

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

**FORM 10-K**

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended September 30, 2016

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 1-32532

**ASHLAND GLOBAL HOLDINGS INC.**

Delaware  
(State or other jurisdiction of incorporation or organization)

81-2587835  
(I.R.S. Employer Identification No.)

50 E. RiverCenter Boulevard  
Covington, Kentucky 41011  
Telephone Number (859) 815-3333

Securities Registered Pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$.01 per share	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes  No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes  No

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large Accelerated Filer

Accelerated Filer

Non-Accelerated Filer

Smaller Reporting Company

(Do not check if a smaller reporting company)

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes  No

At March 31, 2016, the aggregate market value of voting stock held by non-affiliates of the Registrant was approximately \$6,767,887,000. In determining this amount, the Registrant has assumed that its directors and executive officers are affiliates. Such assumption shall not be deemed conclusive for any other purpose.

At October 31, 2016, there were 62,174,301 shares of Registrant's common stock outstanding.

**Documents Incorporated by Reference**

Portions of Registrant's Proxy Statement (Proxy Statement) for its January 26, 2017 Annual Meeting of Stockholders are incorporated by reference into Part III of this annual report on Form 10-K to the extent described herein.

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## PART I

### ITEM 1. BUSINESS

#### GENERAL

Ashland Global Holdings Inc. is a Delaware corporation, with its principal executive offices located at 50 E. RiverCenter Boulevard, Covington, Kentucky 41011 (Telephone: (859) 815-3333). Ashland Global Holdings Inc. was incorporated in 2016 as the successor to a Kentucky corporation named Ashland Inc. organized in 2004 (now known as Ashland LLC), which was itself organized as the successor to a Kentucky corporation of the same name organized in 1936. The new holding company structure was put in place to allow Ashland Inc. to reincorporate in Delaware and to help facilitate the separation of the Valvoline business from the specialty chemicals businesses, creating two independent, publicly held companies (the Reorganization). As a result of the Reorganization, Ashland Global Holdings Inc. replaced Ashland Inc. as the publicly held corporation, and Ashland Inc. was converted to a Kentucky limited liability company and is now an indirect, wholly owned subsidiary of Ashland Global Holdings Inc. The terms “Ashland” and the “Company” as used herein include Ashland Global Holdings Inc., its predecessors and its consolidated subsidiaries, except where the context indicates otherwise. As a result of the Reorganization, Ashland is the successor issuer to Ashland Inc. pursuant to Rule 12g-3(a) under the Securities Exchange Act of 1934, as amended (the Exchange Act) and will file periodic and other reports required by the Exchange Act.

Ashland is a global leader in providing specialty chemical solutions to customers in a wide range of consumer and industrial markets, including adhesives, architectural coatings, automotive, construction, energy, food and beverage, personal care and pharmaceutical. Ashland also maintains a controlling interest in Valvoline Inc., a premium consumer-branded lubricant supplier. With approximately 11,000 employees worldwide (including approximately 5,000 employees of Valvoline Inc.), Ashland serves customers in more than 100 countries.

Ashland has three reportable segments: Specialty Ingredients, Performance Materials and Valvoline, which is included within a majority-owned, publicly traded subsidiary, Valvoline Inc. As of September 30, 2016, and as described below under “Corporate Developments”, Ashland owned approximately 83% of the outstanding shares of Valvoline Inc.’s common stock. Since Ashland’s ownership interest in Valvoline Inc., which includes the operations of the Valvoline reportable segment, is now less than 100%, the outside stockholders’ interests in Valvoline Inc. are presented separately as a noncontrolling interest within Ashland’s equity in the Consolidated Balance Sheet. The amount of consolidated net income attributable to Ashland and the noncontrolling interest are both presented within the Statement of Consolidated Comprehensive Income. Financial information about Ashland’s three reportable segments for each of the fiscal years in the three-year period ended September 30, 2016 is set forth in Note R of Notes to Consolidated Financial Statements in this Annual Report on Form 10-K, including sales, equity income, other income, operating income and assets. International data, such as sales to external customers, net assets and property, plant and equipment, are set forth in Note R as well.

Specialty Ingredients is a global leader in cellulose ethers, vinyl pyrrolidones and biofunctionals. It offers industry-leading products, technologies and resources for solving formulation and product-performance challenges. Specialty Ingredients uses natural, synthetic and semisynthetic polymers derived from cellulose ethers, vinyl pyrrolidones, acrylic polymers, polyester and polyurethane-based adhesives, and plant and seed extract. Specialty Ingredients includes two divisions, Consumer Specialties and Industrial Specialties, that offer comprehensive and innovative solutions for today’s demanding consumer and industrial applications. Key customers include: pharmaceutical companies; makers of personal care products, food and beverages; manufacturers of paint, coatings and construction materials; packaging and converting; and oilfield service companies.

Performance Materials is a global leader in unsaturated polyester resins and vinyl ester resins. The business unit has leading positions in gelcoats, maleic anhydride, butanediol, tetrahydrofuran, N-Methylpyrrolidone and other intermediates and solvents. Key customers include: manufacturers of residential and commercial building products; industrial product specifiers and manufacturers; wind blade and pipe manufacturers; automotive and truck OEM suppliers; boatbuilders; engineered plastics and electronic producers; and specialty chemical manufacturers.

Valvoline is a leading worldwide producer and distributor of premium-branded automotive, commercial and industrial lubricants, and automotive chemicals. In 2016, it ranks as the #2 quick-lube chain by number of stores and #3 passenger car motor oil in the “Do-It-Yourself” market by volume brand in the United States. The brand operates and franchises 1,068 Valvoline Instant Oil Change<sup>SM</sup> centers in the United States. It also markets Valvoline<sup>TM</sup> lubricants and automotive chemicals; MaxLife<sup>TM</sup> lubricants created for higher-mileage engines; SynPower<sup>TM</sup> synthetic motor oil; and Zerex<sup>TM</sup> antifreeze. Key customers include: retail auto parts stores and mass merchandisers who sell to consumers; installers, such as car dealers, repair shops and quick lubes; commercial fleets; and distributors. During February 2016, Ashland completed the acquisition of Oil Can Henry’s resulting in the addition of 89 quick-lube stores. On September 28, 2016, Valvoline Inc. completed an initial public offering of 34.5 million shares of its common stock, with Ashland continuing to own 170 million shares of Valvoline Inc.’s common stock, representing approximately 83% of the total outstanding shares of Valvoline Inc.’s common stock. Valvoline Inc.’s common stock began trading September 23, 2016, on the New York Stock Exchange under the symbol “VVV.” For additional information on the separation and acquisition,

see “Corporate Developments” below and the “Key Developments” section of Management’s Discussion and Analysis in this annual report on Form 10-K.

Available Information - Ashland’s Internet address is <http://www.ashland.com>. On this website, Ashland makes available, free of charge, its annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports, as well as any beneficial ownership reports of officers and directors filed on Forms 3, 4 and 5. All such reports are available as soon as reasonably practicable after they are electronically filed with, or electronically furnished to, the Securities and Exchange Commission (SEC). Ashland also makes available, free of charge on its website, its Corporate Governance Guidelines, Board Committee Charters, Director Independence Standards and code of business conduct that applies to Ashland’s directors, officers and employees. These documents are also available in print to any stockholder who requests them. Information contained on Ashland’s website is not part of this annual report on Form 10-K and is not incorporated by reference in this document. The public may read and copy any materials Ashland files with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

## **CORPORATE DEVELOPMENTS**

On September 22, 2015, Ashland announced that the Board of Directors approved proceeding with a plan to separate Ashland into two independent, publicly traded companies comprising of the Valvoline business and the specialty chemicals businesses.

In connection with the separation, in May 2016, Ashland filed a proxy statement/prospectus for a proposal to reorganize under a new public holding company to facilitate its reincorporation in the State of Delaware and to help facilitate the separation process. Upon completing the Reorganization in September 2016, Ashland Global Holdings Inc. replaced Ashland Inc. as the publicly held corporation and, through its subsidiaries, conducts all of the operations previously conducted by Ashland Inc. Each outstanding share of Ashland Inc. common stock was converted into the right to receive one share of Ashland Global Holdings Inc. common stock. Ashland Inc. was converted to a limited liability company and is now an indirect, wholly owned subsidiary of Ashland Global Holdings Inc.

Following the closing of the Reorganization, Ashland took steps to transfer the Valvoline business to Valvoline Inc. On September 22, 2016, Ashland and Valvoline Inc. announced the pricing of the initial public offering (IPO) of 30 million shares of Valvoline Inc.’s common stock at a price to the public of \$22.00 per share and closed the IPO on September 28, 2016. The underwriters exercised an option to purchase an additional 4.5 million shares of Valvoline Inc.’s common stock to cover overallotments. After completing the IPO, Ashland owns 170 million shares of Valvoline Inc.’s common stock, representing approximately 83% of the total outstanding shares of Valvoline Inc.’s common stock. The total net proceeds, after underwriters discount and other offering expenses, received from the IPO were \$712 million. Valvoline Inc.’s common stock is listed on the New York Stock Exchange under the symbol “VVV”. Ashland presently intends to distribute the remaining Valvoline Inc. shares in 2017 to Ashland’s stockholders following the release of March-quarter earnings results by both Ashland and Valvoline Inc.

During 2016, certain financing related activities were executed for both Ashland and Valvoline in connection with the separation process. See further discussion in Management’s Discussion and Analysis and Note J of Notes to Consolidated Financial Statements in this annual report on Form 10-K.

### *Transferring of Assets and Liabilities*

As of September 30, 2016, Valvoline Inc. includes substantially all of the Valvoline business as historically reported by Ashland, as well as certain other assets and liabilities transferred to Valvoline Inc. by Ashland. The largest transferred liabilities are the net pension and other postretirement plan liabilities, which include a substantial portion of the largest U.S. qualified pension plan and non-qualified U.S. pension plans. Other transferred assets and liabilities primarily consist of deferred compensation, certain Ashland legacy business insurance reserves, tax attributes, and certain trade payables. Additionally, any deferred tax assets and liabilities that relate specifically to these assets and liabilities have been transferred to Valvoline Inc. as well as certain other tax liabilities as a result of the Tax Matters Agreement entered into between Ashland Global Holdings Inc. and Valvoline Inc. For purposes of Ashland’s 2016 segment reporting and consistent with prior periods, these transferred assets and liabilities remain included within Unallocated and other.

## **ASHLAND SPECIALTY INGREDIENTS**

Ashland Specialty Ingredients (Specialty Ingredients) offers industry-leading products, technologies and resources for solving formulation and product-performance challenges. Using natural, synthetic and semisynthetic polymers derived from cellulose

ethers, vinyl pyrrolidones, acrylic polymers, polyester and polyurethane-based adhesives, and plant and seed extract, Specialty Ingredients offers comprehensive and innovative solutions for consumer and industrial applications.

Key customers include pharmaceutical companies; makers of personal care products, food and beverages; manufacturers of paint, coatings and construction materials; packaging and converting; and oilfield service companies. Certain customer relationships are significant, and the loss of any one of those customers could have a material adverse effect on the Specialty Ingredients reportable segment.

Specialty Ingredients' areas of expertise include: organic and synthetic chemistry, polymer chemistry, surface and colloid science, rheology, structural analysis and microbiology.

Specialty Ingredients' solutions provide an array of properties, including: thickening and rheology control, water retention, adhesive strength, binding power, film formation, conditioning and deposition, colloid stabilization and suspension.

Specialty Ingredients is composed of two divisions based on end use markets of customers: Consumer Specialties and Industrial Specialties. Many of the products of the two divisions are produced in shared manufacturing facilities, in order to better manage capacity and achieve desired returns.

*Consumer Specialties* - The Consumer Specialties division includes the Oral Care, Hair Care, Skin Care, Home Care and Pharmaceutical & Nutrition portfolios.

- Oral Care - Specialty Ingredients' portfolio of oral care products delivers active ingredients in toothpaste and mouthwashes; provides bioadhesive functionality for dentures; delivers flavor, texture and other functional properties; and provides product binding to ensure form and function throughout product lifecycle.
- Hair Care - Specialty Ingredients' portfolio of hair care products includes advanced styling polymers, fixatives, conditioning polymers, emulsifiers, preservatives and rheology modifiers.
- Skin Care - Specialty Ingredients' portfolio of skin care products helps to firm, nourish, revitalize and smooth skin. The Skin Care line also provides sun care products, including UV filters, water-resistant agents and thickeners. Emulsifiers, emollients, preservatives and rheology modifiers complete the Skin Care product line.
- Home Care - Specialty Ingredients' portfolio of products and technologies is used in many types of cleaning applications, including fabric care, home care and dishwashing. Specialty Ingredients' products are used in a variety of applications for viscosity enhancement, particle suspension, rheology modification and stabilization.
- Pharmaceutical - Specialty Ingredients is a leading supplier of excipients and tablet coating systems to the pharmaceutical and nutraceutical industries. Excipients include a comprehensive range of polymers for use as tablet binders, superdisintegrants, sustained-release agents and drug solubilizers, as well as a portfolio of fully formulated, one-step tablet coating systems for immediate-, sustained- and delayed-release applications.
- Nutrition - Specialty Ingredients' nutrition portfolio provides functional benefits in areas such as thickening, texture control, thermal gelation, structure enhancement, water binding, clarification and stabilization. Its core products include cellulose gums and vinyl pyrrolidone polymers which are used in a wide range of offerings for bakery, beverage, dairy, desserts, meat products, pet food, prepared foods, sauces and savory products.

*Industrial Specialties* - The Industrial Specialties division includes Coatings, Construction, Energy, Adhesives and Performance Specialties.

- Coatings - Coatings Specialties is a recognized leader in rheology solutions for waterborne architectural paint and coatings. Products include hydroxyethylcellulose (HEC), which provides thickening and application properties for interior and exterior paints, and nonionic synthetic associative thickeners (NSATs), which are APEO-free liquid synthetics for high-performance paint and industrial coatings. The Coatings Specialties market complements its rheology offering with a broad portfolio of performance foam-control agents, surfactants and wetting agents, dispersants and pH neutralizers.
- Construction - Construction Specialties is a major producer and supplier of cellulose ethers and companion products for the construction industry. These products control properties such as water retention, open time, workability, adhesion, stabilization, pumping, sag resistance, rheology, strength, appearance and performance in dry-mortar formulations.
- Energy - Energy Specialties is a leading global manufacturer of guar-, synthetic- and cellulosic-based products for drilling fluids, oil-well cement slurries, completion and workover fluids, fracturing fluids and production chemicals. Specialty Ingredients offers the oil and gas industry solutions for drilling, stimulation, completion, cementing and production applications.
- Adhesives - Adhesives Specialties manufactures and sells adhesive solutions to the packaging and converting, building and construction, and transportation markets and manufactures and markets specialty coatings and adhesive solutions for

use across multiple industries. Key technologies and markets include: acrylic polymers for pressure-sensitive adhesives; urethane adhesive for flexible packaging applications; aqueous and radiation-curable adhesives and specialty coatings for printing and converting applications; emulsion polymer isocyanate adhesives for structural wood bonding; elastomeric polymer adhesives for commercial roofing applications; acrylic, polyurethane and epoxy structural adhesives for bonding fiberglass reinforced plastics, composites, thermoplastics and metals in automotive, marine, recreational and industrial applications; specialty phenolic resins for paper impregnation and friction material bonding. Adhesive Specialties' products provide an array of functional properties including high-strength bonding, ease and speed of product assembly, heat and moisture resistance and design flexibility.

- Performance - Performance Specialties provides products and services to over 30 industries. Ashland offers a broad spectrum of organo- and water-soluble polymers that are derived from both natural and synthetic resources. Product lines include derivatized cellulose polymers, synthetics, guar and guar derivatives that impart effective functionalities to serve a variety of industrial markets and specialized applications. Many of the products within Performance Specialties function as performance additives that deliver high levels of end-user value in formulated products. In other areas, such as plastics and textiles, Performance Specialties' products function as a processing aid, improving the quality of end products and reducing manufacturing costs.

Specialty Ingredients' cellulose products were approximately 38% and 16% of Specialty Ingredients' sales and Ashland's total consolidated sales, respectively, for fiscal 2016.

Specialty Ingredients operates throughout the Americas, Europe and Asia Pacific. It has 27 manufacturing facilities in eight countries which serve both the Consumer Specialties and Industrial Specialties divisions and participates in two joint ventures. Specialty Ingredients has manufacturing facilities in Huntsville, Alabama; Wilmington, Delaware; Dalton, Georgia; Calumet City, Illinois; Calvert City, Kentucky; Freetown, Massachusetts; Chatham and Parlin, New Jersey; Columbus, Hilliard and Ashland, Ohio; White City, Oregon; Piedmont, South Carolina; Kenedy and Texas City, Texas and Hopewell, Virginia within the United States and Doel-Beveren, Belgium; Cabreuva, Brazil; Jiangmen and Nanjing, China; Alizay and Sophia Antipolis, France; Memmingen, Germany; Zwijndrecht, the Netherlands and Kidderminster, Newton Aycliffe and Poole, United Kingdom. Specialty Ingredients currently operates two production facilities through a joint venture in Luzhou and Suzhou, China.

Specialty Ingredients markets and distributes its products and services directly and through third-party distributors in the Americas, Europe, the Middle East, Africa and Asia Pacific.

## **ASHLAND PERFORMANCE MATERIALS**

Ashland Performance Materials (Performance Materials) is a global leader in unsaturated polyester resins and vinyl ester resins. The business unit has leading positions in gelcoats, maleic anhydride, butanediol, tetrahydrofuran, N-Methylpyrrolidone and other intermediates and solvents. Performance Materials' Composites division helps customers create stronger, lighter, more corrosion-resistant substitutes for traditional materials through higher performing, cost-efficient resin technologies that improve the manufacturing, fabrication and design process. Applied industries include construction, transportation, infrastructure, and boatbuilding. The Intermediates and Solvents division provides butanediol and its derivatives to the chemical process industry, plastics manufacturers, and electronics markets, among others.

Key customers include manufacturers of residential and commercial building products, industrial product specifiers and manufacturers, wind blade manufacturers, pipe manufacturers, automotive and truck OEM suppliers, boatbuilders, chemical producers and electronics makers.

Performance Materials is composed of the following divisions:

*Composites* - The Composites division manufactures and sells a broad range of general-purpose and high-performance grades of unsaturated polyester and vinyl ester resins, gelcoats and low-profile additives for the reinforced plastics industry. Key markets include the transportation, construction, marine and infrastructure end markets. Performance Materials' composite products provide an array of functional properties including corrosion resistance, fire retardance, ultraviolet resistance, water and chemical resistance, high mechanical strength, impact and scratch resistance and high strength-to-weight ratios. In addition, the division also manufactures and sells molten maleic anhydride for the manufacture of a variety of products such as unsaturated polyester resins, copolymers, lubricating oil additives, alkenyl succinic anhydrides, malic acid, fumaric acid and numerous derivative chemicals. Molten maleic anhydride is supplied both to Ashland businesses who consume it as a raw material, primarily in North America, and to the merchant market.

*Intermediates and Solvents* - The Intermediates and Solvents (I&S) division is a leading producer of 1,4 butanediol and its derivatives, including tetrahydrofuran and n-methylpyrrolidone. These products are used as chemical intermediates in the production of engineering polymers and polyurethanes, and as specialty process solvents in a wide array of applications including

electronics, construction, and active pharmaceutical ingredient manufacture. Butanediol is also supplied to Specialty Ingredients for use as a raw material.

Performance Materials' composites products were approximately 72% and 14% of Performance Materials' sales and Ashland's total consolidated sales, respectively, for fiscal 2016.

Performance Materials operates throughout the Americas, Europe and Asia Pacific. It has 15 manufacturing facilities in seven countries. Composites has manufacturing plants in Fort Smith and Jacksonville, Arkansas; Commerce, California; Bartow, Florida; Neville Island and Philadelphia, Pennsylvania; and Neal, West Virginia within the United States and Aracariguama, Brazil; Changzhou, China; Porvoo, Finland; Miszewo, Poland; and Benicarló, Spain. I&S has manufacturing facilities in Lima, Ohio and Marl, Germany.

Performance Materials markets and distributes its products directly and through third-party distributors in the Americas, Europe, the Middle East, Africa and Asia Pacific. Additionally, Performance Materials has a joint venture agreement through which it manufactures products in two manufacturing plants in Saudi Arabia.

## VALVOLINE

Valvoline delivers premium-branded automotive, commercial and industrial lubricants and automotive chemicals. It operates and franchises 1,068 Valvoline Instant Oil Change<sup>SM</sup> centers in the United States. It markets Valvoline<sup>TM</sup> lubricants and automotive chemicals; MaxLife<sup>TM</sup> lubricants for cars with higher mileage engines; SynPower<sup>TM</sup> synthetic motor oil; and Zerex<sup>TM</sup> antifreeze. On September 28, 2016, Valvoline Inc. completed an initial public offering of 34.5 million shares of its common stock, with Ashland continuing to own 170 million shares of Valvoline Inc.'s common stock, representing approximately 83% of the total outstanding shares of Valvoline's common stock. Valvoline's common stock began trading September 23, 2016, on the New York Stock Exchange under the symbol "VVV."

Key customers include retail auto parts stores and mass merchandisers who sell to consumers; installers, such as car dealers, repair shops and quick lubes; commercial fleets; and distributors. Certain customer relationships are significant, and the loss of any one of those customers could have a material adverse effect on the Valvoline business unit.

The Valvoline reportable segment is composed of the following divisions:

*Core North America* - The "Do-It-Yourself" or "DIY" channel sells Valvoline<sup>TM</sup> and other branded and private label products to consumers who perform their own automotive maintenance. These products are sold through retail outlets such as AutoZone, O'Reilly Auto Parts and Advance Auto Parts. Valvoline also sells branded products and services to installer customers such as car dealers, general repair shops and quick lubes locations, including Goodyear, Monroe, Express Oil Change, TBC Retail Group and Sears, directly and through distributors. The installer channel team also sells branded products and solutions to heavy duty customers, such as on-highway fleets and construction companies, and has a strategic relationship with Cummins Inc. (Cummins) for co-branding products in the heavy duty business.

*Quick Lubes* - The Valvoline Instant Oil Change<sup>SM</sup> (VIOC) chain is the second largest U.S. retail quick lube service chain by number of stores, providing Valvoline with a significant presence in the passenger car and light truck quick lube market. As of September 30, 2016, 342 company-owned and 726 franchised VIOC centers were operating in 44 states. VIOC centers offer consumers a quick, easy and trusted way to maintain their vehicles, utilizing well trained technicians who have access to a proprietary computer-based point-of-sale technology system and a proprietary service process that sets forth rigorous protocols for both the steps that must be followed in the service of vehicles and for interactions with consumers. In addition, the Quick Lubes market includes the Express Care<sup>TM</sup> platform, which is a quick lube customer platform developed for independent operators who purchase Valvoline motor oil and other products pursuant to contracts while displaying Valvoline branded signage. During February 2016, Ashland completed the acquisition of Oil Can Henry's resulting in the addition of 89 quick-lube stores.

*International* - Outside of North America, Valvoline International sells Valvoline<sup>TM</sup> and other branded products through wholly-owned affiliates, joint ventures, licensees and independent distributors in approximately 140 countries. Valvoline International operates joint ventures with Cummins in Argentina, China and India. In addition, Valvoline International operates joint ventures with local entities in Colombia, Ecuador and Thailand. Valvoline International markets products for both consumer and commercial vehicles and equipment and is served by company-owned plants in the United States, Australia and the Netherlands, a joint venture-owned facility in India and third-party warehouses and toll manufacturers in other regions.

Valvoline International sells branded products and services to original equipment manufacturers (OEMs) through company-owned and operated "direct market" operations, national accounts and a network of distributors. Valvoline International also maintains a strategic alliance with Cummins to distribute heavy duty lubricants to the commercial market, as well as smaller alliances with other global OEMs.

Valvoline's lubricants products were approximately 89% and 35% of Valvoline's sales and Ashland's total consolidated sales, respectively, for fiscal 2016.

Valvoline operates four lubricant blending and packaging plants, three bulk blending and distribution facilities and two distribution centers throughout the United States and additional lubricant blending and packaging plants in Australia and the Netherlands. Valvoline also has a bulk blending and distribution facility in Canada, a distribution center in the U.K., and leased distribution centers in Australia and the Netherlands. In addition to owned and leased facilities, Valvoline also uses numerous toll manufacturers and third-party warehouses.

Valvoline owns or leases approximately 40 facilities throughout the United States, Australia, Brazil, Canada, China, Croatia, India, Indonesia, the Netherlands, New Zealand, the Philippines, Russia, Singapore, the U.K. and Vietnam that comprise over 2,000,000 square feet of blending, packaging, distribution, warehouse and office space. In addition, Valvoline owns or leases the property associated with 342 quick lubes stores under the VIOC and Oil Can Henry's brands throughout the United States. The properties leased by Valvoline have expiration dates ranging from less than one year to more than 25 years (including certain renewal options).

## MISCELLANEOUS

### Environmental Matters

Ashland maintains a companywide environmental policy overseen by the Environmental, Health, Safety and Quality Committee of Ashland's Board of Directors. Ashland's Environmental, Health, Safety, Quality and Regulatory Affairs (EHSQ&RA) department has the responsibility to ensure that Ashland's businesses worldwide maintain environmental compliance in accordance with applicable laws and regulations. This responsibility is carried out via training; widespread communication of EHSQ&RA policies; information and regulatory updates; formulation of relevant policies, procedures and work practices; design and implementation of EHSQ&RA management systems; internal auditing by a separate auditing group; monitoring of legislative and regulatory developments that may affect Ashland's operations; assistance to the businesses in identifying compliance issues and opportunities for voluntary actions that go beyond compliance; and incident response planning and implementation.

Federal, state and local laws and regulations relating to the protection of the environment have a significant impact on how Ashland conducts its businesses. In addition, Ashland's operations outside the United States are subject to the environmental laws of the countries in which they are located. These laws include regulation of air emissions and water discharges, waste handling, remediation and product inventory, registration and regulation. New laws and regulations may be enacted or adopted by various regulatory agencies globally. The costs of compliance with any new laws or regulations cannot be estimated until the manner in which they will be implemented has been more precisely defined.

At September 30, 2016, Ashland's reserves for environmental remediation and related environmental litigation amounted to \$177 million, reflecting Ashland's best estimates of the most likely costs that will be incurred over an extended period to remediate identified conditions for which the costs are reasonably estimable, without regard to any third-party recoveries. Engineering studies, historical experience and other factors are used to identify and evaluate remediation alternatives and their related costs in determining the estimated reserves for environmental remediation. Environmental remediation reserves are subject to numerous inherent uncertainties that affect Ashland's ability to estimate its share of the costs. Such uncertainties involve the nature and extent of contamination at each site, the extent of required cleanup efforts under existing environmental regulations, widely varying costs of alternate cleanup methods, changes in environmental regulations, the potential effect of continuing improvements in remediation technology and the number and financial strength of other potentially responsible parties at multiparty sites. Although it is not possible to predict with certainty the ultimate costs of environmental remediation, Ashland currently estimates that the upper end of the reasonably possible range of future costs for identified sites could be as high as approximately \$380 million. No individual remediation location is significant, as the largest reserve for any site is less than 15% of the remediation reserve. Ashland regularly adjusts its reserves as environmental remediation continues. Environmental remediation expense, net of insurance receivables, amounted to \$40 million in 2016, compared to \$40 million in 2015 and \$33 million in 2014.

*Product Control, Registration and Inventory* - Many of Ashland's products and operations are subject to chemical control laws of the countries in which they are located. These laws include regulation of chemical substances and inventories under the Toxic Substances Control Act (TSCA) in the United States and the Registration, Evaluation and Authorization of Chemicals (REACH) regulation in Europe. Under REACH, additional testing requirements, documentation, risk assessments and registrations are occurring and will continue to occur and may adversely affect Ashland's costs of products produced in or imported into the European Union. Examples of other product control regulations include right to know laws under the Global Harmonized System (GHS) for hazard communication, regulation of chemicals used in the manufacture of pharmaceuticals and personal care products and that contact food under the Food, Drug and Cosmetics Act in the United States, the Framework Regulation in Europe and other product control requirements for chemical weapons, drug precursors and import/export. New laws and regulations may be



enacted or adopted by various regulatory agencies globally. The costs of compliance with any new laws or regulations cannot be estimated until the manner in which they will be implemented has been more precisely defined.

*Remediation* - Ashland currently operates, and in the past has operated, various facilities at which, during the normal course of business, releases of hazardous substances have occurred. Additionally, Ashland has known or alleged potential environmental liabilities at a number of third-party sites. Federal and state laws, including but not limited to the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and various other remediation laws, require that contamination caused by hazardous substance releases be assessed and, if necessary, remediated to meet applicable standards. Some of these laws also provide for liability for related damage to natural resources, and claims for alleged property and personal injury damage can also arise related to contaminated sites. Laws in other jurisdictions in which Ashland operates require that contamination caused by such releases at these sites be assessed and, if necessary, remediated to meet applicable standards.

*Air* - In the United States, the Clean Air Act (CAA) imposes stringent limits on facility air emissions, establishes a federally mandated operating permit program, allows for civil and criminal enforcement actions and sets limits on the volatile or toxic content of many types of industrial materials and consumer products. The CAA establishes national ambient air quality standards (NAAQS) with attainment deadlines and control requirements based on the severity of air pollution in a given geographical area. Various state clean air acts implement, complement and, in many instances, add to the requirements of the federal CAA. The requirements of the CAA and its state counterparts have a significant impact on the daily operation of Ashland's businesses and, in many cases, on product formulation and other long-term business decisions. Other countries where Ashland operates also have laws and regulations relating to air quality. Ashland's businesses maintain numerous permits and emission control devices pursuant to these clean air laws.

The United States Environmental Protection Agency (USEPA) has increased its frequency in reviewing the NAAQS. The USEPA has stringent standards for particulate matter, ozone and sulfur dioxide. Throughout 2016, state and local agencies continued to implement options for meeting the newest standards. Particulate matter strategies include dust control measures for construction sites and reductions in emission rates allowed for industrial operations. Options for ozone include emission controls for certain types of sources, reduced limits on the volatile organic compound content of industrial materials and consumer products, and requirements on the transportation sector. Most options for sulfur dioxide focus on coal and diesel fuel combustion sources. It is not possible at this time to estimate the potential financial impact that these newest standards may have on Ashland's operations or products. Ashland will continue to monitor and evaluate these standards to meet these and all air quality requirements.

*Solid Waste* - Ashland's businesses are subject to various laws relating to and establishing standards for the management of hazardous and solid waste. In the United States, Ashland's facilities are subject to RCRA and its regulations governing generators of hazardous waste. Ashland has implemented systems to oversee compliance with the RCRA regulations. In addition to regulating current waste disposal practices, RCRA also addresses the environmental effects of certain past waste disposal operations, the recycling of wastes and the storage of regulated substances in underground tanks. Ashland has the remediation liability for certain facilities subject to these regulations. Other countries where Ashland operates also have laws and regulations relating to hazardous and solid waste, and Ashland has systems in place to oversee compliance.

*Water* - Ashland's businesses maintain numerous discharge permits. In the United States, such permits may be required by the National Pollutant Discharge Elimination System of the Clean Water Act and similar state programs. Other countries have similar laws and regulations requiring permits and controls relating to water discharge.

*Climate Change and Related Regulatory Developments* - Ashland has been collecting energy use data and calculating greenhouse gas (GHG) emissions for many years. Ashland evaluates the potential impacts from both climate change and the anticipated GHG regulations to facilities, products and other business interests, as well as the strategies commonly considered by the industrial sector to reduce the potential impact of these risks. These risks are generally grouped as impacts from legislative, regulatory and international developments, impacts from business and investment trends and impacts to company assets from the physical effects of climate change. Current North American, European and other regional regulatory developments are not expected to have a material effect on Ashland's operations, although some facilities are subject to promulgated rules. Business and investment trends are expected to drive an increase in the demand for products that improve energy efficiency, reduce energy use and increase the use of renewable resources. At this time, Ashland cannot estimate the impact of this expected demand increase to its businesses. Physical effects from climate change have the potential to affect Ashland's assets in areas prone to sea level rise or extreme weather events much as they do the general public and other businesses. Due to the uncertainty of these matters, Ashland cannot estimate the impact at this time of GHG-related developments on its operations or financial condition.

## **Competition**

Specialty Ingredients and Performance Materials compete in the highly fragmented specialty chemicals industry. The participants in the industry offer a varied and broad array of product lines designed to meet specific customer requirements. Participants compete with individual and service product offerings on a global, regional and/or local level subject

to the nature of the businesses and products, as well as the end-markets and customers served. Competition is based on several key criteria, including product performance and quality, product price, product availability and security of supply, responsiveness of product development in cooperation with customers, customer service, industry knowledge and technical capability. Certain key competitors are significantly larger than Ashland and have greater financial resources, leading to greater operating and financial flexibility. The industry has become increasingly global as participants have focused on establishing and maintaining leadership positions outside of their home markets. Many of these segments' product lines face domestic and international competition, as a result of industry consolidation, pricing pressures and competing technologies.

Valvoline operates in highly competitive markets and faces competition in each of its product categories and subcategories. In the United States and Canada, its principal competitors for retail customers are global integrated oil brands, such as Shell, which produces Pennzoil and Quaker State, BP, which produces Castrol, and Exxon Mobil, the producer of Mobil1, mid-tier brands, and private label producers. With respect to installer customers in the United States and Canada, Valvoline competes with these major integrated oil brands and regional private label companies. Valvoline also competes with other major franchised brands that offer a turn-key operations management system, such as Jiffy Lube (owned by Shell), Grease Monkey and Express Oil Change, as well as national branded companies that offer a professional signage program with limited business model support, similar to its Express Care network, and regional players such as Super-Lube and American Lube Fast that are not directly affiliated with a major brand. Valvoline also competes to some degree with automotive dealerships and service stations, which provide quick lube and other preventative maintenance services. Jiffy Lube is currently the largest player, with just over 1,900 stores, all of which are owned and operated by franchisees. The major competitors of the Valvoline International market vary by region. Valvoline generally faces strong competition from global integrated oil brands, as these companies have a particularly strong presence in Europe and Asia. In certain markets it also competes with regional brands, including brands produced by national oil companies, such as Sinopec in China and Indian Oil in India. Competitive factors in all of these markets include price, product or service technology, brand awareness and loyalty, customer service and sales and marketing. Certain of Valvoline's products also compete on the basis of shelf space and product packaging.

