.7	(3.0)
Other comprehensive loss	<u>(21.1)</u>	<u>(176.4)</u>	<u>(232.4)</u>
Comprehensive income (loss)	<u>\$127.1</u>	<u>\$ (22.1)</u>	<u>\$ (79.8)</u>

See accompanying notes to consolidated financial statements.

[Table of Contents](#)
VWR Corporation and subsidiaries
Consolidated statements of redeemable equity and stockholders' equity

<i>(in millions)</i>	Redeemable equity, at redemption value	Stockholders' equity					Total
		Common stock		Additional paid-in capital	Retained earnings (deficit)	AOCI	
		Shares	Par value				
Balance at December 31, 2013	\$ 670.6	0.1	\$ —	\$ 723.9	\$(300.6)	\$ 2.5	\$ 425.8
Redemption	(11.5)	—	—	4.1	—	—	4.1
Accretion of dividends	29.4	—	—	(29.4)	—	—	(29.4)
Recapitalization:							
Retirement of prior stock	(650.0)	(0.1)	—	(679.4)	—	—	(679.4)
Issuance of new stock	—	102.0	1.0	1,328.4	—	—	1,329.4
Payment of dividend	—	—	—	(25.0)	—	—	(25.0)
Recognition of ITRA	—	—	—	(172.9)	—	—	(172.9)
Issuance of common stock	—	29.4	0.3	582.3	—	—	582.6
Payment of stock issuance costs	—	—	—	(4.8)	—	—	(4.8)
Stock-based compensation expense	—	—	—	2.0	—	—	2.0
Reclassifications to state redeemable equity at redemption value	12.9	—	—	(12.9)	—	—	(12.9)
Net income	—	—	—	—	152.6	—	152.6
Other comprehensive loss	—	—	—	—	—	(232.4)	(232.4)
Balance at December 31, 2014	51.4	131.4	1.3	1,716.3	(148.0)	(229.9)	1,339.7
Issuance of common stock	—	—	—	1.3	—	—	1.3
Stock-based compensation expense	—	—	—	4.9	—	—	4.9
Reclassifications to state redeemable equity at redemption value	(12.6)	—	—	12.6	—	—	12.6
Net income	—	—	—	—	154.3	—	154.3
Other comprehensive loss	—	—	—	—	—	(176.4)	(176.4)
Balance at December 31, 2015	38.8	131.4	1.3	1,735.1	6.3	(406.3)	1,336.4
Issuance of common stock	—	0.2	—	4.7	—	—	4.7
Stock-based compensation expense	—	—	—	8.6	—	—	8.6
Reclassifications to state redeemable equity at redemption value	(17.6)	—	—	17.6	—	—	17.6
Net income	—	—	—	—	148.2	—	148.2
Other comprehensive loss	—	—	—	—	—	(21.1)	(21.1)
Balance at December 31, 2016	\$ 21.2	131.6	\$ 1.3	\$ 1,766.0	\$ 154.5	\$(427.4)	\$ 1,494.4

See accompanying notes to consolidated financial statements.

[Table of Contents](#)**VWR Corporation and subsidiaries**
Consolidated statements of cash flows

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Cash flows from operating activities:			
Net income	\$ 148.2	\$ 154.3	\$ 152.6
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	130.1	124.5	129.3
Net foreign currency remeasurement loss (gain)	2.3	(45.1)	(95.7)
Deferred income tax provision	3.4	27.3	33.9
Loss on extinguishment of debt	0.5	32.7	5.1
Other, net	23.3	17.9	13.0
Changes in working capital, net of business acquisitions:			
Trade accounts receivable	(25.8)	(30.2)	(30.1)
Inventories	(63.1)	(43.8)	(41.5)
Accounts payable	15.0	25.1	27.5
Other assets and liabilities	32.3	(37.7)	(3.0)
Net cash provided by operating activities	<u>266.2</u>	<u>225.0</u>	<u>191.1</u>
Cash flows from investing activities:			
Acquisitions of businesses, net of cash acquired	(142.8)	(59.1)	(89.9)
Capital expenditures	(59.9)	(40.9)	(33.6)
Other investing activities	—	2.1	0.5
Net cash used in investing activities	<u>(202.7)</u>	<u>(97.9)</u>	<u>(123.0)</u>
Cash flows from financing activities:			
Proceeds from issuance of common stock	4.7	1.3	582.6
Proceeds from debt	674.4	2,767.0	742.2
Repayment of debt	(623.8)	(2,810.2)	(1,353.8)
Redemption of redeemable equity	—	—	(8.9)
Payment of dividend	—	—	(25.0)
Payment to Varietal under ITRA	(78.1)	(9.8)	—
Payment of debt issuance costs and redemption premium	(0.9)	(41.9)	(1.1)
Other financing activities	(3.1)	(2.5)	(7.8)
Net cash used in financing activities	<u>(26.8)</u>	<u>(96.1)</u>	<u>(71.8)</u>
Effect of exchange rate changes on cash	<u>(4.3)</u>	<u>(12.7)</u>	<u>(13.9)</u>
Net increase (decrease) in cash and cash equivalents	32.4	18.3	(17.6)
Cash and cash equivalents at beginning of period	<u>136.3</u>	<u>118.0</u>	<u>135.6</u>
Cash and cash equivalents at end of period	<u>\$ 168.7</u>	<u>\$ 136.3</u>	<u>\$ 118.0</u>
Supplemental disclosures of cash flow information:			
Cash paid for interest	\$ 79.2	\$ 104.9	\$ 158.9
Cash paid for income taxes, net	78.3	48.0	39.3

See accompanying notes to consolidated financial statements.

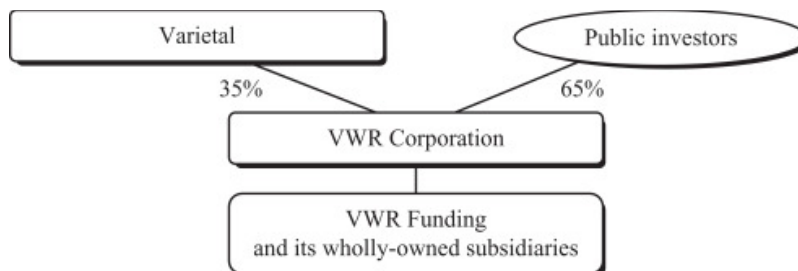
[Table of Contents](#)

VWR Corporation and subsidiaries
Notes to consolidated financial statements

1. Nature of operations and basis of presentation

We are a leading global independent provider of product and service solutions to laboratory and production customers. We have significant market positions in Europe and North America. We also have operations in Asia-Pacific and other key emerging markets to support our multinational customers across the globe. We serve a critical role in connecting customer sites with laboratory product suppliers across multiple industries and geographies. We offer a broad portfolio of branded and private label laboratory products, a full range of value-added services and custom manufacturing capabilities to meet our customers' needs. Services represent a growing but currently small portion of our overall net sales. We offer a wide selection of unique products and have developed an extensive global infrastructure including thousands of sales and service-focused professionals. We deliver value to our customers by improving the costs, efficiency and effectiveness of their research laboratories and production operations. We deliver value to our suppliers by providing them with cost-effective channel access to a global and diverse customer base.

The following describes our corporate organization at December 31, 2016:



- Varietal — Following a 2007 merger, Varietal was our only stockholder until our IPO in October 2014 and since then had been our majority stockholder through March 2016. Private equity funds managed by Madison Dearborn Partners hold a controlling interest in Varietal. Our condensed consolidated balance sheets reflect significant amounts of goodwill and other intangible assets as a result of the 2007 merger. In April 2016, Varietal completed a sale of our common stock that caused it to no longer hold a majority ownership interest in us. As a result, we experienced a change in control under U.S. federal tax regulations which has impacted (i) the amount and timing of the utilization of our net operating loss carryforwards; (ii) the timing of payments under an ITRA with Varietal (see Note 20); and (iii) the amount of cash taxes we are paying.
- VWR Funding and its wholly-owned subsidiaries — VWR Funding is our wholly-owned subsidiary and the sole issuer of our debt. Certain of those debt agreements restrict its ability to make distributions to us.

Basis of presentation

We report financial results on the basis of two segments organized by geographic region: the Americas and EMEA-APAC.

In 2014, we recapitalized our equity (see Note 12). For all periods presented, the number of shares of common stock outstanding has been adjusted for a stock split. Separately, a conversion of prior equity into newly-issued

[Table of Contents](#)

shares of common stock is presented as a retirement and issuance of shares; share counts for periods prior to that conversion were not adjusted. The consolidated financial statements present the accretion of dividends on redeemable convertible preferred stock for periods prior to the recapitalization. Those dividends were never paid and became available to common stockholders following the recapitalization.

Principles of consolidation

The accompanying consolidated financial statements include the accounts of VWR Corporation and the redeemable equity of Varietal, each after the elimination of intercompany balances and transactions.

Use of estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue, expense, income and loss during the reporting period. Actual results could differ significantly from those estimates.

Additional disclosures about significant estimates are provided in the following areas: (i) impairment testing, particularly determining whether indicators of impairment were present and whether assets were impaired (see Note 21); (ii) estimating the valuation allowance on deferred tax assets, such as net operating loss carryforwards (see Note 18); (iii) accounting for defined benefit plans, in particular determining key assumptions such as discount rates and the expected return on plan assets (see Note 15); (iv) estimating outcomes of loss contingencies (see Note 10); and (v) estimating fair value, particularly related to measurements based on unobservable inputs (see Note 9).

2. Summary of significant accounting policies

Cash and cash equivalents

Cash and cash equivalents are comprised of highly liquid investments with original maturities of three months or less, primarily consisting of euro-denominated overnight deposits. Bank overdrafts are classified as current liabilities and presented as a financing activity on our consolidated statements of cash flows.

Trade accounts receivable, net of reserves

Trade accounts receivable are recorded at the invoiced amount and generally do not bear interest. The carrying amount of trade accounts receivable is presented net of a reserve representing our estimate of the amounts that will not be collected and for estimated sales returns and allowances. In addition to reviewing delinquent accounts receivable, we consider many factors in estimating our reserve, including historical data, experience, customer types, creditworthiness and economic trends. From time to time, we may adjust our assumptions for anticipated changes in any of these or other factors expected to affect collectability. Account balances are written off against the allowance when we determine it is probable that the receivable will not be recovered.

Inventories

Our inventories consist primarily of products held for sale. Inventories are valued at the lower of cost or market, cost being primarily determined by the LIFO method for certain of our U.S. subsidiaries and the first-in, first-out method for all other subsidiaries. We regularly review quantities of inventories on hand and compare these amounts to the expected use of each product or product line. We record a charge to cost of goods sold for the amount required to reduce the carrying value of inventory to net realizable value.

At December 31, 2016 and 2015, the percentage of inventories valued using the LIFO method was 36% for both years, and the excess of current cost over LIFO value for those inventories was \$24.8 million and \$24.6 million, respectively.

[Table of Contents](#)

Property and equipment

Property and equipment are recorded at cost. Depreciation is recognized using the straight-line method over estimated useful lives of 10 to 40 years for buildings and improvements and 3 to 10 years for equipment and computer software. Leasehold improvements are amortized on a straight-line basis over the shorter of the estimated useful lives of the assets or the estimated remaining life of the lease. Costs for repairs and maintenance that do not significantly increase the value or estimated lives of property and equipment are expensed as incurred. Property and equipment held under capital leases were not material for any periods presented.

Impairment of long-lived assets

We evaluate the recoverability of long-lived assets when events or changes in circumstances indicate a possible inability to recover carrying amounts. We assess recoverability by comparing the carrying value of the asset to estimated undiscounted future cash flows expected to be generated by the asset. If an asset is impaired, the loss is measured as the amount by which the asset's carrying value exceeds its fair value.

Goodwill and other intangible assets

Goodwill represents the excess of purchase price over the fair value of net assets acquired in a business combination. Other intangible assets consist of both amortizable and indefinite-lived intangible assets. Amortizable intangible assets are amortized over their estimated useful lives on a straight-line basis. Indefinite-lived intangible assets are not amortized.

We reevaluate the estimated useful lives of our amortizable intangible assets annually. For indefinite-lived intangible assets, we reevaluate annually whether they continue to have indefinite lives, considering whether they have any legal, regulatory, contractual, competitive or economic limitations and whether they are expected to contribute to the generation of cash flows indefinitely.

Goodwill and other indefinite-lived intangible assets are tested annually for impairment on October 1 of each year. Goodwill impairment testing is performed at the reporting unit level. Our reporting units are the same as our operating segments and reportable segments. All of our intangible assets, including goodwill, are tested for impairment whenever an indication of potential impairment arises. Events or circumstances that might require an interim evaluation include unexpected adverse business conditions, economic factors, unanticipated technological changes or competitive activities, loss of key personnel and acts or anticipated acts by governments and courts. Indefinite-lived intangible assets are tested for impairment prior to testing of goodwill or amortizable intangible assets.

The impairment analysis for goodwill and indefinite-lived intangible assets consists of an optional qualitative assessment potentially followed by a two-step quantitative analysis. If we determine that the carrying value of goodwill or indefinite-lived intangible assets exceeds its fair value, an impairment charge is recorded for the excess. Impairment charges cannot be reversed in subsequent periods.

The impairment analysis for amortizable intangible assets is performed in the same way as for our other long-lived assets, as previously discussed.

Fair value measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at a measurement date. Classification within the fair value hierarchy is based on the lowest of the following levels that is significant to the fair value measurement:

- Level 1 — Quoted prices (unadjusted) in active markets for identical assets or liabilities

Table of Contents

- Level 2 — Inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability
- Level 3 — Inputs that are unobservable for the asset or liability based on our evaluation of the assumptions market participants would use in pricing the asset or liability

We exercise considerable judgment when estimating fair value, particularly when evaluating what assumptions market participants would likely make. The use of different assumptions or estimation methodologies could have a material effect on the estimated fair values.

Commitments and contingencies

Loss contingencies are reflected in the consolidated financial statements based on our assessments of the expected outcome of legal proceedings or the expected resolution of other contingencies. Liabilities for estimated losses are accrued if the potential loss from any claim or legal proceeding is considered probable and the amount can be reasonably estimated. Significant judgment is required to determine probability and whether the amount of an exposure is reasonably estimable. Due to uncertainties related to these matters, accruals are based only on the information available at the time. As additional information becomes available, we reassess potential liabilities related to pending claims and litigation and may revise our previous estimates.

Revenue recognition

We record product revenue on a gross basis when persuasive evidence of an arrangement exists, the price is fixed or determinable, title and risk of loss have been transferred to the customer and collectability of the resulting receivable is reasonably assured. Title and risk of loss is transferred at the time of shipment or upon delivery to customers, depending upon the terms of the arrangement with the customer. Products are delivered without post-sale obligations to the customer. Provisions for discounts, rebates to customers, sales returns and other adjustments are provided for as a reduction of sales in the period the related sales are recorded.

We record shipping and handling charges billed to customers in net sales and record shipping and handling costs in cost of goods sold for all periods presented. Sales taxes, value-added taxes and certain excise taxes collected from customers and remitted to governmental authorities are accounted for on a net basis and therefore are excluded from net sales.