### **Intellectual Property**

Ashland has a broad intellectual property portfolio which is an important component of all of Ashland's reportable segments. In particular, Ashland's Specialty Ingredients and Performance Materials reportable segments rely on patents, trade secrets, formulae and know-how to protect and differentiate their products and technologies. In addition, these reportable segments own valuable trademarks which identify and differentiate Ashland's products from its competitors. The Valvoline™ trademark and other trademarks related to Valvoline brand products and franchises are of particular importance to the Valvoline brand segment and the overall Ashland business. Ashland also licenses intellectual property rights from third-parties.

### **Raw Materials**

Ashland purchases its raw materials from multiple sources of supply in the United States and other countries, and believes that raw material supplies will be available in quantities sufficient to meet demand in fiscal 2017. All of Ashland's reportable segments were impacted to varying degrees in fiscal 2016 by the volatility of raw materials costs, and these conditions may continue in fiscal 2017.

### **Research and Development**

Ashland's program of research and development is focused on defining the needs of the marketplace and framing those needs into technology platforms. Ashland has the capability to deliver and develop the intellectual property required to grow and protect those platforms. Ashland is focused on developing new chemistries, market-changing technologies and customer driven solutions at numerous technology centers located in the Americas, Europe and the Asia Pacific region. Research and development costs are expensed as they are incurred and totaled \$100 million in 2016, \$110 million in 2015 and \$114 million in 2014. These amounts include impairment charges of \$11 million and \$13 million during 2015 and 2014, respectively, related to certain in-process research and development assets associated with the 2011 acquisition of International Specialty Products Inc. (ISP). For additional information regarding these impairment charges, see Note I of Notes to Consolidated Financial Statements in this annual report on Form 10-K.

### **Seasonality**

Ashland's business may vary due to seasonality. Ashland's business units typically experience stronger demand during warmer weather months, which generally occur during Ashland's third and fourth quarters.

### **Forward-Looking Statements**

This annual report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These forward-looking statements are not historical facts and generally are identified by words such as "anticipates," "believes,"

“estimates,” “expects,” “is likely,” “predicts,” “projects,” “forecasts,” “may,” “will,” “should,” and “intends” and the negative of these words or other comparable terminology. Although Ashland believes that its expectations are based on reasonable assumptions, such expectations are subject to risks and uncertainties that are difficult to predict and may be beyond Ashland’s control. As a result, Ashland cannot assure that the expectations contained in such statements will be achieved. Important factors that could cause actual results to differ materially from those contained in such statements are discussed under “Use of estimates, risks and uncertainties” in Note A of Notes to Consolidated Financial Statements in this annual report on Form 10-K. For a discussion of other factors and risks that could affect Ashland’s expectations and operations, see “Item 1A. Risk Factors” in this annual report on Form 10-K.

## **ITEM 1A. RISK FACTORS**

The following discussion of “risk factors” identifies the most significant factors that may adversely affect Ashland’s business, operations, financial position or future financial performance. This information should be read in conjunction with Management’s Discussion and Analysis and the consolidated financial statements and related notes incorporated by reference into this annual report on Form 10-K. The following discussion of risks is designed to highlight what Ashland believes are important factors to consider when evaluating its expectations. These factors could cause future results to differ from those in forward-looking statements and from historical trends.

**Ashland has set aggressive growth goals for its businesses, including increasing sales, cash flow and margins, in order to achieve its long term strategic objectives. Ashland’s successful execution of its growth strategies and business plans to facilitate that growth involves a number of risks.**

Ashland has set aggressive growth goals for its businesses in order to meet long term strategic objectives and improve shareholder value. Ashland’s failure to meet one or more of these goals or objectives would negatively impact Ashland’s potential value and the businesses. One of the most important risks is that Ashland might fail to adequately execute its business and growth plans. Aspects of that risk include changes to global economic environment, changes to the competitive landscape, attraction and retention of skilled employees, the potential failure of product innovation plans, failure to comply with existing or new regulatory schemes, failure to maintain a competitive cost structure and other risks outlined in greater detail in this Item 1A.

**Failure to develop and market new products and production technologies could impact Ashland’s competitive position and have an adverse effect on its businesses and results of operations.**

The specialty chemical industry is subject to periodic technological change and ongoing product improvements. In order to maintain margins and remain competitive, Ashland must successfully develop and introduce new products or improvements that appeal to its customers and ultimately to global consumers. Ashland plans to grow earnings, in part, by focusing on developing markets and solutions to meet increasing demand in those markets, including demand for personal care and pharmaceutical products which are subject to lengthy regulatory approval processes. Ashland’s efforts to respond to changes in consumer demand in a timely and cost-efficient manner to drive growth could be adversely affected by difficulties or delays in product development, including the inability to identify viable new products, successfully complete research and development, obtain regulatory approvals, obtain intellectual property protection or gain market acceptance of new products. Due to the lengthy development process, technological challenges and intense competition, there can be no assurance that any of the products Ashland is currently developing, or could develop in the future, will achieve substantial commercial success.

**Ashland faces competition from other companies, which places downward pressure on prices and margins and may adversely affect Ashland’s businesses and results of operations.**

Ashland operates in highly competitive markets, competing against a number of domestic and foreign companies. Competition is based on several key criteria, including product performance and quality, product price, product availability and security of supply, responsiveness of product development in cooperation with customers and customer service, as well as the ability to bring innovative products or services to the marketplace. Certain key competitors are significantly larger than Ashland and have greater financial resources, leading to greater operating and financial flexibility. As a result, these competitors may be better able to withstand changes in conditions within the relevant industry, changes in the prices of raw materials and energy and changes in general economic conditions. In addition, competitors’ pricing decisions could compel Ashland to decrease its prices, which could negatively affect its margins and profitability. Additional competition in markets served by Ashland could adversely affect margins and profitability and could lead to a reduction in market share. Also, Ashland competes in certain markets that are declining and has targeted other markets for growth opportunities. If Ashland’s strategies for dealing with declining markets and leveraging opportunity markets are not successful, its businesses and results of operations could be negatively affected.

**Ashland's success depends upon its ability to attract and retain key employees and the identification and development of talent to succeed senior management.**

Ashland's success depends on its ability to attract and retain key personnel, and Ashland relies heavily on its management team. The inability to recruit and retain key personnel or the unexpected loss of key personnel may adversely affect Ashland's operations. Also, a substantial portion of Ashland's U.S.-based employees will be retirement-eligible within the next five years. That, combined with the relatively small number of middle tier managers with substantial experience in place to replace this group of retirement eligible employees, increases the potential negative impact of the risk that key employees could leave the Company. This risk of unwanted employee turnover also is substantial in positions that require certain technical expertise and geographically in developing markets which Ashland has targeted for growth, especially in Asia, India, South America and Eastern Europe. In addition, because of its reliance on its management team, Ashland's future success depends, in part, on its ability to identify and develop talent to succeed its senior management and other key positions throughout the organization. If Ashland fails to identify and develop successors, the company is at risk of being harmed by the departures of these key employees.

**Ashland's business exposes it to potential product liability claims and recalls, which could adversely affect its financial condition and performance.**

The development, manufacture and sale of specialty chemical and other products by Ashland, including products produced for the food, beverage, personal care, pharmaceutical and nutritional supplement industries, involve an inherent risk of exposure to product liability claims, product recalls, product seizures and related adverse publicity. A product liability claim or judgment against Ashland could also result in substantial and unexpected expenditures, affect consumer or customer confidence in its products, and divert management's attention from other responsibilities. Although Ashland maintains product liability insurance, there can be no assurance that this type or the level of coverage is adequate or that Ashland will be able to continue to maintain its existing insurance or obtain comparable insurance at a reasonable cost, if at all. A product recall or a partially or completely uninsured product liability judgment against Ashland could have a material adverse effect on its reputation, results of operations and financial condition.

**Ashland uses information technology (IT) systems to conduct business and these IT systems are at risk of potential disruption and cyber security threats.**

Ashland's businesses rely on their IT systems to operate efficiently and in some cases, at all. Ashland employs third parties to maintain aspects of its IT systems and the functions of backing up and securing those systems. A partial or complete failure of Ashland's IT systems or those of our third parties managing, providing or servicing them for any amount of time more than several hours could result in significant business disruption causing harm to Ashland's reputation, results of operations or financial condition. In addition, the nature of our businesses, the markets we serve, and geographic profile of our operations make Ashland a target of cyber security threats. Despite steps Ashland takes to mitigate or eliminate them, cyber security threats to our systems are increasing and becoming more advanced and could occur as a result of the activity of hackers, employee error or employee misconduct. A breach of our IT systems could lead to the loss and destruction of trade secrets, confidential information, proprietary data, intellectual property, customer and supplier data, and employee personal information, and could disrupt business operations which could adversely affect Ashland's relationships with business partners and harm our brands, reputation, and financial results.

**Ashland's substantial global operations subject it to risks of doing business in foreign countries, which could adversely affect its business, financial condition and results of operations.**

Excluding Valvoline, approximately 60% of Ashland's net sales for fiscal 2017 are expected to be to customers outside of North America. Ashland expects sales from international markets to continue to represent an even larger portion of the Company's sales in the future. Also, a significant portion of Ashland's manufacturing capacity is located outside of the United States. Accordingly, Ashland's business is subject to risks related to the differing legal, political, cultural, social and regulatory requirements and economic conditions of many jurisdictions.

The global nature of Ashland's business presents difficulties in hiring and maintaining a workforce in certain countries. Fluctuations in exchange rates may affect product demand and may adversely affect the profitability in U.S. dollars of products and services provided in foreign countries. In addition, foreign countries may impose additional withholding taxes or otherwise tax Ashland's foreign income, or adopt other restrictions on foreign trade or investment, including currency exchange controls. The imposition of tariffs is also a risk that could impair Ashland's financial performance.

Certain legal and political risks are also inherent in the operation of a company with Ashland's global scope. For example, if the United States withdraws from or engages in renegotiation of trade agreements such as the North American Free Trade Agreement and the Trans-Pacific Partnership or more aggressively prosecutes trade disputes with countries like China, Ashland's ability to do business and execute its growth strategies could be adversely affected. In addition, it may be more difficult for Ashland to enforce its agreements or collect receivables through foreign legal systems. There is a risk that foreign governments may nationalize private enterprises in certain countries where Ashland operates. In certain countries or regions, terrorist activities and

the response to such activities may threaten Ashland's operations more than in those in the United States. In Europe, the effect of economic sanctions imposed on Russia and/or Russia's reaction to the sanctions could adversely impact Ashland's performance and results of operations. Social and cultural norms in certain countries may not support compliance with Ashland's corporate policies including those that require compliance with substantive laws and regulations. Also, changes in general economic and political conditions in countries where Ashland operates, particularly in Europe, the Middle East and emerging markets, are a risk to Ashland's financial performance.

As Ashland continues to operate its business globally, its success will depend, in part, on its ability to anticipate and effectively manage these and other related risks. There can be no assurance that the consequences of these and other factors relating to its multinational operations will not have an adverse effect on Ashland's business, financial condition or results of operations.

**Business disruptions from natural, operational and other catastrophic risks could seriously harm Ashland's operations and financial performance. In addition, a catastrophic event at one of Ashland's facilities or involving its products or employees could lead to liabilities that could further impair its operations and financial performance.**

Business disruptions, including those related to operating hazards inherent with the production of chemicals, natural disasters, severe weather conditions, supply or logistics disruptions, increasing costs for energy, temporary plant and/or power outages, information technology systems and network disruptions, cyber-security breach, terrorist attacks, armed conflict, war, pandemic diseases, fires, floods or other catastrophic events, could seriously harm Ashland's operations, as well as the operations of its customers and suppliers, and may adversely impact Ashland's financial performance. Although it is impossible to predict the occurrence or consequences of any such events, they could result in reduced demand for Ashland's products, make it difficult or impossible for Ashland to manufacture its products or deliver products and services to its customers or to receive raw materials from suppliers, or create delays and inefficiencies in the supply chain. In addition to leading to a serious disruption of Ashland's businesses, a catastrophic event at one of our facilities or involving our products or employees could lead to substantial legal liability to or claims by parties allegedly harmed by the event.

While Ashland maintains business continuity plans that are intended to allow it to continue operations or mitigate the effects of events that could disrupt its business, Ashland cannot provide assurances that its plans would fully protect it from all such events. In addition, insurance maintained by Ashland to protect against property damage, loss of business and other related consequences resulting from catastrophic events is subject to coverage limitations, depending on the nature of the risk insured. This insurance may not be sufficient to cover all of Ashland's damages or damages to others in the event of a catastrophe. In addition, insurance related to these types of risks may not be available now or, if available, may not be available in the future at commercially reasonable rates.

**The impact of changing laws or regulations or the manner of interpretation or enforcement of existing rules could adversely impact Ashland's financial performance and restrict its ability to operate its business or execute its strategies.**

New laws or regulations, or changes in existing laws or regulations or the manner of their interpretation or enforcement, could increase Ashland's cost of doing business and restrict its ability to operate its business or execute its strategies. This includes, among other things, the possible taxation under U.S. law of certain income from foreign operations, the possible taxation under foreign laws of certain income Ashland reports in other jurisdictions, regulations related to the protection of private information of Ashland's employees and customers, regulations issued by the U.S. Food and Drug Administration (and analogous non-U.S. agencies) affecting Ashland and its customers, compliance with The U.S. Foreign Corrupt Practices Act (and analogous non-U.S. laws) and the European Union's Registration, Authorisation and Restriction of Chemicals (REACH) regulation (and analogous non-EU initiatives), and costs associated with complying with the Patient Protection and Affordable Care Act of 2010 and the regulations promulgated thereunder. In addition, compliance with laws and regulations is complicated by Ashland's substantial and growing global footprint, which will require significant and additional resources to comprehend and ensure compliance with applicable laws in the more than one hundred countries where Ashland conducts business.

**The competitive nature of Ashland's markets may delay or prevent the Company from passing increases in raw materials or energy costs on to its customers. In addition, certain of Ashland's suppliers may be unable to deliver products or raw materials or may withdraw from contractual arrangements. The occurrence of either event could adversely affect Ashland's results of operations.**

Rising and volatile raw material prices, especially those of hydrocarbon derivatives, cotton linters or wood pulp, may negatively impact Ashland's costs, results of operations and the valuation of its inventory. Similarly, energy costs are a significant component of certain of Ashland's product costs. Ashland is not always able to raise prices in response to such increased costs, and its ability to pass on the costs of such price increases is dependent upon market conditions. Likewise, reductions in the valuation of Ashland's inventory due to market volatility may not be recovered and could result in losses.

Ashland purchases certain products and raw materials from suppliers, often pursuant to written supply contracts. If those suppliers are unable to meet Ashland's orders in a timely manner or choose to terminate or otherwise avoid contractual arrangements,

Ashland may not be able to make alternative supply arrangements. Also, domestic and global government regulations related to the manufacture or transport of certain raw materials may impede Ashland's ability to obtain those raw materials on commercially reasonable terms. If Ashland is unable to obtain and retain qualified suppliers under commercially acceptable terms, its ability to manufacture and deliver products in a timely, competitive and profitable manner or grow its business successfully could be adversely affected.

**Imposition of new taxes, disagreements with tax authorities or additional tax liabilities could adversely affect Ashland's business, financial condition, reputation or results of operations.**

Ashland's products are made, manufactured, distributed or sold in more than 100 countries and territories. As such, Ashland is subject to myriad tax laws and regulations applicable in those countries and territories, as well as those of the United States and its various state and local governments. Economic and political pressure to increase tax revenues in jurisdictions where Ashland operates or does business, or the adoption of new or reformed tax regulations, may make resolving tax disputes more difficult, and the final resolution of tax audits and any related litigation may differ from our historical provisions and accruals resulting in an adverse impact on our business, financial condition, reputation or results of operations.

Ashland's operations outside the United States generate a significant portion of its net revenues, and repatriation of foreign earnings to the United States could adversely affect its business, results of operations or financial condition. In addition to tax reform strategies being considered in the United States, many other countries, including countries in which Ashland has significant operations, are actively considering changes to existing tax laws. Changes in how United States multinational corporations are taxed on earnings could adversely affect Ashland's business, financial condition or results of operations.

**Valvoline is now a publicly traded company with separate risks disclosed in filings with the SEC. Ashland's plan to completely separate from Valvoline is subject to various risks and uncertainties and may not be completed in accordance with the expected plans or anticipated timeline, or at all, and will continue to involve significant time and expense, any of which could negatively impact our businesses.**

On September 22, 2015, Ashland announced plans to separate its Valvoline business from its specialty chemicals businesses in a structure that is expected to be tax free for Ashland shareholders. On April 13, 2016, Ashland announced that it would pursue an initial public offering of up to 20 percent of the common stock of Valvoline as a first step in the separation. On September 22, 2016, Ashland and Valvoline Inc. announced the pricing of the IPO of Valvoline Inc.'s common stock at a price to the public of \$22.00 per share. The IPO closed on September 28, 2016, resulting in approximately 17% of Valvoline's stock being publicly traded. The offering of shares of Valvoline was made by a prospectus filed with the Securities and Exchange Commission by Valvoline Inc. on September 19, 2016 and the risks associated with investing in Valvoline are described in that amended form S-1 prospectus and in subsequent filings with the Securities and Exchange Commission made by Valvoline Inc.

Ashland presently intends to distribute the remaining Valvoline Inc. shares in 2017 following the release of March-quarter earnings results by both Ashland and Valvoline Inc. The final distribution is subject to final approval from Ashland's board of directors. In addition, other unanticipated developments, including changes to the competitive environment for Valvoline's or Ashland's respective businesses, possible delays in obtaining or failure to obtain tax opinions, regulatory or other approvals or clearances to approve or facilitate the separation, uncertainty in financial markets and other challenges in executing the separation as planned, could delay or prevent the final distribution, or cause the final distribution to occur on terms or conditions that are different or less favorable than expected.

Ashland expects that the process of completing the final distribution will continue to be time-consuming and may involve significant costs and expenses, which may be significantly higher than those currently anticipated and may not yield a discernible benefit if the final distribution is not completed. Also, the time and energy required from Ashland's senior management and other employees to plan and execute the final distribution may lead to increased costs, increased expenses, negative effects on relationships with business partners, suppliers, and customers, disruptions in operations and ultimately harm its businesses. Ashland may also experience difficulty attracting, retaining and motivating employees during the pendency of the final distribution, which could also harm its businesses.

If the final distribution is completed, there is a further risk that the sum of the value of the two independent, publicly traded companies will be less than the value of Ashland before the final distribution. There is also a risk that the completed final distribution will not meet all of the intended financial, strategic, and operational benefits that were the impetus for the decision to separate the companies.

**The final distribution could result in significant tax liability to Ashland and its stockholders.**

Ashland expects to obtain a written opinion of counsel to the effect that the final distribution should qualify for non-recognition of gain and loss under Section 355 of the Internal Revenue Code of 1986, as amended (the "Code"). The opinion of counsel would not address any U.S. state or local or foreign tax consequences of the final distribution. The opinion will assume that the final distribution will be completed according to the terms of the separation agreement and will rely on the facts as described in the

separation agreement, the tax matters agreement, other ancillary agreements, the information statement to be distributed to Ashland's stockholders in connection with the final distribution and a number of other documents. In addition, the opinion will be based on certain representations as to factual matters from, and certain covenants by, Ashland and Valvoline. The opinion cannot be relied on if any of the assumptions, representations or covenants is incorrect, incomplete or inaccurate or is violated in any material respect. The opinion will be based on current law and cannot be relied upon if current law changes with retroactive effect.

The opinion of counsel will not be binding on the Internal Revenue Service (the "IRS") or the courts, and there can be no assurance that the IRS or a court will not take a contrary position. Ashland has not requested, and does not intend to request, a ruling from the IRS regarding the U.S. federal income tax consequences of the final distribution.

If the final distribution were determined not to qualify for non-recognition of gain and loss, Ashland stockholders could be subject to tax. In this case, each Ashland stockholder who receives Valvoline common stock in the final distribution would generally be treated as receiving a distribution in an amount equal to the fair market value of the Valvoline common stock received, which would generally result in (i) a taxable dividend to the Ashland stockholder to the extent of that Ashland stockholder's pro rata share of Ashland's current and accumulated earnings and profits; (ii) a reduction in the Ashland stockholder's basis (but not below zero) in Ashland common stock to the extent the amount received exceeds the stockholder's share of Ashland's earnings and profits; and (iii) a taxable gain from the exchange of Ashland common stock to the extent the amount received exceeds the sum of the Ashland stockholder's share of Ashland's earnings and profits and the Ashland stockholder's basis in its Ashland common stock.

If the final distribution were determined not to qualify for non-recognition of gain and loss, then Ashland would recognize gain in an amount up to the fair market value of the Valvoline common stock it distributed in the final distribution. In addition, certain internal transactions undertaken in connection with the Reorganization could be determined to be taxable, which could result in additional taxable gain.

**The IPO and certain internal transactions undertaken in connection with the Reorganization could give rise to material tax liabilities to Ashland.**

Ashland expects that the IPO and certain internal transactions undertaken to effectuate the Reorganization should be nontaxable transactions for U.S. federal income tax purposes and has obtained written opinions of counsel to that effect. The opinions are based on certain assumptions and representations as to factual matters from Ashland and Valvoline Inc., as well as certain covenants by those parties. The opinions cannot be relied upon if any of the assumptions, representations or covenants is incorrect, incomplete or inaccurate or is violated in any material respect. The opinions of counsel are not binding upon the IRS or the courts, and there is no assurance that the IRS or a court will not take a contrary position. It is possible that the IRS or a state or local taxing authority could take the position that those internal transactions or the receipt of proceeds of the IPO result in the recognition of significant taxable gain by Ashland, in which case Ashland may be subject to material tax liabilities.

**The U.S. federal income tax rules applicable to a tax-free final distribution may restrict Ashland from engaging in certain corporate transactions or from raising equity capital beyond certain thresholds for a period of time after the final distribution.**

Section 355(e) of the Code generally creates a presumption that the final distribution would be taxable to Ashland, but not to its stockholders, if Ashland or Valvoline or their respective stockholders were to engage in transactions that result in a 50% or greater change (by vote or value) in the ownership of the respective common stock of Ashland or Valvoline during the four-year period beginning on the date that begins two years before the date of the final distribution, unless it were established that such transactions and the final distribution were not part of a plan or series of related transactions. If the final distribution were taxable for U.S. federal income tax purposes to Ashland due to a 50% or greater change in the ownership of Ashland's or Valvoline's common stock, Ashland would recognize gain as if it had sold Valvoline common stock in a taxable transaction in an amount up to the fair market value of the Valvoline common stock held by Ashland immediately before the final distribution. The tax liability resulting from such gain could have a material impact on Ashland's operations

An acquisition that occurs during the four-year period beginning on the date that begins two years before the date of the final distribution is presumed to occur pursuant to a plan or series of related transactions, unless it is established that the acquisition is not pursuant to a plan or series of transactions that includes the final distribution. U.S. Treasury regulations currently in effect generally provide that whether an acquisition and a tax-free distribution of common stock are part of a plan is determined based on all of the facts and circumstances, including, but not limited to, specific factors described in the U.S. Treasury regulations. In addition, the U.S. Treasury regulations also provide several "safe harbors" for acquisitions that are not considered to be part of a plan.

In addition, the final distribution would not qualify for non-recognition of gain or loss to Ashland and its stockholders if it were determined to be a "device" for the distribution of earnings and profits. An acquisition of Ashland's or Valvoline's common stock might be considered to be evidence that the final distribution was a "device" unless Ashland and Valvoline could demonstrate, based on all of the facts and circumstances, that they did not plan or anticipate such an acquisition or certain other exceptions

applied. The tax liability to Ashland that would result from a determination that the final distribution is a “device” could have a material impact on Ashland’s operations.

The potential tax liability to Ashland described above may limit Ashland’s ability to pursue strategic transactions of a certain magnitude that involve the issuance or acquisition of Ashland common stock. This restriction may also limit Ashland’s ability to raise significant amounts of cash through the issuance of common stock, especially if Ashland’s stock price were to suffer substantial declines.

**Adverse developments in the global economy and potential disruptions of financial markets could negatively impact Ashland’s customers and suppliers, and therefore have a negative impact on Ashland’s results of operations.**

A global or regional economic downturn may reduce customer demand or inhibit Ashland’s ability to produce and sell products. Ashland’s business and operating results are sensitive to global and regional economic downturns, credit market tightness, declining consumer and business confidence, fluctuating commodity prices, volatile exchange rates, changes in interest rates, sovereign debt defaults and other challenges, including those related to international sanctions and acts of aggression or threatened aggression that can affect the global economy. In the event of adverse developments or stagnation in the economy or financial markets, Ashland’s customers may experience deterioration of their businesses, reduced demand for their products, cash flow shortages and difficulty obtaining financing. As a result, existing or potential customers might delay or cancel plans to purchase products and may not be able to fulfill their obligations to Ashland in a timely fashion. Further, suppliers may experience similar conditions, which could impact their ability to fulfill their obligations to Ashland. A weakening or reversal of the current economic recovery in the global economy or a substantial part of it could negatively impact Ashland’s business, results of operations, financial condition and ability to grow.

**Ashland may not be able to effectively protect or enforce its intellectual property rights.**

Ashland relies on the patent, trademark, trade secret and copyright laws of the United States and other countries to protect its intellectual property rights. The laws of some countries may not protect Ashland’s intellectual property rights to the same extent as the laws of the United States. Failure of foreign countries to have laws to protect Ashland’s intellectual property rights or an inability to effectively enforce such rights in foreign countries could result in the loss of valuable proprietary information, which could have an adverse effect on Ashland’s business and results of operations.

Even in circumstances where Ashland has a patent on certain technologies, such patents may not provide meaningful protection against competitors or against competing technologies. In addition, any patent applications submitted by Ashland may not result in an issued patent. There can be no assurance that Ashland’s intellectual property rights will not be challenged, invalidated, circumvented or rendered unenforceable. Ashland could also face claims from third parties alleging that Ashland’s products or processes infringe on their proprietary rights. If Ashland is found liable for infringement, it could be responsible for significant damages, prohibited from using certain products or processes or required to modify certain products and processes. Any such infringement liability could adversely affect Ashland’s product and service offerings, profitability and results of operations.

Ashland also has substantial intellectual property associated with its know-how and trade secrets that are not protected by patent or copyright laws. Ashland protects these rights by entering into confidentiality and non-disclosure agreements with most of its employees and with third parties. There can be no assurance that such agreements will not be breached or that Ashland will be able to effectively enforce them. In addition, Ashland’s trade secrets and know-how may be improperly obtained by other means, such as a breach of Ashland’s information technologies security systems or direct theft. Any unauthorized disclosure of any of Ashland’s material know-how or trade secrets could adversely affect Ashland’s business and results of operations.

**Ashland has incurred, and will continue to incur, substantial costs as a result of environmental, health and safety, and hazardous substances liabilities and related compliance requirements. These costs could adversely impact Ashland’s cash flow, and, to the extent they exceed Ashland’s established reserves for these liabilities, its results of operations.**

Ashland is subject to extensive federal, state, local and foreign laws, regulations, rules and ordinances relating to pollution, protection of the environment and human health and safety, and the generation, storage, handling, treatment, disposal and remediation of hazardous substances and waste materials. Ashland has incurred, and will continue to incur, significant costs and capital expenditures to comply with these laws and regulations.

Environmental, health and safety regulations change frequently, and such regulations and their enforcement have tended to become more stringent over time. Accordingly, changes in environmental, health and safety laws and regulations and the enforcement of such laws and regulations could interrupt Ashland’s operations, require modifications to its facilities or cause Ashland to incur significant liabilities, costs or losses that could adversely affect its profitability. Actual or alleged violations of environmental, health or safety laws and regulations could result in restrictions or prohibitions on plant operations as well as substantial damages, penalties, fines, civil or criminal sanctions and remediation costs. In addition, under some environmental laws, Ashland may be strictly liable and/or jointly and severally liable for environmental damages and penalties.



Ashland is also subject to various federal, state, local and foreign environmental laws and regulations that require environmental assessment or remediation efforts (collectively, environmental remediation) at multiple locations. Ashland uses engineering studies, historical experience and other factors to identify and evaluate remediation alternatives and their related costs in determining the estimated reserves for environmental remediation. Environmental remediation reserves are subject to numerous inherent uncertainties that affect Ashland's ability to estimate its share of the applicable costs. Such uncertainties involve the nature and extent of contamination at each site, the extent of required cleanup efforts under existing environmental regulations, widely varying costs of alternate cleanup methods, changes in environmental regulations, the potential effect of continuing improvements in remediation technology and the number and financial strength of other potentially responsible parties at multiparty sites. As a result, Ashland's actual costs for environmental remediation could affect Ashland's cash flow and, to the extent costs exceed established reserves for those liabilities, its results of operations.

**Ashland is responsible for, and has financial exposure to, liabilities from pending and threatened claims, including those alleging personal injury caused by exposure to asbestos, which could adversely impact Ashland's results of operations and cash flow.**

There are various claims, lawsuits and administrative proceedings pending or threatened, including those alleging personal injury caused by exposure to asbestos, against Ashland and its current and former subsidiaries. Such actions are with respect to commercial matters, product liability, toxic tort liability and other matters that seek remedies or damages, some of which are for substantial amounts. While these actions are being contested, their outcome is not predictable. Ashland's results could be adversely affected by financial exposure to these liabilities. Insurance maintained by Ashland to protect against claims for damages alleged by third parties is subject to coverage limitations, depending on the nature of the risk insured. This insurance may not be sufficient to cover all of Ashland's liabilities to others. In addition, insurance related to these types of risks may not be available now or, if available, may not be available in the future at commercially reasonable rates. Ashland's ability to recover from its insurers for asbestos liabilities could also have an adverse impact on its results of operations. Projecting future asbestos costs is subject to numerous variables that are extremely difficult to predict. In addition to the significant uncertainties surrounding the number of claims that might be received, other variables include the type and severity of the disease alleged by each claimant, the long latency period associated with asbestos exposure, dismissal rates, costs of medical treatment, the impact of bankruptcies of other companies that are co-defendants in claims, uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, and the impact of potential changes in legislative or judicial standards. Furthermore, any predictions with respect to these variables are subject to even greater uncertainty as the projection period lengthens. In light of these inherent uncertainties, Ashland believes that its asbestos reserves represent the best estimate within a range of possible outcomes. As a part of the process to develop these estimates of future asbestos costs, a range of long-term cost models was developed. These models are based on national studies that predict the number of people likely to develop asbestos-related diseases and are heavily influenced by assumptions regarding long-term inflation rates for indemnity payments and legal defense costs, as well as other variables mentioned previously. Because of the inherent uncertainties in projecting future asbestos liabilities and establishing appropriate reserves, Ashland's actual asbestos costs could adversely affect its results of operations and, to the extent they exceed its reserves, could adversely affect its results of operations.

**Ashland's substantial indebtedness may adversely affect its business, results of operations and financial condition.**

Ashland maintains a substantial amount of debt. Ashland's substantial indebtedness could adversely affect its business, results of operations and financial condition by, among other things:

- requiring Ashland to dedicate a substantial portion of its cash flow from operations to pay principal and interest on its debt, which would reduce the availability of Ashland's cash flow to fund working capital, capital expenditures, acquisitions, execution of its growth strategy and other general corporate purposes;
- limiting Ashland's ability to borrow additional amounts to fund working capital, capital expenditures, acquisitions, debt service requirements, execution of its growth strategy and other purposes;
- making Ashland more vulnerable to adverse changes in general economic, industry and regulatory conditions and in its business by limiting Ashland's flexibility in planning for, and making it more difficult for Ashland to react quickly to, changing conditions;
- placing Ashland at a competitive disadvantage compared with those of its competitors that have less debt and lower debt service requirements;
- making Ashland more vulnerable to increases in interest rates since some of its indebtedness is subject to variable rates of interest; and
- making it more difficult for Ashland to satisfy its financial obligations.

In addition, Ashland may not be able to generate sufficient cash flow from its operations to repay its indebtedness when it becomes due and to meet its other cash needs. If Ashland is not able to pay its debts as they become due, it could be in default under its credit facility or other indebtedness. Ashland might also be required to pursue one or more alternative strategies to repay indebtedness, such as selling assets, refinancing or restructuring its indebtedness or selling additional debt or equity securities. Ashland may not be able to refinance its debt or sell additional debt or equity securities or its assets on favorable terms, if at all, and if Ashland must sell its assets, it may negatively affect its ability to generate revenues.

## **ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

## **ITEM 2. PROPERTIES**

Ashland's corporate headquarters is located in Covington, Kentucky. Principal offices of other major operations are located in Wilmington, Delaware (Specialty Ingredients); Bridgewater, New Jersey (Specialty Ingredients); Dublin, Ohio (Specialty Ingredients and Performance Materials); Lexington, Kentucky (Valvoline - includes its current corporate headquarters pursuant to a lease that expires March 31, 2017, and a new long-term lease for its new corporate headquarters, which is currently under construction); and Barendrecht, the Netherlands; Shanghai, China; Hyderabad, India; Warsaw, Poland; and Schaffhausen, Switzerland (each of which are shared service centers of Ashland's business units). All of these office buildings are leased, except for portions of the Dublin, Ohio and the current Lexington, Kentucky facilities that are owned. Principal manufacturing, marketing and other materially important physical properties of Ashland and its subsidiaries are described within the applicable business units under "Item 1" in this annual report on Form 10-K. All of Ashland's physical properties are owned or leased. Ashland believes its physical properties are suitable and adequate for the Company's business. Additional information concerning certain leases may be found in Note L of Notes to Consolidated Financial Statements in this annual report on Form 10-K.

## **ITEM 3. LEGAL PROCEEDINGS**

The following is a description of Ashland's material legal proceedings.

### ***Asbestos-Related Litigation***

Ashland is subject to liabilities from claims alleging personal injury caused by exposure to asbestos. Such claims result primarily from indemnification obligations undertaken in 1990 in connection with the sale of Riley Stoker Corporation (Riley), a former subsidiary. Although Riley was neither a producer nor a manufacturer of asbestos, its industrial boilers contained some asbestos-containing components provided by other companies.

Hercules LLC (formerly Hercules Incorporated), an indirect wholly-owned subsidiary of Ashland, is also subject to liabilities from asbestos-related personal injury lawsuits involving claims which typically arise from alleged exposure to asbestos fibers from resin encapsulated pipe and tank products which were sold by one of Hercules' former subsidiaries to a limited industrial market.