Services represent a growing but currently small portion of our net sales and were not material to our consolidated financial statements.

Classification of expenses

Cost of goods sold includes the cost of the product, vendor rebates, inbound and outbound freight charges, as well as inventory adjustments. SG&A expenses include personnel and facility charges, advertising and promotional charges and other charges related to our global infrastructure operations.

Stock-Based compensation

Stock-based compensation consists primarily of stock options awarded to employees and directors. We measure expense using the grant-date fair value of awards ultimately expected to vest. Awards with service conditions are expensed on a straight-line basis from the date of grant through the end of the requisite service period. We issue new shares of common stock upon the exercise of stock options.

The grant-date fair value of stock options is measured using a closed-form option pricing model, using assumptions based on the terms of each stock option agreement, the expected behavior of grant recipients and

[Table of Contents](#)

peer company data. We have limited historical data about our own awards upon which to base our assumptions. Expected volatility is calculated based on the observed equity volatility for a peer group over a period of time equal to the expected life of the stock options. The risk-free interest rate is based on U.S. Treasury observed market rates continuously compounded over the duration of the expected life. The expected life of stock options is determined using the simplified method, which is calculated as the midpoint of the weighted average vesting period and the contractual term.

We elect to recognize expense based on the number of awards ultimately expected to vest by use of an estimated forfeiture rate. The estimated forfeiture rate is based on historical data for the employee group awarded options and expected employee turnover rates, which management reevaluates each period.

Defined benefit plans

Some of our employees participate in defined benefit plans. The benefits include pension, salary continuance, life insurance and healthcare. Benefits are accrued over the employees' service periods. We use actuarial methods and assumptions in the valuation of defined benefit obligations and the determination of net periodic pension income or expense. Differences between actual and expected results or changes in the value of defined benefit obligations and plan assets, if any, are not recognized in earnings as they occur but rather systematically over subsequent periods.

Foreign currency translation

Assets and liabilities of our foreign subsidiaries, where the functional currency is the local currency, are translated into U.S. dollars using period-end exchange rates. Revenues, expenses, income and losses are translated using average exchange rates. Resulting translation adjustments are reported in accumulated other comprehensive income or loss. Foreign currency remeasurement gains and losses related to financing activities are reported in other income (expense), net within our consolidated statements of operations, while gains and losses associated with operating activities are reported within the applicable component of operating income.

Income taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the expected net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting and income tax purposes and for net operating loss and credit carryforwards. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. We record a valuation allowance to reduce deferred tax assets to the amount that is more likely than not to be realized.

We recognize the effect of income tax positions only if those positions are more likely than not to be sustained. Recognized income tax positions are measured at the largest amount that is more likely than not of being realized. Changes in recognition or measurement are reflected in the period in which a change in judgment occurs, as a result of information that arises or when a tax position is effectively settled. We recognize accrued interest and penalties related to unrecognized tax benefits as a component of income tax expense in our consolidated financial statements.

Due to Varietal — ITRA

We record the estimated amount payable to Varietal under an ITRA, entered into in connection with our IPO, as a noncurrent liability, except for the portion estimated to be payable within one year. The ITRA liability was initially recognized through an adjustment to additional paid-in capital and measured at its expected future value.

[Table of Contents](#)

similar to the underlying deferred tax assets to which it relates. Subsequent changes to the value of the ITRA liability, if any, will be classified as other income (expense), net in the consolidated statements of operations. Cash payments under the ITRA are classified as a financing activity on the consolidated statements of cash flows.

3. New accounting standards

In March 2016, the FASB issued new guidance to simplify several aspects of accounting and presentation for stock-based compensation. The new guidance is effective for us beginning in the first quarter of 2017, with early adoption permitted. We early adopted the guidance beginning October 1, 2016. The guidance did not have a material impact to us upon adoption.

In February 2016, the FASB issued comprehensive new guidance about leases. Under the new guidance, most leases will be recognized on our consolidated balance sheet as liabilities with corresponding right-of-use assets. The new guidance carries forward a similar method of expense recognition for lessees. The new guidance is effective for us beginning in the first quarter of 2019, with early adoption permitted. The guidance must be adopted using a modified retrospective approach. Although, we are continuing to evaluate its impact, we expect that this new guidance will result in a significant increase to the assets and liabilities we present on our consolidated balance sheet.

In May 2014, the FASB issued comprehensive new revenue recognition guidance. The guidance provides a new model for revenue recognition that supersedes most current guidance and requires more disclosures about revenue including the components of revenue that are communicated to investors. The new guidance is effective for us beginning in the first quarter of 2018 and may be adopted using either a full retrospective or a modified retrospective approach. Although we are continuing to evaluate the impact of the new guidance, we expect that the new recognition model will primarily impact only certain portions of our business, and we expect to provide expanded disclosures and to adopt the new standard using the modified retrospective method.

There were no other new accounting standards that we expect to have a material impact to our financial position or results of operations upon adoption.

4. Earnings per share

The following table presents information about basic and diluted earnings per share:

	Year ended December 31,		
	2016	2015	2014
<i>(in millions)</i>			
Reconciliation of weighted average shares outstanding:			
Basic	131.5	131.4	49.3
Dilutive effect of stock-based instruments	<u>0.3</u>	<u>0.4</u>	<u>0.2</u>
Diluted	<u>131.8</u>	<u>131.8</u>	<u>49.5</u>
Number of anti-dilutive instruments excluded from dilutive effect	4.0	2.0	0.9

5. Acquisitions

During the three years ended December 31, 2016, we acquired businesses to broaden our product offerings and strengthen our market positions. Except for their effects on investing cash flow, none of these acquisitions, nor their related costs, were material individually or in the aggregate to our results of operations or financial condition.

Table of Contents

The following table presents selected information about these acquisitions in the aggregate:

<i>(dollars in millions)</i>	Year ended December 31,		
	2016	2015	2014
Number of businesses acquired	5	4	4
Components of purchase price:			
Cash paid, net of cash acquired	\$ 142.8	\$ 59.1	\$ 89.9
Estimated fair value of contingent consideration	13.8	13.6	8.4
Deferred purchase price, net of (settlements)	3.2	(3.4)	3.4
Other	—	—	13.0
Purchase price	<u>\$ 159.8</u>	<u>\$ 69.3</u>	<u>\$ 114.7</u>
Allocation of purchase price:			
Net tangible assets	\$ 31.9	\$ 9.5	\$ 15.5
Identifiable intangible assets	50.1	23.2	44.1
Goodwill	77.8	36.6	55.1
Purchase price	<u>\$ 159.8</u>	<u>\$ 69.3</u>	<u>\$ 114.7</u>
Weighted average life of acquired amortizable intangible assets	9.9 years	9.7 years	12.2 years

The purchase price for the acquisitions was higher than the fair value of the acquired identifiable assets, resulting in goodwill, due to the existence of intangible assets not recognizable under GAAP and other market factors. During the years ended December 31, 2016, 2015 and 2014, we recorded goodwill of \$65.1 million, \$19.6 million and \$29.0 million, respectively, that we expect to be deductible for tax purposes. The purchase price allocations for certain acquisitions completed in 2016 are preliminary pending finalization of opening balance sheets and may be adjusted subsequently.

The other component of purchase price represents cash paid to acquire a business that was subsequently rescinded. Since the amount was later refunded in full, we did not include it in the amount paid for acquisitions or the number of businesses acquired.

6. Property and equipment, net

The following table presents the components of property and equipment, net:

<i>(in millions)</i>	December 31,	
	2016	2015
Buildings and improvements	\$ 199.1	\$ 161.4
Equipment and computer software	264.5	244.2
Other	39.1	38.8
Property and equipment, gross	502.7	444.4
Accumulated depreciation	(248.9)	(216.2)
Property and equipment, net	<u>\$ 253.8</u>	<u>\$ 228.2</u>

Depreciation expense was \$44.7 million, \$41.1 million and \$40.4 million for the years ended December 31, 2016, 2015 and 2014, respectively.

[Table of Contents](#)
7. Goodwill and other intangible assets, net

The following tables present information about goodwill by segment:

<i>(in millions)</i>	<u>Americas</u>	<u>EMEA-APAC</u>	<u>Total</u>
Balance at December 31, 2014	\$1,042.3	\$ 811.3	\$1,853.6
Acquisitions (Note 5)	19.7	16.9	36.6
Currency translation	(15.7)	(82.9)	(98.6)
Other	—	(0.2)	(0.2)
Balance at December 31, 2015	<u>1,046.3</u>	<u>745.1</u>	<u>1,791.4</u>
Acquisitions (Note 5)	65.1	12.7	77.8
Currency translation	2.7	(26.0)	(23.3)
Other	—	(1.9)	(1.9)
Balance at December 31, 2016	<u>\$1,114.1</u>	<u>\$ 729.9</u>	<u>\$1,844.0</u>

<i>(in millions)</i>	<u>December 31, 2016</u>			<u>December 31, 2015</u>		
	<u>Gross carrying amount</u>	<u>Accumulated impairment losses</u>	<u>Net carrying amount</u>	<u>Gross carrying amount</u>	<u>Accumulated impairment losses</u>	<u>Net carrying amount</u>
Americas	\$1,320.7	\$ 206.6	\$ 1,114.1	\$1,252.9	\$ 206.6	\$ 1,046.3
EMEA-APAC	729.9	—	729.9	745.1	—	745.1
Total	<u>\$2,050.6</u>	<u>\$ 206.6</u>	<u>\$ 1,844.0</u>	<u>\$1,998.0</u>	<u>\$ 206.6</u>	<u>\$ 1,791.4</u>

The following table presents the components of other intangible assets:

<i>(in millions)</i>	<u>December 31, 2016</u>			<u>December 31, 2015</u>		
	<u>Gross carrying amount</u>	<u>Accumulated amortization</u>	<u>Net carrying amount</u>	<u>Gross carrying amount</u>	<u>Accumulated amortization</u>	<u>Net carrying amount</u>
Customer relationships	\$1,413.0	\$ 651.3	\$ 761.7	\$1,402.2	\$ 581.4	\$ 820.8
Other	49.7	20.1	29.6	30.3	15.2	15.1
Amortizable intangible assets	<u>1,462.7</u>	<u>671.4</u>	<u>791.3</u>	<u>1,432.5</u>	<u>596.6</u>	<u>835.9</u>
Indefinite-lived trademarks and tradenames	616.5	—	616.5	619.7	—	619.7
Other intangible assets	<u>\$2,079.2</u>	<u>\$ 671.4</u>	<u>\$1,407.8</u>	<u>\$2,052.2</u>	<u>\$ 596.6</u>	<u>\$1,455.6</u>

Amortization expense was \$85.4 million, \$83.4 million and \$88.9 million for the years ended December 31, 2016, 2015 and 2014, respectively.

The following table presents estimated future amortization expense at December 31, 2016:

<i>(in millions)</i>	
2017	\$ 85.3
2018	83.2
2019	81.6
2020	80.3
2021	76.3
Thereafter	<u>384.6</u>
Total	<u>\$791.3</u>

[Table of Contents](#)

8. Debt

The following table presents information about debt:

	December 31, 2016			December 31, 2015
	Interest terms	Rate	Amount	
<i>(dollars in millions)</i>				
Accounts receivable securitization facility	LIBOR plus 1.15%	1.89%	\$ 163.9	\$ 38.0
Senior credit facility:				
Multi-currency revolving loan facility	EURIBOR plus 2.00%	2.00%	31.6	—
Term A loan, net of discount of \$4.8 and \$6.1	LIBOR plus 2.00%	2.61%	859.7	903.9
Term B loan, net of discount of \$4.4 and \$4.7	EURIBOR plus 3.00%	3.00%	423.8	494.8
4.625% senior notes, net of discount of \$7.0 and \$8.4	Fixed rate	4.63%	524.9	538.6
Other debt			13.1	13.7
Total debt			<u>\$2,017.0</u>	<u>\$ 1,989.0</u>
Classification on consolidated balance sheets:				
Current portion of debt			\$ 250.1	\$ 92.8
Debt, net of current portion			<u>1,766.9</u>	<u>1,896.2</u>
Total debt			<u>\$2,017.0</u>	<u>\$ 1,989.0</u>

Other debt includes capital lease obligations and subsidiary loans from local banks. Borrowings under the accounts receivable securitization facility and the multi-currency revolving loan facility are included in the current portion of debt because we frequently borrow from and repay them to satisfy short term cash requirements; we are not required to repay those borrowings until maturity of the instruments.

In 2016, we entered into two interest rate swaps that exchange LIBOR for fixed rates on a portion of our term A loan. See Note 9.

The following table presents availability under credit facilities at December 31, 2016:

<i>(in millions)</i>	Accounts receivable securitization facility	Multi- currency revolving loan facility	Total
Maximum availability	\$ 175.0	\$ 250.0	\$ 425.0
Current availability	\$ 175.0	\$ 250.0	\$ 425.0
Undrawn letters of credit outstanding	(11.0)	(1.7)	(12.7)
Outstanding borrowings	<u>(163.9)</u>	<u>(31.6)</u>	<u>(195.5)</u>
Unused availability	<u>\$ 0.1</u>	<u>\$ 216.7</u>	<u>\$ 216.8</u>

Current availability under the accounts receivable securitization facility depends upon maintaining a sufficient borrowing base of eligible trade accounts receivable. At December 31, 2016, \$243.2 million of trade accounts receivable were pledged as collateral under the facility.

[Table of Contents](#)

The following table presents the maturities of debt principal at December 31, 2016:

<i>(in millions)</i>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>Thereafter</u>	<u>Total</u>
Accounts receivable securitization facility	\$ —	\$163.9	\$ —	\$ —	\$ —	\$ —	\$ 163.9
Senior credit facility:							
Multi-currency revolving loan facility	—	—	—	31.6	—	—	31.6
Term A loan	45.5	68.3	91.0	659.7	—	—	864.5
Term B loan	4.3	4.3	4.3	4.3	4.3	406.7	428.2
4.625% senior notes	—	—	—	—	—	531.9	531.9
Other debt	4.7	4.3	2.6	1.5	—	—	13.1
Total debt, excluding discounts	<u>\$54.5</u>	<u>\$240.8</u>	<u>\$97.9</u>	<u>\$697.1</u>	<u>\$ 4.3</u>	<u>\$ 938.6</u>	<u>\$2,033.2</u>

Accounts receivable securitization facility

The accounts receivable securitization facility is for \$175.0 million with a commercial bank and matures on May 18, 2018. Borrowings are secured by the trade accounts receivable of certain domestic subsidiaries, which are not available to satisfy the claims of other creditors. We bear the risk of collection on our trade accounts receivable and account for the facility as a secured borrowing.

The accounts receivable securitization facility includes representations and covenants that we consider usual and customary, including that, if our available liquidity falls below a specified amount, the ratio of our adjusted earnings to interest expense cannot exceed a specified amount, each as defined. At December 31, 2016, we were in compliance with those covenants.