Ashland and Hercules are also defendants in lawsuits alleging exposure to asbestos at facilities formerly or presently owned or operated by Ashland or Hercules.

For additional detailed information regarding liabilities arising from asbestos-related litigation, see "Management's Discussion and Analysis - Critical Accounting Policies - Asbestos Litigation" and Note O of Notes to Consolidated Financial Statements in this annual report on Form 10-K.

### ***Environmental Proceedings***

(a) *CERCLA and Similar State Law Sites* - Under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 and similar state laws, Ashland and its subsidiaries may be subject to joint and several liability for cleanup costs in connection with alleged releases of hazardous substances at sites where it has been identified as a "potentially responsible party" (PRP). As of September 30, 2016, Ashland and its subsidiaries have been identified as a PRP by U.S. federal and state authorities, or by private parties seeking contribution, for the cost of environmental investigation and/or cleanup at 81 waste treatment or disposal sites. These sites are currently subject to ongoing investigation and remedial activities, overseen by the United States Environmental Protection Agency (USEPA) or a state agency, in which Ashland or its subsidiaries are typically participating as a member of a PRP group. Generally, the types of relief sought include remediation of contaminated soil and/or groundwater, reimbursement for past costs of site cleanup and administrative oversight and/or long-term monitoring of environmental conditions at the sites. The ultimate costs are not predictable with assurance.

(b) *Hattiesburg, Mississippi Resource Conservation and Recovery Act Matter* - In November 2008, the Mississippi Department of Environmental Quality (MDEQ) issued a Notice of Violation to Hercules' now-closed Hattiesburg, Mississippi manufacturing facility alleging that a process water impoundment basin at the facility had been operated as a hazardous waste storage and treatment facility without a permit in violation of the Resource Conservation and Recovery Act. In May 2011, the USEPA issued an inspection report from a September 2010 inspection with allegations similar to those of the MDEQ and promulgated an information request. Ashland has been working with the MDEQ and USEPA to settle this matter in the context of the shutdown and ongoing remediation of the Hattiesburg facility. The USEPA proposed a settlement penalty in excess of \$100,000. While it is reasonable to believe that this matter will involve a penalty from the MDEQ and/or the USEPA exceeding \$100,000, the potential penalty with respect to this enforcement matter should not be material to Ashland.

(c) *Lower Passaic River, New Jersey Matters* - Ashland, through two formerly owned facilities, and ISP, through a now-closed facility, have been identified as PRPs, along with approximately 70 other companies (the Cooperating Parties Group or the CPG), in a May 2007 Administrative Order of Consent (AOC) with the USEPA. The parties are required to perform a remedial investigation and feasibility study (RI/FS) of the entire 17 miles of the Passaic River. In June 2007, the EPA separately commenced a Focused Feasibility Study (FFS) as an interim measure. In accordance with the 2007 AOC, in June 2012 the CPG voluntarily entered into another AOC for an interim removal action focused solely at mile 10.9 of the Passaic River. The allocations for the 2007 AOC and the 2012 removal action are based on interim allocations, are immaterial and have been accrued. In April 2014, the EPA released the FFS. The CPG submitted the Draft RI/FS Report on April 30, 2015. The EPA has released the FFS Record of Decision for the lower 8 miles and recently reached an agreement with Occidental to conduct and pay for the remedial design. The EPA has advised that it will be working to secure similar agreements with other PRPs. The release of the FFS Record of Decision did not have a material adverse impact on Ashland's business and financial operations; however, there are a number of contingencies in the future that could possibly have a material impact including adverse rulings or verdicts, allocation proceedings and related orders.

For additional information regarding environmental matters and reserves, see Note O of Notes to Consolidated Financial Statements in this annual report on Form 10-K.

#### ***Other Pending Legal Proceedings***

In addition to the matters described above, there are other various claims, lawsuits and administrative proceedings pending or threatened against Ashland and its current and former subsidiaries. Such actions are with respect to commercial matters, product liability, toxic tort liability and other environmental matters which seek remedies or damages, some of which are for substantial amounts. While Ashland cannot predict with certainty the outcome of such actions, it believes that adequate reserves have been recorded and losses already recognized with respect to such actions were immaterial as of September 30, 2016. There is a reasonable possibility that a loss exceeding amounts already recognized may be incurred related to these actions; however, Ashland believes that such potential losses were immaterial as of September 30, 2016.

#### **ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.

#### **ITEM X. EXECUTIVE OFFICERS OF ASHLAND**

The following is a list of Ashland's current executive officers, their ages and their positions and offices during the last five years (listed alphabetically after Ashland's Senior Vice Presidents).

WILLIAM A. WULFSOHN (age 54) is Chairman and Chief Executive Officer of Ashland Global Holdings Inc. since September 2016 and held the same positions at Ashland Inc. since January 1, 2015. Prior to joining Ashland, Mr. Wulfsohn served as President and Chief Executive Officer of Carpenter Technology Corp., a manufacturer of stainless steel, titanium, and other specialty metals and engineered products, from July 2010 to November 2014. Mr. Wulfsohn also served as a Director for Carpenter Technology Corp. from April 2009 to November 2014. Mr. Wulfsohn serves as a director of PolyOne Corporation and as the non-executive chairman and director of Valvoline Inc., a majority-owned subsidiary of Ashland.

J. KEVIN WILLIS (age 51) is Senior Vice President and Chief Financial Officer of Ashland Global Holdings Inc. since September 2016. Mr. Willis held the same positions at Ashland Inc. and served in such capacities since May 2013. Mr. Willis served as Vice President of Finance and Controller for the Specialty Ingredients business unit from August 2011 until May 2013 and Vice President of Finance and Treasurer from 2007 to 2011.

LUIS FERNANDEZ-MORENO (age 54) is Senior Vice President of Ashland Global Holdings Inc. and President, Chemicals Group since September 2016 and held the same positions with Ashland Inc. since April 2015. He previously served as Senior Vice President of Ashland and President, Ashland Specialty Ingredients from October 2013 until April 2015. Prior to that, Mr.

Fernandez-Moreno served as Vice President of Ashland and President of Water Technologies from November 2012 until October 2013. During the past five years, he has served as Executive Vice President of Arch Chemicals, Inc., a global biocides company, where he was responsible for the wood protection and HTH water products businesses. In 2016, Mr. Fernandez-Moreno joined the board of directors of Ingevity Corp., a special chemicals manufacturer and supplier.

PETER J. GANZ (age 54) is Senior Vice President, General Counsel and Secretary of Ashland Global Holdings Inc. and has served as Senior Vice President and General Counsel of Ashland Inc. since July 2011 and Secretary since November 2012. From July 2011 to August 2016, Mr. Ganz served as Chief Compliance Officer of Ashland Inc.

GREGORY W. ELLIOTT (age 55) is Vice President and Chief Human Resources and Communications Officer of Ashland Global Holdings Inc. and held the same position with Ashland Inc. since joining the Company in November 2015. Since 2008 until joining Ashland in 2015, Mr. Elliott served as the Senior Vice President, Human Resources and Administration of Navistar, Inc., a global manufacturer of commercial and military trucks, proprietary diesel engines and buses.

J. WILLIAM HEITMAN (age 62) is Vice President and Controller of Ashland Global Holdings Inc. and has served in such capacities with Ashland Inc. since 2008.

KEITH C. SILVERMAN (age 49) is Vice President, Environmental, Health, Safety and Product Regulatory of Ashland Global Holdings Inc. and served in the same capacities at Ashland Inc. since June 2012. Prior to joining Ashland, he spent a number of years at Merck & Co., Inc., a pharmaceutical company, where he held various positions of increasing responsibility in research and development as well as in global safety and the environment.

ANNE T. SCHUMANN (age 56) is Vice President and Chief Information and Administrative Services Officer of Ashland Global Holdings Inc. and served in the same capacities with Ashland Inc. since 2008 and 2009, respectively.

Each executive officer is elected by the Board of Directors of Ashland to a term of one year, or until a successor is duly elected, at the annual meeting of the Board of Directors, except in those instances where the officer is elected other than at an annual meeting of the Board of Directors, in which case his or her tenure will expire at the next annual meeting of the Board of Directors unless the officer is re-elected.

## PART II

### ITEM 5. MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

On September 20, 2016, Ashland Inc. became an indirect wholly owned subsidiary of Ashland Global Holdings Inc., and Ashland Inc.’s common stock ceased trading on the New York Stock Exchange (“NYSE”). Ashland Global Holdings Inc.’s common stock began trading on NYSE under the symbol “ASH” on September 20, 2016. See Quarterly Financial Information on page F-67 for information relating to market price and dividends of Ashland’s Common Stock.

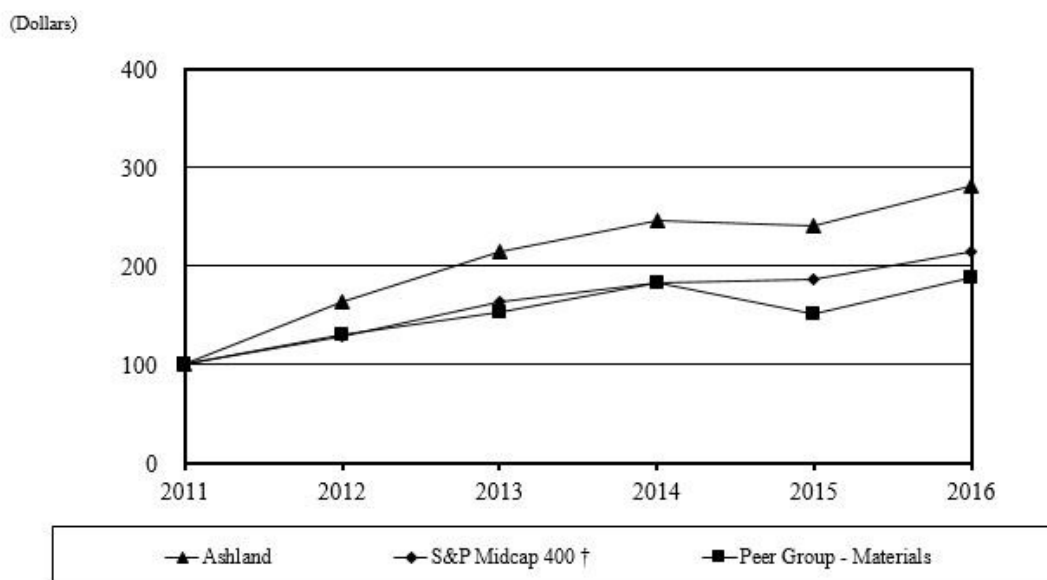
At October 31, 2016, there were approximately 12,500 holders of record of Ashland’s Common Stock. Ashland Common Stock is listed on the New York Stock Exchange (NYSE) (ticker symbol ASH) and has trading privileges on NASDAQ.

There were no sales of unregistered securities required to be reported under Item 5 of Form 10-K.

#### FIVE-YEAR TOTAL RETURN PERFORMANCE GRAPH

The following graph compares Ashland’s five-year cumulative total shareholder return with the cumulative total return of the S&P MidCap 400<sup>†</sup> index and one peer group of companies. Ashland is listed in the S&P MidCap 400<sup>†</sup> index. The cumulative total shareholder return assumes the reinvestment of dividends.

#### COMPARISON OF FIVE-YEAR CUMULATIVE TOTAL RETURN ASHLAND, S&P MIDCAP 400<sup>†</sup> INDEX AND PEER GROUP



	2011	2012	2013	2014	2015	2016
<b>Ashland</b>	100	164	215	245	240	281
<b>S&amp;P MidCap 400<sup>†</sup></b>	100	128	164	183	186	214
<b>Peer Group - Materials</b>	100	130	153	182	151	187

The peer group consists of the following industry indices:

- *Peer Group – Materials*: S&P 500<sup>†</sup> Materials (large-cap) and S&P MidCap 400<sup>†</sup> Materials. As of September 30, 2016, this peer group consisted of 54 companies.

## Purchase of Company Common Stock

Share repurchase activity during the three months ended September 30, 2016 was as follows:

Q4 Fiscal Periods	Total Number of Shares Purchased	Average Price Paid per Share, including commission	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs (in millions) (a)
July 1, 2016 to July 31, 2016:				\$ 500
Employee tax withholdings	46 (b)	\$ 121.48	—	
August 1, 2016 to August 31, 2016:				500
Employee tax withholdings	1,367 (b)	114.40	—	
September 1, 2016 to September 30, 2016:				500
Employee tax withholdings	83 (b)	115.98	—	
 Total.....	<u>1,496</u>		<u>—</u>	<u>\$ 500</u>

- (a) In April 2015, the Company's Board of Directors authorized a program to repurchase up to \$1 billion of the Company's stock, with the authorization expiring December 31, 2017. The Company's share repurchase program does not obligate it to acquire any specific number of shares. Under the program, shares may be repurchased in privately negotiated and/or open market transactions, including under plans complying with Rule 10b5-1 of the Exchange Act. As of September 30, 2016, \$500 million remains available for repurchase under this authorization.
- (b) Shares withheld from employees to cover their withholding requirements for personal income taxes related to the vesting of restricted stock.

### ITEM 6. SELECTED FINANCIAL DATA

See Five-Year Selected Financial Information on page F-68.

### ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

See Management's Discussion and Analysis of Financial Condition and Results of Operations on pages M-1 through M-41.

### ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

See Quantitative and Qualitative Disclosures about Market Risk on page M-42.

### ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The consolidated financial statements of Ashland presented in this annual report on Form 10-K are listed in the index on page F-1.

### ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

## **ITEM 9A. CONTROLS AND PROCEDURES**

*Disclosure Controls and Procedures* – As of September 30, 2016, Ashland, under the supervision and with the participation of Ashland’s management, including Ashland’s Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of Ashland’s disclosure controls and procedures as defined in Exchange Act Rules 13a-15(e) and 15d-15(e). Based upon that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective as of September 30, 2016.

*Internal Control over Financial Reporting* – See Management’s Report on Internal Control Over Financial Reporting on page F-2 and the Reports of Independent Registered Public Accounting Firms on page F-3, F-4, and F-5.

*Changes in Internal Control over Financial Reporting* – There have been no changes in Ashland’s internal control over financial reporting that occurred during the quarter ended September 30, 2016 that have materially affected, or are reasonably likely to materially affect, Ashland’s internal control over financial reporting.

## **ITEM 9B. OTHER INFORMATION**

None.

## **PART III**

### **ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE**

There is hereby incorporated by reference the information to appear under the caption “Proposal One - Election of Directors” in Ashland’s Proxy Statement, which will be filed with the SEC within 120 days after September 30, 2016. See also the list of Ashland’s executive officers and related information under “Executive Officers of Ashland” in Part I - Item X in this annual report on Form 10-K.

There is hereby incorporated by reference the information to appear under the caption “Corporate Governance - Governance Principles” in Ashland’s Proxy Statement.

There is hereby incorporated by reference the information to appear under the caption “Corporate Governance - Stockholder Nominations of Directors” in Ashland’s Proxy Statement.

There is hereby incorporated by reference the information to appear under the caption “Audit Committee Report” regarding Ashland’s audit committee and audit committee financial experts, as defined under Item 407(d)(4) and (5) of Regulation S-K in Ashland’s Proxy Statement.

There is hereby incorporated by reference the information to appear under the caption “Corporate Governance - Section 16(a) Beneficial Ownership Reporting Compliance” in Ashland’s Proxy Statement.

### **ITEM 11. EXECUTIVE COMPENSATION**

There is hereby incorporated by reference the information to appear under the captions “Compensation of Directors,” “Corporate Governance - Personnel and Compensation Committee Interlocks and Insider Participation,” and “Executive Compensation,” in Ashland’s Proxy Statement.

### **ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

There is hereby incorporated by reference the information to appear under the captions “Ashland Common Stock Ownership of Certain Beneficial Owners,” and “Ashland Common Stock Ownership of Directors and Executive Officers of Ashland” in Ashland’s Proxy Statement.

The following table summarizes the equity compensation plans under which Ashland Common Stock may be issued as of September 30, 2016.

**Equity Compensation Plan Information**

<b>Plan Category</b>	<b>Number of securities to be issued upon exercise of outstanding options, warrants and rights</b>	<b>Weighted-average exercise price of outstanding options, warrants and rights</b>	<b>Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))</b>
	<b>(a)</b>	<b>(b)</b>	<b>(c)</b>
Equity compensation plans approved by security holders.....	854,605 (1)	\$ 82.94 (2)	3,065,759 (3)
Equity compensation plans not approved by security holders.....	204,717 (4)	—	677,492 (5)
Total.....	1,059,322	\$ 82.94 (2)	3,743,251

- (1) This figure includes 102 stock options outstanding under the Hercules Incorporated Amended and Restated Long Term Incentive Compensation Plan. This figure also includes 153,546 net shares that could be issued under stock-settled SARs under the 2006 Ashland Inc. Incentive Plan (“2006 Incentive Plan”), 255,845 net shares that could be issued under stock-settled SARs under the Amended and Restated 2011 Ashland Inc. Incentive Plan (“2011 Incentive Plan”) and 12,198 net shares that could be issued under stock-settled SARs and 97,950 shares that could be issued under stock-settled restricted stock units under the Amended and Restated 2015 Ashland Global Holdings Inc. Incentive Plan (“2015 Incentive Plan”), based upon the closing price of Ashland Common Stock on the NYSE as of September 30, 2016 of \$115.95. Additionally, this figure includes 99,021 restricted shares granted under the Amended and Restated Ashland Inc. Incentive Plan (“Amended Plan”) and deferred, 69,914 performance share units for the fiscal 2014-2016 performance period payable in Ashland Common Stock under the 2011 Incentive Plan, 67,525 performance share units for the fiscal 2015-2017 performance period payable in Ashland Common Stock under the 2011 Incentive Plan, and 72,750 performance share units for the fiscal 2016-2018 performance period payable in Ashland Common Stock under the 2015 Incentive Plan, estimated assuming target performance is achieved. Also included in the figure are 25,754 shares to be issued under the pre-2005 Deferred Compensation Plan for Employees payable in Ashland Common Stock upon termination of employment or service with Ashland.
- (2) The weighted-average exercise price excludes shares in Ashland Common Stock which may be distributed under the deferred compensation plans and the deferred restricted stock, and performance share units and restricted stock units which may be distributed under the 2011 Incentive Plan and 2015 Incentive Plan, as described in footnotes (1) and (4) in this table.
- (3) This figure includes 1,336,956 shares available for issuance under the 2015 Incentive Plan, 108,985 shares available for issuance under the pre-2005 Deferred Compensation Plan for Employees and 248,570 shares available for issuance under the pre-2005 Deferred Compensation Plan for Non-Employee Directors. Under the 2015 Incentive Plan, full-value awards, which include all awards other than stock options and SARs, reduce the share reserve on a 2.75-to-1 basis. This figure also includes 5,604 shares available for issuance under the 2006 Incentive Plan and 1,365,644 shares available for issuance under the 2011 Incentive Plan; however, both of these plans are closed for new issuances and the only shares remaining to be issued are shares paid in lieu of dividends.
- (4) This figure includes 25,514 shares to be issued under the Deferred Compensation Plan for Employees (2005), which is described in the “Non-Qualified Deferred Compensation-Ashland Employees’ Deferral Plan” section of Ashland’s proxy statement, and 179,203 shares to be issued under the Deferred Compensation Plan for Non-Employee Directors (2005), which is described in the “Compensation of Directors-Annual Retainer” and “Compensation of Directors-Restricted Shares/Units” sections of Ashland’s proxy statement, payable in Ashland Common Stock upon termination of employment or service with Ashland. Because these plans are not equity compensation plans as defined by the rules of the NYSE, neither plan required approval by Ashland’s stockholders.



- (5) This figure includes 381,630 shares available for issuance under the Deferred Compensation Plan for Employees (2005) and 295,389 shares available for issuance under the Deferred Compensation Plan for Non-Employee Directors (2005). Because these plans are not equity compensation plans as defined by the rules of the NYSE, neither plan required approval by Ashland's stockholders. Ashland also granted Mr. Wulfsohn, its Chief Executive Officer, an employment inducement award, in compliance with Rule 303A.08 of The New York Stock Exchange Listed Company Manual (the "NYSE Manual"), consisting of a one-time grant of time-vested restricted stock in the amount of 50,000 shares ("2015 Inducement Award"). In 2016, Ashland also granted Mary Meixelsperger, the Chief Financial Officer of Valvoline Inc., an employment inducement award in compliance with Rule 303A.08 of the NYSE Manual, consisting of a one-time grant of time-vested restricted stock in the amount of 4,500 shares ("2016 Inducement Award"). Other than 473 shares registered to cover dividends that are paid in additional shares of restricted stock under the inducement awards, all shares under the 2015 Inducement Award and 2016 Inducement Award have been granted, are no longer available for future issuance and are not included in this figure.

### **ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE**

There is hereby incorporated by reference the information to appear under the captions "Corporate Governance - Director Independence and Certain Relationships," "Corporate Governance - Related Person Transaction Policy," and "Audit Committee Report" in Ashland's Proxy Statement.

### **ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES**

There is hereby incorporated by reference the information with respect to principal accounting fees and services to appear under the captions "Audit Committee Report" and "Proposal Two - Ratification of Independent Registered Public Accountants" in Ashland's Proxy Statement.

## **PART IV**

### **ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES**

#### **(a) Documents filed as part of this Report**

- (1) Financial Statements; and
- (2) See Item 15(b) in this annual report on Form 10-K

The consolidated financial statements of Ashland presented in this annual report on Form 10-K are listed in the index on page F-1.

Schedules other than that listed above have been omitted because of the absence of the conditions under which they are required or because the information required is shown in the consolidated financial statements or the notes thereto. Separate financial statements of unconsolidated affiliates are omitted because each company does not constitute a significant subsidiary using the 20% tests when considered individually. Summarized financial information for all unconsolidated affiliates is disclosed in Note E of Notes to Consolidated Financial Statements.

#### **(b) Documents required by Item 601 of Regulation S-K**

- 2.1 – Stock and Asset Purchase Agreement, dated as of February 18, 2014, between Ashland Inc. and CD&R Seahawk Bidco, LLC (filed as Exhibit 2.1 to Ashland's Form 8-K filed on February 24, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 2.2 – Sale and Purchase Agreement related to the ASK Chemicals Group, dated April 8, 2014, among Ashland Inc., Ashland International Holdings, Inc., Clariant Produkte (Deutschland) GmbH, Clariant Corp., mertus 158. GmbH, Ascot US Bidco Inc. and Ascot UK Bidco Limited (filed as Exhibit 2.1 to Ashland's Form 8-K filed on April 14, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 2.3 – Agreement and Plan of Merger dated May 31, 2016, by and among Ashland Inc., Ashland Global Holdings Inc. and Ashland Merger Sub Corp. (filed as Exhibit 2.1 to Ashland's Form 8-K filed on May 31, 2016 (SEC File No. 001-32532), and incorporated herein by reference).

- 3.1 – Amended and Restated Articles of Incorporation of Ashland Global Holdings Inc. (filed as Exhibit 3.1 to Ashland’s Form 8-K filed on September 20, 2016 (SEC File No. 001-32532), and incorporated by reference herein).
- 3.2\*\* – Amended and Restated By-laws of Ashland Global Holdings Inc.
- 4.1 – Ashland agrees to provide the SEC, upon request, copies of instruments defining the rights of holders of long-term debt of Ashland and all of its subsidiaries for which consolidated or unconsolidated financial statements are required to be filed with the SEC.
- 4.2 – Indenture, dated as of August 15, 1989, as amended and restated as of August 15, 1990, between Ashland Inc. and Citibank, N.A., as Trustee (filed as Exhibit 4.2 to Ashland’s Form 10-K for the fiscal year ended September 30, 2008 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.3 – Agreement of Resignation, Appointment and Acceptance, dated as of November 30, 2006, by and among Ashland Inc., Wilmington Trust Company (Wilmington) and Citibank, N.A. (Citibank) whereby Wilmington replaced Citibank as Trustee under the Indenture dated as of August 15, 1989, as amended and restated as of August 15, 1990, between Ashland Inc. and Citibank (filed as Exhibit 4 to Ashland’s Form 10-Q for the quarter ended December 31, 2006 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.4 – Indenture, dated May 27, 2009, by and among Ashland Inc., the Guarantors and U.S. Bank National Association (filed as Exhibit 4.1 to Ashland’s Form 10-Q for the quarter ended June 30, 2009 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.5 – Warrant Agreement dated July 27, 1999 between Hercules and The Chase Manhattan Bank, as warrant agent (filed as Exhibit 4.4 to Hercules’ Form 8-K filed on July 28, 1999 (SEC File No. 001-00496), and incorporated herein by reference).
- 4.6 – Form of Series A Junior Subordinated Deferrable Interest Debentures (filed as Exhibit 4.5 to Hercules’ Form 8-K filed on July 28, 1999 (SEC File No. 001-00496), and incorporated herein by reference).
- 4.7 – Form of CRESTS<sup>SM</sup> Unit (filed as Exhibit 4.7 to Hercules’ Form 8-K filed on July 28, 1999 (SEC File No. 001-00496), and incorporated herein by reference).
- 4.8 – Form of Warrant (filed as Exhibit 4.8 to Hercules’ Form 8-K filed on July 28, 1999 (SEC File No. 001-00496), and incorporated herein by reference).
- 4.9 – Form of \$100,000,000 6.6% Debenture due August 27, 2027 (filed as Exhibit 4.2 to Hercules’ Form 8-K filed on July 30, 1997 (SEC File No. 001-00496), and incorporated herein by reference).
- 4.10 – Indenture, dated as of August 7, 2012, between Ashland Inc. and U.S. Bank N.A., as Trustee (filed as Exhibit 4.1 to Ashland’s Form 8-K filed on September 21, 2012 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.11 – First Supplemental Indenture, dated as of February 26, 2013, between Ashland Inc. and U.S. Bank National Association, as Trustee, in respect of the senior notes due 2022 (filed as Exhibit 4.11 to Ashland’s Form 10-K for the fiscal year ended September 30, 2013 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.12 – Indenture, dated as of February 26, 2013, between Ashland Inc. and U.S. Bank National Association, as Trustee (filed as Exhibit 4.3 to Ashland’s Form 8-K filed on February 27, 2013 (SEC File No. 001- 32532), and incorporated herein by reference).
- 4.13 – First Supplemental Indenture, dated as of February 26, 2013, between Ashland Inc. and U.S. Bank National Association, as Trustee, in respect of the senior notes due 2016, 2018 and 2043 (filed as Exhibit 4.4 to Ashland’s Form 8-K filed on February 27, 2013 (SEC File No. 001-32532), and incorporated herein by reference).

- 4.14 – Second Supplemental Indenture, dated as of March 14, 2013, between Ashland Inc. and U.S. Bank National Association, as Trustee, in respect of the senior notes due 2043 (filed as Exhibit 4.2 to Ashland’s Form 8-K filed on March 18, 2013 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.15 – Indenture dated as of July 20, 2016, among Valvoline Finco Two LLC, Ashland Inc. and U.S. Bank National Association, as trustee (filed as Exhibit 4.1 to Ashland’s Form 8-K filed on July 20, 2016 (SEC File No. 001-32532), and incorporated herein by reference).
- 4.16 – Registration Rights Agreement dated as of September 22, 2016, between and among Ashland Global Holdings Inc. and Valvoline Inc. (filed as Exhibit 10.6 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 4.17 – Second Supplemental Indenture dated October 19, 2016, among Ashland LLC, Ashland Global Holdings Inc. and US Bank National Association, to the Indenture dated as of August 7, 2012 between Ashland LLC and US Bank National Association (filed as Exhibit 4.1 to Ashland’s Form 8-K filed on October 20, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 4.18 – Third Supplemental Indenture dated October 19, 2016, among Ashland LLC, Ashland Global Holdings Inc. and US Bank National Association, to the Indenture dated as of February 27, 2013 between Ashland LLC and US Bank National Association (filed as Exhibit 4.2 to Ashland’s Form 8-K filed on October 20, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 4.19\*\* – First Supplemental Indenture dated September 26, 2016 among Valvoline Inc., the Guarantors and US Bank National Association, to the Indenture dated as of July 20, 2016 among Valvoline Finco Two LLC, Ashland Inc. and US Bank National Association as trustee.

The following Exhibits 10.1 through 10.62 are contracts or compensatory plans or arrangements or management contracts required to be filed as exhibits pursuant to Items 601(b)(10)(ii)(A) and 601(b)(10)(iii)(A) and (B) of Regulation S-K.

- 10.1 – Ashland Inc. Deferred Compensation Plan for Non-Employee Directors and Amendment No. 1 (filed as Exhibit 10.5 to Ashland’s Form 10-Q for the quarter ended December 31, 2004 (SEC File No. 001-02918), and incorporated herein by reference).
- 10.2 – Ashland Inc. Deferred Compensation Plan and Amendment No. 1 (filed as Exhibit 10.3 to Ashland’s Form 10-Q for the quarter ended December 31, 2004 (SEC File No. 001-02918), and incorporated herein by reference).
- 10.3\*\* – Amended and Restated Ashland Global Holdings Inc. Deferred Compensation Plan for Employees (2005) effective as of January 1, 2017.
- 10.4 – Amended and Restated Ashland Inc. Deferred Compensation Plan for Non-Employee Directors (2005) (filed as Exhibit 10.4 to Ashland’s Form 10-K for the fiscal year ended September 30, 2008 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.5 – Amended and Restated Valvoline LLC Supplemental Early Retirement Plan for Certain Employees (filed as Exhibit 10.5 to Ashland’s Form 10-K for the fiscal year ended September 30, 2010 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.6 – Amendment to the Valvoline LLC Supplemental Early Retirement Plan for Certain Employees (filed as Exhibit 10.10 to Ashland’s Form 10-Q for the quarter ended June 30, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.7 – Amendment to the Amended and Restated Ashland Inc. Deferred Compensation Plan for Non-Employee Directors (2005) (filed as Exhibit 10.4 to Ashland’s Form 10-Q for the quarter ended March 31, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.8 – Ashland Supplemental Defined Contribution Plan for Certain Employees (filed as Exhibit 10.3 to Ashland’s Form 10-Q for the quarter ended March 31, 2011 (SEC File No. 001-32532), and incorporated herein by reference) (Frozen).

- 10.9 – Ashland Inc. Supplemental Defined Contribution Plan for Certain Employees effective January 1, 2015 (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on May 18, 2015 (SEC File No. 001-32532), and incorporated herein by reference) (Frozen).
- 10.10 – Amended and Restated Valvoline LLC Nonqualified Excess Benefit Pension Plan (filed as Exhibit 10.6 to Ashland’s Form 10-K for the fiscal year ended September 30, 2008 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.11 – Hercules Incorporated Employee Pension Restoration Plan (filed as Exhibit 10.9 to Ashland’s Form 10-K for the fiscal year ended September 30, 2010 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.12 – Form of Inducement Restricted Stock Award Agreement, between William A. Wulfsohn and Ashland (filed as Exhibit 4.3 to Ashland’s Form S-8 filed on December 18, 2014 (SEC File No. 333-201053), and incorporated herein by reference).
- 10.13 – Form of Chief Executive Officer Change in Control Agreement (filed as Exhibit 10.3 to Ashland’s Form 10-Q for the quarter ended December 31, 2014 (SEC File No. 001-32532), and incorporated herein by reference) (Replaced in the first quarter of fiscal 2016).
- 10.14 – Form of Executive Officer Change in Control Agreement (filed as Exhibit 10.11 to Ashland’s Form 10-K for the fiscal year ended September 30, 2009 (SEC File No. 001-32532), and incorporated herein by reference) (Replaced in the first quarter of fiscal 2016).
- 10.15 – Form of Chief Executive Officer Change in Control Agreement (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on October 9, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.16 – Form of Executive Officer Change in Control Agreement (filed as Exhibit 10.2 to Ashland’s Form 8-K filed on October 9, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.17 – Form of Indemnification Agreement between Ashland Inc. and members of its Board of Directors (filed as Exhibit 10.10 to Ashland’s annual report on Form 10-K for fiscal year ended September 30, 2005 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.18 – Amended and Restated Ashland Inc. Incentive Plan (filed as Exhibit 10.17 to Ashland’s Form 10-K for the fiscal year ended September 30, 2009 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.19 – 2006 Ashland Inc. Incentive Plan (filed as Exhibit 10 to Ashland’s Form 10-Q for the quarter ended December 31, 2005 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.20 – Amended and Restated 2011 Ashland Inc. Incentive Plan (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on February 1, 2013 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.21\*\* – Amended and Restated 2015 Ashland Global Holdings Inc. Incentive Plan (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on July 20, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.22 – Form of Stock Appreciation Rights Award Agreement under the Amended and Restated 2011 Ashland Inc. Incentive Plan (filed as Exhibit 10.16 to Ashland’s Form 10-K for the fiscal year ended September 30, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.23 – Form of Performance Unit (LTIP) Award Agreement under the Amended and Restated 2011 Ashland Inc. Incentive Plan (filed as Exhibit 10.17 to Ashland’s Form 10-K for the fiscal year ended September 30, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.24 – Form of Restricted Stock Award Agreement under the Amended and Restated 2011 Ashland Inc. Incentive Plan (filed as Exhibit 10.18 to Ashland’s Form 10-K for the fiscal year ended September 30, 2014 (SEC File No. 001-32532), and incorporated herein by reference).

- 10.25 – Form of Restricted Stock Unit Agreement under the Amended and Restated 2011 Ashland Inc. Incentive Plan (filed as Exhibit 10.19 to Ashland’s Form 10-K for the fiscal year ended September 30, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.26 – Form of Restricted Stock Award Agreement under the Amended and Restated 2015 Ashland Inc. Incentive Plan (filed as Exhibit 10.5 to Ashland’s Form 10-Q for the quarter ended March 31, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.27 – Form of Restricted Stock Unit Award Agreement under the Amended and Restated 2015 Ashland Inc. Incentive Plan (filed as Exhibit 10.6 to Ashland’s Form 10-Q for the quarter ended March 31, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.28 – Form of Stock Appreciation Rights Award Agreement under the Amended and Restated 2015 Ashland Inc. Incentive Plan (filed as Exhibit 10.7 to Ashland’s Form 10-Q for the quarter ended March 31, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.29 – Form of Performance Unit (LTIP) Award Agreement under the Amended and Restated 2015 Ashland Inc. Incentive Plan (filed as Exhibit 10.8 to Ashland’s Form 10-Q for the quarter ended March 31, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.30 – Form of Restricted Stock Award Agreement under the Amended and Restated 2015 Ashland Inc. Incentive Plan (Double-Trigger Form) (filed as Exhibit 10.2 to Ashland’s Form 8-K filed on July 20, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.31 – Letter Agreement between Ashland and Luis Fernandez-Moreno dated November 4, 2013 (filed as Exhibit 10.23 to Ashland’s Form 10-K for the fiscal year ended September 30, 2013 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.32 – Letter Agreement between Ashland and William A. Wulfsohn, dated November 12, 2014 (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on November 17, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.33 – Separation Agreement and General Release between Ashland and Susan B. Esler dated October 1, 2015 (filed as Exhibit 10.40 to Ashland’s Form 10-K for the fiscal year ended September 30, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.34 – Separation Agreement and General Release between Ashland and Walter H. Solomon dated October 1, 2015 (filed as Exhibit 10.41 to Ashland’s Form 10-K for the fiscal year ended September 30, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.35 – Form of Performance-Based Restricted Stock Award Agreement (filed as Exhibit 10.3 to Ashland’s Form 8-K filed on October 9, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.36 – Form of Retention Award Agreement for certain Executive Officers (filed as Exhibit 10.43 to Ashland’s Form 10-K for the fiscal year ended September 30, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.37\*\* – Form of Restricted Stock Award Agreement under the Amended and Restated 2015 Ashland Global Holdings Inc. Incentive Plan (Double-Trigger Form).
- 10.38\*\* – Form of Restricted Stock Unit Award Agreement under the Amended and Restated 2015 Ashland Global Holdings Inc. Incentive Plan (Double-Trigger Form).
- 10.39\*\* – Form of Stock Appreciation Rights Award Agreement under the Amended and Restated 2015 Ashland Global Holdings Inc. Incentive Plan (Double-Trigger Form).
- 10.40\*\* – Form of Performance Unit (LTIP) Award Agreement under the Amended and Restated 2015 Ashland Global Holdings Inc. Incentive Plan (Double-Trigger Form).

- 10.41 – Form of Inducement Restricted Stock Award Agreement entered into between Ashland and Mary Meixelsperger (filed as Exhibit 4.3 to Ashland’s Registration Statement on Form S-8 filed on June 20, 2016 (SEC File No. 333-212127), and incorporated herein by reference).
- 10.42 – Form of Indemnification Agreement between Ashland and members of its Board of Directors (filed as Exhibit 10.2 to Ashland’s Form 8-K filed on September 20, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.43\*\* – Amendment to Ashland Inc. Supplemental Defined Contribution Plan for Certain Employees dated September 30, 2016 (Plan Freeze).
- 10.44\*\* – Amendment to the Hercules Incorporated Employee Pension Restoration Plan dated September 30, 2016 (Plan Freeze).
- 10.45\*\* – Amendment to the Valvoline LLC Nonqualified Excess Benefit Plan dated September 30, 2016 (Plan Freeze).
- 10.46\*\* – Amendment to the Hercules Incorporated Employee Pension Restoration Plan dated September 30, 2016 (Annuity Cash-Out).
- 10.47\*\* – Amendment to the Amended and Restated Supplemental Early Retirement Plan for Certain Employees dated September 30, 2016 (Plan Freeze).
- 10.48\*\* – Ashland Severance Pay Plan effective as of August 1, 2016.
- 10.49\*\* – Ashland Severance Pay Plan effective as of January 1, 2017.
- 10.50 – Ashland Global Holdings Inc. Non-Qualified Defined Contribution Plan for Certain Employees (filed as Exhibit 10.7 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.51\*\* – Valvoline Inc. 2016 Deferred Compensation Plan for Non-Employee Directors (effective October 1, 2016).
- 10.52\*\* – Form of Valvoline Inc. 2016 Deferred Compensation Plan for Employees effective October 1, 2016.
- 10.53\*\* – 2016 Valvoline Incentive Plan.
- 10.54\*\* – Form of Outside Director Restricted Stock Award Agreement under the 2016 Valvoline Inc. Incentive Plan.
- 10.55\*\* – Form of Valvoline Inc. Non-Qualified Defined Contribution Plan (effective October 1, 2016).
- 10.56\*\* – Amendment to the Ashland Inc. Nonqualified Excess Benefit Plan dated September 1, 2016 (Sponsorship Transfer).
- 10.57\*\* – Amendment to the Amended and Restated Supplemental Early Retirement Plan for Certain Employees effective September 1, 2016 (Sponsorship Transfer).
- 10.58\*\* – Amendment to the Hercules Incorporated Employee Pension Restoration Plan effective September 1, 2016 (Sponsorship Transfer).
- 10.59\*\* – Form of Cash-Settled Performance Unit (LTIP) Award Agreement under the Amended and Restated Ashland Global Holdings Inc. Incentive Plan (Double-Trigger Form).
- 10.60 – Amended and Restated Hercules Deferred Compensation Plan effective January 1, 2008 (filed as Exhibit 10.8 to Ashland’s Form 10-K for the fiscal year ended on September 30, 2010 (SEC File No. 001-32532), and incorporated herein by reference).

- 10.61\*\* – Amendment to the Amended and Restated Hercules Deferred Compensation Plan dated September 30, 2016 (annuity cash-out).
- 10.62 – Amended and Restated Ashland Inc. Deferred Compensation Plan for Employees (2005) (filed as Exhibit 10.3 to Ashland’s Form 10-K for the fiscal year ended September 30, 2008 (SEC File No. 001-32532) and incorporated herein by reference).
- 10.63 – Stock Purchase Agreement dated as of May 30, 2011, entered into by and among The Samuel J. Heyman 1981 Continuing Trust for Lazarus S. Heyman, The Samuel J. Heyman 1981 Continuing Trust for Eleanor S. Heyman, The Samuel J. Heyman 1981 Continuing Trust for Jennifer L. Heyman, The Samuel J. Heyman 1981 Continuing Trust for Elizabeth D. Heyman, The Lazarus S. Heyman Age 50 Trust for Assets Appointed Under Will of Lazarus S. Heyman, The Eleanor S. Heyman Age 50 Trust for Assets Appointed Under Will of Lazarus S. Heyman, The Jennifer L. Heyman Age 50 Trust for Assets Appointed Under Will of Lazarus S. Heyman, The Elizabeth D. Heyman Age 50 Trust for Assets Appointed Under Will of Lazarus S. Heyman, The Horizon Holdings Residual Trust, RFH Investment Holdings LLC, Ashland and Ronnie F. Heyman, as representative of the Seller Parties (filed as Exhibit 2.1 to Ashland’s Form 8-K filed on May 31, 2011 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.64 – Credit Agreement dated as of June 23, 2015, among Ashland Inc., as Borrower, The Bank of Nova Scotia, as Administrative Agent, Swing Line Lender and an L/C Issuer, Citibank, N.A., as Syndication Agent, Bank of America, N.A., Deutsche Bank Securities Inc. and PNC Bank, National Association, as Co-Documentation Agents, JPMorgan Chase Bank, N.A., Mizuho Bank LTD., U.S. Bank National Association, and Wells Fargo Bank, National Association, as Managing Agents, and the other Lenders party thereto (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on June 23, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.65 – Transfer and Administration Agreement, dated as of August 31, 2012, among CVG Capital III LLC, Ashland Inc., Hercules Incorporated, Aqualon Company, ISP Technologies Inc., ISPSynthetic Elastomers LLC, and each other entity from time to time party thereto as an Originator, as Originators, Ashland Inc., as initial Master Servicer, each of Liberty Street Funding LLC, Market Street Funding LLC and Gotham Funding Corporation, as Conduit Investors and Uncommitted Investors, The Bank of Nova Scotia, as the Agent, a Letter of Credit Issuer, a Managing Agent, an Administrator and a Committed Investor, and the Letter of Credit Issuers, Managing Agents, Administrators, Uncommitted Investors and Committed Investors parties thereto from time to time (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on September 7, 2012 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.66 – Sale Agreement, dated as of August 31, 2012, among Ashland Inc., Hercules Incorporated, Aqualon Company, ISP Technologies Inc., ISP Synthetic Elastomers LLC and CVG Capital III LLC (filed as Exhibit 10.2 to Ashland’s Form 8-K filed on September 7, 2012 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.67 – Parent Undertaking, dated as of August 31, 2012, by Ashland Inc. in favor of The Bank of Nova Scotia and the Secured Parties (filed as Exhibit 10.3 to Ashland’s Form 8-K filed on September 7, 2012 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.68 – First Amendment to Transfer and Administration Agreement, dated as of April 30, 2013, among Ashland Inc., CVG Capital III LLC, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.2 to Ashland’s Form 10-Q for the quarter ended June 30, 2013 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.69 – Omnibus Amendment to Transfer and Administration Agreement, dated as of August 21, 2013, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.34 to Ashland’s Form 10-K for the fiscal year ended September 30, 2013 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.70 – Third Amendment to Transfer and Administration Agreement, dated as of October 15, 2013, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.35 to Ashland’s Form 10-K for the fiscal year ended September 30, 2013 (SEC File No. 001-32532), and incorporated herein by reference).

- 10.71 – Fourth Amendment to Transfer and Administration Agreement, dated as of June 30, 2014, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.1 to Ashland’s Form 10-Q for the quarter ended June 30, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.72 – Receivables Assignment Agreement, dated as of November 25, 2014, among Ashland Inc., as originator and master servicer, CVG Capital III LLC, Ashland Specialty Ingredients G.P., the Investors, Letter of Credit Issuers, Managing Agent and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.4 to Ashland’s Form 10-Q for the quarter ended December 31, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.73 – Sixth Amendment to Transfer and Administration Agreement, dated as of November 25, 2014, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.5 to Ashland’s Form 10-Q for the quarter ended December 31, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.74 – Seventh Amendment dated as of August 28, 2015 to the Transfer and Administration Agreement dated as of August 31, 2012, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as agent for the Investors (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on September 2, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.75 – Eighth Amendment dated as of September 30, 2015 to the Transfer and Administration Agreement as of August 31, 2012, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as agent for the Investors (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on October 6, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.76 – First Amendment to Sale Agreement, dated as of June 30, 2014, among Ashland Inc., Hercules Incorporated, Ashland Specialty Ingredients G.P., ISP Technologies Inc., Ashland Elastomers LLC and CVG Capital III LLC (filed as Exhibit 10.2 to Ashland’s Form 10-Q for the quarter ended June 30, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.77 – Originator Removal Agreement and Facility Amendment, dated as of July 28, 2014, by and among Ashland, Hercules Incorporated, Ashland Specialty Ingredients G.P., ISP Technologies Inc., Ashland Elastomers LLC, CVG Capital III LLC, the Investors, the Letter of Credit Issuers, Managing Agents and Administrators party thereto, and the Bank of Nova Scotia, as Agent for the Investors (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on August 1, 2014 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.78 – Ninth Amendment dated as of December 22, 2015 to the Transfer and Administration Agreement dated as of August 31, 2012, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as agent for the Investors (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on December 28, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.79 – Tenth Amendment dated as of March 24, 2016 to the Transfer and Administration Agreement dated as of August 31, 2012, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as Agent for the Investors. (filed as Exhibit 10.1 to Ashland’s Form 10-Q for the quarter ended March 31, 2016 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.80\*\* – Eleventh Amendment dated as of August 1, 2016, to the Transfer and Administration Agreement dated as of August 31, 2012, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as agent for the Investors.
- 10.81\*\* – Second Amendment dated as of August 1, 2016, to Sale Agreement, dated as of August 31, 2012, among Ashland Inc., Ashland Specialty Ingredients G.P., Valvoline LLC and CVG Capital III LLC.



- 10.82 – Twelfth Amendment dated as of September 15, 2016 to the Transfer and Administration Agreement dated as of August 31, 2012, among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as agent for the Investors (filed as Exhibit 10.3 to Ashland’s Form 8-K filed on September 20, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.83 – Originator Removal Agreement and Facility Amendment among Ashland Inc., CVG Capital III LLC, the Originators, the Investors, Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as agent for the Investors (filed as Exhibit 10.4 to Ashland’s Form 8-K filed on September 20, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.84\*\* – Originator Joinder Agreement dated as of August 1, 2016, by and among Ashland Inc., Valvoline LLC, the Investors, the Letter of Credit Issuers, Managing Agents and Administrators party thereto, and The Bank of Nova Scotia, as Agent for the Investors.
- 10.85 – Master Confirmation - Uncollared Accelerated Share Repurchase, dated November 17, 2015, between Ashland Inc. and Goldman, Sachs & Co. (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on November 18, 2015 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.86 – Amendment No. 1, dated as of July 8, 2016, to the Credit Agreement, dated as of June 23, 2015, among Ashland Inc., The Bank of Nova Scotia, as Administrative Agent, Swing Line Lender and an L/C Issuer, Citibank, N.A., as Syndication Agent, and the Lenders from time to time party thereto (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on July 11, 2016 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.87\*\* – Amendment No. 2, dated as of August 15, 2016, to the Credit Agreement, dated as of June 23, 2015, among Ashland Inc., The Bank of Nova Scotia, as Administrative Agent, Swing Line Lender and an L/C Issuer, Citibank, N.A., as Syndication Agent, and the Lenders from time to time party thereto.
- 10.88 – Credit Agreement dated as of July 11, 2016, among Valvoline Finco One LLC, as Initial Borrower, The Bank of Nova Scotia, as Administrative Agent, Swing Line Lender and an L/C Issuer, Citibank, N.A., as Syndication Agent, and the Lenders party thereto (filed as Exhibit 10.2 to Ashland’s Form 8-K filed on July 11, 2016 (SEC File No. 001-32532), and incorporated herein by reference).
- 10.89 – Assumption Agreement dated September 20, 2016, by and between Ashland Global Holdings Inc. and Ashland Inc. (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on September 20, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.90 – Separation Agreement dated as of September 22, 2016, between and among Ashland Global Holdings Inc. and Valvoline Inc. (filed as Exhibit 10.1 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.91 – Transition Services Agreement dated as of September 22, 2016, between and among Ashland Global Holdings Inc. and Valvoline Inc. (filed as Exhibit 10.2 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.92 – Reverse Transition Services Agreement dated as of September 22, 2016, between and among Ashland Global Holdings Inc. and Valvoline Inc. (filed as Exhibit 10.3 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.93 – Tax Matters Agreement dated as of September 22, 2016, between and among Ashland Global Holdings Inc. and Valvoline Inc. (filed as Exhibit 10.4 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.94 – Employee Matters Agreement dated as of September 22, 2016, between and among Ashland Global Holdings Inc. and Valvoline Inc. (filed as Exhibit 10.5 to Ashland’s Form 8-K filed on September 28, 2016 (SEC File No. 333-211719), and incorporated herein by reference).
- 10.95\*\* – Amendment No. 1 dated September 21, 2016, to Credit Agreement dated as of July 11, 2016, among Valvoline Finco One LLC, as Initial Borrower, The Bank of Nova Scotia, as Administrative Agent, Swing Line Lender and an L/C Issuer, Citibank, N.A., as Syndication Agent, and the Lenders from time to time party thereto.

- 11\*\* – Computation of Earnings Per Share (appearing in Note A of Notes to Consolidated Financial Statements in this annual report on Form 10-K).
- 12\*\* – Computation of Ratio of Earnings to Fixed Charges.
- 21\*\* – List of Subsidiaries.
- 23.1\*\* – Consent of Ernst & Young LLP.
- 23.2\*\* – Consent of PricewaterhouseCoopers LLP.
- 23.3\*\* – Consent of Hamilton, Rabinovitz & Associates, Inc.
- 24\*\* – Power of Attorney.
- 31.1\*\* – Certification of William A. Wulfsohn, Chief Executive Officer of Ashland, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
- 31.2\*\* – Certification of J. Kevin Willis, Chief Financial Officer of Ashland, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
- 32\*\* – Certification of William A. Wulfsohn, Chief Executive Officer of Ashland, and J. Kevin Willis, Chief Financial Officer of Ashland, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- 101.INS\* XBRL Instance Document.
- 101.SCH\* XBRL Taxonomy Extension Schema Document.
- 101.CAL\* XBRL Taxonomy Extension Calculation Linkbase Document.
- 101.DEF\* XBRL Taxonomy Extension Definition Linkbase Document.
- 101.LAB\* XBRL Taxonomy Extension Label Linkbase Document.
- 101.PRE\* XBRL Taxonomy Extension Presentation Linkbase Document.

\*Attached as Exhibit 101 to this report are the following documents formatted in XBRL (Extensible Business Reporting Language): (i) Statements of Consolidated Comprehensive Income for years ended September 30, 2016, 2015 and 2014; (ii) Consolidated Balance Sheets at September 30, 2016 and 2015; (iii) Statements of Consolidated Equity at September 30, 2016, 2015 and 2014; (iv) Statements of Consolidated Cash Flows for years ended September 30, 2016, 2015 and 2014; and (v) Notes to Consolidated Financial Statements.

\*\*Filed herewith.

<sup>SM</sup> Service mark, Ashland or its subsidiaries, registered in various countries.

<sup>TM</sup> Trademark, Ashland or its subsidiaries, registered in various countries.

<sup>†</sup> Trademark owned by a third party.

Upon written or oral request, a copy of the above exhibits will be furnished at cost.

## SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ASHLAND GLOBAL HOLDINGS INC.

(Registrant)

By:

/s/ J. Kevin Willis

J. Kevin Willis

Senior Vice President and Chief Financial Officer

Date: November 21, 2016

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant, in the capacities indicated, on November 21, 2016.

<u>Signatures</u>	<u>Capacity</u>
<u>/s/ William A. Wulfsohn</u> William A. Wulfsohn	Chairman of the Board, Chief Executive Officer and Director (Principal Executive Officer)
<u>/s/ J. Kevin Willis</u> J. Kevin Willis	Senior Vice President and Chief Financial Officer (Principal Financial Officer)
<u>/s/ J. William Heitman</u> J. William Heitman	Vice President and Controller (Principal Accounting Officer)
<u>*</u>	Director
<u>Brendan M. Cummins</u>	Director
<u>*</u>	Director
<u>William G. Dempsey</u>	Director
<u>*</u>	Director
<u>Stephen F. Kirk</u>	Director
<u>*</u>	Director
<u>Vada O. Manager</u>	Director
<u>*</u>	Director
<u>Barry W. Perry</u>	Director
<u>*</u>	Director
<u>Mark C. Rohr</u>	Director
<u>*</u>	Director
<u>George A. Schaefer, Jr.</u>	Director
<u>*</u>	Director
<u>Janice J. Teal</u>	Director
<u>*</u>	Director
<u>Michael J. Ward</u>	

\*By: /s/ Peter J. Ganz

Peter J. Ganz

Attorney-in-Fact

Date: November 21, 2016

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## ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the Consolidated Financial Statements and the accompanying Notes to Consolidated Financial Statements for the years ended September 30, 2016, 2015 and 2014. As Ashland Global Holdings Inc. is the successor to Ashland Inc., the information set forth refers to Ashland Inc. for the periods prior to September 30, 2016 and to Ashland Global Holdings Inc. on and after September 30, 2016.

### BUSINESS OVERVIEW

#### Ashland profile

Ashland is a premier global leader in providing specialty chemical solutions to customers in a wide range of consumer and industrial markets, including adhesives, architectural coatings, automotive, construction, energy, food and beverage, personal care and pharmaceutical. Ashland also maintains a controlling interest in Valvoline Inc., a premium consumer-branded lubricant supplier. With approximately 11,000 employees worldwide (including approximately 5,000 employees of Valvoline), Ashland serves customers in more than 100 countries.

Ashland's sales generated outside of North America were 47% in 2016, 2015 and 2014. Sales by region expressed as a percentage of total consolidated sales were as follows:

Sales by Geography	2016	2015	2014
North America (a)	53%	53%	53%
Europe	24%	24%	25%
Asia Pacific	16%	16%	15%
Latin America & other	7%	7%	7%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

(a) Ashland includes only U.S. and Canada in its North American designation.

#### Reportable segments

Ashland's reporting structure is composed of three reportable segments: Ashland Specialty Ingredients (Specialty Ingredients), Ashland Performance Materials (Performance Materials) and Valvoline. The term Valvoline as used herein, depending on context, refers to either Valvoline Inc. or Valvoline as a reportable segment of Ashland. For further descriptions of each reportable segment, see "Results of Operations – Reportable Segment Review" beginning on page M-14.

Sales by each reportable segment expressed as a percentage of total consolidated sales were as follows:

Sales by Reportable Segment	2016	2015	2014
Specialty Ingredients	42%	42%	41%
Performance Materials	19%	21%	26%
Valvoline	39%	37%	33%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

### KEY DEVELOPMENTS

During 2016, the following operational decisions and economic developments had an impact on Ashland's current and future cash flows, results of operations and financial position.

#### Business results

Ashland's overall financial performance decreased by 4% during 2016 compared to 2015 as Adjusted EBITDA results decreased to \$1,074 million (see U.S. GAAP reconciliation on page M-8). The decrease in Adjusted EBITDA was primarily attributable to declines in the Specialty Ingredients and Performance Materials reportable segments, partially offset by improved Adjusted EBITDA within the Valvoline reportable segment. Compared to 2015, Valvoline's Adjusted EBITDA results increased \$30 million, or 7%, primarily due to improvements in volume, product mix, and lower raw material costs, specifically relating to the price of base oil, which resulted in increased gross profit. Specialty Ingredients' Adjusted EBITDA results decreased \$51

million, or 10%, primarily as a result of decreased gross profit from lower volume levels and pricing driven by results within the energy market. Performance Materials' Adjusted EBITDA results decreased by \$30 million, or 21%, as lower pricing, primarily within Intermediates/Solvents, was only partially offset by lower production costs, resulting in decreased gross profit.

The following discussion outlines significant transactions announced or executed during 2016.

### **Ashland Separation of Valvoline**

On September 22, 2015, Ashland announced that the Board of Directors approved proceeding with a plan to separate Ashland into two independent, publicly traded companies comprising of the new Ashland (now known as Ashland Global Holdings Inc.) and Valvoline Inc. The initial step of the separation, the initial public offering of Valvoline Inc., closed on September 28, 2016. The new Ashland is a premier global leader in providing specialty chemical solutions to customers in a wide range of consumer and industrial markets. These markets are currently served by Specialty Ingredients and Performance Materials. Key markets and applications include pharmaceutical, personal care, food and beverage, architectural coatings, adhesives, automotive, construction and energy. Valvoline Inc., a controlled subsidiary, operates on a stand-alone basis as a premium consumer-branded lubricant supplier.

The following transactions occurred in order to facilitate and as a result of the separation:

- Ashland Global Holdings Inc. replaced Ashland Inc. as the publicly held corporation and that, through its subsidiaries, conducts all of the operations previously operated by Ashland Inc. Each outstanding share of Ashland Inc. common stock was converted into the right to receive one share of Ashland Global Holdings Inc. common stock. The exchange of Ashland Inc. common stock for shares of Ashland Global Holdings Inc. common stock was a tax-free transaction for Ashland shareholders.
- On September 22, 2016, Ashland and Valvoline Inc. announced the pricing of an initial public offering (IPO) of 30 million shares of Valvoline Inc.'s common stock at a price to the public of \$22.00 per share and closed the IPO on September 28, 2016. The underwriters exercised an option to purchase an additional 4.5 million shares of Valvoline Inc.'s common stock to cover over-allotments. After completing the IPO, Ashland now owns 170 million shares of Valvoline Inc.'s common stock, representing approximately 83% of the total outstanding shares of Valvoline Inc.'s common stock. Valvoline Inc.'s common stock is listed on the New York Stock Exchange under the symbol "VVV".
- The total net proceeds after deducting underwriters' discount and other offering expenses received from the IPO were \$712 million. These net proceeds were used primarily to repay debt incurred prior to the IPO and retained for Valvoline Inc.'s cash on hand.
- Ashland presently intends to distribute the remaining Valvoline Inc. shares in 2017 following the release of March-quarter earnings results by both Ashland and Valvoline Inc.

During 2016, Ashland recognized separation costs of \$88 million, which are primarily related to transaction and legal fees. Separation costs are primarily recorded within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income.

### *Transferring of Assets and Liabilities*

As of September 30, 2016 Valvoline Inc. includes substantially all of the Valvoline business as historically reported by Ashland, as well as certain other assets and liabilities transferred to Valvoline Inc. by Ashland as a part of the separation process. The largest transferred liabilities are the net pension and other postretirement plan liabilities, which include a substantial portion of the largest U.S. qualified pension plan and non-qualified U.S. pension plans. As of September 30, 2016, Valvoline Inc.'s net pension and other postretirement plan liabilities totaled approximately \$900 million.

Other transferred assets and liabilities primarily consist of deferred compensation, certain Ashland legacy business insurance reserves, tax attributes and certain trade payables. The impact of these other transferring assets and liabilities was approximately \$15 million of net assets. Additionally, any deferred tax assets and liabilities that relate specifically to these assets and liabilities have been transferred to Valvoline Inc. as well as certain other tax liabilities as a result of the Tax Matters Agreement. For purposes of Ashland's 2016 segment reporting and consistent with prior periods, these transferred assets and liabilities remain included within Unallocated and other.

### *Noncontrolling Interest*

As a result of the Valvoline Inc. IPO, the outside stockholders' interests in Valvoline Inc., which was approximately 17% as of September 30, 2016, are presented separately as a noncontrolling interest within Ashland's equity in the Consolidated Balance Sheet. As of September 30, 2016, the noncontrolling interest was \$182 million. The amount of consolidated net income attributable to these minority holders is presented as a separate caption on the Statement of Consolidated Comprehensive Income.

## **Financing Activities**

### *Amendment to Ashland 2015 Senior Credit Agreement*

During July 2016, Ashland amended the 2015 Senior Credit Agreement to permit the Reorganization and defined the series of events relating to the separation of Valvoline Inc. Additionally, the amendment provided that if the aggregate principal amount of the Valvoline debt reached \$750 million, Ashland would be required to use the net proceeds of such borrowings to repay its existing term loan A loan (the 2015 term loan facility) and/or permanently reduce its existing revolving credit commitments under the 2015 Senior Credit Agreement in an aggregate amount of up to \$1 billion. As a result of the July 2016 amendment and the Valvoline debt borrowings in connection with the separation, Ashland reduced the revolving borrowing capacity to \$800 million as of September 30, 2016.

In September 2016, following the Valvoline financings described in the Valvoline Credit Agreement section below, the Ashland 2015 term loan facility was repaid in full. The repayment and combined Ashland and Valvoline financing activities during 2016 resulted in Ashland's recognition of \$6 million in previously deferred financing costs, which is included in the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income.

### *Subsidiary senior unsecured term loan*

During August 2016, a wholly owned foreign subsidiary of Ashland entered into a credit agreement which provides for an aggregate principal amount of \$150 million in a senior unsecured term loan facility maturing on February 15, 2017. This term loan was drawn in full as of September 30, 2016. At the subsidiary's option, loans issued under this term loan facility bear interest at either LIBOR plus 1.75% per annum or an alternate base rate plus 0.75% per annum. The subsidiary may prepay the term loan facility after three months from the date it was drawn upon without any premium or penalty.

### *Accounts receivable securitization*

Due to activity related to the separation of Valvoline Inc. from Ashland during 2016, the available funding for qualifying receivables under the accounts receivable securitization facility was reduced from \$250 million to \$100 million.

### *Ashland credit ratings*

Standard & Poor's ratings are BB, while Moody's Investor Services are Ba1. Moody's Investor Services' outlook remained at stable, while Standard & Poor's increased to stable during the fourth quarter of 2016. Subsequent changes to these ratings may have an effect on Ashland's borrowing rate or ability to access capital markets in the future.

### *Valvoline Credit Agreement*

The Valvoline Credit Agreement initially provided for an aggregate principal amount of \$1,325 million in senior secured credit facilities (Valvoline Credit Facilities), comprised of (i) a five-year \$875 million term loan A facility (the 2016 term loan facility) and (ii) a five-year \$450 million revolving credit facility (the 2016 revolving credit facility) (including a \$100 million letter of credit sublimit). The Valvoline Credit Facilities may be prepaid at any time without premium. Amounts prepaid under the 2016 term loan facility may not be reborrowed.

The Valvoline Credit Facilities are guaranteed by Valvoline Inc.'s existing and future subsidiaries (other than certain immaterial subsidiaries, joint ventures, special purpose financing subsidiaries, regulated subsidiaries, foreign subsidiaries and certain other subsidiaries), and are secured by a first-priority security interest in substantially all the personal property assets, and certain real property assets, of Valvoline Inc. and the guarantors, including all or a portion of the equity interests of certain of Valvoline Inc.'s domestic subsidiaries and first-tier foreign subsidiaries and, in certain cases, a portion of the equity interests of other foreign subsidiaries.

At Valvoline Inc.'s option, the loans issued under the Valvoline Credit Agreement bear interest at either LIBOR or an alternate base rate, in each case plus the applicable interest rate margin. Loans bear interest at LIBOR plus 2.375% per annum, in the case of LIBOR borrowings, or at the alternate base rate plus 1.375%, in the alternative, through and including the date of delivery of a quarterly compliance certificate and thereafter the interest rate will fluctuate between LIBOR plus 1.500% per annum and LIBOR plus 2.500% per annum (or between the alternate base rate plus 0.500% per annum and the alternate base rate plus 1.500% per annum), based upon Valvoline Inc.'s corporate credit ratings or the consolidated first lien net leverage ratio (as defined in the Valvoline Credit Agreement) (whichever yields a lower applicable interest rate margin) at such time. In addition, Valvoline Inc. is required to pay fees of 0.375% per annum on the daily unused amount of the 2016 revolving credit facility through and including the date of delivery of a compliance certificate, and thereafter the fee rate will fluctuate between 0.200% and 0.500% per annum, based upon the Valvoline Inc.'s corporate credit ratings or the consolidated first lien net leverage ratio (whichever yields a lower applicable rate).

During September 2016, Valvoline Inc. borrowed \$875 million of principal on the 2016 term loan facility and \$137 million on the 2016 revolving credit facility. The net proceeds of these borrowings of \$865 million (after deducting fees and expenses) for the 2016 term loan facility and \$137 million for the 2016 revolving credit facility were transferred to Ashland. With these

proceeds, Ashland repaid \$785 million of its 2015 term loan facility, \$150 million of the 2015 revolving credit facility and \$45 million of its accounts receivable securitization.

Valvoline Inc. used \$637 million of the net proceeds of its September 2016 IPO to repay \$500 million of the outstanding balance under its 2016 term loan facility and all of the \$137 million outstanding balance of its 2016 revolving credit facility. See Note B of Notes to Consolidated Financial Statements for more information on the IPO of Valvoline Inc. common stock.

Valvoline Inc. incurred \$10 million of new debt issuance costs in connection with the Valvoline Credit Agreement. These debt issuance costs were capitalized and will be amortized over the term of the Valvoline Credit Agreement using the effective interest method. Additionally, as a result of the \$500 million repayment of the Valvoline 2016 term loan facility, Valvoline Inc. recognized a \$4 million charge for the accelerated amortization of previously capitalized debt issuance costs, which is included in the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income.

#### *Valvoline senior notes*

During July 2016, Valvoline completed its issuance of 5.500% senior unsecured notes due 2024 (2024 notes) with an aggregate principal amount of \$375 million. Valvoline incurred \$6 million of new debt issuance costs in connection with the issuance of the 2024 notes. These debt issuance costs were capitalized and will be amortized over the term of the 2024 notes using the effective interest method.

During July 2016, the net proceeds of the offering of \$370 million (after deducting initial purchasers' discounts) were transferred to Ashland. Ashland used these proceeds to repay \$110 million of the outstanding balance under Ashland's 2015 revolving credit facility and \$260 million of 2015 term loan facility.

#### *Valvoline credit ratings*

In connection with the Valvoline financing activities discussed above, Valvoline Inc. was assigned a preliminary rating by Standard & Poor's of BB-, while Moody's Investor Services rated Valvoline Finco Two as Ba2. Upon completing the IPO, Standard & Poor's upgraded the rating to BB. Standard & Poor's also updated the outlook to stable, while Moody's Investor Services' outlook was stable. Subsequent changes to these ratings are possible and may have an effect on Valvoline's borrowing rate or ability to access capital markets in the future.

### **Stock Repurchase Programs**

In April 2015, Ashland's Board of Directors approved a \$1 billion share repurchase authorization (the 2015 stock repurchase program), which expires on December 31, 2017, and replaced the March 2014 repurchase program. In November 2015, under this new share repurchase program, Ashland announced that it entered into an accelerated share repurchase agreement (2016 ASR Agreement) with Goldman, Sachs & Co. Under the 2016 ASR Agreement, Ashland paid an initial purchase price of \$500 million and received an initial delivery of approximately 3.9 million shares of common stock during November 2015.

In February 2016, Goldman, Sachs & Co. exercised their early termination option under the 2016 ASR Agreement and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$99.01 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by Goldman, Sachs & Co. under the 2016 ASR Agreement was 5.1 million shares. Ashland received the additional 1.2 million shares during 2016 to settle the difference between the initial share delivery and the total number of shares repurchased. After the 2016 ASR Agreement, \$500 million of share repurchase authorization remains under the 2015 stock repurchase program.

### **Pension and Other Postretirement Benefit Plans Amendments and Remeasurements**

During March 2016, Ashland announced plans to amend the majority of its U.S. pension plans, with the exception of certain union plans, to freeze the accrual of pension benefits for participants. The plan changes were effective September 30, 2016. Additionally, Ashland announced that it will reduce retiree life and medical benefits effective October 1, 2016 and January 1, 2017, respectively. The net effect of these plan changes resulted in a curtailment of benefits requiring a remeasurement of the benefit obligation and plan assets. Ashland recognized a loss of \$23 million within the Statements of Consolidated Comprehensive Income during 2016 as a result of the plan remeasurements. The following details the components of the remeasurement impact:

- As a result of the remeasurement of the affected U.S. pension plans, Ashland recognized a curtailment gain of \$65 million and actuarial loss of \$123 million during 2016.
- As a result of the remeasurement of other postretirement benefit plans, Ashland recognized a curtailment gain of \$39 million and actuarial loss of \$7 million during 2016. This remeasurement reduced the benefit obligations by \$86 million, which will be amortized to income in future periods.
- Ashland was also required to remeasure a non-U.S. pension plan during the March 2016 quarter and as a result recognized a curtailment gain of \$6 million and actuarial loss of \$3 million during 2016.