Senior credit facility

The senior credit facility is with a syndicate of lenders and includes a \$250.0 million multi-currency revolving loan facility due September 28, 2020, a \$910.0 million term A loan due September 28, 2020 and a €406.6 million term B loan due January 15, 2022. The term loans require us to make scheduled quarterly principal repayments as shown in the table above. Borrowings under the senior credit facility are secured by substantially all of our assets except for the trade accounts receivable that secure the accounts receivable securitization facility and bear interest at variable rates plus a margin that declines if certain net leverage ratios are achieved. Fees payable under the senior credit facility are not material to interest expense. The senior credit facility includes representations and covenants that we consider usual and customary, including that our first lien net leverage ratio, as defined, cannot exceed a specified amount. At December 31, 2016, we were in compliance with those covenants.

We entered into the senior credit facility in 2015, issuing the term B loan at an original discount of €1.2 million and paying debt issuance costs of \$15.4 million, most of which were deferred and are being recognized as interest expense through the maturity date. We used a portion of the proceeds from the senior credit facility and proceeds from the issuance of 4.625% senior notes to repay our prior credit facility and incurred a loss on extinguishment of debt of \$7.9 million during 2015.

In 2016, we amended our term B loan for more favorable interest terms. The amendment required us to repay €50.0 million of principal and pay financing costs of \$0.9 million, most of which were deferred and are being recognized as interest expense through the maturity date. We also incurred a loss on extinguishment of debt of \$0.5 million representing the portion of unamortized deferred costs and original discount related to the principal repaid. In 2014, we amended our prior credit facility to extend maturity dates and obtain more favorable interest terms and paid debt issuance costs of \$1.1 million.

Senior notes

We have issued €503.8 million of 4.625% senior notes that mature on April 15, 2022. Interest is payable in arrears on April 15 and October 15 of each year. The notes are redeemable at premiums that begin at 102.3125%

[Table of Contents](#)

plus the present value of interest through April 15, 2018, then decline through April 15, 2020 at which time the notes become redeemable at face value. The notes are also redeemable in part using proceeds from certain equity offerings and in full upon certain changes in control. The indentures covering the notes include representations and covenants that we consider usual and customary. At December 31, 2016, we were in compliance with those covenants.

In 2015, we issued the notes at an original issue discount of €3.8 million and paid debt issuance costs of \$5.4 million, which were deferred and are being recognized as interest expense through the maturity date. We also used a portion of the proceeds from the senior credit facility to redeem all of our 7.25% senior notes for a premium of \$20.4 million and incurred a loss on extinguishment of debt of \$24.8 million. In 2014, we used net proceeds from the IPO to redeem 10.75% subordinated notes at face value and incurred a loss on extinguishment of debt of \$5.1 million.

9. Financial instruments and fair value measurements

Our financial instruments include cash and cash equivalents, trade accounts receivable, accounts payable, debt and an amount due to Varietal under the ITRA. Except for the amount due to Varietal, these financial instruments are held or issued by a number of institutions, which reduces the risk of material non-performance.

Assets and liabilities for which fair value is only disclosed

The carrying amount of cash and cash equivalents is the same as its fair value and is a Level 1 measurement. The carrying amounts for trade accounts receivable and accounts payable approximate fair value due to their short-term nature and are Level 2 measurements.

The following table presents the carrying amounts and fair values of debt instruments:

<i>(in millions)</i>	December 31, 2016		December 31, 2015	
	Carrying amount	Fair value	Carrying amount	Fair value
Accounts receivable securitization facility	\$ 163.9	\$ 163.9	\$ 38.0	\$ 38.0
Senior credit facility:				
Multi-currency revolving loan facility	31.6	31.6	—	—
Term A loan	859.7	856.4	903.9	901.5
Term B loan	423.8	431.9	494.8	500.5
4.625% senior notes	524.9	553.9	538.6	536.5
Other debt	13.1	13.1	13.7	13.7

The fair values of debt instruments are based on standard pricing models that take into account the present value of future cash flows, which are Level 2 measurements.

At December 31, 2016 and 2015, the amount due to Varietal under the ITRA (see Note 20) had carrying amounts of \$85.0 million and \$163.1 million, respectively, and fair values of \$82.9 million and \$147.6 million, respectively. The fair values were estimated using a combination of observable and unobservable inputs following an income-based approach, a Level 3 measurement.

Recurring fair value measurements with significant unobservable inputs

Certain of the business acquisitions we completed entitle the sellers to contingent consideration if earnings targets are met during a period of time following the acquisition.

[Table of Contents](#)

The following table presents changes to contingent consideration liabilities:

<i>(in millions)</i>	<u>Year ended December 31,</u>	
	<u>2016</u>	<u>2015</u>
Beginning balance	\$ 21.0	\$ 11.6
Acquisitions (Note 5)	13.8	13.6
Loss (income) from changes to estimated fair value	4.9	(1.1)
Cash payments	(4.2)	(2.4)
Currency translation	(0.8)	(0.7)
Ending balance	<u>\$ 34.7</u>	<u>\$ 21.0</u>

We estimate the fair value of contingent consideration using the average of probability-weighted potential earn-out payments specified in the purchase agreements, a Level 3 measurement, ranging in the aggregate from approximately \$19 million to \$38 million for all open earn-outs at December 31, 2016. The significant assumptions used in these calculations include forecasted results and the estimated likelihood for each performance scenario.

Derivative instruments and hedging activities

We engage in hedging activities to reduce our exposure to changes in variable interest rates and foreign currency exchange rates. Our hedging activities are designed to manage specific risks according to our strategies, as summarized below, which may change from time to time. Our hedging activities consist of the following:

- *Cash flow hedging* — We hedge the variable base interest rate of a portion of our term A loan using interest rate swaps;
- *Net investment hedging* — We hedge a portion of our net investment in euro-denominated foreign operations using our 4.625% senior notes and a portion of our term B loan;
- *Economic hedge* — We experience opposite foreign currency exchange rate effects related to a euro-denominated intercompany loan and the unhedged portion of our term B loan. The currency effects for these non-derivative instruments are recorded through earnings in the period of change and substantially offset one another; and
- *Other hedging activities* — Some of our subsidiaries hedge short-term foreign-denominated business transactions and intercompany financing transactions using foreign currency forward contracts. No additional disclosures are provided for these activities because they were not material to our consolidated financial statements.

Cash flow and net investment hedging

We have entered into two interest rate swaps designated as cash flow hedges of the variable LIBOR rate on \$500.0 million of our term A loan. Those swaps exchange the variable LIBOR rate for an approximately 1% fixed rate and mature on September 28, 2020. These hedges have been and are expected to continue to be fully effective. As a result, changes to the fair value of the interest rate swaps, which otherwise would be recognized in earnings, are deferred to AOCI.

We have designated €356.0 million of our term B loan and all €503.8 million of our 4.625% senior notes as hedges to protect a portion of our net investment in foreign operations from the impact of changes in the euro to U.S. dollar exchange rate. As a result of these hedge designations, the foreign currency changes on the debt instruments, which otherwise would be recognized in earnings, are deferred to AOCI and equally offset the foreign currency changes on the hedged portion of our net investment. These hedges have no other impact to our financial position, financial performance or cash flows.

Table of Contents

The following table presents the balance sheet classification and fair values of these instruments, all of which are Level 2 measurements:

<i>(in millions)</i>	<u>Balance sheet classification</u>	<u>December 31,</u>	
		<u>2016</u>	<u>2015</u>
Cash flow hedging:			
Interest rate swaps	Other assets	\$ 11.2	\$ —
Net investment hedging:			
Portion of term B loan	Debt, net of current portion	379.2	402.6
4.625% senior notes	Debt, net of current portion	553.9	536.5

The following table presents the net unrealized gain (loss) deferred to AOCI for these instruments:

<i>(in millions)</i>	<u>Year ended December 31,</u>	
	<u>2016</u>	<u>2015</u>
Cash flow hedging:		
Interest rate swaps	\$ 9.8	\$ —
Net investment hedging:		
Portion of net investment in foreign operations	(28.6)	(3.7)
Portion of term B loan	13.5	12.4
4.625% senior notes	15.1	(8.7)

All of these hedges were fully effective for the periods presented. The following table presents the net loss reclassified from AOCI into earnings for these instruments:

<i>(in millions)</i>	<u>Income statement classification</u>	<u>Year ended December 31,</u>	
		<u>2016</u>	<u>2015</u>
Interest rate swaps	Interest expense	\$ (1.4)	\$ —

10. Commitments and contingencies

Our business involves risk of product liability, patent infringement and other claims in the ordinary course of business arising from the products that we source from various manufacturers or produce ourselves, as well as from the services we provide. Our exposure to such claims may increase as we seek to increase the geographic scope of our sourcing activities and sales of private label products and to the extent that we expand our manufacturing operations or service offerings. We maintain insurance policies, including product liability insurance, and in many cases the manufacturers of the products we distribute have indemnified us against such claims. We cannot assure you that our insurance coverage or indemnification agreements with manufacturers will be available in all pending or any future cases brought against us. Furthermore, our ability to recover under any insurance or indemnification arrangements is subject to the financial viability of our insurers, our manufacturers and our manufacturers' insurers, as well as legal enforcement under the local laws governing the arrangements. In particular, as we seek to expand our sourcing from manufacturers in the Asia-Pacific region and other developing locations, we expect that we will increase our exposure to potential defaults under the related indemnification arrangements. Insurance coverage in general or coverage for certain types of liabilities, such as product liability or patent infringement in these developing markets may not be readily available for purchase or cost-effective for us to purchase. Furthermore, insurance for liability relating to asbestos, lead and silica exposure is not available, and we do not maintain insurance for product recalls. Accordingly, we could be subject to uninsured and unindemnified future liabilities, and an unfavorable result in a case for which adequate insurance or indemnification is not available could result in a material adverse effect on our business, financial condition and results of operations.

We are also involved in various disputes, litigation and regulatory matters incidental to our business, including employment matters, commercial disputes, government contract compliance matters, disputes regarding

[Table of Contents](#)

environmental clean-up costs, and other matters arising out of the normal conduct of our business. We intend to vigorously defend ourselves in such matters. From time to time, we are named as a defendant in cases as a result of our distribution of laboratory supplies, including litigation resulting from the alleged prior distribution of products containing asbestos by certain of our predecessors or acquired companies. While the impact of these disputes or litigation has historically been immaterial, and we believe the range of reasonably possible loss from current matters continues to be immaterial, there can be no assurance that the impact of the pending and any future claims will not be material to our business, financial condition or results of operations in the future.

Employment agreements

The employment agreements with our executive officers include provisions for the payment of severance and continuing health benefits following termination without cause or resignation for good reason, as those terms are defined in the employment agreements. The aggregate of potential payments for all executive officers under these provisions was \$11.1 million at December 31, 2016.

Registration rights agreement

We are party to a registration rights agreement with Varietal that could require us to pay securities registration costs in future periods. Under the registration rights agreement, Varietal is entitled to request that we register (i) any shares of our common stock that it held at October 7, 2014 and (ii) any shares held by Madison Dearborn Partners. Should we register such common stock, we would be required to pay costs related to the registration as well as Varietal's expenses in connection with its exercise of these rights.

During the years ended December 31, 2016 and 2015, we incurred expenses pursuant to the registration rights agreement. See Note 20.

11. Redeemable equity

Redeemable equity consists of redeemable equity units of our parent and, prior to July 31, 2014, redeemable convertible preferred stock.

Redeemable equity units of parent

In 2007, Varietal established a plan whereby certain employees were able to purchase a "strip" of preferred and common units. The following describes the accounting for these units:

- **Issuances** — Prior to the recapitalization, Varietal issued these units in exchange for cash. Subsequently, Varietal contributed an equal amount of capital to us in exchange for shares of redeemable convertible preferred stock. None of these units have been issued following the recapitalization.
- **Repurchases** — Upon termination of the employee unitholders, two redemption options may be triggered, one of which is outside of our control. Prior to the recapitalization, Varietal redeemed the units by providing an equally-valued number of shares of our redeemable convertible preferred stock to the unitholder, which we subsequently redeemed for cash. Following the recapitalization, Varietal redeems units directly with cash.
- **Valuation** — These units are presented on our consolidated balance sheets at their redemption value. The redemption value is contractually defined, with preferred units valued as the sum of unreturned capital plus a cumulative dividend and common units valued at the enterprise value of Varietal less the redemption value of preferred units. Changes to the redemption value are reclassified to or from additional paid-in capital.

[Table of Contents](#)

Certain employees also received a special type of common unit that vested based upon continuing service, subject to accelerated vesting upon the occurrence of certain events. Because these units were provided as an incentive to provide services to us, we accounted for them as stock-based compensation. See Note 13.

Redeemable convertible preferred stock

In 2014, in anticipation of our IPO, we completed an internal recapitalization (see Note 12) pursuant to which all shares of our redeemable convertible preferred stock were exchanged for newly-issued shares of common stock. Prior to the recapitalization, the preferred stock was redeemable by Varietal for the sum of unreturned capital plus a cumulative dividend.

12. Stockholders' equity

Stockholders' equity consists of common stock. We are also authorized to issue preferred stock.

Our debt agreements impose restrictions on VWR Funding's ability to make payments to VWR Corporation, including for the purpose of paying dividends on capital stock. See Note 24.

Recapitalization

In anticipation of our IPO, we completed an internal recapitalization in 2014 pursuant to which all then outstanding equity was exchanged for 102.0 million shares of newly-issued common stock. We also amended and restated our certificate of incorporation and bylaws which resulted in the capitalization shown on our consolidated balance sheet and included a 102-for-1 stock split.

Initial public offering

In 2014, we completed our IPO, which included an additional sale to our underwriters, by issuing 29.4 million common shares at a price of \$21.00 per share. After deducting underwriting discounts, the IPO resulted in net proceeds of \$582.6 million.

In connection with the IPO, we also: i) paid a \$25.0 million dividend to Varietal; ii) terminated a management services agreement with Madison Dearborn Partners and Avista Capital Partners and entered into an ITRA with Varietal (see Note 20); iii) awarded stock options to certain employees and directors under a new stock-based compensation plan (see Note 13); and iv) used the net proceeds from the IPO to repay debt.

13. Stock-based compensation

The following table presents the components of stock-based compensation expense, a component of SG&A expenses:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
2014 Plan	\$ 8.3	\$ 4.4	\$ 1.1
Other immaterial plans	0.3	0.5	0.9
Total	<u>\$ 8.6</u>	<u>\$ 4.9</u>	<u>\$ 2.0</u>

At December 31, 2016, remaining stock-based compensation expense of \$25.9 million related to unvested awards will be recognized over a weighted average period of 3.0 years.

[Table of Contents](#)
2014 Plan

The 2014 Plan authorized up to 11.5 million shares of common stock to be issued in the form of stock options, stock appreciation rights, restricted stock or other stock-based awards. At December 31, 2016, 5.6 million shares were available for future issuance. No award shall be granted pursuant to the 2014 Plan on or after September 9, 2024.