## **Pension annuity program**

On September 15, 2016, Valvoline Inc. purchased a non-participating annuity contract with pension plan assets from Prudential Insurance Company of America (Prudential) to pay and administer future pension benefits for 14,800 participants within the primary U.S. pension plan. Ashland transferred approximately \$378 million of the outstanding pension benefit obligation to Prudential in exchange for pension trust assets whose value approximated the liability value. The annuity purchase transaction did not generate a material settlement adjustment during 2016. Prudential has unconditionally and irrevocably guaranteed the full payment of benefits to plan participants associated with the annuity purchase and benefit payments will be in the same form that was in effect under the Plan. Prudential has also assumed all investment risk associated with the pension assets that were delivered as annuity contract premiums.

## **Intermediates/Solvents Impairment**

Ashland recorded a non-cash long-lived asset impairment of \$181 million during the fourth quarter of 2016 with respect to its Intermediates/Solvents division, a component within the Performance Materials reportable segment. Throughout 2016, increasing levels of overcapacity for butanediol in the market and resulting weak pricing had a cumulating negative impact on the financial performance of the Intermediates/Solvents division. The deterioration in the butanediol commodity market during 2016 led to reductions in forecasts resulting in the non-cash impairment charge.

## **Oil Can Henry's**

On December 11, 2015, Ashland announced that it signed a definitive agreement to acquire OCH International, Inc. (Oil Can Henry's), which was the 13<sup>th</sup> largest quick-lube network in the United States, servicing approximately 1 million vehicles annually with 89 quick-lube stores, consisting of 47 company-owned stores and 42 franchise locations, in Oregon, Washington, California, Arizona, Idaho and Colorado. On February 1, 2016, Ashland completed the acquisition.

The acquisition of Oil Can Henry's was valued at \$72 million, which included acquired indebtedness of \$11 million and other working capital adjustments. Net of acquired indebtedness and certain purchase price adjustments, the net cash outlay was \$62 million during 2016. The purchase price allocation primarily included \$83 million of goodwill.

## **RESULTS OF OPERATIONS – CONSOLIDATED REVIEW**

### ***Use of non-GAAP measures***

Ashland has included within this document the following non-GAAP measures, on both a consolidated and reportable segment basis, which are not defined within U.S. GAAP and do not purport to be alternatives to net income or cash flows from operating activities as a measure of operating performance or cash flows:

- EBITDA - net income (loss), plus income tax expense (benefit), net interest and other financing expenses, and depreciation and amortization.
- Adjusted EBITDA - EBITDA adjusted for noncontrolling interests, discontinued operations, net gain (loss) on acquisitions and divestitures, other income and (expense) and key items (including the remeasurement gains and losses related to pension and other postretirement plans).
- Adjusted EBITDA margin - Adjusted EBITDA, which can include pro forma adjustments, divided by sales.
- Free cash flow - operating cash flows less capital expenditures and certain other adjustments as applicable.

Management believes the use of EBITDA and Adjusted EBITDA measures on a consolidated and reportable segment basis assists investors in understanding the ongoing operating performance by presenting comparable financial results between periods. Ashland believes that by removing the impact of depreciation and amortization and excluding certain non-cash charges, amounts spent on interest and taxes and certain other charges that are highly variable from year to year, EBITDA and Adjusted EBITDA provide Ashland's investors with performance measures that reflect the impact to operations from trends in changes in sales, margin and operating expenses, providing a perspective not immediately apparent from net income and operating income. The adjustments Ashland makes to derive the non-GAAP measures of EBITDA and Adjusted EBITDA exclude items which may cause short-term fluctuations in net income and operating income and which Ashland does not consider to be the fundamental attributes or primary drivers of its business. EBITDA and Adjusted EBITDA provide disclosure on the same basis as that used by Ashland's management to evaluate financial performance on a consolidated and reportable segment basis and provide consistency in our financial reporting, facilitate internal and external comparisons of Ashland's historical operating performance and its business units and provide continuity to investors for comparability purposes.

The free cash flow metric enables Ashland to provide a better indication of the ongoing cash being generated that is ultimately available for both debt and equity holders as well as other investment opportunities. Unlike cash flow provided by operating activities, free cash flow includes the impact of capital expenditures from continuing operations, providing a more complete picture

of cash generation. Free cash flow has certain limitations, including that it does not reflect adjustment for certain non-discretionary cash flows such as mandatory debt repayments. The amount of mandatory versus discretionary expenditures can vary significantly between periods.

These non-GAAP measures should be considered supplemental in nature and should not be construed as more significant than comparable measures defined by U.S. GAAP. Limitations associated with the use of these non-GAAP measures include that these measures do not present all of the amounts associated with our results as determined in accordance with U.S. GAAP. The non-GAAP measures provided are used by Ashland management and may not be determined in a manner consistent with the methodologies used by other companies. EBITDA and Adjusted EBITDA provide a supplemental presentation of Ashland's operating performance on a consolidated and reportable segment basis. Adjusted EBITDA generally includes adjustments for items that impact comparability between periods. In addition, certain financial covenants related to Ashland's 2015 Senior Credit Agreement and Valvoline's Credit Agreement are based on similar non-GAAP measures and are defined further in the sections that reference this metric.

In accordance with U.S. GAAP, Ashland recognizes actuarial gains and losses for defined benefit pension and other postretirement benefit plans annually in the fourth quarter of each fiscal year and whenever a plan is determined to qualify for a remeasurement during a fiscal year. Actuarial gains and losses occur when actual experience differs from the estimates used to allocate the change in value of pension and other postretirement benefit plans to expense throughout the year or when assumptions change, as they may each year. Significant factors that can contribute to the recognition of actuarial gains and losses include changes in discount rates used to remeasure pension and other postretirement obligations on an annual basis or upon a qualifying remeasurement, differences between actual and expected returns on plan assets and other changes in actuarial assumptions, for example, the life expectancy of plan participants. Management believes Adjusted EBITDA, which includes the expected return on pension plan assets yet excludes both the actual return on pension plan assets and the impact of actuarial gains and losses, provides investors with a meaningful supplemental presentation of Ashland's operating performance (see the Adjusted EBITDA reconciliation table on page M-8 for additional details on exact amounts included within this non-GAAP measure related to pension and other postretirement plans.) Management believes these actuarial gains and losses are primarily financing activities that are more reflective of changes in current conditions in global financial markets (and in particular interest rates) that are not directly related to the underlying business. For further information on the actuarial assumptions and plan assets referenced above, see the MD&A - Critical Accounting Policies - Employee benefit obligations and Note N of the Notes to Consolidated Financial Statements.

### ***Consolidated review***

#### ***Net income (loss)***

Ashland's net income (loss) is primarily affected by results within operating income, net interest and other financing expense, income taxes, discontinued operations and other significant events or transactions that are unusual or nonrecurring. Operating income includes Ashland's adjustment for the immediate recognition of the change in the fair value of the plan assets and net actuarial gains and losses for defined benefit pension plans and other postretirement benefit plans each fiscal year. See "Critical Accounting Policies" for additional details regarding Ashland's accounting policies for benefit plan obligations.

Key financial results for 2016, 2015 and 2014 included the following:

- Ashland's net income attributable to Ashland amounted to a loss of \$29 million in 2016, and income of \$309 million in 2015 and \$233 million in 2014, or \$(0.46), \$4.48 and \$3.00 diluted earnings (loss) per share, respectively.
- Ashland's net income attributable to noncontrolling interest amounted to \$1 million in 2016 and reflects the noncontrolling interest of Valvoline Inc. for the three days between IPO close (September 28, 2016) and Ashland's fiscal year end.
- Discontinued operations, which are reported net of taxes, resulted in a loss of \$31 million during 2016, and income of \$118 million and \$161 million during 2015 and 2014, respectively.
- Income from continuing operations, which excludes results from discontinued operations, amounted to \$3 million in 2016, \$191 million in 2015 and \$72 million in 2014.
- The effective income tax expense rate of 98% for 2016, income tax benefit rate of 13% for 2015, and income tax benefit rate of 162% for 2014, were significantly affected by a number of discrete items.
- Ashland incurred pretax net interest and other financing expense of \$182 million, \$174 million and \$166 million during 2016, 2015 and 2014, respectively. Certain charges associated with debt refinancing activity impacted 2016 and 2015.
- Net gain (loss) on divestitures totaled losses of \$9 million and \$115 million during 2016 and 2015, respectively, and a gain of \$4 million during 2014.

- Operating income was \$327 million, \$458 million and \$46 million during 2016, 2015 and 2014, respectively.

For further information on the items reported above, see the discussion in the comparative Statements of Consolidated Comprehensive Income caption review analysis.

#### *Operating income*

Operating income amounted to \$327 million, \$458 million and \$46 million in 2016, 2015 and 2014, respectively. The current and prior years' operating income include certain key items that are excluded to arrive at Adjusted EBITDA. These key items are summarized as follows:

- \$124 million, \$255 million and \$438 million related to pension and other postretirement plan rereasurement losses during 2016, 2015 and 2014, respectively, from the immediate recognition from the change in fair value of the plan assets and net actuarial gains and losses for defined benefit pension plans and other postretirement plans;
- \$181 million impairment related to Intermediates/Solvents within the Performance Materials reportable segment during 2016;
- Separation, restructuring and other costs, net, include the following:
  - \$88 million of costs related to the separation of Valvoline during 2016, including \$2 million of accelerated depreciation;
  - \$7 million of restructuring costs (including \$4 million of accelerated depreciation, a \$5 million income adjustment to the previously recorded accrual for a restructuring plan within an existing manufacturing facility, \$4 million of charges related to the exit from a toller agreement and restructuring of a manufacturing facility, and \$4 million of charges related to the restructuring of office buildings) during 2016;
  - \$27 million of restructuring costs (including \$6 million of accelerated depreciation and \$17 million related to the restructuring plan within an existing manufacturing facility) during 2015; and
  - \$147 million of restructuring and integration costs (including \$17 million of accelerated depreciation and \$19 million in asset impairment charges related to a foreign operation) during 2014.
- \$15 million, \$12 million and \$13 million net environmental charges during 2016, 2015 and 2014, respectively;
- \$11 million of income related to a legacy benefit for former directors during 2016;
- \$15 million and \$5 million charges for legal reserves during 2016 and 2014, respectively;
- a \$14 million impairment related to the Valvoline joint venture equity investment within Venezuela during 2015 and a \$50 million impairment charge related to the ASK joint venture equity investment during 2014;
- \$11 million and \$13 million impairment charges related to certain in-process research and development (IPR&D) assets associated with the acquisition of International Specialty Products Inc. (ISP) in 2011 during 2015 and 2014, respectively;
- \$13 million charge related to a customer claim during 2015 and a subsequent \$5 million income adjustment to the customer claim during 2016;
- \$16 million of tax indemnity income and a \$7 million charge for a stock incentive plan award modification, each during 2015; and
- a \$5 million charge for a foreign tax indemnification receivable adjustment during 2014.

Operating income for 2016, 2015 and 2014 included depreciation and amortization of \$337 million, \$341 million and \$393 million, respectively (which includes asset impairment charges and accelerated depreciation of \$6 million, \$6 million and \$36 million, respectively, for each year).

#### *EBITDA and Adjusted EBITDA*

EBITDA totaled \$618 million, \$796 million and \$568 million for 2016, 2015 and 2014, respectively. EBITDA and Adjusted EBITDA results in the following table have been prepared to illustrate the ongoing effects of Ashland's operations, which exclude certain key items, including the net loss on certain divestitures during 2016 and 2015, since management believes the use of such non-GAAP measures on a consolidated and reportable segment basis assists investors in understanding the ongoing operating performance by presenting the financial results between periods on a more comparable basis.

(In millions)	2016	2015	2014
Net income (loss)	\$ (28)	\$ 309	\$ 233
Income tax expense (benefit)	133	(22)	(188)
Net interest and other financing expense	182	174	166
Depreciation and amortization (a)	331	335	357
EBITDA	618	796	568
Net income attributable to noncontrolling interest	(1)	—	—
Loss (income) from discontinued operations (net of taxes)	31	(118)	(161)
Losses on pension and other postretirement plan remeasurement (b)	124	255	438
Impairments	181	25	82
Separation, restructuring and other costs, net	89	21	111
Net loss on divestitures	12	118	—
Legal reserve	15	—	5
Environmental reserve adjustments	15	12	13
Benefit/stock incentive adjustment	(11)	7	—
Accelerated depreciation	6	6	17
Customer claim adjustment	(5)	13	—
Tax indemnification adjustment	—	(16)	5
Adjusted EBITDA (c)	<u>\$ 1,074</u>	<u>\$ 1,119</u>	<u>\$ 1,078</u>

- (a) Excludes \$6 million, \$6 million and \$36 million of asset impairment charges and accelerated depreciation during 2016, 2015 and 2014, respectively.
- (b) For supplemental information on the components of this adjustment, see page M-35 within the MD&A - Critical Accounting Policies - Employee benefit obligations.
- (c) Includes \$54 million, \$27 million and \$24 million during 2016, 2015 and 2014, respectively, of net periodic pension and other postretirement income recognized ratably through the fiscal year. This income is comprised of service cost, interest cost, expected return on plan assets, and amortization of prior service credit and is disclosed in further detail in Note N of the Notes to Consolidated Financial Statements.

#### Statements of Consolidated Comprehensive Income – caption review

A comparative analysis of the Statements of Consolidated Comprehensive Income by caption is provided as follows for the years ended September 30, 2016, 2015 and 2014.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Sales</b>	\$ 4,948	\$ 5,387	\$ 6,121	\$ (439)	\$ (734)

The following table provides a reconciliation of the change in sales between fiscal years 2016 and 2015 and between fiscal years 2015 and 2014.

(In millions)	2016 change	2015 change
Pricing	\$ (251)	\$ (166)
Currency exchange	(85)	(266)
Divestitures and acquisitions	(88)	(283)
Volume and product mix	(15)	(19)
Change in sales	<u>\$ (439)</u>	<u>\$ (734)</u>

Sales for 2016 decreased \$439 million, or 8%, compared to 2015. Pricing declines across all three reportable segments and unfavorable currency exchange decreased sales by \$251 million, or 5%, and \$85 million, or 2%, respectively. Divestitures of certain divisions and product lines decreased sales by \$123 million, or 2%, while the acquisition of Oil Can Henry's within the Valvoline reportable segment increased sales by \$35 million. Changes in volume and product mix decreased sales by \$15 million.

Sales for 2015 decreased \$734 million, or 12%, compared to 2014 primarily due to the divestiture of certain divisions and product lines of \$283 million, or 5%. The divestitures impact on sales was primarily due to the Elastomers division within the Performance Materials reportable segment. Unfavorable foreign currency exchange decreased sales by \$266 million, or 4%, as a

result of the U.S. dollar strengthening against foreign currencies, primarily the Euro. Additionally, pricing declines, primarily due to raw materials declines, across all reportable segments decreased sales by \$166 million, or 3%, while volume and changes in product mix combined to decrease sales by \$19 million, with the primary driver of the decline within Specialty Ingredients' energy market.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Cost of sales</b>	\$ 3,321	\$ 3,814	\$ 4,605	\$ (493)	\$ (791)
<b>Gross profit as a percent of sales</b>	32.9%	29.2%	24.8%		

Fluctuations in cost of sales are driven primarily by raw material prices, volume and changes in product mix, currency exchange, losses or gains on pension and other postretirement benefit plan remeasurements, and other certain charges incurred as a result of changes or events within the businesses or restructuring activities.

The following table provides a reconciliation of the changes in cost of sales between fiscal years 2016 and 2015 and between fiscal years 2015 and 2014.

(In millions)	2016 change	2015 change
Production costs	\$ (234)	\$ (279)
Divestitures and acquisitions	(83)	(245)
Currency exchange	(61)	(181)
Volume and product mix	(11)	(30)
Pension and other postretirement benefit plans expense (income) (including remeasurements)	(69)	(43)
Asset impairment and accelerated depreciation	(2)	(30)
Customer claim	(15)	13
Severance and other costs	(18)	4
<b>Change in cost of sales</b>	<b>\$ (493)</b>	<b>\$ (791)</b>

Cost of sales for 2016 decreased \$493 million, or 13%, compared to 2015 primarily due to lower production costs, the net impact of the acquisition and divestiture of certain divisions and product lines, and favorable foreign currency exchange. These factors decreased cost of sales by \$234 million, or 6%, \$83 million, or 2%, and \$61 million, or 2%, respectively. Volume and changes in product mix combined to decrease cost of sales by \$11 million.

Pension and other postretirement plans expense decreased cost of sales by \$69 million, primarily as a result of decreased remeasurement losses in 2016 compared to 2015, mainly due to fluctuations in discount rates (see "Critical Accounting Policies" for additional details). Key items primarily related to severance and other costs and customer claim adjustments resulted in a \$35 million decrease to cost of sales in 2016 compared to 2015.

Cost of sales for 2015 decreased \$791 million, or 17%, compared to 2014 primarily due to lower production costs, the divestiture of certain divisions and product lines, and favorable foreign currency exchange, which decreased cost of sales by \$279 million, or 6%, \$245 million, or 5%, and \$181 million, or 4%, respectively. The divestiture of the Elastomers division within the Performance Materials reportable segment accounted for \$202 million, or 82%, of the \$245 million divestiture impact on cost of sales. Volume and change in product mix combined also decreased cost of sales by \$30 million.

Pension and other postretirement plans expense decreased cost of sales by \$43 million, primarily as a result of decreased remeasurement losses in 2015 compared to 2014, mainly due to lower than expected return on pension plan assets (see "Critical Accounting Policies" for additional details). Key items related to severance and other costs, a customer claim adjustment, accelerated depreciation and asset impairment related to a foreign operation within the Specialty Ingredients reportable segment decreased cost of sales during 2015 compared to 2014 by \$13 million.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Selling, general and administrative expense</b>	\$ 1,228	\$ 1,028	\$ 1,358	\$ 200	\$ (330)
<b>As a percent of sales</b>	24.8%	19.1%	22.2%		

Selling, general and administrative expense for 2016 increased 19% compared to 2015, while expenses as a percent of sales increased 5.7 percentage points. Key drivers of the fluctuation in selling, general and administrative expense compared to 2015 were:

- a \$181 million impairment within the Performance Materials reportable segment related to Intermediates/Solvents;
- \$88 million of costs related to the separation of Valvoline and \$4 million of restructuring charges related to office buildings during the current year; and
- a \$73 million decrease in expense compared to the prior year due to fluctuations in adjustments from the gains and losses for pension and postretirement benefit plans (costs of \$82 million in 2016 and \$155 million in 2015).

Selling, general and administrative expense for 2015 decreased 24% compared to 2014, while expenses as a percent of sales decreased 3.1 percentage points. Key drivers of the fluctuation in selling, general and administrative expense compared to 2014 were:

- a \$146 million decrease in expense compared to the prior year due to fluctuations in adjustments from the gains and losses for pension and postretirement benefit plans (costs of \$155 million in 2015 and \$301 million in 2014). As previously discussed within the cost of sales analysis, the 2015 remeasurement loss was driven primarily by a lower than expected return on pension plan assets (see “Critical Accounting Policies” for additional details);
- Approximately \$100 million of current year cost savings related to the 2014 global restructuring compared to approximately \$40 million of cost savings in the prior year;
- \$98 million key item expense during 2014 for severance and other restructuring costs associated with the 2014 global restructuring;
- Environmental reserve expense adjustments of \$32 million and \$29 million during 2015 and 2014, respectively;
- Favorable foreign currency exchange of \$36 million during 2015;
- Increased employee related costs of approximately \$22 million during 2015;
- \$21 million decrease in expense for certain divestitures, primarily the Elastomers division during 2015; and
- Tax indemnification income of \$16 million and a stock incentive award modification resulting in expense of \$7 million during 2015.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Research and development expense</b>	\$ 100	\$ 110	\$ 114	\$ (10)	\$ (4)

Research and development expenses during 2016 decreased \$10 million as compared to 2015. The prior year included an impairment of \$11 million related to certain IPR&D assets associated with the acquisition of ISP.

Research and development expenses for 2015 decreased \$4 million as compared to 2014. As noted previously, 2015 included an impairment of \$11 million related to certain IPR&D assets associated with the acquisition of ISP compared to \$13 million in 2014.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Equity and other income (loss)</b>					
Equity income (loss)	\$ 13	\$ 1	\$ (25)	\$ 12	\$ 26
Other income	15	22	27	(7)	(5)
	<u>\$ 28</u>	<u>\$ 23</u>	<u>\$ 2</u>	<u>\$ 5</u>	<u>\$ 21</u>

Total equity and other income increased \$5 million during 2016 compared to 2015. The increase in the current year is primarily due to the \$14 million impairment of a Venezuelan joint venture equity investment within the Valvoline reportable segment during the prior year, partially offset by a decrease in other income due to tax consulting income in the prior year.

Total equity and other income increased \$21 million during 2015 compared to 2014. Equity income increased \$26 million in the prior year primarily due to a \$50 million impairment during 2015 related to the ASK joint venture equity investment within the Performance Materials reportable segment, partially offset by \$10 million of lost income from the ASK joint venture as a result

of its June 2014 sale. As noted previously, 2015 included a \$14 million impairment related to the Venezuelan joint venture equity investment within the Valvoline reportable segment. Other income during 2014 included income of \$8 million from a favorable arbitration ruling on a commercial contract within the Valvoline reportable segment.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Net interest and other financing expense (income)</b>					
Interest expense	\$ 190	\$ 166	\$ 163	\$ 24	\$ 3
Interest income	(6)	(6)	(6)	—	—
Available-for-sale securities income	(8)	(3)	—	(5)	(3)
Other financing costs	6	17	9	(11)	8
	<u>\$ 182</u>	<u>\$ 174</u>	<u>\$ 166</u>	<u>\$ 8</u>	<u>\$ 8</u>

Interest expense and other financing costs, excluding interest income and available-for-sale securities income, increased \$13 million in 2016 compared to 2015. The current year included interest expense of \$10 million related to accelerated debt issuance costs associated with the current year financing activities compared to \$2 million of accelerated amortization for previously capitalized debt issuance costs and \$2 million of new debt issuance costs recognized immediately during 2015 associated with the 2015 refinancing activities. The remaining increase in interest expense is due to higher debt levels maintained in 2016 compared to 2015. Changes in other financing costs for the current year compared to the prior year is primarily the result of a \$9 million charge related to the early redemption premium payment for the tender of the 2016 senior notes in the prior year. Available-for-sale securities income of \$8 million compared to \$3 million in the prior year which represents investment income related to restricted investments discussed in Note G of the Notes to Consolidated Financial Statements.

Interest expense and other financing costs, excluding interest income and available-for-sale securities income, increased \$11 million in 2015 compared to 2014. Excluding certain current year charges associated with the 2015 refinancing, interest expense remained relatively consistent with the prior year as generally lower interest rates offset higher debt levels during the year. As previously noted, 2015 included certain charges related to the 2015 refinancing. These included \$2 million of accelerated amortization for previously capitalized debt issuance costs and \$2 million of new debt issuance costs recognized immediately associated with the 2015 refinancing activities. Other financing costs included a \$9 million charge related to the early redemption premium payment for the tender of the 2016 senior notes. The available-for-sale securities income of \$3 million represents investment income related to the restricted investments discussed in Note G of the Notes to Consolidated Financial Statements.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Net gain (loss) on divestitures</b>					
Specialty Ingredients joint venture	\$ (12)	\$ —	\$ —	\$ (12)	\$ —
Elastomers	—	(86)	—	86	(86)
Valvoline car care products	—	(26)	—	26	(26)
MAP Transaction adjustments	1	(6)	4	7	(10)
Kelowna	2	—	—	2	—
Other	—	3	—	(3)	3
	<u>\$ (9)</u>	<u>\$ (115)</u>	<u>\$ 4</u>	<u>\$ 106</u>	<u>\$ (119)</u>

Net loss on divestitures during 2016 includes the \$12 million impairment of the Specialty Ingredients joint venture, the sale of the Kelowna plant and other post-closing adjustments related to previous divestitures.

Net loss on divestitures during 2015 includes the pre-tax loss on sale related to Elastomers of \$86 million, the \$26 million impairment for the Valvoline car care products assets, and the \$6 million reduction related to the 2005 transfer of Ashland's 38% interest in the Marathon Ashland Petroleum joint venture and two other small businesses to Marathon Oil Corporation (Marathon) (the MAP Transaction) receivable, primarily due to the January 2015 asbestos insurance settlement.

Net gain on divestitures during 2014 includes a gain resulting from the receipt of a tax credit reimbursement and other subsequent adjustments related to the MAP Transaction for certain state tax attributes.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Income tax expense (benefit)</b>	\$ 133	\$ (22)	\$ (188)	\$ 155	\$ 166
<b>Effective tax rate</b>	98%	(13)%	(162)%		
<b>Effective tax rate (excluding key items)</b>	26%	23 %	20 %		

The 2016 effective tax rate was impacted by jurisdictional income mix and net unfavorable adjustments primarily related to a nondeductible goodwill impairment for the Intermediates/Solvents division, valuation allowances for domestic attributes, accruals for unrecognized tax benefits and other items related to the separation of Valvoline.

The 2015 effective tax rate was impacted by net favorable items predominantly due to certain valuation allowance releases related to state deferred tax assets. These favorable adjustments were partially offset by an accrual for an unrecognized tax benefit and tax related to certain global restructuring steps.

Income tax benefit for 2014 included a \$168 million tax benefit related to the reversal of deferred tax liabilities for outside basis differences and other related matters, a charge of \$39 million for taxes associated with the sale of shares of subsidiaries included in the sale of the Water Technologies business, net charges of \$32 million for uncertain tax positions and related matters, a charge of \$14 million for a foreign income tax rate change and other net discrete item charges of \$7 million primarily related to changes in valuation allowances. During the quarter ended September 30, 2014, as a result of an updated analysis of future cash needs in the U.S. and opportunities for investment outside the U.S., including the use of proceeds from the Water Technologies sale, Ashland changed its assertion related to the historical earnings of certain subsidiaries, and reversed deferred tax liabilities of \$168 million (as noted previously), resulting in a tax benefit in 2014.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Income (loss) from discontinued operations (net of taxes)</b>					
Asbestos-related litigation	\$ (30)	\$ 110	\$ 6	\$ (140)	\$ 104
Water Technologies	—	6	151	(6)	(145)
Distribution	(1)	1	—	(2)	1
APAC	—	1	4	(1)	(3)
	<u>\$ (31)</u>	<u>\$ 118</u>	<u>\$ 161</u>	<u>\$ (149)</u>	<u>\$ (43)</u>

The current year primarily includes the after-tax net adjustments to the asbestos reserves and receivables of \$30 million. The prior year included an after-tax gain of \$120 million related to the January 2015 asbestos insurance settlement, partially offset by after-tax net expense adjustments to the asbestos reserves and receivables, including the adjustments for changes in estimates as well as a deferred tax adjustment.

Water Technologies activity during 2015 related primarily to income of \$5 million due to a foreign pension plan remeasurement discussed in Note N in the Notes to Consolidated Financial Statements as well as other post-closing adjustments. The 2014 period includes an after-tax gain of \$92 million on the sale of Water Technologies as a result of the July 31, 2014 sale of the business to CD&R and ten months of Water Technologies' operating results. Water Technologies' sales for 2014 included within discontinued operations were \$1,475 million. Gross profit margin and operating income was 35.0% and \$111 million, respectively during 2014.

The reported results for Water Technologies in 2014 included \$29 million from depreciation and amortization that was recorded before the announced definitive agreement signed in February 2014. Due to Water Technologies designation as held for sale within the Consolidated Balance Sheets, no future depreciation or amortization was recorded. Additionally, 2014 reported results included a loss of \$19 million for pension and other postretirement plan remeasurement net losses, which is discussed further in Note N of the Notes to the Consolidated Financial Statements.

The operational results for income from discontinued operations for 2015 and 2014 also include subsequent environmental and tax adjustments to the previously divested businesses of Ashland Distribution (Distribution) and Ashland Paving And Construction, Inc. (APAC). The results for income from discontinued operations for 2014 also included favorable after-tax net adjustments to the asbestos reserve and related receivables of \$6 million during 2014.



(In millions)	2016	2015	2014	2016 change	2015 change
<b>Net income attributable to noncontrolling interest</b>	\$ 1	\$ —	\$ —	\$ 1	\$ —

Since Ashland's ownership interest in Valvoline Inc., which includes the operations of the Valvoline reportable segment, is now approximately 83%, the amount of net income attributable to the outside stockholders' approximately 17% noncontrolling interest in Valvoline Inc., for the three days between IPO close (September 28, 2016) and Ashland's fiscal year end, is presented within this caption on the Statement of Consolidated Comprehensive Income for 2016.

*Other comprehensive income (loss)*

A comparative analysis of the components of other comprehensive income (loss) is provided below for the last three fiscal years ended September 30.

(In millions)	2016	2015	2014	2016 change	2015 change
<b>Other comprehensive income (loss) (net of taxes)</b>					
Unrealized translation loss	\$ (14)	\$ (369)	\$ (160)	\$ 355	\$ (209)
Pension and postretirement obligation adjustment	14	(18)	(21)	32	3
Unrealized gain (loss) on available-for-sale securities	17	(11)	—	28	(11)
	<u>\$ 17</u>	<u>\$ (398)</u>	<u>\$ (181)</u>	<u>\$ 415</u>	<u>\$ (217)</u>

Total other comprehensive income (loss), net of tax, increased \$415 million in 2016 as compared to 2015 as a result of the following components.

- In 2016, other comprehensive income (loss), net of tax, from foreign currency translation adjustments was a loss of \$14 million, compared to a loss of \$369 million during 2015. The fluctuations in unrealized translation gains and losses are primarily due to translating foreign subsidiary financial statements from local currencies to U.S. Dollars. The prior year was significantly impacted by fluctuations in the Euro compared to the U.S. Dollar.
- Pension and postretirement obligation adjustment was income of \$14 million and loss of \$18 million during 2016 and 2015, respectively. Of these amounts, \$41 million and \$17 million during the current and prior years, respectively, of unrecognized prior service credits, net of tax, relating to pension and other postretirement benefit plans were amortized and reclassified into net income. Additional unrecognized prior service credits, net of tax, of \$55 million during 2016 and prior service cost, net of tax, of \$1 million during 2015 were included in other comprehensive income (loss) as a result of the pension and other postretirement plan remeasurements.
- \$17 million of unrealized gains and \$11 million of unrealized losses on available-for-sale securities, net of tax, related to restricted investments, was recognized within other comprehensive income (loss) during 2016 and 2015, respectively.

Total other comprehensive income (loss), net of tax, decreased \$217 million in 2015 as compared to 2014 as a result of the following components.

- In 2015, other comprehensive loss, net of tax, from foreign currency translation adjustments was \$369 million, compared to \$160 million in 2014, mainly as a result of the strengthening of the U.S. Dollar against other global currencies, including the Euro and Australian dollar. The fluctuations in unrealized translation losses are primarily due to translating foreign subsidiary financial statements from local currencies to U.S. Dollars.
- Pension and postretirement obligation adjustment was \$18 million and \$21 million in 2015 and 2014, respectively. Of these amounts, \$17 million and \$25 million during 2015 and 2014, respectively, of unrecognized prior service credits, net of tax, related to pension and other postretirement benefit plans were amortized and reclassified into net income, while cost of \$1 million and credit of \$4 million, respectively, of additional unrecognized prior service, net of tax, was included in other comprehensive loss.
- \$11 million of unrealized loss on available-for-sale securities, net of tax, related to the restricted investments, was recognized within other comprehensive loss during 2015.

## **RESULTS OF OPERATIONS – REPORTABLE SEGMENT REVIEW**

Ashland's businesses are managed within three reportable segments: Specialty Ingredients, Performance Materials and Valvoline. During September 2016, Valvoline Inc. completed the IPO of its common stock as discussed further within the "Key Developments" section of Management's Discussion and Analysis herein. As a result, Ashland has an approximately 83% ownership interest in Valvoline Inc. as of September 30, 2016.

Results of Ashland's reportable segments are presented based on its management structure and internal accounting practices. The structure and practices are specific to Ashland; therefore, the financial results of Ashland's reportable segments are not necessarily comparable with similar information for other comparable companies. Ashland allocates all costs to its reportable segments except for certain significant company-wide restructuring activities, such as the restructuring plans described in Note F of Notes to Consolidated Financial Statements, and other costs or adjustments that generally relate to former businesses that Ashland no longer operates. The service cost component of pension and other postretirement benefits costs is allocated to each reportable segment on a ratable basis; while the remaining components of pension and other postretirement benefits costs are recorded to Unallocated and other. Ashland refines its expense allocation methodologies to the reportable segments from time to time as internal accounting practices are improved, more refined information becomes available and businesses change. Revisions to Ashland's methodologies that are deemed insignificant are applied on a prospective basis.

The EBITDA and Adjusted EBITDA amounts presented within this business section are provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for each segment. Each of these non-GAAP measures is defined as follows: EBITDA (operating income plus depreciation and amortization), Adjusted EBITDA (EBITDA adjusted for key items, which may include pro forma effects for significant acquisitions or divestitures, as applicable), and Adjusted EBITDA margin (Adjusted EBITDA, which may include pro forma adjustments, divided by sales or sales adjusted for pro forma results). Ashland does not allocate items to each reportable segment below operating income, such as interest expense and income taxes. As a result, reportable segment EBITDA and Adjusted EBITDA are reconciled directly to operating income since it is the most directly comparable Statements of Consolidated Comprehensive Income caption.

The following table shows sales, operating income and statistical operating information by reportable segment for each of the last three years ended September 30.