The following table presents information about stock options under the 2014 Plan:

<i>(in millions, except per option amounts and years)</i>	Year ended December 31, 2016			
	Number of stock options	Weighted average exercise price per option	Aggregate intrinsic value	Weighted average remaining term
Outstanding at beginning of period	3.2	\$ 21.03		
Granted	2.8	24.68		
Exercised	(0.1)	21.00		
Forfeited	(0.1)	21.39		
Outstanding at end of period	<u>5.8</u>	22.80	\$ 13.3	5.4 years
Expected to vest	4.5	23.26	8.3	5.6 years
Exercisable	1.2	21.02	4.8	4.8 years

Granted

In 2016, we granted stock options to management that vest 25% on the first anniversary of the date of grant and 6.25% quarterly thereafter through the fourth anniversary of the date of grant and have a seven-year term.

In 2014, we granted stock options to management that vest 40% on the second anniversary of the date of grant and 5.00% quarterly thereafter through the fifth anniversary of the date of grant and have a seven-year term.

The following table presents information about their fair value:

	Year ended December 31,	
	2016	2014
Weighted average grant date fair value	\$ 6.69	\$ 6.67
Expected stock price volatility	30%	33%
Risk free interest rate	1.16%	1.76%
Expected dividend rate	nil	nil
Expected life of options	4.6 years	4.9 years

Vested and exercised

Beginning in 2016, options vested and were exercised. The total fair value of options vested during the year was \$8.2 million. Options exercised had intrinsic value of \$0.6 million, caused us to realize a tax benefit of \$0.2 million and resulted in cash contributions of \$2.0 million.

14. Restructuring

In the fourth quarter of 2016, we initiated a restructuring program designed to achieve additional efficiencies in our operating model and reduce operating expenses. The program involves selectively realigning personnel, closures of several smaller operations accompanied by consolidation of their operating activities in other business units, and closure or divestiture of certain non-strategic businesses units. The program is expected to be completed by early 2018 when operating activity relocations are scheduled to be completed.

[Table of Contents](#)

The following table presents information about restructuring charges under the 2016 program, which are included in SG&A expenses:

<i>(in millions)</i>	Year ended December 31, 2016	December 31, 2016		
		Cumulative charges incurred	Expected remaining charges	Total expected charges
Employee severance	\$ 12.9	\$ 12.9	\$ 5.4	\$ 18.3
Facility closure	0.4	0.4	3.9	4.3
Other	7.0	7.0	5.4	12.4
Total	<u>\$ 20.3</u>	<u>\$ 20.3</u>	<u>\$ 14.7</u>	<u>\$ 35.0</u>
Americas	\$ 1.8	\$ 1.8	\$ 1.7	\$ 3.5
EMEA-APAC	18.5	18.5	13.0	31.5
Total	<u>\$ 20.3</u>	<u>\$ 20.3</u>	<u>\$ 14.7</u>	<u>\$ 35.0</u>

Other charges are to write-down the carrying value of net assets of businesses that we plan to close or sell under the program.

The following table presents changes to accrued restructuring charges:

<i>(in millions)</i>	Employee severance	Facility closure	Total
Balance at December 31, 2015	\$ —	\$ —	\$ —
Restructuring charges	12.9	0.4	13.3
Cash payments	(2.2)	—	(2.2)
Balance at December 31, 2016	<u>\$ 10.7</u>	<u>\$ 0.4</u>	<u>\$11.1</u>

15. Benefit plans

We sponsor a number of defined benefit plans for our employees worldwide. We present these plans as follows due to their differing geographies, characteristics and actuarial assumptions:

- The U.S. Retirement Plan is a funded and tax-qualified defined benefit retirement plan providing two types of benefits based on: (i) service for substantially all full-time U.S. employees who completed a year of service by May 31, 2005, with benefits frozen on that date; and (ii) beginning in 2016, an annual contribution we make for substantially all full-time U.S. employees that grows at a defined rate. We generally fund the minimum amount required by applicable laws and regulations. We use a December 31 measurement date for the U.S. Retirement Plan.
- The German, French and UK Plans are presented in the aggregate. Our German subsidiaries have unfunded defined benefit pension plans for certain employees and retirees that are closed to new participants. Our French subsidiary has a funded defined benefit pension plan for a certain group of employees that is closed to new participants. Our UK subsidiary has funded defined benefit plans that are closed to new participants and frozen with respect to future accrual of benefits. We use a December 31 measurement date for the German, French and UK Plans.
- We sponsor certain other defined benefit plans that are not material individually or in the aggregate.

We also sponsor a defined contribution plan for our employees in the United States, Canada and Puerto Rico that features an employer match. Prior to 2016, we also provided an annual contribution to those plans based on company performance that was replaced by a similar benefit under the U.S. Retirement Plan beginning in 2016. The aggregate expense for our defined contribution plans was \$9.9 million, \$10.6 million and \$10.7 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Table of Contents

The following table presents information about our defined benefit plans:

<i>(in millions)</i>	U.S. Retirement Plan Year ended December 31,		German, French and UK Plans Year ended December 31,	
	2016	2015	2016	2015
Change in projected benefit obligation:				
Beginning balance	\$ 180.1	\$ 189.1	\$ 164.0	\$ 180.3
Service cost	3.9	0.7	1.4	1.7
Interest cost	6.8	7.7	4.4	5.1
Actuarial loss (gain)	4.3	(9.7)	34.8	(6.4)
Benefits paid	(7.7)	(7.7)	(5.1)	(3.2)
Currency translation	—	—	(20.2)	(13.5)
Other	—	—	0.7	—
Ending balance	<u>187.4</u>	<u>180.1</u>	<u>180.0</u>	<u>164.0</u>
Change in fair value of plan assets:				
Beginning balance	222.8	241.2	84.7	83.0
Actual gain (loss) on plan assets	23.1	(10.7)	21.7	2.3
Company contributions	—	—	10.1	7.3
Benefits paid	(7.7)	(7.7)	(5.1)	(3.2)
Currency translation	—	—	(16.2)	(4.7)
Ending balance	<u>238.2</u>	<u>222.8</u>	<u>95.2</u>	<u>84.7</u>
Funded status at end of year	<u>\$ 50.8</u>	<u>\$ 42.7</u>	<u>\$ (84.8)</u>	<u>\$ (79.3)</u>
Accumulated benefit obligation at end of year	\$ 187.4	\$ 180.1	\$ 172.2	\$ 156.5
Amounts recognized in consolidated balance sheets at end of year:				
Other assets	50.8	42.7	0.6	0.8
Other liabilities	—	—	85.4	80.1
Accumulated other comprehensive income (loss)	13.6	7.9	(66.1)	(53.1)

At December 31, 2016, the amounts in AOCI that have not been recognized as net periodic pension income or cost relate to actuarial gains or losses, none of which will be recognized for the U.S. Retirement Plan and \$3.8 million of which will be recognized for the German, French and UK Plans in 2017.

The following table presents the components of net periodic pension (income) cost:

<i>(in millions)</i>	U.S. Retirement Plan Year ended December 31,			German, French and UK Plans Year ended December 31,		
	2016	2015	2014	2016	2015	2014
Service cost	\$ 3.9	\$ 0.7	\$ 0.7	\$ 1.4	\$ 1.7	\$ 1.5
Interest cost	6.8	7.7	8.4	4.4	5.1	6.6
Expected return on plan assets	(13.1)	(14.2)	(14.4)	(4.6)	(4.8)	(5.7)
Recognized net actuarial (gain) loss	—	—	(0.4)	3.3	3.7	2.1
Gain on partial plan settlement	—	—	(6.9)	—	—	—
Other	—	—	—	0.7	—	—
Total	<u>\$ (2.4)</u>	<u>\$ (5.8)</u>	<u>\$ (12.6)</u>	<u>\$ 5.2</u>	<u>\$ 5.7</u>	<u>\$ 4.5</u>

For the years ended December 31, 2016, 2015 and 2014, the net unrealized gain (loss) recorded in other comprehensive income or loss was: (i) for the U.S. Retirement Plan, \$5.8 million, \$(15.3) million and \$(5.0) million, respectively; and (ii) for the German, French and UK Plans, \$(16.4) million, \$3.9 million and \$(26.3) million, respectively. The amounts reclassified from AOCI into earnings are shown in the table above as recognized net actuarial gain or loss.

Table of Contents

The following table presents the assumptions used to determine the projected benefit obligation and net periodic pension income:

	U.S. Retirement Plan Year ended December 31,			German, French and UK Plans Year ended December 31,		
	2016	2015	2014	2016	2015	2014
Projected benefit obligation at end of year:						
Discount rate	4.23%	4.58%	4.13%	2.36%	3.22%	2.99%
Annual rate of compensation increase	3.00%	*	*	3.00%	3.00%	3.00%
Net periodic pension cost or income:						
Discount rate	4.58%	4.13%	**	3.22%	2.99%	4.19%
Expected rate of return on plan assets	6.00%	6.00%	6.00%	6.01%	5.93%	6.92%
Annual rate of compensation increase	3.00%	*	*	3.00%	3.00%	3.00%

* Not applicable

** We used discount rates of 4.90% and 4.34% to measure the net periodic pension income of the U.S. Retirement Plan before and after a partial plan settlement that occurred on June 1, 2014, respectively.

We select our discount rates by reference to published bond yield curves.

The following table presents future benefits expected to be paid at December 31, 2016:

(in millions)	U.S. Retirement Plan	German, French and UK Plans
2017	\$ 13.9	\$ 3.1
2018	13.7	3.0
2019	12.8	3.8
2020	13.0	3.7
2021	13.1	4.5
2022 – 2026	63.3	28.2

During the year ended December 31, 2016, we made no contributions to the U.S. Retirement Plan and \$10.1 million of aggregate contributions to the German, French and UK Plans. In 2017, we expect to make no contributions to the U.S. Retirement Plan and aggregate contributions of \$4.2 million to the German, French and UK Plans.

The following table presents information about plan assets by type of fair value measurement:

(in millions)	December 31, 2016				December 31, 2015		
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2
U.S. Retirement Plan:							
Cash and cash equivalents	\$ 2.0	\$ 2.0	\$ —	\$ —	\$ 1.4	\$ 1.4	\$ —
Fixed income funds	181.0	—	181.0	—	171.4	—	171.4
Equity funds	55.2	14.8	36.4	4.0	50.0	18.2	31.8
Total	<u>\$238.2</u>	<u>\$ 16.8</u>	<u>\$217.4</u>	<u>\$ 4.0</u>	<u>\$222.8</u>	<u>\$ 19.6</u>	<u>\$203.2</u>
German, French and UK Plans:							
Cash and cash equivalents	\$ 1.1	\$ 1.1	\$ —	\$ —	\$ 1.0	\$ 1.0	\$ —
Fixed income funds	32.4	—	32.4	—	68.2	—	68.2
Equity funds	61.7	—	61.7	—	15.5	—	15.5
Total	<u>\$ 95.2</u>	<u>\$ 1.1</u>	<u>\$ 94.1</u>	<u>\$ —</u>	<u>\$ 84.7</u>	<u>\$ 1.0</u>	<u>\$ 83.7</u>

F-98

[Table of Contents](#)

At December 31, 2016, the investment strategy of the U.S. Retirement Plan is to match the investment asset duration with the pension liability duration. This strategy, utilizing diversified fixed income funds, attempts to hedge the discount rate used to present value future pension obligations. The fixed income funds invest in long duration investment grade corporate bonds primarily across industrial, financial and utilities sectors and is managed by a single institution. Surplus assets, the fair market value of assets in excess of benefit obligations, are invested in equity funds. We estimate the future return on plan assets after considering prior performance, but primarily based upon the mix of assets and expectations for the long-term returns on those asset classes. Based on the target asset allocation for each asset class, the overall expected rate of return is adjusted for the historical experience and future expectations of returns as a result of active portfolio management as compared to the benchmark returns. Assets measured using Level 3 inputs were not material to the portfolio.

At December 31, 2016, the investment strategy for the assets of the German, French and UK Plans is to match the expected return of its portfolio with the required return to reach its long-term funding objectives. To generate this return, the plan invests in return-seeking assets, primarily global equity funds. In addition to targeting this return, the strategy also includes mitigating the risk that the present value of the liabilities increases as a result of changes to inflation and interest rates. These liability risks are hedged by investing in fixed income funds, primarily consisting of government bonds and inflation-linked government bonds. The expected long-term rate of return on plan assets used in determining pension expense is determined in a similar manner to the U.S. Retirement Plan.

16. Leases

We lease office and warehouse space, vehicles and computer and office equipment under operating leases. Operating lease expense was \$39.2 million, \$32.8 million and \$35.5 million for the years ended December 31, 2016, 2015 and 2014, respectively.

The following table presents future minimum lease payments under operating leases at December 31, 2016:

<i>(in millions)</i>	
2017	\$ 33.4
2018	28.4
2019	21.7
2020	15.1
2021	12.9
Thereafter	<u>32.8</u>
Total minimum payments	<u>\$144.3</u>

17. Other income (expense), net

Other income (expense), net, consists primarily of foreign currency remeasurement gains and losses. Significant foreign-denominated debt instruments are held by a subsidiary in the United States, causing us to record remeasurement gains or losses in earnings to the extent not hedged. In 2015, we designated some of that debt as a hedge of our net investment in foreign operations, which has reduced the impact to earnings. See Note 9.

[Table of Contents](#)
18. Income taxes

The following table presents information related to the consolidated income statements:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Income before income taxes:			
United States	\$146.3	\$123.3	\$121.4
Foreign	88.0	106.8	116.0
Total	<u>\$234.3</u>	<u>\$230.1</u>	<u>\$237.4</u>
Income tax provision:			
Current income tax provision:			
Federal	\$ 37.9	\$ 5.1	\$ 3.8
State	9.1	0.8	0.6
Foreign	35.7	42.6	46.5
Total	<u>82.7</u>	<u>48.5</u>	<u>50.9</u>
Deferred income tax provision (benefit):			
Federal	11.2	38.3	40.1
State	(1.1)	0.9	4.3
Foreign	(6.7)	(11.9)	(10.5)
Total	<u>3.4</u>	<u>27.3</u>	<u>33.9</u>
Total income tax provision	<u>\$ 86.1</u>	<u>\$ 75.8</u>	<u>\$ 84.8</u>

The following table presents the reconciliation of the income tax provision calculated at the United States statutory federal income tax rate of 35% to the amounts presented in the consolidated income statements:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Income tax provision at United States federal statutory rate	\$82.0	\$ 80.5	\$ 83.1
State income taxes, net of federal benefit	5.2	1.4	3.3
Change in foreign tax rates	—	(4.5)	—
Foreign rate differential	(7.4)	(11.0)	(10.4)
Changes to valuation allowance not included above	5.4	5.1	5.6
Other, net	0.9	4.3	3.2
Income tax provision	<u>\$86.1</u>	<u>\$ 75.8</u>	<u>\$ 84.8</u>

F-100

Table of Contents

The following table presents information about deferred tax assets and liabilities:

<i>(in millions)</i>	December 31,	
	2016	2015
Deferred tax assets:		
Net operating loss carryforwards	\$ 104.1	\$ 136.2
Other	40.7	40.3
Deferred tax assets, gross	144.8	176.5
Valuation allowances	(105.1)	(102.5)
Deferred tax assets, net	39.7	74.0
Deferred tax liabilities:		
Intangible assets	(442.0)	(467.2)
Goodwill	(39.7)	(38.2)
Other	(21.4)	(16.2)
Total deferred tax liabilities	(503.1)	(521.6)
Net deferred tax liability	\$(463.4)	\$(447.6)
Classification on consolidated balance sheets:		
Other assets	\$ 13.8	\$ 11.9
Deferred income tax liabilities	(477.2)	(459.5)
Net deferred tax liability	\$(463.4)	\$(447.6)

The increase (decrease) to the valuation allowance for the years ended December 31, 2016, 2015 and 2014 was \$2.6 million, \$(7.5) million and \$(9.3) million, respectively.

At December 31, 2016, most of the valuation allowances presented above relate to foreign net operating loss carryforwards that are not expected to be realized. We evaluate the realization of deferred tax assets by considering such factors as the reversal of existing taxable temporary differences, expected profitability by tax jurisdiction and available carryforward periods. The extent and timing of any such reversals will influence the extent of tax benefits recognized in a particular year. Should applicable losses, credits and deductions ultimately be realized, the resulting reduction in the valuation allowance would generally be recognized as a component of our income tax provision or benefit.

Uncertain tax positions

We conduct business globally, causing us to file income tax returns in the United States federal jurisdiction and various state and foreign jurisdictions. In the normal course of business, we are subject to examination by taxing authorities, including jurisdictions in which we have significant operations such as Germany, France, the UK, Belgium, Sweden, Canada, Switzerland and the United States. We have concluded substantially all income tax matters (i) in the United States through 2005 and (ii) in the foreign jurisdictions noted above through 2010.

The development of reserves for uncertain tax positions requires judgments about tax issues, potential outcomes and timing of settlement discussions with tax authorities. If we were to prevail on all uncertain tax positions, we would recognize a benefit to our income tax provision.

Table of Contents

The following table reflects changes to the reserve for uncertain tax positions:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Beginning balance	\$62.2	\$61.7	\$57.9
Additions:			
Tax positions related to the current year	1.7	1.7	5.1
Tax positions related to prior years	0.1	0.3	0.3
Reductions:			
Tax positions related to prior years	—	(0.2)	(0.1)
Settlements with taxing authorities	(1.2)	(0.1)	(0.3)
Lapse of statutes of limitations	(0.6)	(0.6)	(0.4)
Currency translation	(0.4)	(0.6)	(0.8)
Ending balance	<u>\$61.8</u>	<u>\$62.2</u>	<u>\$61.7</u>

The amounts above exclude accrued interest and penalties of \$1.2 million and \$1.0 million at December 31, 2016 and 2015, respectively. We expect a reduction in the liability for uncertain tax positions of up to \$0.9 million over the next twelve months as a result of settlements with taxing authorities and the lapse of statutes of limitations.

Other matters

Neither income taxes nor foreign withholding taxes have been provided on \$842.8 million of cumulative undistributed earnings of foreign subsidiaries as of December 31, 2016. These earnings are considered permanently invested in the business. We make an evaluation at the end of each reporting period as to whether or not some or all of the undistributed earnings are permanently reinvested. Future changes in facts and circumstances could require us to recognize income tax liabilities on the assumption that our foreign undistributed earnings will be distributed to the United States in a manner that attracts a net tax cost. At this time, a determination of the amount of unrecognized deferred tax liabilities is not practicable because of the complexities associated with its hypothetical calculation.

At December 31, 2016, we had federal net operating loss carryforwards of \$133.5 million that begin to expire in 2027 and state net operating loss carryforwards of \$332.8 million, with a corresponding state tax benefit of \$12.7 million, that expire at various times through 2034. In addition, we had foreign net operating loss carryforwards of \$308.2 million, which predominantly have indefinite expirations.

We have entered into an agreement that provides for the payment to Varietal of the majority of cash savings in U.S. federal, state and local income tax as a result of the utilization of net operating losses generated in periods prior to the IPO. See Note 20.

We file a consolidated federal and certain state combined income tax returns with our domestic subsidiaries.

[Table of Contents](#)
19. Comprehensive income or loss

The following table presents changes in the components of AOCI, net of tax:

<i>(in millions)</i>	Foreign currency translation	Derivative instruments	Defined benefit plans	Total
Balance at December 31, 2013	\$ 13.3	\$ (2.1)	\$ (8.7)	\$ 2.5
Net unrealized (loss) gain arising during the period	(204.2)	0.7	(27.0)	(230.5)
Reclassification of net loss (gain) into earnings	—	1.1	(3.0)	(1.9)
Balance at December 31, 2014	(190.9)	(0.3)	(38.7)	(229.9)
Net unrealized (loss) gain arising during the period	(174.4)	3.0	(7.0)	(178.4)
Reclassification of net (gain) loss into earnings	—	(0.7)	2.7	2.0
Balance at December 31, 2015	(365.3)	2.0	(43.0)	(406.3)
Net unrealized (loss) gain arising during the period	(22.4)	9.1	(9.4)	(22.7)
Reclassification of net loss (gain) into earnings	1.2	(2.3)	2.7	1.6
Balance at December 31, 2016	<u>\$ (386.5)</u>	<u>\$ 8.8</u>	<u>\$ (49.7)</u>	<u>\$ (427.4)</u>

The following table presents the reclassifications of net (gain) loss from AOCI into earnings:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Foreign currency translation:			
Selling, general and administrative expenses	\$ 1.7	\$ —	\$ —
Income tax provision	(0.5)	—	—
Net income	<u>\$ 1.2</u>	<u>\$ —</u>	<u>\$ —</u>
Derivative instruments:			
Cost of goods sold	\$(4.2)	\$ (2.3)	\$ 0.6
Interest expense	1.4	0.3	0.6
Loss on extinguishment of debt	—	0.7	0.5
Income tax provision	0.5	0.6	(0.6)
Net income	<u>\$(2.3)</u>	<u>\$ (0.7)</u>	<u>\$ 1.1</u>
Defined benefit plans:			
Selling, general and administrative expenses	\$ 3.9	\$ 3.9	\$ (5.3)
Income tax provision	(1.2)	(1.2)	2.3
Net income	<u>\$ 2.7</u>	<u>\$ 2.7</u>	<u>\$ (3.0)</u>

The following table presents the income tax effects of comprehensive income or loss components:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Foreign currency translation:			
Net unrealized income tax provision arising during the period	\$(11.1)	\$(1.5)	\$ —
Reclassification of net income tax benefit into earnings	(0.5)	—	—
Derivative instruments:			
Net unrealized income tax provision arising during the period	(4.8)	(1.8)	(0.2)
Reclassification of net income tax provision (benefit) into earnings	0.5	0.6	(0.6)
Defined benefit plans:			
Net unrealized income tax benefit arising during the period	2.2	4.8	10.1
Reclassification of net income tax (benefit) provision into earnings	(1.2)	(1.2)	2.3

[Table of Contents](#)**20. Related party transactions*****Due to Varietal — ITRA***

We are party to an ITRA with Varietal. The ITRA provides for the payment of most of the cash savings in U.S. federal, state and local income tax realized as a result of utilizing net operating losses that were generated in periods prior to the IPO. Varietal will not reimburse us for any payments previously made under the ITRA if such benefits are subsequently disallowed. As noted previously, Madison Dearborn Partners owns a controlling interest in Varietal.

We make payments under the ITRA the year after the tax year for which we claim the net operating loss carryforwards. We made a payment under the ITRA of \$78.1 million during the year ended December 31, 2016. At December 31, 2016, the remaining amount due to Varietal under the ITRA was \$85.0 million, \$27.7 million of which is classified as current and represents our estimate of the payment that will become due in March 2017.

Registration rights agreement

During the years ended December 31, 2016 and 2015, Varietal completed registered sales of 25.2 million and 31.1 million shares of our common stock, respectively. We received no proceeds from these sales and issued no additional shares of our common stock. Pursuant to our registration rights agreement with Varietal (see Note 10), we incurred expenses of \$1.2 million and \$1.5 million in 2016 and 2015, respectively, for the registrations and sales of common stock.

21. Risks and uncertainties***Evaluating goodwill and the VWR tradename for impairment***

On October 1 of each year, we perform annual impairment testing of our goodwill and the VWR tradename. The impairment testing requires us to estimate the fair value of these assets, which requires significant judgment.

We experienced more modest growth across our business in 2016 compared to 2015, which caused us to decrease the projected cash flows of our reporting units resulting in a decline in the estimated fair value using the income approach. Increases in the market approach driven by increased stock performance and valuation multiples more than offset that decrease for the Americas and partially offset that decrease for EMEA-APAC. This resulted in an increase to the estimated fair value of our Americas reporting unit, a decrease to the estimated fair value of our EMEA-APAC reporting unit and an increase to the estimated fair value our indefinite-lived intangible assets, each compared to prior periods. However, future changes in our estimates or judgments could reduce our fair value measurements, which could in turn result in an impairment charge. For example, our expected net sales, cash flow performance or market conditions could be adversely affected by negative macroeconomic or industry-specific factors. In 2011 and 2010, we recognized impairment charges of \$3.3 million and \$48.1 million, respectively, related to changes in the science education industry, while in 2008 we recognized impairment charges of \$392.1 million related to macroeconomic factors. We could also experience adverse changes in market factors such as discount rates, valuation multiples derived from comparable publicly-traded companies, a decline in the trading price of our common stock or control premiums derived from market transactions.

At October 1, 2016, the estimated fair value of the VWR tradename, which comprises substantially all of our indefinite-lived intangible assets, exceeded its carrying value by over \$300 million, and the estimated fair values of our Americas and EMEA-APAC reporting units exceeded their carrying values by over \$1.1 billion and over \$900 million, respectively.

Evaluating long-lived assets for impairment

We have acquired 46 businesses since June 2007. Following their recognition in business combinations, we are required to monitor their long-lived assets for indicators of impairment. If identified, we are required to perform impairment testing, which may require us to estimate the fair value of those assets. Estimating fair value requires us to exercise significant judgment.

[Table of Contents](#)

Based on a review of financial performance in 2015, we decreased our forecast of the profitability of a non-strategic business in our EMEA-APAC segment and recorded impairment charges of \$3.2 million in 2015. In 2016, we committed to a plan to sell that business as part of the restructuring program disclosed in Note 14. As a result, we incurred additional charges of \$6.6 million to write-down the carrying value of its net assets.

Should we identify other indicators of impairment in future periods, we may be required to recognize additional charges.

Changes to foreign currency exchange rates

Our operations span the globe. A significant portion of our earnings and net assets are denominated in foreign currencies, principally the euro but also the British pound sterling and many others. We also carry a significant amount of euro-denominated debt in the United States. Because we translate or remeasure these items into U.S. dollars, changes in foreign currency exchange rates can have a significant impact on our reported results.

We are not able to predict the impact that future changes in foreign currency exchange rates may have on our operating results, but their impact could be significant. Over the past few years, we have experienced significant changes in foreign currency exchange rates. Following a 2016 referendum to leave the European Union, the value of the British pound sterling in U.S. dollars dropped significantly. The value of the euro in U.S. dollars also reached a historic low in late 2016. These trends followed a significant strengthening of the U.S. dollar against most foreign currencies during the second half of 2014.

In 2015, we designated hedges that reduced our exposure to foreign currency remeasurement recorded in earnings. For more information, see Note 9.

Significant concentrations

Our two largest suppliers accounted for 8% and 6% of our cost of goods sold in 2016.

22. Segment financial information

We report financial results on the basis of two reportable segments organized by geographic region: the Americas and EMEA-APAC. Both the Americas and EMEA-APAC segments provide laboratory products, services and solutions to customers in the life science, general research and applied markets, including the pharmaceutical, biotechnology, agricultural, chemical, environmental, food and beverage, health care, microelectronic and petrochemical industries, as well as governmental agencies, universities and research institutes and environmental organizations. Corporate costs are managed centrally and attributed to the Americas segment.

[Table of Contents](#)

The following tables present segment financial information:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Net sales:			
Americas	\$2,737.7	\$2,577.3	\$2,430.1
EMEA-APAC	1,776.5	1,741.5	1,945.2
Total	<u>\$4,514.2</u>	<u>\$4,318.8</u>	<u>\$4,375.3</u>
Operating income:			
Americas	\$ 174.9	\$ 162.5	\$ 141.0
EMEA-APAC	140.7	157.7	176.9
Total	<u>\$ 315.6</u>	<u>\$ 320.2</u>	<u>\$ 317.9</u>
Capital expenditures:			
Americas	\$ 47.8	\$ 30.5	\$ 22.2
EMEA-APAC	12.1	10.4	11.4
Total	<u>\$ 59.9</u>	<u>\$ 40.9</u>	<u>\$ 33.6</u>
Depreciation and amortization:			
Americas	\$ 87.3	\$ 82.1	\$ 77.8
EMEA-APAC	42.8	42.4	51.5
Total	<u>\$ 130.1</u>	<u>\$ 124.5</u>	<u>\$ 129.3</u>
<i>(in millions)</i>			
Total assets:			
Americas	\$3,067.1	\$2,867.6	
EMEA-APAC	1,895.4	1,926.2	
Total	<u>\$4,962.5</u>	<u>\$4,793.8</u>	

The amounts above exclude inter-segment activity. All of the net sales for each segment are from external customers. We determined that disclosing net sales for each group of similar customers, products and services would be impracticable.

The following tables present net sales and property and equipment by geographic area:

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Net sales:			
United States	\$2,517.7	\$2,355.9	\$2,188.2
Canada	185.2	188.9	205.6
Central and South America	34.8	32.5	36.3
Europe	1,704.8	1,676.6	1,870.3
Asia-Pacific	71.7	64.9	74.9
Total	<u>\$4,514.2</u>	<u>\$4,318.8</u>	<u>\$4,375.3</u>

Table of Contents

<i>(in millions)</i>	<u>December 31,</u>	
	<u>2016</u>	<u>2015</u>
Property and equipment:		
United States	\$166.1	\$139.9
Canada	5.9	4.2
Central and South America	4.4	2.6
Europe	72.0	74.9
Asia-Pacific	5.4	6.6
Total	<u>\$253.8</u>	<u>\$228.2</u>

We disclose property and equipment by geographic area because many of these assets cannot be readily moved and are illiquid, subjecting them to geographic risk. None of our other long-lived assets are subject to geographic risk.

23. Unaudited quarterly financial information

<i>(in millions, except per share data)</i>	<u>Year ended December 31, 2016</u>			
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Net sales	\$ 1,098.3	\$ 1,149.5	\$ 1,136.1	\$ 1,130.3
Gross profit	310.6	323.4	313.5	314.3
Net income	38.8	41.8	40.6	27.0
Earnings per share:				
Basic	0.30	0.32	0.31	0.21
Diluted	0.29	0.32	0.31	0.20

<i>(in millions, except per share data)</i>	<u>Year ended December 31, 2015</u>			
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Net sales	\$ 1,029.6	\$ 1,081.2	\$ 1,095.5	\$ 1,112.5
Gross profit	291.2	298.5	299.5	307.9
Net income	71.5	18.3	11.0	53.5
Earnings per share:				
Basic	0.54	0.14	0.08	0.41
Diluted	0.54	0.14	0.08	0.41

24. Condensed parent company only financial statements

Our subsidiaries are party to certain debt agreements that restrict their ability to pay dividends or make other distributions to us. At December 31, 2016, \$1,308.4 million of the net assets of our subsidiaries were subject to those restrictions. Those net assets are restricted from being transferred to us in the form of loans, advances or cash dividends except as permitted by the debt agreements. For example, those agreements allow our subsidiaries to fund amounts payable under the ITRA without the restriction.