(In millions)	2016	2015	2014
<b>Sales</b>			
Specialty Ingredients	\$ 2,089	\$ 2,263	\$ 2,498
Performance Materials	930	1,157	1,582
Valvoline	1,929	1,967	2,041
	<u>\$ 4,948</u>	<u>\$ 5,387</u>	<u>\$ 6,121</u>
<b>Operating income (loss)</b>			
Specialty Ingredients	\$ 237	\$ 239	\$ 253
Performance Materials	(118)	87	7
Valvoline	403	359	323
Unallocated and other	(195)	(227)	(537)
	<u>\$ 327</u>	<u>\$ 458</u>	<u>\$ 46</u>
<b>Depreciation and amortization</b>			
Specialty Ingredients	\$ 243	\$ 244	\$ 262
Performance Materials	53	59	91
Valvoline	38	38	37
Unallocated and other	3	—	3
	<u>\$ 337</u>	<u>\$ 341</u>	<u>\$ 393</u>
<b>Operating information</b>			
Specialty Ingredients (a)			
Sales per shipping day	\$ 8.2	\$ 8.9	\$ 9.9
Metric tons sold (thousands)	307.4	324.3	355.2
Gross profit as a percent of sales	33.9%	32.4%	31.2%
Performance Materials (a)			
Sales per shipping day	\$ 3.7	\$ 4.6	\$ 6.3
Metric tons sold (thousands)	445.8	476.6	591.1
Gross profit as a percent of sales	19.4%	18.8%	13.1%
Valvoline (a)			
Lubricant sales gallons	174.5	167.4	162.6
Premium lubricants (percent of U.S. branded volumes)	44.8%	40.2%	37.1%
Gross profit as a percent of sales	38.8%	35.6%	31.8%

(a) Sales are defined as sales and operating revenues. Gross profit is defined as sales, less cost of sales.

Sales by region expressed as a percentage of reportable segment sales for each of the last three fiscal years ended September 30 were as follows. Ashland includes only U.S. and Canada in its North American designation.

Sales by Geography	2016		
	Specialty Ingredients	Performance Materials	Valvoline
North America	39%	42%	75%
Europe	31%	38%	7%
Asia Pacific	20%	14%	14%
Latin America & other	10%	6%	4%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

Sales by Geography	2015		
	Specialty Ingredients	Performance Materials	Valvoline
North America	39%	43%	73%
Europe	32%	37%	8%
Asia Pacific	19%	14%	14%
Latin America & other	10%	6%	5%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

Sales by Geography	2014		
	Specialty Ingredients	Performance Materials	Valvoline
North America	39%	48%	72%
Europe	33%	33%	9%
Asia Pacific	18%	14%	14%
Latin America & other	10%	5%	5%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

### Specialty Ingredients

Specialty Ingredients is a global leader in cellulose ethers, vinyl pyrrolidones and biofunctionals. It offers industry-leading products, technologies and resources for solving formulation and product-performance challenges. Specialty Ingredients uses natural, synthetic and semisynthetic polymers derived from cellulose ethers, vinyl pyrrolidones, acrylic polymers, polyester and polyurethane-based adhesives, and plant and seed extract. Specialty Ingredients includes two divisions, Consumer Specialties and Industrial Specialties, that offer comprehensive and innovative solutions for today's demanding consumer and industrial applications. Key customers include: pharmaceutical companies; makers of personal care products, food and beverages; manufacturers of paint, coatings and construction materials; packaging and converting; and oilfield service companies.

During 2015, Ashland sold the industrial biocides assets within Specialty Ingredients. See Note C of the Notes to Consolidated Financial Statements for information on the divestiture of these assets.

#### *2016 compared to 2015*

Specialty Ingredients' sales decreased \$174 million, or 8%, to \$2,089 million in 2016. Energy market sales decreased \$55 million compared to prior year primarily due to lower volume as a result of reduced demand by customers, specifically those within industries negatively impacted by a low oil price environment. The remaining decline in sales of \$119 million was partially due to pricing declines decreasing sales by \$45 million. The divestiture of the industrial biocides assets and the exit from the redispersible powders product line decreased sales by \$24 million and \$11 million, respectively. Unfavorable foreign currency exchange and changes in volume and product mix combined decreased sales by \$27 million and \$12 million, respectively.

Gross profit during 2016 decreased \$26 million compared to 2015. Gross profit included certain key items during the current and prior years as follows:

- as part of a restructuring plan within an existing manufacturing facility, the current year included a net \$1 million of restructuring income and \$4 million of accelerated depreciation, while the prior year included severance and other costs of \$17 million and accelerated depreciation of \$6 million; and
- the current year included \$5 million of income related to a customer claim adjustment while the prior year included a \$13 million charge related to a customer claim.

Additionally, gross profit within the energy market decreased \$17 million compared to the prior year primarily as a result of the unfavorable impact of lower volumes. The remaining gross profit decline of \$47 million compared to the prior year was partially due to planned plant turnarounds, which reduced gross profit by \$19 million during the current year, while lower costs, primarily raw materials, was offset by pricing declines. Volume and changes in product mix combined to decrease gross profit by \$13 million while unfavorable foreign currency exchange decreased gross profit by \$11 million. The divestiture of the industrial biocides assets decreased gross profit by \$4 million during the current year. In total, gross profit margin during 2016 increased 1.5 percentage points to 33.9% as compared to 2015.

Selling, general and administrative expense (which includes research and development expenses throughout the reportable segment discussion and analysis) decreased \$24 million, or 5%, during 2016 as compared to 2015. The decrease was primarily

due to a \$11 million impairment of IPR&D assets within research and development expenses during the prior year and favorable foreign currency exchange of \$8 million. Inflationary increases were offset by other savings initiatives. Equity and other income (loss) remained consistent compared with the prior year.

Operating income totaled \$237 million for 2016 compared to \$239 million in 2015. EBITDA decreased \$1 million to \$476 million in 2016. Adjusted EBITDA decreased \$51 million to \$476 million in 2016. Adjusted EBITDA margin decreased 0.5 percentage points in 2016 to 22.8%.

#### *2015 compared to 2014*

Specialty Ingredients' sales decreased \$235 million, or 9%, to \$2,263 million in 2015. Energy market sales decreased \$106 million compared to 2014 primarily due to lower volume, in part due to the exit of the straight guar powder market. Sales in other markets decreased by \$129 million with unfavorable foreign currency exchange decreasing sales by \$105 million due to the U.S. dollar strengthening compared to various foreign currencies. Pricing declines, the exit from the redispersible powders product line and the divestiture of the industrial biocides assets decreased sales by \$27 million, \$19 million and \$11 million, respectively, while changes in volume and product mix increased sales by \$33 million.

Gross profit during 2015 decreased \$47 million compared to 2014. Gross profit in 2015 included \$17 million of severance and other costs, \$6 million of accelerated depreciation relating to a manufacturing facility restructuring plan and a \$13 million charge related to a customer claim, while 2014 included a \$19 million impairment charge related to a foreign operation. Gross profit decreased \$22 million compared to 2014 primarily driven by lower volumes for customers within the energy market. Gross profit in other markets decreased by \$8 million compared to 2014 when taking into consideration the key items discussed previously. Unfavorable foreign currency exchange decreased gross profit by \$51 million as the U.S. dollar strengthened compared to various foreign currencies. Favorable costs, primarily due to lower raw material costs, were partially offset by pricing declines, and increased gross profit by \$23 million while volume and product mix combined to increase gross profit by \$20 million. In total, gross profit margin during 2015 increased 1.2 percentage points as compared to 2014 to 32.4%.

Selling, general and administrative expense decreased \$33 million, or 6%, during 2015 as compared to 2014. This decrease was primarily due to \$41 million of expense savings realized from the 2014 global restructuring program and a favorable foreign currency exchange of \$22 million. Additionally, research and development expenses decreased \$2 million compared to 2014 as there were noncash impairments related to certain IPR&D assets of \$11 million and \$13 million during 2015 and 2014, respectively. These decreases were partially offset by increased allocated resource costs of \$21 million and increased employee benefit costs of \$4 million. Equity and other income remained consistent compared to 2014.

Operating income totaled \$239 million for 2015 compared to \$253 million in 2014. EBITDA decreased \$19 million to \$477 million in 2015. Adjusted EBITDA decreased \$2 million to \$527 million in 2015. Adjusted EBITDA margin increased 2.1 percentage points in 2015 to 23.3%.

#### *EBITDA and Adjusted EBITDA reconciliation*

The following EBITDA and Adjusted EBITDA presentation for the three annual periods is provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for the results of Specialty Ingredients. Adjusted EBITDA results have been prepared to illustrate the ongoing effects of Ashland's operations, which exclude certain key items. The current year included \$4 million of restructuring charges, partially offset by a \$5 million income adjustment to a severance accrual. The prior year included \$17 million of severance and other costs related to a manufacturing facility restructuring plan during 2015. The \$4 million and \$6 million of accelerated depreciation in 2016 and 2015, respectively, relates to a manufacturing facility restructuring plan while the \$19 million charge during 2014 related to the impairment of a foreign operation. The \$13 million adjustment during 2015 related to a customer claim while the \$5 million during 2016 was a subsequent adjustment to the customer claim. There were environmental reserve adjustments of \$2 million, \$3 million and \$1 million during 2016, 2015 and 2014, respectively. The impairments of \$11 million and \$13 million during 2015 and 2014, respectively, relate to certain IPR&D assets associated with the acquisition of ISP during 2011.

(In millions)	September 30		
	2016	2015	2014
Operating income	\$ 237	\$ 239	\$ 253
Depreciation and amortization (a)	239	238	243
EBITDA	476	477	496
Severance and other costs	(1)	17	—
Accelerated depreciation and asset impairment	4	6	19
Customer claim	(5)	13	—
Environmental reserve adjustment	2	3	1
Impairment of IPR&D assets	—	11	13
Adjusted EBITDA	\$ 476	\$ 527	\$ 529

(a) Excludes \$4 million, \$6 million and \$19 million of accelerated depreciation and asset impairment charges during 2016, 2015 and 2014, respectively.

## Performance Materials

Performance Materials is a global leader in unsaturated polyester resins and vinyl ester resins. The business unit has leading positions in gelcoats, maleic anhydride, butanediol, tetrahydrofuran, N-Methylpyrrolidone and other intermediates and solvents. Key customers include: manufacturers of residential and commercial building products; industrial product specifiers and manufacturers; wind blade and pipe manufacturers; automotive and truck OEM suppliers; boatbuilders; engineered plastics and electronic producers; and specialty chemical manufacturers.

Elastomers results were included in the Performance Materials reportable segment results of operations within the Statements of Consolidated Comprehensive Income until its December 1, 2014 sale. For additional information on the divestiture of the Elastomers division, see Note C of the Notes to Consolidated Financial Statements.

### 2016 compared to 2015

Performance Materials' sales decreased \$227 million, or 20%, to \$930 million in 2016. Lower product pricing decreased sales by \$111 million, or 10%, and the divestiture of the Elastomers division resulted in a loss of sales of \$40 million, or 3%. Unfavorable foreign currency exchange and lower volume each decreased sales by \$26 million, or 2%. Changes in product mix decreased sales by \$24 million, or 2%.

Gross profit decreased \$37 million in 2016 compared to 2015, primarily as a result of Intermediates/Solvents performance. Gross profit in the prior year was negatively impacted by \$14 million of costs associated with plant maintenance shutdowns within Intermediates/Solvents manufacturing facilities, while the current year included \$4 million of incremental costs associated with an unplanned shutdown also within an Intermediates/Solvents manufacturing facility. Pricing declines, partially offset by lower raw material costs, also decreased gross profit by \$29 million. Changes in product mix and volume combined to decrease gross profit by \$10 million. The sale of Elastomers and unfavorable foreign currency exchange each decreased gross profit by \$4 million. In total, gross profit margin during 2016 increased 0.6 percentage points as compared to 2015 to 19.4%.

Selling, general and administrative expense increased \$167 million during 2016 compared to 2015, primarily due to the \$181 million non-cash long-lived asset impairment within Intermediates/Solvents during the current year. See further discussion of this impairment within the "Critical Accounting Policies" section of Management's Discussion and Analysis herein. Additionally, the impairment was partially offset by decreased incentive compensation of \$6 million, the sale of the Elastomers division of \$3 million and a favorable foreign currency exchange of \$3 million. Equity and other income decreased \$1 million compared to the prior year.

Operating loss totaled \$118 million in 2016 compared to income of \$87 million in 2015. EBITDA decreased \$211 million to a loss of \$65 million in 2016. Adjusted EBITDA decreased \$30 million to \$116 million in 2016. Adjusted EBITDA margin decreased 0.1 percentage points to 12.5% in 2016.

### 2015 compared to 2014

Performance Materials' sales decreased \$425 million, or 27%, to \$1,157 million in 2015. The divestiture of the Elastomers division decreased sales by \$237 million, or 15%. Unfavorable foreign currency exchange and lower product pricing within both Composites and Intermediates/Solvents divisions decreased sales by \$87 million, or 5%, and \$81 million, or 5%, respectively. Unfavorable foreign currency exchange was due to the U.S. dollar strengthening compared to various foreign currencies, primarily the Euro. Volume and changes in product mix decreased sales by \$13 million and \$7 million, respectively.

Gross profit increased \$10 million in 2015 compared to 2014. Gross profit in 2015 included \$30 million of costs associated with plant closures resulting from the 2014 global restructuring program as well as \$35 million of gross profit related to the

Elastomers division. Gross profit in 2015 was negatively impacted by plant maintenance shutdowns at both Intermediates/Solvents manufacturing facilities which resulted in a \$14 million decrease in gross profit. Lower input costs, partially offset by pricing declines, within both Composites and Intermediates/Solvents combined to increase gross profit by \$55 million. Unfavorable currency exchange, driven by the U.S. dollar strengthening compared to certain foreign currencies, and changes in volume and product mix combined to decrease gross profit by \$14 million and \$12 million, respectively. In total, gross profit margin during 2015 increased 5.7 percentage points as compared to 2014 to 18.8%.

Selling, general and administrative expense decreased \$30 million, or 18%, during 2015 compared to 2014, primarily due to the sale of the Elastomers division, which included \$19 million of costs in 2014, as well as \$4 million in expense savings realized from the 2014 global restructuring program, and favorable foreign currency exchange of \$5 million. These decreases were partially offset by an increase in incentive compensation. There was also a \$5 million legal reserve charge during 2014.

Equity and other income increased \$40 million during 2015 compared to 2014, primarily due to a \$50 million impairment for the ASK joint venture equity investment during 2014, partially offset by a \$10 million decrease due to the loss of equity income from the ASK joint venture as a result of its June 2014 sale.

Operating income totaled \$87 million in 2015 compared to \$7 million in 2014. EBITDA increased \$65 million to \$146 million in 2015. Adjusted EBITDA decreased \$20 million to \$146 million in 2015. Adjusted EBITDA margin increased 2.1 percentage points to 12.6% in 2015.

#### *EBITDA and Adjusted EBITDA reconciliation*

The following EBITDA and Adjusted EBITDA presentation for the three annual periods is provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for the results of Performance Materials. Adjusted EBITDA results have been prepared to illustrate the ongoing effects of Ashland's operations, which exclude certain key items such as the \$181 million impairment during 2016 related to Intermediates/Solvents and \$50 million charge during 2014 related to the impairment of the ASK joint venture equity investment. The \$13 million and \$17 million of severance and accelerated depreciation, respectively, during 2014 related to the 2014 global restructuring program. The \$5 million during 2014 relates to a legal reserve charge. There were no unusual or key items that affected comparability for Adjusted EBITDA during 2015.

(In millions)	September 30		
	2016	2015	2014
Operating income (loss)	\$ (118)	\$ 87	\$ 7
Depreciation and amortization (a)	53	59	74
EBITDA	(65)	146	81
Impairment	181	—	50
Severance	—	—	13
Legal reserve charge	—	—	5
Accelerated depreciation	—	—	17
Adjusted EBITDA	\$ 116	\$ 146	\$ 166

(a) Excludes \$17 million of accelerated depreciation during 2014.

#### **Valvoline**

Valvoline is a leading worldwide producer and distributor of premium-branded automotive, commercial and industrial lubricants, and automotive chemicals. In 2016, it ranked as the #2 quick-lube chain by number of stores and #3 passenger car motor oil in the DIY market by volume brand in the United States. The brand operates and franchises 1,068 Valvoline Instant Oil Change<sup>SM</sup> centers in the United States. It also markets Valvoline<sup>TM</sup> lubricants and automotive chemicals; MaxLife<sup>TM</sup> lubricants created for higher-mileage engines; SynPower<sup>TM</sup> synthetic motor oil; and Zerex<sup>TM</sup> antifreeze. Key customers include: retail auto parts stores and mass merchandisers who sell to consumers; installers, such as car dealers, repair shops and quick lubes; commercial fleets; and distributors. During September 2016, Valvoline Inc. completed the IPO of its common stock as discussed further within the "Key Developments" section of Management's Discussion and Analysis herein. As a result, Ashland maintains an approximately 83% ownership interest in Valvoline Inc. as of September 30, 2016. Valvoline's results as a segment of Ashland may not equal the results of Valvoline Inc. reported on a stand-alone basis.

During February 2016, Ashland completed the acquisition of Oil Can Henry's resulting in the addition of 89 quick-lube stores. For additional information on the separation and acquisition, see the "Key Developments" section of Management's Discussion and Analysis herein.

During the June 2015 quarter, Ashland sold its Valvoline car care product assets, which included Car Brite™ and Eagle One™ automotive appearance products, and sold its joint venture equity investment within Venezuela. See Note B of the Notes to Consolidated Financial Statements for further information.

#### *2016 compared to 2015*

Valvoline's sales decreased \$38 million, or 2%, to \$1,929 million in 2016. Lower product pricing decreased sales by \$94 million, or 5%, while higher volume levels increased sales by \$68 million, or 3%, as lubricant gallons sold increased to 174.5 million. Unfavorable foreign currency exchange decreased sales by \$31 million, or 2%, while changes in product mix increased sales by \$29 million. Unfavorable foreign currency exchange was primarily due to the U.S. dollar strengthening compared to various foreign currencies, primarily the Euro, Yuan and Australian dollar. The divestiture of Valvoline car care product assets decreased sales by \$45 million, or 2%, while the acquisition of Oil Can Henry's increased sales by \$35 million, or 2%.

Gross profit increased \$48 million during 2016 compared to 2015. Changes in volume and product mix combined to increase gross profit by \$32 million, and lower raw material costs, partially offset by lower selling pricing, increased gross profit by \$20 million. Unfavorable foreign currency exchange decreased gross profit by \$8 million, while the acquisition of Oil Can Henry's, partially offset by the divestiture of Valvoline car care product assets, increased gross profit by \$4 million. In total, gross profit margin during 2016 increased 3.2 percentage points to 38.8%.

Selling, general and administrative expense increased \$16 million, or 5%, during 2016 as compared to 2015, primarily due to digital infrastructure consulting costs and employee costs of \$5 million each, increased advertising and promotion costs of \$4 million, and increased research and development costs of \$2 million. Equity and other income (loss) increased \$12 million primarily due to the \$14 million impairment of the Venezuelan joint venture equity investment in the prior year.

Operating income totaled \$403 million in 2016 as compared to \$359 million in 2015. EBITDA increased \$44 million to \$441 million in 2016. Adjusted EBITDA increased \$30 million to \$441 million in 2016. Adjusted EBITDA margin increased 2.0 percentage points to 22.9% in 2016.

#### *2015 compared to 2014*

Valvoline's sales decreased \$74 million, or 4%, to \$1,967 million in 2015. Unfavorable foreign currency exchange and lower product pricing decreased sales by \$70 million, or 3%, and \$53 million, or 3%, respectively. Unfavorable foreign currency exchange was due to the U.S. dollar strengthening compared to various foreign currencies, primarily the Euro and Australian dollar. Higher volume levels and changes in product mix increased sales by \$55 million, or 3%, and \$10 million, respectively. The divestiture of Valvoline car care product assets on June 30, 2015 decreased sales by \$16 million compared to 2014.

Gross profit increased \$51 million during 2015 compared to 2014. Lower raw material costs, partially offset by lower product pricing, increased gross profit by \$52 million. Changes in volume and product mix combined to increase gross profit by \$20 million, while unfavorable foreign currency exchange decreased gross profit by \$18 million. The divestiture of Valvoline car care product assets also decreased gross profit by \$3 million. In total, gross profit margin during 2015 increased 3.8 percentage points to 35.6%.

Selling, general and administrative expense decreased \$7 million, or 2%, during 2015 as compared to 2014, primarily as a result of \$20 million of cost savings from the 2014 global restructuring as well as declines from favorable foreign currency exchange of \$9 million. These decreases were partially offset by increased employee and allocated resource costs of \$9 million, as well as legal and technology expenses of \$5 million and advertising costs of \$5 million.

Equity and other income decreased by \$22 million during 2015 compared to 2014, primarily due to an \$8 million favorable arbitration ruling on a commercial contract in 2014 and the \$14 million impairment of a joint venture equity investment within Venezuela in 2015. For additional information see Note B in the Notes to Consolidated Financial Statements.

Operating income totaled \$359 million in 2015 as compared to \$323 million in 2014. EBITDA increased \$37 million to \$397 million in 2015. Adjusted EBITDA increased \$51 million to \$411 million in 2015. Adjusted EBITDA margin increased 3.3 percentage points to 20.9% in 2015.

#### *EBITDA and Adjusted EBITDA reconciliation*

The following EBITDA and Adjusted EBITDA presentation for the three annual periods is provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for the results of Valvoline. Adjusted EBITDA results have been prepared to illustrate the ongoing effects of Ashland's operations, which exclude certain key items. The \$14 million adjustment in 2015 related to the impairment of a joint venture equity investment within Venezuela. There were no unusual or key items that affected comparability for Adjusted EBITDA during 2016 and 2014.



(In millions)	September 30		
	2016	2015	2014
Operating income	\$ 403	\$ 359	\$ 323
Depreciation and amortization	38	38	37
EBITDA	441	397	360
Impairment of equity investment	—	14	—
Adjusted EBITDA	<u>\$ 441</u>	<u>\$ 411</u>	<u>\$ 360</u>

### Unallocated and other

The following table summarizes the key components of the Unallocated and other segment's operating income (loss) for each of the last three years ended September 30.

(In millions)	September 30		
	2016	2015	2014
Losses on pension and other postretirement plan remeasurement	\$ (124)	\$ (255)	\$ (438)
Pension and other postretirement net periodic income (a)	82	54	54
Restructuring activities (includes separation costs, severance and stranded costs from Water Technologies)	(94)	(8)	(129)
Legal reserve	(15)	—	—
Environmental reserves for divested businesses	(36)	(29)	(28)
Tax indemnity income	—	16	—
Other income (expense)	(8)	(5)	4
Total unallocated expense	<u>\$ (195)</u>	<u>\$ (227)</u>	<u>\$ (537)</u>

(a) Amounts exclude service costs of \$28 million, \$27 million and \$30 million during 2016, 2015 and 2014, respectively, which are allocated to Ashland's reportable segments.

Unallocated and other recorded expense of \$195 million, \$227 million and \$537 million for 2016, 2015, and 2014, respectively. Unallocated and other includes pension and other postretirement net periodic costs and income within continuing operations that have not been allocated to reportable segments. These costs include interest cost, expected return on assets and amortization of prior service credit as these items are considered financing activities managed at the corporate level, as opposed to service costs which are allocated to reportable segments. The recurring pension and other postretirement components in Unallocated and other resulted in income of \$82 million in 2016 and \$54 million during each of 2015 and 2014. Unallocated and other also includes gains and losses on pension and other postretirement plan remeasurements which resulted in losses of \$124 million, \$255 million and \$438 million in 2016, 2015 and 2014, respectively. Fluctuations in these amounts from year to year result primarily from changes in the discount rate but are also partially affected by differences between the expected and actual return on plan assets during each year as well as other changes in other actuarial assumptions such as changes in demographic data or mortality assumptions. For additional information regarding the actual remeasurement for certain key assumptions for each year, see Management's Discussion and Analysis - Critical Accounting Policies - Employee benefit obligations and Note N of Notes to Consolidated Financial Statements.

Unallocated and other restructuring activities during 2016 included \$88 million of costs incurred related to the Valvoline separation. Restructuring expense also included \$6 million, \$8 million, and \$98 million during 2016, 2015, and 2014, respectively, primarily related to severance and other restructuring charges. Restructuring expense in 2015 and 2014 was associated with the 2014 global restructuring program. Restructuring activities in 2014 included certain indirect corporate costs of \$31 million in 2014 that were previously allocated to the Water Technologies business. Additionally, unallocated and other includes environmental charges related to previously divested businesses of \$36 million, \$29 million and \$28 million during 2016, 2015, and 2014, respectively.

The current year also included \$15 million for a legal reserve and \$11 million of income related to a legacy benefit for former directors. Unallocated and other in 2015 also included \$16 million of tax indemnity income.

## FINANCIAL POSITION

### Liquidity

Ashland had \$1,188 million in cash and cash equivalents as of September 30, 2016, of which \$1,013 million was held by foreign subsidiaries and had no significant limitations that would prohibit remitting the funds to satisfy corporate obligations. However, if this amount was repatriated to the United States, additional taxes would likely need to be accrued and paid depending on the source of the earnings remitted. Ashland currently has no plans to repatriate any amounts for which additional U.S. taxes would need to be accrued.

Ashland's cash flows from operating, investing and financing activities, as reflected in the Statements of Consolidated Cash Flows, are summarized as follows.

(In millions)	2016	2015	2014
<b>Cash provided (used) by:</b>			
Operating activities from continuing operations	\$ 703	\$ 89	\$ 580
Investing activities from continuing operations	(332)	(417)	(168)
Financing activities from continuing operations	(394)	(30)	(1,034)
Discontinued operations	(40)	269	1,671
Effect of currency exchange rate changes on cash and cash equivalents	(6)	(47)	(2)
Net increase (decrease) in cash and cash equivalents	<u>\$ (69)</u>	<u>\$ (136)</u>	<u>\$ 1,047</u>

Ashland paid income taxes of \$108 million during 2016 compared to \$226 million in 2015 and \$88 million in 2014. Cash receipts for interest income were \$6 million in each of 2016, 2015 and 2014, while cash payments for interest expense amounted to \$162 million in 2016, \$149 million in 2015 and \$154 million in 2014. Foreign currency exchange had an unfavorable impact on cash and cash equivalents during 2015 primarily as a result of the strengthening of the U.S. dollar compared to foreign currencies, primarily the Euro.

#### *Operating activities*

The following discloses the cash flows associated with Ashland's operating activities for 2016, 2015 and 2014, respectively.

(In millions)	2016	2015	2014
<b>Cash flows provided (used) by operating activities from continuing operations</b>			
Net income (loss)	\$ (28)	\$ 309	\$ 233
Loss (income) from discontinued operations (net of tax)	31	(118)	(161)
Adjustments to reconcile income from continuing operations to cash flows from operating activities			
Depreciation and amortization	337	341	393
Debt issuance cost amortization	23	18	14
Deferred income taxes	(23)	(57)	(294)
Equity income from affiliates	(13)	(15)	(25)
Distributions from equity affiliates	18	22	14
Stock based compensation expense - Note Q	30	30	34
Loss on early retirement of debt	—	9	—
Gain on available-for-sale securities	(8)	(3)	—
Net loss (gain) on divestitures - Notes B and C	9	115	(4)
Impairments	181	25	63
Pension contributions	(35)	(610)	(38)
Losses on pension and other postretirement plan remeasurements	124	255	438
Change in operating assets and liabilities (a)	57	(232)	(87)
Total cash flows provided by operating activities from continuing operations	<u>\$ 703</u>	<u>\$ 89</u>	<u>\$ 580</u>

(a) Excludes changes resulting from operations acquired or sold.

Cash flows generated from operating activities from continuing operations, a major source of Ashland's liquidity, amounted to \$703 million in 2016, \$89 million in 2015 and \$580 million in 2014. The significant decline in operating cash flow during the prior year related primarily to \$610 million of pension contributions, which included the \$500 million voluntary pension plan contribution made in June 2015 for plans impacted by the pension settlement program. See Note N in the Notes to Consolidated Financial Statements for further information.

Excluding the voluntary pension contribution in the prior year, the cash results during each year were primarily driven by net income, excluding discontinued operation results, adjusted for certain non-cash items including depreciation and amortization (including debt issuance cost amortization), losses and gains on divestitures as well as changes in working capital, which are fluctuations within accounts receivable, inventory, trade payables and accrued expenses. Ashland continues to emphasize working capital management as a high priority and focus.

The following details certain changes in key operating assets and liabilities for 2016, 2015 and 2014, respectively.

(In millions)	2016	2015	2014
<b>Cash flows from assets and liabilities (a)</b>			
Accounts receivable	\$ 55	\$ 261	\$ (16)
Inventories	44	39	(4)
Trade and other payables	(59)	(229)	64
Other assets and liabilities	17	(303)	(131)
<b>Change in operating assets and liabilities</b>	<u>\$ 57</u>	<u>\$ (232)</u>	<u>\$ (87)</u>

(a) Excludes changes resulting from operations acquired or sold.

Changes in net working capital accounted for inflows of \$40 million, \$71 million and \$44 million in 2016, 2015 and 2014, respectively, and were driven by the following:

- Accounts receivable - Changes in accounts receivable resulted in a \$55 million inflow of cash in 2016 compared to \$261 million of cash inflows in 2015 and \$16 million of cash outflows in 2014. Cash outflows in 2014 versus cash inflows in 2016 and 2015 were the result of sales of \$6,121 million during 2014 compared to \$4,948 million and

\$5,387 million during 2016 and 2015, respectively. The higher sales in 2014 resulted in increased accounts receivables compared to 2016 and 2015 where sales declines from the prior year resulted in decreased accounts receivables.

- Inventory - Changes in inventory resulted in cash inflows of \$44 million in 2016 compared to cash inflows of \$39 million in 2015 and cash outflows of \$4 million in 2014, and were primarily a result of production management.
- Trade and other payables - Changes in trade and other payables resulted in cash outflows of \$59 million in 2016 and \$229 million in 2015 compared to cash inflows of \$64 million in 2014. During 2014, there were increased accruals for incentive compensation and severance related to the 2014 global restructuring which resulted in large cash outflows in 2015. Approximately \$60 million of incentive compensation payments and \$45 million of severance payments related to restructuring activities were made during 2015 compared to 2014 which had approximately \$15 million of incentive compensation payments and \$52 million of severance payments.

The remaining cash inflow during 2016 was \$17 million while 2015 and 2014 were cash outflows of \$303 million and \$131 million, respectively, were primarily due to income taxes paid or income tax refunds, interest paid, and adjustments to certain accruals and long term assets and liabilities.

Operating cash flows for 2016 included income from continuing operations of \$3 million, \$124 million of net losses on pension and other postretirement plan remeasurements and noncash adjustments of \$337 million for depreciation and amortization, and \$23 million for debt issuance cost amortization. Operating cash flows for 2016 also included noncash adjustments of \$181 million related to the impairment of Intermediates/Solvents and a \$12 million impairment related to a Specialty Ingredients joint venture.

Operating cash flows for 2015 included income from continuing operations of \$191 million, \$255 million of net losses on pension and other postretirement plan remeasurements and noncash adjustments of \$341 million for depreciation and amortization, and \$18 million for debt issuance cost amortization. Operating cash flows for 2015 also included noncash adjustments of \$25 million related to the impairment of the Venezuelan joint venture equity investment and certain IPR&D assets associated with the acquisition of ISP.

Operating cash flows for 2014 included income from continuing operations of \$72 million, \$438 million of net losses on pension and other postretirement plan remeasurements and noncash adjustments of \$393 million for depreciation and amortization, which includes a \$19 million impairment related to a foreign operation and \$14 million for debt issuance cost amortization. Operating cash flows for 2014 also included impairments totaling \$63 million related to the ASK joint venture equity investment and IPR&D assets.

#### *Investing activities*

The following discloses the cash flows associated with Ashland's investing activities for 2016, 2015 and 2014.

(In millions)	2016	2015	2014
<b>Cash flows provided (used) by investing activities from continuing operations</b>			
Additions to property, plant and equipment	\$ (300)	\$ (265)	\$ (248)
Proceeds from disposal of property, plant and equipment	2	3	3
Purchase of operations - net of cash acquired	(83)	(13)	—
Proceeds from sale of operations or equity investments	16	161	92
Proceeds from sale of available-for-sale securities	10	315	—
Purchase of available-for-sale securities	(10)	(315)	—
Net purchases of funds restricted for specific transactions	(4)	(320)	(15)
Reimbursement from restricted investments	33	6	—
Proceeds from the settlement of derivative instruments	9	18	—
Payments for the settlement of derivative instruments	(5)	(7)	—
Total cash flows used by investing activities from continuing operations	<u>\$ (332)</u>	<u>\$ (417)</u>	<u>\$ (168)</u>

Cash used by investing activities was \$332 million in 2016 compared to \$417 million and \$168 million for 2015 and 2014, respectively. The current period included capital expenditures of \$300 million and a net cash outflow of \$83 million for the purchase of operations, which consisted of \$62 million related to the acquisition of Oil Can Henry's and the remainder related to smaller other Valvoline VIOC acquisitions. The current year also included reimbursements of \$33 million from the restricted renewable annual trust established as a result of the January 2015 asbestos insurance settlement.

The significant cash investing activities for 2015 included capital expenditures of \$265 million and proceeds of \$105 million from the sale of the Elastomers division, approximately \$30 million from the sale of industrial biocides assets and \$24 million from the sale of Valvoline car care product assets. Funds restricted for specific transactions represent the receipt of the January 2015 asbestos insurance settlement funds of \$335 million into a restricted renewable annual trust, partially offset by the reclassification into cash and cash equivalents of \$15 million of assets previously restricted in use for property transactions. The previous restriction of the \$15 million for property transactions occurred in 2014 and is reflected as an investing outflow during 2014. From the restrictive renewable annual trust (derived from the asbestos proceeds received during 2015), Ashland received a \$6 million reimbursement for certain 2015 asbestos disbursements. Additionally, the purchase of and proceeds from the sale of available-for-sale securities of \$315 million related to investment activity involving equity and corporate bond funds within the asbestos trust.

The significant cash investing activities for 2014 included cash outflows of \$248 million for capital expenditures and restricted cash for property transactions of \$15 million previously discussed. These outflows were partially offset by cash inflows related to the sale of the ASK equity investment of \$87 million and \$5 million related to tax receipt from a previously divested business.

#### *Financing activities*

The following discloses the cash flows associated with Ashland's financing activities for 2016, 2015 and 2014, respectively.