Pursuant to SEC regulations, the following presents condensed financial information as to the financial position, results of operations and cash flows of VWR Corporation on an unconsolidated basis. The related disclosures required by those regulations are provided elsewhere in the consolidated financial statements.

[Table of Contents](#)
Condensed parent company only balance sheets

	December 31,	
	2016	2015
<i>(in millions, except per share data)</i>		
Assets		
Cash and cash equivalents	\$ 4.7	\$ —
Investment in unconsolidated subsidiaries	1,595.9	1,538.3
Total assets	<u>\$1,600.6</u>	<u>\$1,538.3</u>
Liabilities, redeemable equity and stockholders' equity		
Current liabilities:		
Current amount due to Varietal — ITRA	\$ 27.7	78.1
Total current liabilities	27.7	78.1
Amount due to Varietal — ITRA, net of current portion	57.3	85.0
Total liabilities	85.0	163.1
Redeemable equity, at redemption value	21.2	38.8
Stockholders' equity:		
Preferred stock, \$0.01 par value; 50.0 shares authorized, no shares issued or outstanding	—	—
Common stock, \$0.01 par value; 750.0 shares authorized, 131.6 and 131.4 shares issued and outstanding	1.3	1.3
Additional paid-in capital	1,766.0	1,735.1
Retained earnings	154.5	6.3
Accumulated other comprehensive loss	(427.4)	(406.3)
Total stockholders' equity	1,494.4	1,336.4
Total liabilities, redeemable equity and stockholders' equity	<u>\$1,600.6</u>	<u>\$1,538.3</u>

Condensed parent company only income statements

	Year ended December 31,		
	2016	2015	2014
<i>(in millions)</i>			
Equity in earnings of unconsolidated subsidiaries, net of tax	<u>\$148.2</u>	<u>\$154.3</u>	<u>\$152.6</u>
Net income	148.2	154.3	152.6
Accretion of dividends on redeemable equity	—	—	(29.4)
Net income applicable to common stockholders	<u>\$148.2</u>	<u>\$154.3</u>	<u>\$123.2</u>

[Table of Contents](#)
Condensed parent company only statements of cash flows

<i>(in millions)</i>	Year ended December 31,		
	2016	2015	2014
Cash flows from financing activities:			
Proceeds from issuance of common stock	\$ 4.7	\$ 1.3	\$ 582.6
Payment of stock issuance costs	—	—	(4.8)
Capital contributed to unconsolidated subsidiaries	—	(1.3)	(577.8)
Receipt of dividends from unconsolidated subsidiaries	78.1	9.8	33.9
Payment of dividend	—	—	(25.0)
Redemption of redeemable equity	—	—	(8.9)
Payment to Varietal under ITRA	(78.1)	(9.8)	—
Net cash from financing activities	4.7	—	—
Cash and cash equivalents at beginning of period	—	—	—
Cash and cash equivalents at end of period	<u>\$ 4.7</u>	<u>\$ —</u>	<u>\$ —</u>

25. Valuation and qualifying accounts

The following table presents changes to our valuation and qualifying accounts:

<i>(in millions)</i>	Beginning balance	Charged to costs and expenses	Deductions (1)	Currency translation	Ending balance
Year ended December 31, 2016:					
Reserves on trade accounts receivable	\$ 12.0	\$ 3.0	\$ (4.1)	\$ (0.4)	\$ 10.5
Valuation allowances on deferred taxes	102.5	5.0	—	(2.4)	105.1
Year ended December 31, 2015:					
Reserves on trade accounts receivable	12.2	3.3	(2.6)	(0.9)	12.0
Valuation allowances on deferred taxes	110.0	3.3	—	(10.8)	102.5
Year ended December 31, 2014:					
Reserves on trade accounts receivable	14.8	2.4	(4.2)	(0.8)	12.2
Valuation allowances on deferred taxes	119.3	2.5	—	(11.8)	110.0

(1) Deductions represent bad debts charged off, net of recoveries.

[Table of Contents](#)
VWR Corporation and subsidiaries
Condensed consolidated balance sheets (unaudited)

<i>(in millions, except per share data)</i>	September 30, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 120.3	\$ 168.7
Trade accounts receivable, net of reserves of \$11.8 and \$10.5	691.1	607.2
Inventories	522.2	483.1
Other current assets	90.1	93.1
Total current assets	<u>1,423.7</u>	<u>1,352.1</u>
Property and equipment, net of accumulated depreciation of \$295.1 and \$248.9	333.0	253.8
Goodwill	2,044.8	1,844.0
Other intangible assets, net	1,488.0	1,407.8
Other assets	119.6	104.8
Total assets	<u>\$ 5,409.1</u>	<u>\$ 4,962.5</u>
Liabilities, redeemable equity and stockholders' equity		
Current liabilities:		
Current portion of debt	\$ 320.2	\$ 250.1
Accounts payable	513.0	476.3
Employee-related liabilities	112.7	79.3
Current amount due to Varietal — ITRA	26.0	27.7
Other current liabilities	163.6	152.7
Total current liabilities	<u>1,135.5</u>	<u>986.1</u>
Debt, net of current portion	1,859.8	1,766.9
Amount due to Varietal — ITRA, net of current portion	31.3	57.3
Deferred income tax liabilities	429.0	477.2
Other liabilities	205.3	159.4
Total liabilities	<u>3,660.9</u>	<u>3,446.9</u>
Commitments and contingencies (Note 8)		
Redeemable equity, at redemption value	36.2	21.2
Stockholders' equity:		
Preferred stock, \$0.01 par value; 50.0 shares authorized, no shares issued or outstanding	—	—
Common stock, \$0.01 par value; 750.0 shares authorized, 131.9 and 131.6 shares issued and outstanding	1.3	1.3
Additional paid-in capital	1,765.7	1,766.0
Retained earnings	279.1	154.5
Accumulated other comprehensive loss	(334.1)	(427.4)
Total stockholders' equity	<u>1,712.0</u>	<u>1,494.4</u>
Total liabilities, redeemable equity and stockholders' equity	<u>\$ 5,409.1</u>	<u>\$ 4,962.5</u>

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)**VWR Corporation and subsidiaries**
Condensed consolidated income statements (unaudited)

	Three months ended		Nine months ended	
	September 30,		September 30,	
	2017	2016	2017	2016
<i>(in millions, except per share data)</i>				
Net sales	\$1,195.2	\$1,136.1	\$3,509.6	\$3,383.9
Cost of goods sold	860.6	822.6	2,524.8	2,436.4
Gross profit	334.6	313.5	984.8	947.5
Selling, general and administrative expenses	251.5	230.3	739.5	700.0
Operating income	83.1	83.2	245.3	247.5
Interest expense	(21.8)	(20.6)	(61.1)	(60.5)
Other income (expense), net	8.3	(0.4)	4.8	(0.9)
Income before income taxes	69.6	62.2	189.0	186.1
Income tax provision	(20.5)	(21.6)	(64.4)	(64.9)
Net income	<u>\$ 49.1</u>	<u>\$ 40.6</u>	<u>\$ 124.6</u>	<u>\$ 121.2</u>
Earnings per share:				
Basic	\$ 0.37	\$ 0.31	\$ 0.95	\$ 0.92
Diluted	0.37	0.31	0.94	0.92
Weighted average shares outstanding:				
Basic	131.8	131.5	131.7	131.4
Diluted	133.1	131.9	132.6	131.7

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)
VWR Corporation and subsidiaries
Condensed consolidated statements of comprehensive income or loss (unaudited)

<i>(in millions)</i>	Three months ended		Nine months ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Net income	\$ 49.1	\$ 40.6	\$ 124.6	\$ 121.2
Other comprehensive income:				
Foreign currency translation:				
Net unrealized gain arising during the period	36.3	4.7	99.8	27.3
Derivative instruments:				
Net unrealized (loss) gain arising during the period	(0.8)	2.9	(3.3)	(0.2)
Reclassification of net gain into earnings	(5.6)	(0.5)	(5.9)	(1.3)
Defined benefit plans:				
Reclassification of net loss into earnings	0.7	0.3	2.7	1.5
Other comprehensive income	30.6	7.4	93.3	27.3
Comprehensive income	\$ 79.7	\$ 48.0	\$ 217.9	\$ 148.5

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)
VWR Corporation and subsidiaries
Condensed consolidated statements of redeemable equity and stockholders' equity (unaudited)

<i>(in millions)</i>	Redeemable equity, at redemption value	Stockholders' equity					
		Common stock		Additional paid-in capital	Retained earnings	AOCI	Total
		Shares	Par value				
Balance at December 31, 2016	\$ 21.2	131.6	\$ 1.3	\$ 1,766.0	\$ 154.5	\$(427.4)	\$1,494.4
Issuance of common stock	—	0.3	—	5.0	—	—	5.0
Stock-based compensation expense	—	—	—	9.7	—	—	9.7
Reclassifications to state redeemable equity at redemption value	15.0	—	—	(15.0)	—	—	(15.0)
Net income	—	—	—	—	124.6	—	124.6
Other comprehensive income	—	—	—	—	—	93.3	93.3
Balance at September 30, 2017	\$ 36.2	131.9	\$ 1.3	\$ 1,765.7	\$ 279.1	\$(334.1)	\$1,712.0

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)**VWR Corporation and subsidiaries**
Condensed consolidated statements of cash flows (unaudited)

	Nine months ended	
	September 30,	
	<u>2017</u>	<u>2016</u>
<i>(in millions)</i>		
Cash flows from operating activities:		
Net income	\$ 124.6	\$ 121.2
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	108.8	96.5
Deferred income tax (benefit) provision	(27.5)	15.9
Stock-based compensation expense	9.7	6.1
Other, net	0.9	8.5
Changes in working capital, net of business acquisitions:		
Trade accounts receivable	(38.4)	(29.8)
Inventories	(12.3)	(30.0)
Accounts payable	5.9	(34.4)
Other assets and liabilities	<u>30.6</u>	<u>32.1</u>
Net cash provided by operating activities	<u>202.3</u>	<u>186.1</u>
Cash flows from investing activities:		
Acquisitions of businesses, net of cash acquired	(197.3)	(60.8)
Capital expenditures	(43.0)	(45.5)
Other investing activities	6.1	—
Net cash used in investing activities	<u>(234.2)</u>	<u>(106.3)</u>
Cash flows from financing activities:		
Proceeds from debt	714.2	483.7
Repayment of debt	(708.6)	(497.1)
Payment to Varietal under ITRA	(27.7)	(78.1)
Payment of contingent consideration	(21.4)	(4.2)
Net change in bank overdrafts	0.9	16.2
Proceeds from settlement of interest rate swaps	9.7	—
Other financing activities	<u>5.0</u>	<u>1.3</u>
Net cash used in financing activities	<u>(27.9)</u>	<u>(78.2)</u>
Effect of exchange rate changes on cash	<u>11.4</u>	<u>3.8</u>
Net (decrease) increase in cash and cash equivalents	(48.4)	5.4
Cash and cash equivalents at beginning of period	168.7	136.3
Cash and cash equivalents at end of period	<u>\$ 120.3</u>	<u>\$ 141.7</u>
Supplemental disclosures of cash flow information:		
Cash paid for interest	\$ 50.9	\$ 54.7
Cash paid for income taxes, net	64.3	51.5

See accompanying notes to the condensed consolidated financial statements.

[Table of Contents](#)**VWR Corporation and subsidiaries**
Notes to the condensed consolidated financial statements (unaudited)**1. Nature of operations and basis of presentation**

We are a leading global independent provider of product and service solutions to laboratory and production customers with significant market positions in Europe and North America. We offer a broad portfolio of branded and private label laboratory products, a full range of value-added services and custom manufacturing capabilities to meet our customers' needs. Services represent a growing but currently small portion of our overall net sales.

Pending merger with Avantor

In May 2017, we entered into an agreement and plan of merger with Avantor pursuant to which each issued and outstanding share of our common stock will be exchanged for \$33.25. In July 2017, our stockholders voted to approve and adopt the merger agreement. The completion of the merger is subject to certain regulatory approvals and other customary closing conditions and is expected to occur in mid to late fourth quarter of 2017.

The merger agreement resulted in a number of changes to our commitments and contingencies, and we expect to incur significant costs related to the pending merger, each as discussed further in Note 8.

Basis of presentation

We report financial results for two segments organized by geographic region: the Americas and EMEA-APAC.

The condensed consolidated financial statements have been prepared on the basis that we will continue to operate as a separate company from Avantor for the foreseeable future. Specifically:

- Assets and liabilities have been presented as current or noncurrent, and forward-looking disclosures have been prepared, on the same basis as prior periods; and
- Significant commitments and contingencies related to the merger, as discussed further in Note 8, have been disclosed but not recognized.

We have prepared these condensed consolidated financial statements without audit pursuant to the rules and regulations of the SEC. Certain information normally included in financial statements prepared in accordance with GAAP has been condensed or omitted pursuant to such rules and regulations. The financial information presented herein reflects all adjustments (consisting only of normal, recurring adjustments) that are, in the opinion of management, necessary for a fair presentation of the results for the interim periods presented. The results for interim periods are not necessarily indicative of the results to be expected for the full year.

We believe that the disclosures included herein are adequate to make the information presented not misleading in any material respect when read in conjunction with the audited consolidated financial statements and notes thereto included in our Annual Report. Those audited consolidated financial statements include a summary of our significant accounting policies, to which there have been no material changes.

Principles of consolidation

The accompanying condensed consolidated financial statements include the accounts of VWR Corporation and the redeemable equity of Varietal, each after the elimination of intercompany balances and transactions.

Use of estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue, expense, income and loss during the reporting period. Actual results could differ significantly from those estimates.

[Table of Contents](#)

2. New accounting standards

In March 2017, the FASB issued new guidance about the presentation of the components of net periodic pension cost. The new guidance would require us to classify service cost as SG&A expense, interest cost as interest expense and the other components of net periodic pension cost as other income (expense), net. We would expect no change to income before income taxes or net income and would adopt the new guidance retrospectively beginning in the first quarter of 2018.

In February 2016, the FASB issued comprehensive new guidance about leases. Under the new guidance, most leases would be recognized on our consolidated balance sheet as liabilities with corresponding right-of-use assets. The new guidance carries forward a similar method of expense recognition for lessees. The new guidance would be effective for us beginning in the first quarter of 2019, with early adoption permitted, and would be adopted using a modified retrospective approach. We would expect this new guidance to result in a significant increase to our assets and liabilities.