(In millions)	2016	2015	2014
<b>Cash flows provided (used) by financing activities from continuing operations</b>			
Proceeds from issuance of long-term debt	\$ 1,250	\$ 1,100	\$ —
Repayment of long-term debt	(1,595)	(623)	(11)
Premium on long-term debt repayment	—	(9)	—
Proceeds (repayment) from short-term debt	(156)	(3)	22
Net proceeds from Valvoline Inc. initial public offering	712	—	—
Repurchase of common stock	(500)	(397)	(954)
Debt issuance costs	(15)	(9)	—
Cash dividends paid	(97)	(98)	(103)
Excess tax benefits related to share-based payments	7	9	12
Total cash flows used by financing activities from continuing operations	<u>\$ (394)</u>	<u>\$ (30)</u>	<u>\$ (1,034)</u>

Cash used by financing activities was \$394 million for 2016, \$30 million for 2015, and \$1,034 million for 2014. Significant cash financing activities for the current year included proceeds from the issuance of long-term debt of \$1,250 million, specifically the issuance of \$875 million for the 2016 term loan facility and \$375 million for the 2024 notes which were both issued as part of the Valvoline financing activities. The repayment of long-term debt of \$1,595 million primarily related to the Ashland and Valvoline term loans and the repayment of acquired debt from the Oil Can Henry's acquisition. Cash flows from financing activities during 2016 included an inflow of \$712 million of proceeds, net of underwriting discounts and other offering expenses, from the Valvoline Inc. IPO. These transactions are discussed further within "Key Developments." Additionally 2016 includes a cash outflow of \$500 million for the repurchase of common stock and short-term net debt repayments of \$156 million primarily related to the debt repayments under Ashland's 2015 revolving credit facility and the accounts receivable securitization facility, and the issuance of the \$150 million term loan facility due 2017. The current period also included cash dividends paid of \$1.56 per share, for a total of \$97 million.

Significant cash financing activities during 2015 primarily included the 2015 Senior Credit Agreement, the redemption of the 2016 senior notes, and the repurchase of common stock. As a result of the 2015 Senior Credit Agreement and redemption of the 2016 senior notes, Ashland received \$1,100 million from the issuance of the 2015 term loan facility, repaid \$600 million related to the 2016 senior notes, paid early redemption premiums of \$9 million and debt issuance costs of \$9 million. In addition, Ashland repurchased \$397 million of common stock under the \$1.35 billion common stock repurchase program and paid cash dividends of \$1.46 per share, for a total of \$98 million.

Significant cash financing activities for 2014 included a \$954 million cash outflow related to the repurchase of common stock under the \$1.35 billion common stock repurchase program. Other significant cash financing activities for 2014 included cash outflows of \$11 million in repayments of long-term debt and \$103 million in cash dividends paid at \$1.36 per share, as well as cash inflows of \$22 million primarily related to draw on the revolver and \$12 million for proceeds from the exercise of stock options and excess tax benefits related to share-based payments.

*Cash provided by discontinued operations*

The following discloses the cash flows associated with Ashland's discontinued operations for 2016, 2015 and 2014, respectively.

(In millions)	2016	2015	2014
<b>Cash provided (used) by discontinued operations</b>			
Operating cash flows	\$ (40)	\$ 245	\$ 63
Investing cash flows	—	24	1,608
Total cash provided (used) by discontinued operations	\$ (40)	\$ 269	\$ 1,671

Cash used by discontinued operations during 2016 related to other previously divested businesses, including net payments of asbestos and environmental liabilities.

Cash provided by discontinued operations during 2015 included \$398 million of cash received, before taxes, related to the January 2015 asbestos insurance settlement, and \$48 million of delayed cash proceeds for a foreign entity from the sale of Water Technologies. These inflows were partially offset by \$91 million in tax payments primarily from the Water Technologies sale and a \$20 million payment for the working capital settlement related to the disposition of Water Technologies.

Cash provided by discontinued operations during 2014 included \$1.6 billion of net proceeds from the sale of Water Technologies, net of working capital and other adjustments as defined in the definitive sale agreement as well as transaction costs. Excluding the \$1.6 billion of proceeds, the remaining cash flows related to Water Technologies were \$68 million in 2014.

The remaining cash flows in 2015 and 2014 principally related to other previously divested businesses, including net payments of asbestos and environmental liabilities.

*Free cash flow and other liquidity information*

The following represents Ashland's calculation of free cash flow for the disclosed periods and reconciles free cash flow to cash flows provided by operating activities from continuing operations. Free cash flow does not reflect adjustments for certain non-discretionary cash flows such as mandatory debt repayments. See "Results of Operations - Consolidated Review - Use of non-GAAP measures" for additional information.

(In millions)	September 30		
	2016	2015	2014
Cash flows provided by operating activities from continuing operations	\$ 703	\$ 89	\$ 580
Less:			
Additions to property, plant and equipment	(300)	(265)	(248)
Discretionary contribution to pension plans	—	500	—
Free cash flows	\$ 403	\$ 324	\$ 332

At September 30, 2016, working capital (current assets minus current liabilities, excluding long-term debt due within one year) amounted to \$1,669 million, compared to \$1,706 million at the end of 2015. Ashland's working capital is affected by its use of the LIFO method of inventory valuation that valued inventories below their replacement costs by \$29 million at September 30, 2016 and \$34 million at September 30, 2015. Liquid assets (cash, cash equivalents and accounts receivable) amounted to 171% of current liabilities at September 30, 2016 and 154% at September 30, 2015.

The following summary reflects Ashland's cash, investment securities and unused borrowing capacity as of September 30, 2016, 2015 and 2014.

(In millions)	September 30		
	2016	2015	2014
<b>Cash and cash equivalents</b>	\$ 1,188	\$ 1,257	\$ 1,393
<b>Unused borrowing capacity</b>			
2015 Revolving credit facility	\$ 742	\$ 1,013	\$ 1,084
2016 Revolving credit facility (a)	\$ 435	\$ —	\$ —
Accounts receivable securitization facility	\$ 80	\$ 10	\$ —

(a) The 2016 revolving credit facility was executed as part of the Valvoline Financing Activities discussed further within “Key Developments”.

Total borrowing capacity remaining under Ashland’s 2015 revolving credit facility was \$742 million, due to a reduction of \$58 million for letters of credit outstanding at September 30, 2016. Total borrowing capacity remaining under Valvoline’s 2016 revolving credit facility was \$435 million, due to a reduction of \$15 million for letters of credit outstanding at September 30, 2016. In total, Ashland’s available liquidity position, which includes cash, the revolving credit facilities and accounts receivable securitization facility, was \$2,445 million at September 30, 2016 as compared to \$2,280 million at September 30, 2015 and \$2,477 million at September 30, 2014. For further information, see Note J within Notes to Consolidated Financial Statements.

## Capital resources

### Debt

The following summary reflects Ashland’s debt as of September 30, 2016 and 2015.

(In millions)	September 30	
	2016	2015
Short-term debt	\$ 170	\$ 326
Long-term debt (including current portion and debt issuance cost discounts) (a)	3,074	3,403
Total debt	<u>\$ 3,244</u>	<u>\$ 3,729</u>

(a) Includes \$29 million and \$28 million of debt issuance cost discounts as of September 30, 2016 and 2015, respectively.

The current portion of long-term debt was \$19 million at September 30, 2016 and \$55 million at September 30, 2015. Debt as a percent of capital employed was 51% at September 30, 2016 and 55% at September 30, 2015. At September 30, 2016, Ashland’s total debt had an outstanding principal balance of \$3,419 million, discounts of \$146 million, and debt issuance costs of \$29 million. The scheduled aggregate maturities of long-term debt for the next five fiscal years (including the current portion and excluding debt issuance costs) are as follows: \$19 million in 2017, \$719 million in 2018, \$43 million in 2019, \$38 million in 2020 and \$263 million in 2021.

### Ashland Financing Activities

#### Ashland financing activities during 2016

During July 2016, Ashland amended the 2015 Senior Credit Agreement to permit the Reorganization and the series of events relating to the separation of Valvoline Inc. Additionally, the amendment provided that if the aggregate principal amount of the Valvoline debt reaches \$750 million, Ashland would be required to use the net proceeds of such borrowings to repay its existing 2015 term loan facility and/or permanently reduce its existing revolving credit commitments under the 2015 Senior Credit Agreement in an aggregate amount of up to \$1 billion. As a result of the July 2016 amendment and the Valvoline debt borrowings in connection with the separation, Ashland reduced its revolving borrowing capacity to \$800 million as of September 30, 2016.

During August 2016, a wholly owned foreign subsidiary of Ashland entered into a credit agreement which provides for an aggregate principal amount of \$150 million in a senior unsecured term loan facility maturing on February 15, 2017. This term loan was drawn in full as of September 30, 2016. At the subsidiary’s option, loans issued under this term loan facility bear interest at either LIBOR plus 1.75% per annum or an alternate base rate plus 0.75% per annum. The subsidiary may prepay the term loan facility after three months from the date it was drawn upon without any premium or penalty.

During 2016, Ashland extended the termination date of the accounts receivable securitization facility from December 31, 2015, the previous termination date extension, to March 22, 2017. Additionally, due to activity related to the separation of Valvoline Inc. from Ashland during 2016, the available funding for qualifying receivables under the accounts receivable securitization facility was reduced from \$250 million to \$100 million. No other changes to the agreement within the current year amendments are

expected to have a significant impact to Ashland's results of operations and financial position. See Note J of the Notes to Consolidated Financial Statements for further information on this agreement.

#### *Ashland financing activities during 2015*

During June of 2015, Ashland completed certain refinancing transactions related to the \$600 million 3.000% senior notes due in 2016 (2016 senior notes). Ashland commenced and completed a cash tender offer to purchase for cash any and all of its outstanding 2016 senior notes. At the close of the tender offer, \$550 million aggregate principal amount of the 2016 senior notes was tendered by note holders, representing approximately 92% of the outstanding 2016 senior notes, which have been purchased by Ashland. Subsequently, Ashland redeemed the remaining balance of the 2016 senior notes of \$50 million on July 23, 2015.

In connection with the tender offer and redemption, in June 2015, Ashland entered into the 2015 Senior Credit Agreement. The 2015 Senior Credit Agreement replaced the \$1.2 billion senior unsecured revolving credit facility (the 2013 Senior Credit Facility), and was comprised of a new five-year senior unsecured revolving credit facility in an aggregate amount of \$1.2 billion (the 2015 revolving credit facility), which includes a \$250 million letter of credit sublimit and a \$100 million swing line loan sublimit, and a five-year senior unsecured term loan facility in an aggregate principal amount of \$1.1 billion (the 2015 term loan facility). The 2015 Senior Credit Agreement is not guaranteed, is unsecured and can be prepaid at any time without premium or penalty.

At Ashland's option, borrowings under the 2015 revolving credit facility bear interest at either LIBOR or an alternate base rate, in each case plus the applicable interest rate margin. The loans' interest rate fluctuate between LIBOR plus 1.375% per annum and LIBOR plus 2.50% per annum (or between the alternate base rate plus 0.375% per annum and the alternate base rate plus 1.50% per annum), based upon Ashland's corporate credit ratings or the consolidated gross leverage ratio (as defined in the 2015 Senior Credit Agreement) (whichever yields a lower applicable interest rate margin) at such time. In addition, Ashland was required to pay fees of 0.25% per annum on the daily unused amount of the 2015 revolving credit facility through and including June 30, 2015, and thereafter the fee rate will fluctuate between 0.175% and 0.40% per annum, based upon Ashland's corporate credit ratings or the consolidated gross leverage ratio (whichever yields a lower fee rate).

During 2015, the potential funding for qualified receivables was reduced from \$275 million to \$250 million. Under the terms of the Transfer and Administration Agreement, CVG Capital III LLC, a wholly-owned "bankruptcy remote" special purpose subsidiary of the Originators (CVG) may, from time to time, obtain up to \$250 million (in the form of cash or letters of credit for the benefit of Ashland and its subsidiaries) from the Conduit Investors, the Uncommitted Investors and/or the Committed Investors through the sale of an undivided interest in such accounts receivable, related assets and collections. Additionally, during 2015, the termination of the commitments under the Transfer and Administration Agreement under the accounts receivable securitization was extended from August 28, 2015 to December 31, 2015. See Note J of the Notes to Consolidated Financial Statements for further information on this agreement.

#### *Ashland debt covenant restrictions*

The 2015 Senior Credit Agreement contains usual and customary representations, warranties and affirmative and negative covenants, including financial covenants for leverage and interest coverage ratios, limitations on liens, additional subsidiary indebtedness, restrictions on subsidiary distributions, investments, mergers, sale of assets and restricted payments and other customary limitations. As of September 30, 2016, Ashland was in compliance with all debt agreement covenant restrictions.

The 2015 Senior Credit Agreement defines the consolidated leverage ratio as the ratio of consolidated indebtedness minus unrestricted cash and cash equivalents to consolidated EBITDA (Covenant Adjusted EBITDA) for any measurement period. In general, the 2015 Senior Credit Agreement defines Covenant Adjusted EBITDA as net income plus consolidated interest charges, taxes, depreciation and amortization expense, fees and expenses related to capital market transactions, restructuring and integration charges, noncash stock and equity compensation expense, and any other nonrecurring expenses or losses that do not represent a cash item in such period or any future period; less any noncash gains or other items increasing net income. The computation of Covenant Adjusted EBITDA differs from the calculation of EBITDA and Adjusted EBITDA, which have been reconciled on page M-8. In general, consolidated indebtedness includes debt plus all purchase money indebtedness, banker's acceptances and bank guaranties, deferred purchase price of property or services, attributable indebtedness and guarantees. The maximum consolidated leverage ratios permitted under the 2015 Senior Credit Agreement are as follows: 3.75 from June 30, 2015 through December 31, 2016 and 3.5 from March 31, 2017 and each fiscal quarter thereafter.

The 2015 Senior Credit Agreement defines the consolidated interest coverage ratio as the ratio of Covenant Adjusted EBITDA to consolidated interest charges for any measurement period. The minimum required consolidated interest coverage ratio under the 2015 Senior Credit Agreement during its entire duration is 3.0.

At September 30, 2016, Ashland's calculation of the consolidated leverage ratio was 2.7 compared to the maximum consolidated leverage ratio permitted under the 2015 Senior Credit Agreement of 3.75. At September 30, 2016, Ashland's calculation of the consolidated interest coverage ratio was 3.9 compared to the minimum required ratio of 3.0. Any change in



Covenant Adjusted EBITDA of \$100 million would have an approximate 0.4x effect on the consolidated leverage ratio and a 0.7x effect on the consolidated interest coverage ratio. Any change in consolidated indebtedness of \$100 million would affect the consolidated leverage ratio by approximately 0.2x.

### ***Valvoline Financing Activities***

#### *Valvoline financing activities during 2016*

The Valvoline Credit Agreement initially provided for an aggregate principal amount of \$1,325 million in senior secured credit facilities, comprised of (i) a five-year \$875 million term loan A facility and (ii) a five-year \$450 million revolving credit facility (including a \$100 million letter of credit sublimit). The Valvoline Credit Facilities may be prepaid at any time without premium. Amounts prepaid under the 2016 term loan facility may not be reborrowed.

The Valvoline Credit Facilities are guaranteed by Valvoline Inc.'s existing and future subsidiaries (other than certain immaterial subsidiaries, joint ventures, special purpose financing subsidiaries, regulated subsidiaries, foreign subsidiaries and certain other subsidiaries), and are secured by a first-priority security interest in substantially all the personal property assets, and certain real property assets, of Valvoline Inc. and the guarantors, including all or a portion of the equity interests of certain of Valvoline Inc.'s domestic subsidiaries and first-tier foreign subsidiaries and, in certain cases, a portion of the equity interests of other foreign subsidiaries.

At Valvoline Inc.'s option, the loans issued under the Valvoline Credit Agreement bear interest at either LIBOR or an alternate base rate, in each case plus the applicable interest rate margin. Loans bear interest at LIBOR plus 2.375% per annum, in the case of LIBOR borrowings, or at the alternate base rate plus 1.375%, in the alternative, through and including the date of delivery of a quarterly compliance certificate and thereafter the interest rate will fluctuate between LIBOR plus 1.500% per annum and LIBOR plus 2.500% per annum (or between the alternate base rate plus 0.500% per annum and the alternate base rate plus 1.500% per annum), based upon Valvoline Finco's corporate credit ratings or the consolidated first lien net leverage ratio (as defined in the Valvoline Credit Agreement) (whichever yields a lower applicable interest rate margin) at such time. In addition, Valvoline Inc. is required to pay fees of 0.375% per annum on the daily unused amount of the 2016 revolving credit facility through and including the date of delivery of a compliance certificate, and thereafter the fee rate will fluctuate between 0.200% and 0.500% per annum, based upon the Valvoline Inc.'s corporate credit ratings or the consolidated first lien net leverage ratio (whichever yields a lower applicable rate).

During September 2016, Valvoline Inc. borrowed \$875 million of principal on the 2016 term loan facility and \$137 million on the 2016 revolving credit facility. The net proceeds of these borrowings of \$865 million (after deducting fees and expenses) for the 2016 term loan facility and \$137 million for the 2016 revolving credit facility were transferred to Ashland. With these proceeds, Ashland repaid \$785 million of its 2015 term loan facility, \$150 million of the 2015 revolving credit facility and \$45 million of its accounts receivable securitization.

Valvoline Inc. used \$637 million of the net proceeds of its IPO to repay \$500 million of the outstanding balance under its 2016 term loan facility and all of the \$137 million outstanding balance of its 2016 revolving credit facility. See Note B of Notes to Consolidated Financial Statements for more information on the IPO of Valvoline Inc. common stock.

During July 2016, Valvoline Inc. completed its issuance of 5.500% senior unsecured notes due 2024 with an aggregate principal amount of \$375 million. The net proceeds of the offering of \$370 million (after deducting initial purchasers' discounts) were transferred to Ashland during July 2016. Ashland used these proceeds to repay \$110 million of the outstanding balance under Ashland's 2015 revolving credit facility and \$260 million of the 2015 term loan facility.

#### *Valvoline debt covenant restrictions*

The Valvoline Credit Agreement contains usual and customary representations and warranties, and usual and customary affirmative and negative covenants, including limitations on liens, additional indebtedness, investments, restricted payments, asset sales, mergers, affiliate transactions and other customary limitations, as well as financial covenants (including maintenance of a maximum consolidated leverage ratio and a minimum consolidated interest coverage ratio) and other customary limitations. As of September 30, 2016, Valvoline Inc. was in compliance with all debt agreement covenant restrictions and financial covenants.

The Valvoline Credit Agreement defines the consolidated leverage ratio as the ratio of consolidated indebtedness minus unrestricted cash and cash equivalents to consolidated EBITDA (Covenant Adjusted EBITDA) for any measurement period. In general, the Valvoline Credit Agreement defines Covenant Adjusted EBITDA as net income plus consolidated interest charges, taxes, depreciation and amortization expense, fees and expenses related to capital market transactions, restructuring and integration charges, noncash stock and equity compensation expense, and any other nonrecurring expenses or losses that do not represent a cash item in such period or any future period; less any noncash gains or other items increasing net income. The maximum consolidated leverage ratio permitted under the Valvoline Credit Agreement is 4.5.

The Valvoline Credit Agreement defines the consolidated interest coverage ratio as the ratio of Covenant Adjusted EBITDA to consolidated interest charges for any measurement period. The minimum required consolidated interest coverage ratio under the Valvoline Credit Agreement during its entire duration is 3.0.

At September 30, 2016, Valvoline's calculation of the consolidated leverage ratio was 1.4, which is below the maximum consolidated leverage ratio permitted under the Valvoline Credit Agreement of 4.5. At September 30, 2016, Valvoline's calculation of the consolidated interest coverage ratio was 13.3, which exceeds the minimum required consolidated ratio of 3.0. Any change in Covenant Adjusted EBITDA of \$100 million would have an approximate 0.3x effect on the consolidated leverage ratio and a 2.9x effect on the consolidated interest coverage ratio. Any change in consolidated indebtedness of \$100 million would affect the consolidated leverage ratio by approximately 0.2x.

#### *Ashland cash projection*

Ashland projects that cash flow from operations and other available financial resources such as cash on hand and revolving credit should be sufficient to meet investing and financing requirements to enable Ashland to comply with the covenants and other terms of its financing obligations. These projections are based on various assumptions that include, but are not limited to: operational results, working capital cash generation, capital expenditures, pension funding requirements and tax payment and receipts.

#### *Total Equity*

Total equity increased \$128 million since September 30, 2015 to \$3,165 million at September 30, 2016. This increase was primarily due to \$712 million of net proceeds from the IPO of Valvoline Inc., \$24 million in common shares issued under stock incentive and other plans, \$17 million of an unrealized gain on available-for-sale securities, \$14 million related to pension and other postretirement obligations, and \$1 million of net income attributable to the noncontrolling interest in Valvoline Inc. as of September 30, 2016. These increases were partially offset by a decline of \$500 million related to stock repurchase agreements, cash dividends of \$97 million, a net loss attributable to Ashland during the period of \$29 million, and deferred translation losses of \$14 million.

At September 30, 2016, total equity also includes an amount for noncontrolling interest, which reflects the outside stockholders' interest in Valvoline Inc. At September 30, 2016, Ashland maintains an approximately 83% ownership interest in Valvoline Inc., with the remaining approximately 17% ownership of Valvoline Inc. is held by outside stockholders.

#### *Stock repurchase programs*

During 2015, Ashland's Board of Directors approved a \$1 billion share repurchase authorization that will expire on December 31, 2017 (the 2015 stock repurchase program). This authorization allows for common shares to be repurchased in open market transactions, privately negotiated transactions or pursuant to one or more accelerated stock repurchase programs or Rule 10b5-1 plans.

During 2014, the Board of Directors of Ashland authorized a \$1.35 billion common stock repurchase program (the 2014 stock repurchase program). Under the program, Ashland's common shares were repurchased pursuant to accelerated stock repurchase agreements, a Rule 10b5-1 plan, and a prepaid variable share repurchase agreement. This repurchase program was completed during 2015.

The 2014 stock repurchase program authorization replaced Ashland's previous \$600 million share repurchase authorization (the 2013 stock repurchase program), approved in May 2013, which had \$450 million remaining when it was terminated.

#### *2015 stock repurchase program agreement*

In November 2015, under the 2015 stock repurchase program, Ashland announced that it entered into an accelerated share repurchase agreement (2016 ASR Agreement) with Goldman, Sachs & Co. Under the 2016 ASR Agreement, Ashland paid an initial purchase price of \$500 million and received an initial delivery of approximately 3.9 million shares of common stock during November 2015. In February 2016, Goldman, Sachs & Co. exercised their early termination option under the 2016 ASR Agreement and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$99.01 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by Goldman, Sachs & Co. under the 2016 ASR Agreement was 5.1 million shares. Ashland received the additional 1.2 million shares during 2016 to settle the difference between the initial share delivery and the total number of shares repurchased. After the 2016 ASR Agreement, \$500 million of share repurchase authorization remains under the 2015 stock repurchase program.

#### *2014 stock repurchase program agreements*

During 2014, Ashland announced that it had entered into accelerated share repurchase agreements (2014 ASR Agreements) with Deutsche Bank AG, London Branch (Deutsche Bank), and JPMorgan Chase Bank, N.A. (JPMorgan) to repurchase an aggregate

of \$750 million of Ashland's common stock. Under the 2014 ASR Agreements, Ashland paid an initial purchase price of \$750 million, split evenly between the financial institutions. As of September 30, 2014, Ashland received an initial delivery of approximately 5.9 million shares of common stock under the 2014 ASR Agreements. The 2014 ASR Agreements had a variable maturity, at the financial institutions option, with a maximum pricing period termination date of June 30, 2015. During 2015, the 2014 ASR Agreements terminated pursuant to their terms and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$116.33 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by the financial institutions under the 2014 ASR Agreements was 6.4 million shares. Ashland received the additional 0.5 million shares from the financial institutions during 2015 to settle the difference between the initial share delivery and the total number of shares repurchased.

During 2015, Ashland announced and completed accelerated share repurchase agreements (2015 ASR Agreements) with Deutsche Bank and JPMorgan to repurchase an aggregate of \$270 million of Ashland's common stock. Under the 2015 ASR Agreements, Ashland paid an initial purchase price of \$270 million, split evenly between the financial institutions and received an initial delivery of approximately 1.9 million shares of common stock. The 2015 ASR Agreements had a variable maturity, at the financial institutions option, with a maximum pricing period termination date of July 31, 2015. During 2015, Deutsche Bank and JPMorgan exercised their early termination option under the 2015 ASR Agreements and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$125.22 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by the financial institutions under the 2015 ASR Agreements was 2.2 million shares. Ashland received the additional 0.3 million shares from the financial institutions during 2015 to settle the difference between the initial share delivery and the total number of shares repurchased.

#### *Additional stock repurchase agreements*

Ashland entered into and completed a \$125 million prepaid variable share repurchase agreement during 2014. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$105.22 per share. Ashland received 0.8 million shares and \$45 million in cash for the unused portion of the \$125 million prepayment, for a net cash outlay of \$80 million.

During 2014, Ashland announced that it had entered into an agreement with each of Deutsche Bank Securities Inc. and JPMorgan to repurchase an aggregate of \$250 million of Ashland's common stock. Under the terms of the agreement, the financial institutions purchased a pre-determined number of shares on various trading days dependent upon Ashland's prevailing stock price on that date. During 2014, Ashland received 1.2 million shares of common stock for a total cost of \$124 million. During 2015, Ashland completed these agreements, receiving an additional 1.2 million shares of common stock for a total cost of \$127 million. The settlement price, which represents the average amount spent after commissions over the common shares repurchased throughout the program, was \$104.51 per share. In total, Ashland paid \$250 million and received 2.4 million shares of common stock under the agreements.

#### *Stockholder dividends*

In May 2015, the Board of Directors of Ashland announced a quarterly cash dividend increase to 39 cents per share to eligible shareholders of record. This amount was paid for quarterly dividends during each quarter of fiscal 2016 and the third and fourth quarters of fiscal 2015, and was an increase from the quarterly cash dividend of 34 cents per share paid during the first and second quarters of fiscal 2015 and each quarter of fiscal 2014.

#### *Capital expenditures*

Capital expenditures were \$300 million for 2016 and averaged \$271 million during the last three years. A summary of capital expenditures by reportable segment during 2016, 2015 and 2014 follow.

(In millions)	2016	2015	2014
Specialty Ingredients	\$ 179	\$ 171	\$ 159
Performance Materials	36	33	38
Valvoline	70	45	36
Unallocated and other	15	16	15
Total capital expenditures	\$ 300	\$ 265	\$ 248

A summary of the capital employed in Ashland's current operations, which is calculated by adding equity to capital investment, as of the end of the last three years follows.

(In millions)	2016	2015	2014
<b>Capital employed (a)</b>			
Specialty Ingredients	\$ 4,959	\$ 5,043	\$ 5,413
Performance Materials (b)	685	870	1,121
Valvoline	806	653	746

(a) Excludes the assets and liabilities classified within unallocated and other which primarily includes debt and other long-term liabilities such as asbestos and pension. The net liability in unallocated and other was \$3,285 million, \$3,529 million and \$3,697 million as of September 30, 2016, 2015 and 2014, respectively.

(b) Decline during 2015 is primarily due to sale of Elastomers.

#### *Contractual obligations and other commitments*

The following table aggregates Ashland's obligations and commitments to make future payments under existing contracts at September 30, 2016. Contractual obligations for which the ultimate settlement of quantities or prices are not fixed and determinable have been excluded.

(In millions)	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
<b>Contractual obligations</b>					
Raw material and service contract purchase obligations (a)	\$ 478	\$ 165	\$ 139	\$ 114	\$ 60
Employee benefit obligations (b)	244	38	53	46	107
Operating lease obligations (c)	308	52	84	47	125
Debt (d)	3,419	189	762	301	2,167
Interest payments (e)	1,938	158	336	316	1,128
Unrecognized tax benefits (f)	168	—	—	—	168
Total contractual obligations	<u>\$ 6,555</u>	<u>\$ 602</u>	<u>\$ 1,374</u>	<u>\$ 824</u>	<u>\$ 3,755</u>

#### **Other commitments**

Letters of credit (g)	\$ 73	\$ 73	\$ —	\$ —	\$ —
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(a) Includes raw material and service contracts where minimal committed quantities and prices are fixed.

(b) Includes estimated funding of Ashland's qualified U.S. and non-U.S. pension plans for 2017, as well as projected benefit payments through 2026 under Ashland's unfunded pension and other postretirement benefit plans. Excludes the benefit payments from the pension plan trust funds. See Note N of Notes to Consolidated Financial Statements for additional information.

(c) Includes leases for office buildings, retail outlets, transportation equipment, warehouses and storage facilities and other equipment. For further information, see Note L of Notes to Consolidated Financial Statements.

(d) Capitalized lease obligations are not significant and are included within this caption. For further information, see Note J of Notes to Consolidated Financial Statements.

(e) Includes interest expense on both variable and fixed rate debt assuming no prepayments. Variable interest rates have been assumed to remain constant through the end of the term at rates that existed as of September 30, 2016.

(f) Due to uncertainties in the timing of the effective settlement of tax positions with respect to taxing authorities, Ashland is unable to determine the timing of payments related to noncurrent unrecognized tax benefits, including interest and penalties. Therefore, these amounts were included in the "More than 5 years" column.

(g) Ashland issues various types of letters of credit as part of its normal course of business. For further information, see Note J of Notes to Consolidated Financial Statements.

#### **OFF-BALANCE SHEET ARRANGEMENTS**

As part of its normal course of business, Ashland is a party to various financial guarantees and other commitments. These arrangements involve elements of performance and credit risk that are not included in the Consolidated Balance Sheets. The possibility that Ashland would have to make actual cash expenditures in connection with these obligations is largely dependent on the performance of the guaranteed party, or the occurrence of future events that Ashland is unable to predict. Ashland has reserved the approximate fair value of these guarantees in accordance with U.S. GAAP.

## NEW ACCOUNTING PRONOUNCEMENTS

For a discussion and analysis of recently issued accounting pronouncements and its impact on Ashland, see Note A of Notes to Consolidated Financial Statements.

## CRITICAL ACCOUNTING POLICIES

The preparation of Ashland's Consolidated Financial Statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, sales and expenses, and the disclosures of contingent assets and liabilities. Significant items that are subject to such estimates and assumptions include, but are not limited to, long-lived assets (including goodwill and other intangible assets), employee benefit obligations, income taxes, liabilities and receivables associated with asbestos litigation and environmental remediation. Although management bases its estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances, actual results could differ significantly from the estimates under different assumptions or conditions. Management has reviewed the estimates affecting these items with the Audit Committee of Ashland's Board of Directors.

### Long-lived assets

#### *Tangible assets*

The cost of property, plant and equipment is depreciated by the straight-line method over the estimated useful lives of the assets. Buildings are depreciated principally over 25 to 35 years and machinery and equipment principally over 2 to 25 years. Ashland reviews property, plant and equipment asset groups for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Ashland monitors these changes and events on at least a quarterly basis. Examples of events or changes in circumstances could include, but are not limited to, a prolonged economic downturn, current period operating or cash flow losses combined with a history of losses or a forecast of continuing losses associated with the use of an asset group, or a current expectation that an asset group will be sold or disposed of before the end of its previously estimated useful life. Recoverability is based upon projections of anticipated future undiscounted cash flows associated with the use and eventual disposal of the property, plant and equipment asset groups, as well as specific appraisals in certain instances. Reviews occur at the lowest level for which identifiable cash flows are largely independent of cash flows associated with other property, plant and equipment asset groups. If the future undiscounted cash flows result in a value that is less than the carrying value, then the long-lived asset is considered impaired and a loss is recognized based on the amount by which the carrying amount exceeds the estimated fair value. Various factors that Ashland uses in determining the impact of these assessments include the expected useful lives of long-lived assets and the ability to realize any undiscounted cash flows in excess of the carrying amounts of such asset groups, and are affected primarily by changes in the expected use of the assets, changes in technology or development of alternative assets, changes in economic conditions, changes in operating performance and changes in expected future cash flows. Because judgment is involved in determining the fair value of property, plant and equipment asset groups, there is risk that the carrying value of these assets may require adjustment in future periods.

Total depreciation expense on property, plant and equipment for 2016, 2015 and 2014 was \$260 million, \$263 million and \$304 million, respectively. Depreciation expense for 2016, 2015 and 2014 included \$6 million, \$6 million and \$36 million, respectively, in accelerated depreciation and asset impairments. Capitalized interest for 2016, 2015 and 2014 was \$1 million, \$2 million and \$1 million, respectively.

#### *Finite-lived intangible assets*

Finite-lived intangible assets principally consist of certain trademarks and trade names, intellectual property, and customer relationships. These intangible assets are amortized on a straight-line basis over their estimated useful lives. The cost of trademarks and trade names is amortized principally over 3 to 25 years, intellectual property over 5 to 20 years and customer relationships over 3 to 24 years. Ashland reviews finite-lived intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Ashland monitors these changes and events on at least a quarterly basis.

Amortization expense recognized on finite-lived intangible assets was \$77 million for 2016, \$78 million for 2015 and \$89 million for 2014, and is primarily included in the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income.

#### *Goodwill*

Ashland reviews goodwill and indefinite-lived intangible assets for impairment annually or when events and circumstances indicate an impairment may have occurred. The annual assessment is performed as of July 1 and consists of Ashland determining each reporting unit's current fair value compared to its current carrying value. Ashland determined that its reporting units for the allocation of goodwill include the Specialty Ingredients reportable segment, the Composites and Intermediates/Solvents reporting

units within the Performance Materials reportable segment, and the Core North America, Quick Lubes and International reporting units within the Valvoline reportable segments.

Goodwill associated with the reporting units as of September 30, 2016 was \$1,991 million for Specialty Ingredients, \$147 million for Composites, and for the Valvoline business includes \$89 million for Core North America, \$135 million for Quick Lubes and \$39 million for International. The goodwill balance for Intermediates/Solvents was reduced to zero as a result of an impairment charge recorded during 2016.

In the first step of the impairment model, Ashland compares the carrying value of each reporting unit to its respective estimated fair value. Ashland makes various estimates and assumptions in determining the estimated fair values of those reporting units through the use of a combination of discounted cash flow models and valuations based on earnings multiples for guideline public companies in each reporting unit's industry peer group. Discounted cash flow models are highly reliant on various assumptions. Significant assumptions Ashland utilized in these models for the current year included: projected business results and future industry direction, long-term growth factors and weighted-average cost of capital. The base models of future financial performance projections utilized in the goodwill impairment assessment reflect conservative assumptions on future operating performance as approved by Management and the Board of Directors. Ashland uses assumptions that it deems to be reasonable estimates of likely future events and compares the total fair values of each reporting unit to Ashland's market capitalization, and implied control premium, to determine if the fair values are reasonable compared to external market indicators. Subsequent changes in these key assumptions could affect the results of future goodwill impairment reviews.