In May 2014, the FASB issued comprehensive new revenue recognition guidance. The guidance provides a new model for revenue recognition that supersedes most current guidance and requires more disclosures about revenue including the components of revenue that are communicated to investors. The new guidance would be effective for us beginning in the first quarter of 2018 and could be adopted using either a full retrospective or a modified retrospective approach. We would expect the new recognition model to primarily impact only certain portions of our business and to result in expanded disclosures. We would not expect a material change to our results upon adoption; however, our evaluation is not yet complete. As part of the adoption we would evaluate the need for any changes to our internal control over financial reporting. We would adopt the new standard using the modified retrospective method.

There were no other new accounting standards that we would expect to have a material impact to our financial position or results of operations upon adoption.

3. Earnings per share

The following table presents information about basic and diluted earnings per share:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Reconciliation of weighted average shares outstanding:				
Basic	131.8	131.5	131.7	131.4
Dilutive effect of stock-based instruments	1.3	0.4	0.9	0.3
Diluted	<u>133.1</u>	<u>131.9</u>	<u>132.6</u>	<u>131.7</u>
Number of anti-dilutive instruments excluded from dilutive effect	1.4	2.1	3.1	3.9

4. Acquisitions

During the nine months ended September 30, 2017, we acquired three businesses for \$197.3 million, net of cash acquired. Except for their effects on investing cash flow and leasing (see Note 12), none of these acquisitions, nor their related costs, were material individually or in the aggregate to our results of operations or financial condition.

[Table of Contents](#)
5. Goodwill and other intangible assets, net

The following tables present information about goodwill by segment:

<i>(in millions)</i>	<u>Americas</u>	<u>EMEA-APAC</u>	<u>Total</u>
Balance at December 31, 2016	\$1,114.1	\$ 729.9	\$1,844.0
Acquisitions	88.5	18.9	107.4
Currency translation	7.0	86.4	93.4
Balance at September 30, 2017	<u>\$1,209.6</u>	<u>\$ 835.2</u>	<u>\$2,044.8</u>

<i>(in millions)</i>	<u>September 30, 2017</u>			<u>December 31, 2016</u>		
	<u>Gross carrying amount</u>	<u>Accumulated impairment losses</u>	<u>Net carrying amount</u>	<u>Gross carrying amount</u>	<u>Accumulated impairment losses</u>	<u>Net carrying amount</u>
Americas	\$1,416.2	\$ 206.6	\$1,209.6	\$1,320.7	\$ 206.6	\$1,114.1
EMEA-APAC	835.2	—	835.2	729.9	—	729.9
Total	<u>\$2,251.4</u>	<u>\$ 206.6</u>	<u>\$2,044.8</u>	<u>\$2,050.6</u>	<u>\$ 206.6</u>	<u>\$1,844.0</u>

The following table presents the components of other intangible assets:

<i>(in millions)</i>	<u>September 30, 2017</u>			<u>December 31, 2016</u>		
	<u>Gross carrying amount</u>	<u>Accumulated amortization</u>	<u>Net carrying amount</u>	<u>Gross carrying amount</u>	<u>Accumulated amortization</u>	<u>Net carrying amount</u>
Customer relationships	\$1,541.2	\$ 741.7	\$ 799.5	\$1,413.0	\$ 651.3	\$ 761.7
Other	73.3	27.7	45.6	49.7	20.1	29.6
Amortizable intangible assets	1,614.5	769.4	845.1	1,462.7	671.4	791.3
Indefinite-lived trademarks and tradenames	642.9	—	642.9	616.5	—	616.5
Other intangible assets	<u>\$2,257.4</u>	<u>\$ 769.4</u>	<u>\$1,488.0</u>	<u>\$2,079.2</u>	<u>\$ 671.4</u>	<u>\$1,407.8</u>

Amortization expense was \$23.9 million and \$21.4 million for the three months ended September 30, 2017 and 2016, respectively, and \$69.5 million and \$63.7 million for the nine months ended September 30, 2017 and 2016, respectively.

The following table presents estimated future amortization expense at September 30, 2017:

<i>(in millions)</i>	
Remainder of 2017	\$ 23.9
2018	93.8
2019	92.1
2020	90.7
2021	86.5
Thereafter	458.1
Total	<u>\$845.1</u>

[Table of Contents](#)

6. Debt

The following table presents information about debt:

	September 30, 2017			December 31, 2016
	Interest terms	Rate	Amount	
<i>(dollars in millions)</i>				
Accounts receivable securitization facility	LIBOR plus 1.15%	2.38%	\$ 163.9	\$ 163.9
Senior credit facility:				
Multi-currency revolving loan facility	Variable	3.36%	83.7	31.6
Term A loan, net of discount of \$3.9 and \$4.8	LIBOR plus 2.00%	3.24%	826.6	859.7
Term B loan, net of discount of \$3.8 and \$4.4	EURIBOR plus 3.00%	3.00%	471.6	423.8
4.625% senior notes, net of discount of \$6.3 and \$7.0	Fixed rate	4.63%	588.6	524.9
Capital lease obligations			45.6	13.1
Total debt			<u>\$2,180.0</u>	<u>\$ 2,017.0</u>
Classification on condensed consolidated balance sheets:				
Current portion of debt			\$ 320.2	\$ 250.1
Debt, net of current portion			<u>1,859.8</u>	<u>1,766.9</u>
Total debt			<u>\$2,180.0</u>	<u>\$ 2,017.0</u>

Borrowings under the accounts receivable securitization facility and the multi-currency revolving loan facility are included in the current portion of debt because we frequently borrow from and repay them to satisfy short term cash requirements; we are not required to repay those borrowings until maturity of the instruments.

Under the pending merger agreement (see Note 1), we would be required to redeem or repay most of our debt. We may redeem the 4.625% senior notes at 102.3125% plus the present value of interest through April 15, 2018, and we must offer to redeem them at 101% following certain specific types of change of control.

In 2016, we entered into a contract to swap LIBOR for fixed interest rates on a portion of our term A loan, and in September 2017, we settled that contract. See Note 7.

The following table presents availability under credit facilities at September 30, 2017:

<i>(in millions)</i>	Accounts receivable securitization facility	Multi- currency revolving loan facility	Total
Maximum availability	\$ 175.0	\$ 250.0	\$ 425.0
Current availability	\$ 175.0	\$ 250.0	\$ 425.0
Undrawn letters of credit outstanding	(10.9)	(1.8)	(12.7)
Outstanding borrowings	(163.9)	(83.7)	(247.6)
Unused availability	<u>\$ 0.2</u>	<u>\$ 164.5</u>	<u>\$ 164.7</u>

Current availability under the accounts receivable securitization facility depends upon maintaining a sufficient borrowing base of eligible trade accounts receivable. At September 30, 2017, \$268.2 million of trade accounts receivable were pledged as collateral under the facility.

7. Financial instruments and fair value measurements

Our financial instruments include cash and cash equivalents, trade accounts receivable, accounts payable, debt, contingent consideration liabilities and an amount due to Varietal under the ITRA. Except for the amount due to Varietal and the contingent consideration liabilities, these financial instruments are held or issued by a number of institutions, which reduces the risk of material non-performance.

[Table of Contents](#)

Assets and liabilities for which fair value is only disclosed

The carrying amount of cash and cash equivalents is the same as its fair value and is a Level 1 measurement. The carrying amounts for trade accounts receivable and accounts payable approximate fair value due to their short-term nature and are Level 2 measurements.

The following table presents the carrying amounts and fair values of debt instruments:

<i>(in millions)</i>	<u>September 30, 2017</u>		<u>December 31, 2016</u>	
	<u>Carrying amount</u>	<u>Fair value</u>	<u>Carrying amount</u>	<u>Fair value</u>
Accounts receivable securitization facility	\$ 163.9	\$ 163.9	\$ 163.9	\$ 163.9
Senior credit facility:				
Multi-currency revolving loan facility	83.7	83.7	31.6	31.6
Term A loan	826.6	830.5	859.7	856.4
Term B loan	471.6	475.4	423.8	431.9
4.625% senior notes	588.6	622.1	524.9	553.9
Capital lease obligations	45.6	45.6	13.1	13.1

The fair values of debt instruments are based on standard pricing models that take into account the present value of future cash flows, which are Level 2 measurements.

At September 30, 2017 and December 31, 2016, the amount due to Varietal under the ITRA had carrying amounts of \$57.3 million and \$85.0 million, respectively, and fair values of \$56.2 million and \$82.9 million, respectively. The fair values were estimated using a combination of observable and unobservable inputs following an income-based approach, a Level 3 measurement.

Recurring fair value measurements with significant unobservable inputs

Certain of the business acquisitions we completed entitle the sellers to contingent consideration if earnings targets are met during a period of time following the acquisition. See Note 8 for certain developments related to the pending merger with Avantor.

The following table presents changes in contingent consideration liabilities:

<i>(in millions)</i>	<u>Nine months ended September 30, 2017</u>
Beginning balance	\$ 34.7
Acquisitions	22.1
Income from changes to estimated fair value	(0.8)
Cash payments	(26.2)
Currency translation	0.9
Ending balance	<u>\$ 30.7</u>

We estimate the fair value of contingent consideration using the average of probability-weighted potential earn-out payments specified in the purchase agreements, a Level 3 measurement, ranging in the aggregate from approximately \$0 million to \$37 million for all open earn-outs at September 30, 2017. The significant assumptions used in these calculations include forecasted results and the estimated likelihood for each performance scenario.

[Table of Contents](#)
Derivative instruments and hedging activities

We engage in hedging activities to manage specific risks according to our strategies, as summarized below, which may change from time to time:

- *Cash flow hedging* — Until September 2017, we hedged the variable base interest rate of a portion of our term A loan using interest rate swaps to reduce our exposure to changes in variable interest rates;
- *Net investment hedging* — We hedge a portion of our net investment in euro-denominated foreign operations using our 4.625% senior notes and a portion of our term B loan to reduce the earnings impact of changes in foreign currency exchange rates;
- *Economic hedge* — We experience opposite foreign currency exchange rate effects related to a euro-denominated intercompany loan and the unhedged portion of our term B loan. The currency effects for these non-derivative instruments are recorded through earnings in the period of change and substantially offset one another; and
- *Other hedging activities* — Some of our subsidiaries hedge short-term foreign-denominated business transactions and intercompany financing transactions using foreign currency forward contracts. No additional disclosures are provided for these activities because they were not material to our financial statements.

Cash flow and net investment hedging

Until September 2017, we were party to two interest rate swaps designated as cash flow hedges of the variable LIBOR rate on \$500.0 million of our term A loan. Those swaps exchanged the variable LIBOR rate for an approximately 1% fixed rate and would have matured on September 28, 2020. Those hedges were fully effective.

As a result, changes to the fair value of the interest rate swaps, which otherwise would have been recognized in earnings, were deferred to AOCI. In September 2017, we discontinued hedge accounting, settled the interest rate swaps and received \$9.7 million which we classified as a financing cash inflow. We determined that the hedged future interest payments were no longer probable of occurring because the term A loan will be repaid in connection with the merger, so we reclassified all of the related AOCI into non-operating income (see Note 13).

We have designated €356.0 million of our term B loan and all €503.8 million of our 4.625% senior notes as hedges to protect a portion of our net investment in foreign operations from the impact of changes in the euro to U.S. dollar exchange rate. As a result of these hedge designations, the foreign currency changes on the debt instruments, which otherwise would be recognized in earnings, are deferred to AOCI and equally offset the foreign currency changes on the hedged portion of our net investment. These hedges have no other impact to our financial position, financial performance or cash flows.

The following table presents the balance sheet classification and fair values of these instruments, all of which are Level 2 measurements:

<i>(in millions)</i>	<u>Balance sheet classification</u>	<u>September 30, 2017</u>	<u>December 31, 2016</u>
Cash flow hedging:			
Interest rate swaps	Other assets	\$ —	\$ 11.2
Net investment hedging:			
Portion of term B loan	Debt, net of current portion	418.4	379.2
4.625% senior notes	Debt, net of current portion	622.1	553.9

F-120

[Table of Contents](#)

The following table presents the net unrealized gain (loss) deferred to AOCI for these instruments:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Cash flow hedging:				
Interest rate swaps	\$ (0.6)	\$ 2.5	\$ (1.6)	\$ (2.9)
Net investment hedging:				
Portion of net investment in foreign operations	34.3	12.6	107.2	33.7
Portion of term B loan	(14.3)	(5.6)	(44.5)	(14.5)
4.625% senior notes	(20.0)	(7.0)	(62.7)	(19.2)

The following table presents the net gain (loss) reclassified from AOCI into earnings for these instruments:

<i>(in millions)</i>	Income statement classification	Three months ended September 30,		Nine months ended September 30,	
		2017	2016	2017	2016
Interest rate swaps	Interest expense	\$ 0.2	\$ (0.5)	\$ (0.1)	\$ (0.9)
	Other income (expense), net	9.7	—	9.7	—

All of these hedges were fully effective for the periods presented.

8. Commitments and contingencies

Pending merger

The merger agreement, as discussed in Note 1, resulted in a number of changes to our commitments and contingencies, summarized as follows:

- *Stock-based compensation* — Upon completion of the merger, all of our stock-based awards would be exchanged for cash. See Note 9.
- *Merger costs* — Upon completion of the merger, we would be required to pay a financial advisor approximately \$28 million related to its assessment of the fairness of the merger consideration to our stockholders. We estimate that we will incur other professional costs ranging from \$5 to \$12 million.
- *Associate retention plans* — In contemplation of the pending merger, we adopted two retention plans that authorize us to pay up to \$40.0 million to management in exchange for continuing service through May 4, 2018. Under those plans, up to \$25.0 million is payable on the earlier of (i) May 4, 2018 or (ii) the date an associate is terminated by us other than for cause, due to death or disability or leaves for good reason, each as defined in the plan and subject to certain changes if the merger is not completed. In the event that U.S. federal excise taxes become due from certain executives, up to an additional \$15.0 million is payable to them to keep them in the same position as if no excise tax had applied.
- *Amount due to Varietal under ITRA* — Upon completion of the merger, the amount due to Varietal under the ITRA would be \$56.2 million, which is less than its carrying amount and would result in a \$1.1 million gain. See Note 15.
- *Contingent consideration for business acquisitions* — Upon completion of the merger, \$15.0 million of previously recognized contingent consideration for a business acquisition would become immediately payable. Other contingent consideration remains payable according to the original terms. See Note 7.
- *Termination clause* — The merger agreement provides Avantor and us certain termination rights. We would be required to pay Avantor a termination fee of \$85.0 million for the acceptance of a takeover proposal and \$170.0 million for acceptance of a superior proposal or the occurrence of an adverse recommendation. We would be entitled to receive a fee of \$300.0 million from Avantor for certain actions taken by regulators or certain failures of Avantor to satisfy conditions of the merger agreement.

[Table of Contents](#)

We expect to incur significant costs for these items and other professional costs related to the pending merger, \$8.1 million and \$18.4 million of which was recognized for the three and nine months ended September 30, 2017, respectively. We determined that none of the above items that are contingent upon completion of the pending merger met the threshold for recognition under GAAP at September 30, 2017. The associate retention plans, which are not contingent on the completion of the merger, are being recognized as expense on a straight-line basis over the requisite service period and are included in the merger-related costs. The other professional costs have been accrued at our current best estimate of \$5.0 million and are included in the merger-related costs.

Other matters

Our business involves risk of product liability, patent infringement and other claims in the ordinary course of business arising from the products that we source from various manufacturers or produce ourselves, as well as from the services we provide. Our exposure to such claims may increase as we seek to increase the geographic scope of our sourcing activities and sales of private label products and to the extent that we expand our manufacturing operations or service offerings. We maintain insurance policies, including product liability insurance, and in many cases the manufacturers of the products we distribute have indemnified us against such claims. We cannot assure you that our insurance coverage or indemnification agreements with manufacturers will be available in all pending or any future cases brought against us. Furthermore, our ability to recover under any insurance or indemnification arrangements is subject to the financial viability of our insurers, our manufacturers and our manufacturers' insurers, as well as legal enforcement under the local laws governing the arrangements. In particular, as we seek to expand our sourcing from manufacturers in the Asia-Pacific region and other developing locations, we expect that we will increase our exposure to potential defaults under the related indemnification arrangements. Insurance coverage in general or coverage for certain types of liabilities, such as product liability or patent infringement in these developing markets may not be readily available for purchase or cost-effective for us to purchase. Furthermore, insurance for liability relating to asbestos, lead and silica exposure is not available, and we do not maintain insurance for product recalls. Accordingly, we could be subject to uninsured and unindemnified future liabilities, and an unfavorable result in a case for which adequate insurance or indemnification is not available could result in a material adverse effect on our business, financial condition and results of operations.

We are also involved in various disputes, litigation and regulatory matters incidental to our business, including employment matters, commercial disputes, government contract compliance matters, disputes regarding environmental clean-up costs, and other matters arising out of the normal conduct of our business. We intend to vigorously defend ourselves in such matters. From time to time, we are named as a defendant in cases as a result of our distribution of laboratory supplies, including litigation resulting from the alleged prior distribution of products containing asbestos by certain of our predecessors or acquired companies. While the impact of these disputes or litigation has historically been immaterial, and we believe the range of reasonably possible loss from current matters continues to be immaterial, there can be no assurance that the impact of the pending and any future claims will not be material to our business, financial condition or results of operations in the future.

The employment agreements with our executive officers include provisions for the payment of severance and continuing health benefits following termination without cause or resignation for good reason, as those terms are defined in the employment agreements. The aggregate of potential payments for all executive officers under these provisions was \$11.2 million at September 30, 2017.

[Table of Contents](#)
9. Stock-based compensation

The following table presents detail about stock-based compensation expense, a component of SG&A expenses:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
2014 Plan:				
Stock options	\$ 2.9	\$ 2.2	\$ 8.2	\$ 5.7
Restricted stock units	0.6	0.1	1.4	0.2
Other immaterial plans	—	—	0.1	0.2
Total	<u>\$ 3.5</u>	<u>\$ 2.3</u>	<u>\$ 9.7</u>	<u>\$ 6.1</u>

At September 30, 2017, remaining stock-based compensation expense of \$27.9 million related to stock options would be recognized over a weighted average period of 2.6 years and \$6.9 million related to restricted stock units would be recognized over a weighted average period of 3.2 years.

Under the pending merger agreement (see Note 1), outstanding stock options would be exchanged for the excess of the \$33.25 merger price per share over each option's exercise price, and restricted stock units would be exchanged for the merger price of \$33.25 per share.

2014 Plan

The 2014 Plan authorized up to 11.5 million shares of common stock to be issued in the form of stock options, stock appreciation rights, restricted stock or other stock-based awards. At September 30, 2017, 3.7 million shares were available for future issuance. Under the pending merger agreement, no award may be issued prior to its completion or termination, and under the 2014 Plan no award may be granted on or after September 9, 2024.

Stock options

The following table presents information about stock options under the 2014 Plan:

<i>(options and intrinsic values in millions)</i>	Nine months ended September 30, 2017			
	Number of stock options	Weighted average exercise price per option	Aggregate intrinsic value	Weighted average remaining term
Outstanding at beginning of period	5.8	\$ 22.80		
Granted	1.7	28.26		
Exercised	(0.2)	22.08		
Forfeited	(0.1)	23.34		
Outstanding at end of period	<u>7.2</u>	24.09	\$ 64.7	5.1 years
Expected to vest	4.6	24.98	37.1	5.4 years
Exercisable	2.5	22.35	26.8	4.5 years

In 2017, we granted stock options to management that vest 25% on the first anniversary of the date of grant and 6.25% quarterly thereafter through the fourth anniversary of the date of grant and have a seven-year term.

The following table presents information about the fair value of stock options granted in 2017:

Weighted average grant date fair value	\$ 6.88
Expected stock price volatility	25%
Risk free interest rate	1.71%
Expected dividend rate	nil
Expected life of options	4.6 years

[Table of Contents](#)

The total fair value of options vested during the nine months ended September 30, 2017 was \$9.7 million. Options exercised during the nine months ended September 30, 2017 had intrinsic value of \$1.6 million, caused us to realize a tax benefit of \$0.5 million and resulted in cash contributions of \$3.7 million.

Restricted stock units

The following table presents information about restricted stock units under the 2014 plan:

<i>(units in millions)</i>	<u>Nine months ended September 30, 2017</u>	
	<u>Number of units</u>	<u>Weighted average grant date fair value per unit</u>
Nonvested at beginning of period	—	\$ 24.52
Granted	0.3	28.26
Vested	—	24.52
Forfeited	—	28.26
Nonvested at end of period	<u>0.3</u>	<u>28.00</u>

In 2017, we granted restricted stock units to management that vest 25% annually through the fourth anniversary of the date of grant. The fair value of the restricted stock units on the date of grant was equal to the quoted price of our common stock on that date.

10. Restructuring

In the fourth quarter of 2016, we initiated a restructuring program to achieve additional efficiencies in our operating model and to reduce operating expenses. The program involves selectively realigning personnel, closures of several smaller operations accompanied by consolidation of their operating activities in other business units, and closure or divestiture of certain non-strategic business units. We expect to fully execute the program by early 2018 when operating activity relocations are scheduled to be completed.

The following table presents the charges under this program, substantially all of which are included in SG&A expenses:

<i>(in millions)</i>	<u>Three months ended September 30, 2017</u>	<u>Nine months ended September 30, 2017</u>	<u>September 30, 2017</u>		
			<u>Cumulative charges incurred</u>	<u>Expected remaining charges</u>	<u>Total expected charges</u>
Employee severance	\$ 0.7	\$ 4.8	\$ 17.7	\$ —	\$ 17.7
Facility closure	0.6	1.0	1.4	2.2	3.6
Other	0.1	4.0	11.0	2.7	13.7
Total	<u>\$ 1.4</u>	<u>\$ 9.8</u>	<u>\$ 30.1</u>	<u>\$ 4.9</u>	<u>\$ 35.0</u>
Americas	\$ 1.0	\$ 2.8	\$ 4.6	\$ 0.4	\$ 5.0
EMEA-APAC	0.4	7.0	25.5	4.5	30.0
Total	<u>\$ 1.4</u>	<u>\$ 9.8</u>	<u>\$ 30.1</u>	<u>\$ 4.9</u>	<u>\$ 35.0</u>

Other charges are to write-down the carrying value of net assets of businesses planned for closure or sale under the program and other charges not payable in cash.

[Table of Contents](#)

The following table presents changes to accrued restructuring charges:

<i>(in millions)</i>	Employee severance	Facility closure	Total
Balance at December 31, 2016	\$ 10.7	\$ 0.4	\$ 11.1
Restructuring charges	4.8	1.0	5.8
Cash payments	(10.3)	(0.5)	(10.8)
Currency translation	0.7	—	0.7
Balance at September 30, 2017	<u>\$ 5.9</u>	<u>\$ 0.9</u>	<u>\$ 6.8</u>

11. Benefit plans

The following tables present the components of net periodic pension (income) cost:

<i>(in millions)</i>	U.S. Retirement Plan Three months ended September 30,		German, French and UK Plans Three months ended September 30,	
	2017	2016	2017	2016
Service cost	\$ 1.4	\$ 0.2	\$ 0.4	\$ 0.4
Interest cost	1.6	1.7	1.0	1.1
Expected return on plan assets	(3.5)	(3.3)	(1.2)	(1.2)
Recognized net actuarial loss	—	—	1.0	0.8
Total	<u>\$ (0.5)</u>	<u>\$ (1.4)</u>	<u>\$ 1.2</u>	<u>\$ 1.1</u>

<i>(in millions)</i>	U.S. Retirement Plan Nine months ended September 30,		German, French and UK Plans Nine months ended September 30,	
	2017	2016	2017	2016
Service cost	\$ 4.2	\$ 0.5	\$ 1.2	\$ 1.1
Interest cost	4.8	5.1	3.0	3.4
Expected return on plan assets	(10.5)	(9.8)	(3.7)	(3.6)
Recognized net actuarial loss	—	—	3.0	2.5
Total	<u>\$ (1.5)</u>	<u>\$ (4.2)</u>	<u>\$ 3.5</u>	<u>\$ 3.4</u>

During the nine months ended September 30, 2017, we made no contributions to the U.S. Retirement Plan and \$1.7 million of aggregate contributions to the German, French and UK Plans. For the remainder of 2017, we expect to make no contributions to the U.S. Retirement Plan and aggregate contributions of \$3.1 million to the German, French and UK Plans.

[Table of Contents](#)

12. Leases

The following table presents future minimum lease payments for a business acquired in the first quarter of 2017:

<i>(in millions)</i>	September 30, 2017	
	Capital leases	Operating leases
Remainder of 2017	\$ 0.7	\$ 0.1
2018	2.7	0.4
2019	2.6	0.4
2020	2.8	0.4
2021	2.9	0.2
Thereafter	57.3	4.4
Total minimum payments	<u>69.0</u>	<u>\$ 5.9</u>
Imputed interest	36.6	
Present value of minimum lease payments	<u>\$ 32.4</u>	

Assets under capital leases for that business were \$32.5 million with \$0.8 million of accumulated depreciation at September 30, 2017. The capital lease assets are recorded in property and equipment, net, and the capital lease obligations are recorded in debt.

13. Other income or expense, net

The following table presents the components of other income (expense), net:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Net foreign currency remeasurement loss from financing activities	\$ (1.4)	\$ (0.4)	\$ (5.0)	\$ (0.9)
Gain on settlement of interest rate swaps (Note 7)	9.7	—	9.7	—
Other, net	—	—	0.1	—
Total	<u>\$ 8.3</u>	<u>\$ (0.4)</u>	<u>\$ 4.8</u>	<u>\$ (0.9)</u>

14. Comprehensive income or loss

The following table presents changes in the components of AOCI, net of tax:

<i>(in millions)</i>	Foreign currency translation	Derivative instruments	Defined benefit plans	Total
Balance at December 31, 2016	\$ (386.5)	\$ 8.8	\$ (49.7)	\$(427.4)
Net unrealized gain (loss) arising during the period	99.8	(3.3)	—	96.5
Reclassification of net (gain) loss into earnings	—	(5.9)	2.7	(3.2)
Balance at September 30, 2017	<u>\$ (286.7)</u>	<u>\$ (0.4)</u>	<u>\$ (47.0)</u>	<u>\$(334.1)</u>

[Table of Contents](#)

The following table presents the reclassification of net (gain) loss from AOCI into earnings:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Derivative instruments:				
Cost of goods sold	\$ 0.8	\$ (1.1)	\$ 0.1	\$ (2.3)
Selling, general and administrative expenses	(0.1)	—	(0.2)	—
Interest expense	(0.2)	0.5	0.1	0.9
Other income or expense, net	(9.7)	—	(9.7)	—
Income tax provision	3.6	0.1	3.8	0.1
Net income	<u>\$ (5.6)</u>	<u>\$ (0.5)</u>	<u>\$ (5.9)</u>	<u>\$ (1.3)</u>
Defined benefit plans:				
Selling, general and administrative expenses	\$ 1.0	\$ 0.6	\$ 3.8	\$ 2.3
Income tax provision	(0.3)	(0.3)	(1.1)	(0.8)
Net income	<u>\$ 0.7</u>	<u>\$ 0.3</u>	<u>\$ 2.7</u>	<u>\$ 1.5</u>

The following table presents the income tax effects of the components of comprehensive income or loss:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Foreign currency translation:				
Net unrealized income tax benefit arising during the period	\$ 13.4	\$ 5.0	\$ 41.8	\$ 13.2
Derivative instruments:				
Net unrealized income tax benefit (provision) arising during the period	0.4	(1.6)	1.4	0.6
Net reclassification of income tax provision into earnings	3.6	0.1	3.8	0.1
Defined benefit plans:				
Net reclassification of income tax benefit into earnings	(0.3)	(0.3)	(1.1)	(0.8)

15. Related party transactions

Due to Varietal — ITRA

We are party to an ITRA with Varietal. The ITRA provides for the payment of most of the cash savings in U.S. federal, state and local income tax realized as a result of utilizing net operating losses that were generated in periods prior to our initial public offering. Varietal will not reimburse us for any payments previously made under the ITRA if such benefits are subsequently disallowed.

We made a payment under the ITRA of \$27.7 million during the first quarter of 2017. At September 30, 2017, the remaining amount due to Varietal under the ITRA was \$57.3 million, \$26.0 million of which is classified as current and represents our estimate of the payment that will become due in March 2018.

In connection with the pending merger, the ITRA would become immediately payable. See Note 8.

[Table of Contents](#)
16. Segment financial information

The following table presents segment financial information:

<i>(in millions)</i>	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Net sales:				
Americas	\$ 717.6	\$ 707.7	\$ 2,136.8	\$ 2,069.3
EMEA-APAC	477.6	428.4	1,372.8	1,314.6
Total	<u>\$ 1,195.2</u>	<u>\$ 1,136.1</u>	<u>\$ 3,509.6</u>	<u>\$ 3,383.9</u>
Operating income:				
Americas	\$ 42.2	\$ 47.2	\$ 126.3	\$ 134.2
EMEA-APAC	40.9	36.0	119.0	113.3
Total	<u>\$ 83.1</u>	<u>\$ 83.2</u>	<u>\$ 245.3</u>	<u>\$ 247.5</u>

The amounts above exclude inter-segment activity. All of the net sales for each segment are from external customers. We determined that disclosing net sales for each group of similar customers, products and services would be impracticable.

F-128

[Table of Contents](#)

207,000,000 Shares

Avantor, Inc.

Common Stock



Prospectus

May 16, 2019

Goldman Sachs & Co. LLC

J.P. Morgan

BofA Merrill Lynch

Barclays

Jefferies

Credit Suisse

Deutsche Bank Securities

Evercore ISI

Guggenheim Securities

Morgan Stanley

UBS Investment Bank

Citigroup

Cowen

Piper Jaffray

RBC Capital Markets

Baird

**William
Blair**

**Janney Montgomery
Scott**

**KeyBanc Capital
Markets**

**PJT
Partners LP**

**Raymond
James**

**Stephens
Inc.**

Stifel

**SunTrust Robinson
Humphrey**

**Wells Fargo
Securities**

**Drexel
Hamilton**

Through and including June 10, 2019 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.