If the comparison of the estimated fair value of the reporting unit to its carrying value indicates that a reporting unit's estimated fair value is less than its carrying value, a second step is required. If applicable, the second step requires the fair value of the reporting unit be allocated to the estimated fair value of the reporting unit's net assets, with any fair value in excess of amounts allocated to such net assets representing the implied fair value of goodwill for that reporting unit. The implied goodwill balance is compared to the carrying value of goodwill for the actual reporting unit to determine the goodwill impairment amount.

In conjunction with the July 1, 2016 annual assessment of goodwill, Ashland's valuation techniques did not indicate any impairment for Specialty Ingredients, Composites, Core North America, Quick Lubes or International as the fair value for each of these reporting units exceeded the carrying value by 25% or greater. Based on sensitivity analyses performed, a negative 1% change in the long-term growth factor and the weighted-average cost of capital assumption, which are key assumptions, would not have resulted in the carrying value of these reporting units to exceed their respective calculated fair value. Because the fair value results for these reporting units did not indicate a potential impairment existed, Ashland did not record any goodwill impairment for these reporting units during 2016, 2015, and 2014. Subsequent to this annual impairment test, no indicators of impairment were identified for any of these reporting units.

In conjunction with the July 1, 2016 annual assessment of impairment of goodwill, Ashland's valuation techniques determined that the carrying value of the Intermediates/Solvents reporting unit exceeded its fair value at July 1, 2016, which resulted in the reporting unit failing the first step of the goodwill impairment test. Ashland then performed the second step of the goodwill impairment test, which involved, among other things, obtaining third-party appraisals of substantially all of Intermediates/Solvents tangible and intangible assets. Based on the results of its goodwill impairment testing as of July 1, 2016, Ashland recorded a pre-tax goodwill impairment charge of \$171 million in the fourth quarter of 2016, which is in addition to a \$10 million impairment related to Intermediates/Solvents property, plant and equipment, resulted in a total \$181 million impairment charge for Intermediates/Solvents during 2016.

Key factors that affected Ashland's conclusion that an impairment of the Intermediates/Solvents reporting unit had occurred during the fourth quarter included the continued deterioration in the butanediol commodity market during 2016. Market conditions for butanediol, a commodity chemical used in the production of polymers, solvents and fine chemicals, can vary significantly from year to year or even quarter to quarter. Throughout 2016, increasing levels of overcapacity for butanediol in the market, particularly in China, and the resulting weak pricing had a cumulating negative impact on the financial performance of the Intermediates/Solvents division. Butanediol commodity contract prices have fallen consistently over the past several quarters. These factors contributed significantly to lower expected EBITDA results within the longer-term forecast period. Ashland prepares its annual forecast mid-August through October each year. As the 2016 forecast was developed, Ashland considered many factors when assessing the outlook for 2017 and beyond. Because of these factors, Ashland revised its forecasts down significantly, which ultimately led to the goodwill and other long-lived asset impairment charge for the Intermediates/Solvents reporting unit during the fourth quarter of 2016.

Ashland assessed and summed the total fair values of each reporting unit to Ashland's market capitalization at the annual assessment date to determine if the fair values are reasonable compared to external market indicators. The calculated fair value for each reporting unit summed together exceeded Ashland's market capitalization at the annual assessment date by approximately 16%. Ashland evaluated this implied control premium by comparing it to control premiums of recent comparable transactions, noting the 16% implied control premium was below levels of other recent comparable transactions. Accordingly, Ashland believed that its calculated fair values for its reporting units was an appropriately conservative estimate of fair value for purposes of the

annual goodwill impairment assessment. If the implied control premium was not reasonable in light of this assessment, Ashland would reevaluate its fair value estimates of the reporting units by adjusting the discount rates and other assumptions as necessary.

#### *Other indefinite-lived intangible assets*

Other indefinite-lived intangible assets include certain trademarks and trade names. These assets had a carrying value of \$301 million as of September 30, 2016. Ashland reviews these intangible assets for possible impairment annually or whenever events or changes in circumstances indicate that carrying amounts may not be recoverable. Ashland tests these assets using a “relief-from-royalty” valuation method compared to the carrying value. Significant assumptions inherent in the valuation methodologies for these intangibles include, but are not limited to, such estimates as projected business results, growth rates, weighted-average cost of capital, and royalty rates. The assumptions utilized in the current year models are generally consistent with the prior year models. In conjunction with the July 1 annual assessment of indefinite-lived intangible assets, Ashland’s models did not indicate any impairment, as each indefinite-lived intangible asset’s fair value exceeded their carrying values.

Ashland’s assessment of an impairment charge on any of these assets classified currently as having indefinite lives, including goodwill, could change in future periods if any or all of the following events were to occur with respect to a particular reporting unit: a significant change in projected business results, a divestiture decision, increase in Ashland’s weighted-average cost of capital rates, decrease in growth rates or other assumptions, economic deterioration that is more severe or of a longer duration than anticipated, or another significant economic event. For further information, see Note I of Notes to Consolidated Financial Statements.

### **Employee benefit obligations**

#### *Pension plans*

Ashland and its subsidiaries sponsor contributory and noncontributory qualified defined benefit pension plans that cover certain employees in the United States and in a number of other countries. In addition, Ashland and its subsidiaries have non-qualified unfunded pension plans which provide supplemental defined benefits to those employees whose benefits under the qualified pension plans are limited by the Employee Retirement Income Security Act of 1974 and the Internal Revenue Code. Ashland funds the costs of the non-qualified plans as the benefits are paid. Pension obligations for applicable employees of non-U.S. consolidated subsidiaries are provided for in accordance with local practices and regulations of the respective countries. For further information, see Note N of the Notes to Consolidated Financial Statements.

#### *Other postretirement benefit plans*

Ashland and its subsidiaries sponsor health care and life insurance plans for eligible employees in the U.S. and Canada who retire or are disabled. Ashland’s retiree life insurance plans are noncontributory, while Ashland shares the costs of providing health care coverage with its retired employees through premiums, deductibles and coinsurance provisions. Ashland funds its share of the costs of the postretirement benefit plans as the benefits are paid. For further information, see Note N of Notes to Consolidated Financial Statements.

#### *Plan transfers*

During 2016, Ashland transferred a substantial portion of the largest U.S. qualified pension plan and non-qualified U.S. pension plans as well as certain other postretirement benefit plans to Valvoline Inc. As of September 30, 2016, Valvoline Inc.’s net pension and other postretirement plan liabilities totaled approximately \$900 million.

#### *Pension and other postretirement benefits costs methodology*

Ashland recognizes the change in the fair value of plan assets and net actuarial gains and losses annually in the fourth quarter of each fiscal year and whenever a plan is determined to qualify for a remeasurement. The remaining components of pension and other postretirement benefits expense are recorded ratably on a quarterly basis. Pension and other postretirement benefits adjustments charged directly to cost of sales that are applicable to inactive participants are excluded from inventoriable costs. The service cost component of pension and other postretirement benefits costs is allocated to each reportable segment on a ratable basis; while the remaining components of pension and other postretirement benefits costs are recorded to Unallocated and other.

The following table discloses the components of the gain or loss on pension and other postretirement plan remeasurements for each of the last three years.

(In millions)	2016	2015	2014
<b>Loss (gain) on pension and other postretirement plan remeasurement:</b>			
Change in discount rate and other actuarial assumptions (a)	\$ 398	\$ 13	\$ 369
Change in mortality table/assumptions (a)	(32)	47	149
Actual return on plan assets (a)	(321)	(15)	(309)
Expected return on plan assets (a)	192	216	237
Total actuarial loss on pension and other postretirement plan remeasurement	237	261	446
Curtailed, settlement and other (gain) loss	(113)	(11)	11
Total loss on pension and other postretirement plan remeasurement	124	250	457
Less: Actuarial loss recognized in discontinued operations	—	2	44
Less: Curtailed, settlement and other gain in discontinued operations	—	(7)	(25)
Total loss on pension and other postretirement plan remeasurement from continuing operations	<u>\$ 124</u>	<u>\$ 255</u>	<u>\$ 438</u>

(a) For additional information on key assumptions and actual plan asset performance in each year, see the “Actuarial assumptions” discussion within this section.

#### *Actuarial assumptions*

Ashland’s pension and other postretirement obligations and annual expense calculations are based on a number of key assumptions including the discount rate at which obligations can be effectively settled, the anticipated rate of compensation increase, the expected long-term rate of return on plan assets and certain employee-related factors, such as turnover, retirement age and mortality. Because Ashland’s retiree health care plans contain various caps that limit Ashland’s contributions and because medical inflation is expected to continue at a rate in excess of these caps, the health care cost trend rate has no significant impact on Ashland’s postretirement health care benefit costs.

Ashland developed the discount rate used to determine the present value of its obligations under the U.S. pension and postretirement health and life plans by matching the stream of benefit payments from the plans to spot rates determined from an actuarial-developed yield curve, the above mean yield curve, based on high-quality corporate bonds. Ashland uses this approach to reflect the specific cash flows of these plans when determining the discount rate. Non-U.S. pension plans followed a similar process based on financial markets in those countries where Ashland provides a defined benefit pension plan.

During 2016, Ashland changed the method used to estimate the service and interest cost components of net periodic benefit cost for pension and other postretirement benefits. This change compared to the previous method resulted in a decrease in the service and interest cost components for pension and other postretirement benefit costs during the quarter. Historically, Ashland estimated these service and interest cost components utilizing a single weighted-average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. Ashland has elected to utilize a full yield curve approach in the estimation of these components by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. Ashland has made this change to provide a more precise measurement of service and interest costs by improving the correlation between projected benefit cash flows to the corresponding spot yield curve rates. This change does not affect the measurement of Ashland’s total benefit obligations or annual net periodic benefit costs as the change in the service and interest costs will be offset in the actuarial gain or loss reported, which typically occurs during the fourth fiscal quarter. Ashland has accounted for this change as a change in accounting estimate that is inseparable from a change in accounting principle and accordingly has accounted for it prospectively.

Accordingly Ashland’s 2016 expense, excluding actuarial gains and losses, for both U.S. and non-U.S. pension plans is determined using the discount rate as of the beginning of the fiscal year. The service cost and interest cost discount rates for 2016 expense were 3.94% and 3.30%, respectively. For 2015 and 2014 Ashland’s expense, excluding actuarial gains and losses, for both U.S. and non-U.S. pension plans was determined using the weighted-average discount rate as of the beginning of the fiscal year, which were 4.18%, and 4.68%, respectively. The 2016 discount rates used for the postretirement health and life plans service cost and interest cost were 4.31% and 3.04%, respectively. The weighted-average discount rates used for the postretirement health and life plans were 3.85%, and 4.28% for the years ended September 30, 2015, and 2014, respectively. The actuarial gains and losses recognized within the Statements of Consolidated Comprehensive Income are calculated using updated actuarial assumptions (including discount rates) as of the measurement date, which for Ashland is the end of the fiscal year, unless a plan qualifies for a remeasurement during the year. The weighted-average discount rate at the end of fiscal 2016 was 3.38% for the pension plans and 3.14% for the postretirement health and life plans.



The weighted-average rate of compensation increase assumptions were 3.01% for 2016, 3.18% for 2015 and 3.59% for 2014. The compensation increase assumptions for the U.S. plans were 3.00% for 2016, 3.20% for 2015 and 3.75% for 2014. The rate of the compensation increase assumption for the U.S. plans will remain at 3.00% in determining Ashland's pension costs for 2017.

During 2015, Ashland updated the mortality assumption based on information issued by the Society of Actuaries in October 2015 for the U.S. pension and other postretirement health and life plans. Ashland believes the updated mortality table assumption provides a more accurate assessment of current mortality trends and is a reasonable estimate of future mortality projections. Ashland's mortality assumption in 2016 included consideration of updated mortality information consistent with the data issued by the Society of Actuaries in October 2016.

The weighted-average long-term expected rate of return on assets was assumed to be 6.66% for 2016, 7.27% for 2015 and 7.67% for 2014. The long-term expected rate of return on assets for the U.S. plans was assumed to be 7.10% for 2016, 7.65% for 2015 and 8.00% for 2014. For 2016, the pension plan assets generated an actual weighted-average return of 12.0%, compared to 1.52% in 2015 and 10.62% in 2014. For 2016, the U.S. pension plan assets generated an actual return of 10.52%, compared to 0.44% in 2015 and 10.33% in 2014. The long-term expected rate of return on assets for the U.S. plans will be 6.60% for 2017. However, the expected return on plan assets is designed to be a long-term assumption, and actual returns will be subject to considerable year-to-year variances.

The following table discloses the estimated increases in pension and postretirement expense that would have resulted from a one percentage point change in each of the assumptions for each of the last three years.

(In millions)	2016	2015	2014
<b>Increase in pension costs from</b>			
Decrease in the discount rate	\$ 445	\$ 490	\$ 591
Increase in the salary adjustment rate	8	33	32
Decrease in expected return on plan assets	27	30	31
<b>Increase in other postretirement costs from</b>			
Decrease in the discount rate	13	20	20

#### *U.S. pension legislation and future funding requirements*

Ashland's U.S. qualified pension plans funding requirements through fiscal 2017 are calculated in accordance with the regulations set forth in the Moving Ahead for Progress in the 21st Century Act (MAP-21), which provides temporary relief for employers who sponsor defined benefit pension plans related to funding contributions under the Employee Retirement Income Security Act of 1974. Specifically, MAP-21 allows for the use of a 25-year average interest rate within an upper and lower range for purposes of determining minimum funding obligations instead of an average interest rate for the two most recent years, as was previously required.

Ashland expects to contribute approximately \$15 million to its non-qualified U.S. pension plans and \$10 million to its non-U.S. pension plans during 2017.

#### **Income taxes**

Ashland is subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgment in the forecasting of taxable income using historical and projected future operating results is required in determining Ashland's provision for income taxes and the related assets and liabilities. The provision for income taxes includes income taxes paid, currently payable or receivable, and deferred taxes. Under U.S. GAAP, deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities, and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Deferred tax assets are also recognized for the estimated future effects of tax loss carryforwards. The effect on deferred taxes of changes in tax rates is recognized in the period in which the enactment date occurs. Valuation allowances are established when necessary on a jurisdictional basis to reduce deferred tax assets to the amounts expected to be realized. Deferred taxes are not provided on the unremitted earnings of subsidiaries outside of the United States when it is expected that these earnings are indefinitely reinvested. In the event that the actual outcome of future tax consequences differs from Ashland's estimates and assumptions due to changes or future events such as tax legislation, geographic mix of earnings, completion of tax audits or earnings repatriation plans, the resulting change to the provision for income taxes could have a material effect on the Statement of Consolidated Comprehensive Income and Consolidated Balance Sheet.

The recoverability of deferred tax assets and the recognition and measurement of uncertain tax positions are subject to various assumptions and judgment by Ashland. If actual results differ from the estimates made by Ashland in establishing or maintaining

valuation allowances against deferred tax assets, the resulting change in the valuation allowance would generally impact earnings or other comprehensive income depending on the nature of the respective deferred tax asset. Additionally, the positions taken with regard to tax contingencies may be subject to audit and review by tax authorities, which may result in future taxes, interest and penalties. Positive and negative evidence is considered in determining the need for a valuation allowance against deferred tax assets, which includes such evidence as historical earnings, projected future earnings, tax planning strategies and expected timing of reversal of existing temporary differences.

In determining the recoverability of deferred tax assets Ashland gives consideration to all available positive and negative evidence including reversals of deferred tax liabilities (other than those with an indefinite reversal period), projected future taxable income, tax planning strategies and recent financial operations. Ashland attaches the most weight to historical earnings due to their verifiable nature. In evaluating the objective evidence that historical results provide, we consider three years of cumulative income or loss. In addition, Ashland has reflected increases and decreases in our valuation allowance based on the overall weight of positive versus negative evidence on a jurisdiction by jurisdiction basis.

### **Asbestos litigation**

Ashland and Hercules, an indirectly wholly-owned subsidiary of Ashland that was acquired in 2009, have liabilities from claims alleging personal injury caused by exposure to asbestos. To assist in developing and annually updating independent reserve estimates for future asbestos claims and related costs given various assumptions, Ashland retained Hamilton, Rabinovitz & Associates, Inc. (HR&A). The methodology used by HR&A to project future asbestos costs is based largely on recent experience, including claim-filing and settlement rates, disease mix, enacted legislation, open claims and litigation defense. The claim experience of Ashland and Hercules are separately compared to the results of previously conducted third party epidemiological studies estimating the number of people likely to develop asbestos-related diseases. Those studies were undertaken in connection with national analyses of the population expected to have been exposed to asbestos. Using that information, HR&A estimates a range of the number of future claims that may be filed, as well as the related costs that may be incurred in resolving those claims. Changes in asbestos-related liabilities and receivables are recorded on an after-tax basis within the discontinued operations caption in the Statements of Consolidated Comprehensive Income. See Note O of Notes to Consolidated Financial Statements for additional information.

#### *Ashland asbestos-related litigation*

The claims alleging personal injury caused by exposure to asbestos asserted against Ashland result primarily from indemnification obligations undertaken in 1990 in connection with the sale of Riley, a former subsidiary. The amount and timing of settlements and number of open claims can fluctuate from period to period.

#### *Ashland asbestos-related liability*

From the range of estimates, Ashland records the amount it believes to be the best estimate of future payments for litigation defense and claim settlement costs, which generally approximates the mid-point of the estimated range of exposure from model results. Ashland reviews this estimate and related assumptions quarterly and annually updates the results of a non-inflated, non-discounted approximate 50-year model developed with the assistance of HR&A.

During the most recent update completed during 2016, it was determined that the liability for Ashland asbestos-related claims should be increased by \$37 million. Total reserves for asbestos claims were \$415 million at September 30, 2016 compared to \$409 million at September 30, 2015.

#### *Ashland asbestos-related receivables*

Ashland has insurance coverage for certain litigation defense and claim settlement costs incurred in connection with its asbestos claims, and coverage-in-place agreements exist with the insurance companies that provide substantially all of the coverage that will be accessed.

For the Ashland asbestos-related obligations, Ashland has estimated the value of probable insurance recoveries associated with its asbestos reserve based on management's interpretations and estimates surrounding the available or applicable insurance coverage, including an assumption that all solvent insurance carriers remain solvent. Substantially all of the estimated receivables from insurance companies are expected to be due from domestic insurers, all of which are solvent.

In October 2012, Ashland and Hercules initiated various arbitration proceedings against Underwriters at Lloyd's, certain London companies and/or Chartist (AIG) member companies seeking to enforce these insurers' contractual obligations to provide indemnity for asbestos liabilities and defense costs under existing coverage-in-place agreements. In addition, Ashland and Hercules initiated a lawsuit in Kentucky state court against certain Berkshire Hathaway entities (National Indemnity Company and Resolute Management, Inc.) on grounds that these Berkshire Hathaway entities had wrongfully interfered with Underwriters' and Chartist' performance of their respective contractual obligations to provide asbestos coverage by directing the insurers to reduce and delay certain claim payments.

On January 13, 2015, Ashland and Hercules entered into a comprehensive settlement agreement related to certain insurance coverage for asbestos bodily injury claims with Underwriters at Lloyd's, certain London companies and Chartis (AIG) member companies, along with National Indemnity Company and Resolute Management, Inc., under which Ashland and Hercules received a total of \$398 million. In exchange, all claims were released against these entities for past, present and future coverage obligations arising out of the asbestos coverage-in-place agreements that were the subject of the pending arbitration proceedings. In addition, as part of this settlement, Ashland and Hercules released all claims against National Indemnity Company and Resolute Management, Inc. in the Kentucky state court action. As a result, the arbitration proceedings and the Kentucky state court action have been terminated.

As a result of this settlement, Ashland recorded an after-tax gain of \$120 million within the discontinued operations caption of the Statements of Consolidated Comprehensive Income during 2015. The Ashland insurance receivable balance was also reduced as a result of this settlement by \$227 million within the Consolidated Balance Sheets.

In addition, during 2015, Ashland placed \$335 million of the settlement funds received into a renewable annual trust restricted for the purpose of paying for ongoing and future litigation defense and claim settlement costs incurred in conjunction with asbestos claims.

During 2016, Ashland entered into settlement agreements totaling \$4 million with certain insurers, which resulted in a reduction of the Ashland insurance receivable within the Consolidated Balance Sheets by the same amount. Ashland placed \$4 million of the settlement funds into the renewable annual trust.

At September 30, 2016, Ashland's receivable for recoveries of litigation defense and claim settlement costs from insurers amounted to \$151 million (excluding the Hercules receivable for asbestos claims), of which \$6 million relates to costs previously paid. Receivables from insurers amounted to \$150 million at September 30, 2015. During 2016, the annual update of the model used for purposes of valuing the asbestos reserve and its impact on valuation of future recoveries from insurers, was completed. This model update resulted in a \$16 million increase in the receivable for probable insurance recoveries.

#### *Hercules asbestos-related litigation*

Hercules has liabilities from claims alleging personal injury caused by exposure to asbestos. Such claims typically arise from alleged exposure to asbestos fibers from resin encapsulated pipe and tank products which were sold by one of Hercules' former subsidiaries to a limited industrial market. The amount and timing of settlements and number of open claims can fluctuate from period to period.

#### *Hercules asbestos-related liability*

From the range of estimates, Ashland records the amount it believes to be the best estimate of future payments for litigation defense and claim settlement costs, which generally approximates the mid-point of the estimated range of exposure from model results. Ashland reviews this estimate and related assumptions quarterly and annually updates the results of a non-inflated, non-discounted approximate 50-year model developed with the assistance of HR&A. As a result of the most recent annual update of this estimate, completed during 2016, it was determined that the liability for Hercules asbestos-related claims should be increased by \$25 million. Total reserves for asbestos claims were \$321 million at September 30, 2016 compared to \$311 million at September 30, 2015.

#### *Hercules asbestos-related receivables*

For the Hercules asbestos-related obligations, certain reimbursement obligations pursuant to coverage-in-place agreements with insurance carriers exist. As a result, any increases in the asbestos reserve have been partially offset by probable insurance recoveries. Ashland has estimated the value of probable insurance recoveries associated with its asbestos reserve based on management's interpretations and estimates surrounding the available or applicable insurance coverage, including an assumption that all solvent insurance carriers remain solvent. The estimated receivable consists exclusively of solvent domestic insurers.

As a result of the January 2015 asbestos insurance settlement previously described, Hercules resolved all disputes with Chartis (AIG) member companies under their existing coverage-in-place agreement for past, present and future Hercules asbestos claims. As a result, during 2015, a \$22 million reduction in the insurance receivable balance within the Consolidated Balance Sheets was recorded.

As of September 30, 2016 and 2015, the receivables from insurers amounted to \$63 million and \$56 million, respectively. During 2016, the annual update of the model used for purposes of valuing the asbestos reserve and its impact on valuation of future recoveries from insurers was completed. This model update resulted in a \$7 million increase in the receivable for probable insurance recoveries.

#### *Asbestos litigation cost projection*

Projecting future asbestos costs is subject to numerous variables that are extremely difficult to predict. In addition to the significant uncertainties surrounding the number of claims that might be received, other variables include the type and severity of

the disease alleged by each claimant, the long latency period associated with asbestos exposure, mortality rates, dismissal rates, costs of medical treatment, the impact of bankruptcies of other companies that are co-defendants in claims, uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, and the impact of potential changes in legislative or judicial standards. Furthermore, any predictions with respect to these variables are subject to even greater uncertainty as the projection period lengthens. In light of these inherent uncertainties, Ashland believes that the asbestos reserves for Ashland and Hercules represent the best estimate within a range of possible outcomes. As a part of the process to develop these estimates of future asbestos costs, a range of long-term cost models was developed. These models are based on national studies that predict the number of people likely to develop asbestos-related diseases and are heavily influenced by assumptions regarding long-term inflation rates for indemnity payments and legal defense costs, as well as other variables mentioned previously. Ashland has currently estimated in various models ranging from approximately 40 to 50 year periods that it is reasonably possible that total future litigation defense and claim settlement costs on an inflated and undiscounted basis could range as high as approximately \$670 million for the Ashland asbestos-related litigation (current reserve of \$415 million) and approximately \$490 million for the Hercules asbestos-related litigation (current reserve of \$321 million), depending on the combination of assumptions selected in the various models. If actual experience is worse than projected, relative to the number of claims filed, the severity of alleged disease associated with those claims or costs incurred to resolve those claims, or actuarial refinement or improvements to the assumptions used within these models are initiated, Ashland may need to further increase the estimates of the costs associated with asbestos claims and these increases could be material over time.

### **Environmental remediation and asset retirement obligations**

Ashland is subject to various federal, state and local environmental laws and regulations that require environmental assessment or remediation efforts (collectively environmental remediation) at multiple locations. At September 30, 2016, such locations included 81 waste treatment or disposal sites where Ashland has been identified as a potentially responsible party under Superfund or similar state laws, 130 current and former operating facilities (including certain operating facilities conveyed as part of the MAP Transaction) and about 1,225 service station properties, of which 64 are being actively remediated.

Ashland's reserves for environmental remediation and related environmental litigation amounted to \$177 million at September 30, 2016 compared to \$186 million at September 30, 2015, of which \$134 million at September 30, 2016 and \$139 million at September 30, 2015 were classified in other noncurrent liabilities on the Consolidated Balance Sheets.

The total reserves for environmental remediation reflect Ashland's estimates of the most likely costs that will be incurred over an extended period to remediate identified conditions for which the costs are reasonably estimable, without regard to any third-party recoveries. Engineering studies, probability techniques, historical experience and other factors are used to identify and evaluate remediation alternatives and their related costs in determining the estimated reserves for environmental remediation. Ashland continues to discount certain environmental sites and regularly adjusts its reserves as environmental remediation continues. Ashland has estimated the value of its probable insurance recoveries associated with its environmental reserve based on management's interpretations and estimates surrounding the available or applicable insurance coverage. At September 30, 2016 and 2015, Ashland's recorded receivable for these probable insurance recoveries was \$23 million, of which \$15 million and \$16 million, respectively, were classified in other noncurrent assets in the Consolidated Balance Sheets.

Environmental remediation reserves are subject to numerous inherent uncertainties that affect Ashland's ability to estimate its share of the costs. Such uncertainties involve the nature and extent of contamination at each site, the extent of required cleanup efforts under existing environmental regulations, widely varying costs of alternate cleanup methods, changes in environmental regulations, the potential effect of continuing improvements in remediation technology, and the number and financial strength of other potentially responsible parties at multiparty sites. Although it is not possible to predict with certainty the ultimate costs of environmental remediation, Ashland currently estimates that the upper end of the reasonably possible range of future costs for identified sites could be as high as approximately \$380 million. No individual remediation location is significant, as the largest reserve for any site is less than 15% of the remediation reserve.

### **OUTLOOK**

Ashland expects Specialty Ingredients to report improved growth and profitability during 2017 despite an expected low global growth environment. For the year, Ashland expects Adjusted EBITDA to be in the range of \$480 million to \$510 million, with similar seasonal patterns compared to fiscal 2016.

Ashland expects Performance Materials during 2017 to report Adjusted EBITDA to be in the range of \$95 million to \$105 million, which includes an estimated impact of \$20 million from expected lower pricing for butanediol and related derivatives compared to 2016. Within the Composites division, volume and margin results are expected to be generally consistent with 2016. Within the Intermediates/Solvents division, butanediol and related derivatives pricing is expected to remain well below prior year levels through the first three quarters of fiscal 2017.

## **EFFECTS OF INFLATION AND CHANGING PRICES**

Ashland's financial statements are prepared on the historical cost method of accounting in accordance with U.S. GAAP and, as a result, do not reflect changes in the purchasing power of the U.S. dollar. Monetary assets (such as cash, cash equivalents and accounts receivable) lose purchasing power as a result of inflation, while monetary liabilities (such as accounts payable and indebtedness) result in a gain, because they can be settled with dollars of diminished purchasing power. As of September 30, 2016, Ashland's monetary assets exceed its monetary liabilities, leaving it currently more exposed to the effects of future inflation. However, given the recent consistent stability of inflation in the United States in the past several years as well as forward economic outlooks, current inflationary pressures seem moderate.

Certain of the industries in which Ashland operates are capital-intensive, and replacement costs for its plant and equipment generally would substantially exceed their historical costs. Accordingly, depreciation and amortization expense would be greater if it were based on current replacement costs. However, because replacement facilities would reflect technological improvements and changes in business strategies, such facilities would be expected to be more productive than existing facilities, mitigating at least part of the increased expense.

Ashland uses the LIFO method to value a portion of its inventories to provide a better matching of revenues with current costs. However, LIFO values such inventories below their replacement costs during inflationary periods.

## **FORWARD-LOOKING STATEMENTS**

This Annual Report on Form 10-K contains forward-looking statements including, without limitation, statements made under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operation" (MD&A), within the meaning of Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended. Ashland has identified some of these forward-looking statements with words such as "anticipates," "believes," "expects," "estimates," "is likely," "predicts," "projects," "forecasts," "objectives," "may," "will," "should," "plans" and "intends" and the negative of these words or other comparable terminology. These forward-looking statements include statements relating to the status of the separation process and the expected completion of the separation through the subsequent distribution of Valvoline common stock. In addition, Ashland may from time to time make forward-looking statements in its Annual Report to Shareholders, quarterly reports and other filings with the Securities and Exchange Commission (SEC), news releases and other written and oral communications. These forward-looking statements are based on Ashland's expectations and assumptions, as of the date such statements are made, regarding Ashland's future operating performance and financial condition, the separation of Ashland's specialty chemicals businesses and Valvoline Inc. (Valvoline), the initial public offering of 34,500,000 shares of Valvoline common stock (the "IPO"), the expected timetable for completing the separation, the strategic and competitive advantages of each company and future opportunities for each company, as well as the economy and other future events or circumstances. Ashland's expectations and assumptions include, without limitation, those mentioned within the MD&A, internal forecasts and analyses of current and future market conditions and trends, management plans and strategies, operating efficiencies and economic conditions (such as prices, supply and demand, cost of raw materials, and the ability to recover raw material cost increases through price increases), and risks and uncertainties associated with the following: the possibility that the separation will not be consummated within the anticipated time period or at all, including as the result of regulatory, market or other factors; regulatory, market or other factors and conditions affecting the distribution of Ashland's remaining interests in Valvoline; the potential for disruption to Ashland's business in connection with the IPO, Ashland's reorganization under a new holding company or separation; the potential that Ashland does not realize all of the expected benefits of the IPO, new holding company reorganization or separation or obtain the expected credit ratings following the IPO, new holding company reorganization or separation; Ashland's substantial indebtedness (including the possibility that such indebtedness and related restrictive covenants may adversely affect Ashland's future cash flows, results of operations, financial condition and its ability to repay debt); the impact of acquisitions and/or divestitures Ashland has made or may make (including the possibility that Ashland may not realize the anticipated benefits from such transactions); and severe weather, natural disasters, and legal proceedings and claims (including environmental and asbestos matters). Various risks and uncertainties may cause actual results to differ materially from those stated, projected or implied by any forward-looking statements, including, without limitation, risks and uncertainties affecting Ashland that are contained in "Use of estimates, risks and uncertainties" in Note A of Notes to Consolidated Financial Statements and in Item 1A of this Annual Report on Form 10-K as well as risks and uncertainties related to the separation that are described in the Form S-4 filed with the SEC, which is available on Ashland's website at <http://investor.ashland.com> or on the SEC's website, and Valvoline's Form S-1 filed with the SEC, available on the SEC's website. Ashland believes its expectations and assumptions are reasonable, but there can be no assurance that the expectations reflected herein will be achieved. Unless legally required, Ashland undertakes no obligation to update any forward-looking statements made in this Annual Report on Form 10-K whether as a result of new information, future events or otherwise.

## **ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

Ashland regularly uses derivative instruments to manage its exposure to fluctuations in foreign currencies. All derivative instruments are recognized as either assets or liabilities on the balance sheet and are measured at fair value. Changes in the fair value of all derivatives are recognized immediately in income unless the derivative qualifies as a hedge of future cash flows or a hedge of a net investment in a foreign operation. Gains and losses related to a hedge are either recognized in income immediately to offset the gain or loss on the hedged item, or deferred and recorded in the stockholders' equity section of the Consolidated Balance Sheets as a component of accumulated other comprehensive income and subsequently recognized in the Statements of Consolidated Comprehensive Income when the hedged item affects net income. The ineffective portion of the change in fair value of a hedge is recognized in income immediately. As of September 30, 2016 and 2015, Ashland had not identified any significant credit risk on open derivative contracts. The potential loss from a hypothetical 10% adverse change in foreign currency rates on Ashland's open foreign currency derivative instruments at September 30, 2016 would be a \$19 million impact on Ashland's consolidated financial position, results of operations, cash flows or liquidity. Ashland did not transact or have open any significant hedging contracts with respect to commodities or any related raw material requirements as of and for the year ended September 30, 2016.

## ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

### INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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## MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management is responsible for the preparation and integrity of the Consolidated Financial Statements and other financial information included in this annual report on Form 10-K. Such financial statements are prepared in accordance with accounting principles generally accepted in the United States. Accounting principles are selected and information is reported which, using management's best judgment and estimates, present fairly Ashland's consolidated financial position, results of operations and cash flows. The other financial information in this annual report on Form 10-K is consistent with the Consolidated Financial Statements.

Ashland's management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Ashland's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of Ashland's Consolidated Financial Statements. Ashland's internal control over financial reporting is supported by a code of business conduct which summarizes our guiding values such as obeying the law, adhering to high ethical standards and acting as responsible members of the communities where we operate. Compliance with that Code forms the foundation of our internal control systems, which are designed to provide reasonable assurance that Ashland's assets are safeguarded and its records reflect, in all material respects, transactions in accordance with management's authorization. The concept of reasonable assurance is based on the recognition that the cost of a system of internal control should not exceed the related benefits. Management believes that adequate internal controls are maintained by the selection and training of qualified personnel, by an appropriate division of responsibility in all organizational arrangements, by the establishment and communication of accounting and business policies, and by internal audits.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements and even when determined to be effective, can only provide reasonable assurance with respect to financial statement preparation and presentation. Also, projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The Board, subject to stockholder ratification, selects and engages the independent auditors based on the recommendation of the Audit Committee. The Audit Committee, composed of directors who are not members of management, reviews the adequacy of Ashland's policies, procedures, controls and risk management strategies, the scope of auditing and other services performed by the independent auditors, and the scope of the internal audit function. The Committee holds meetings with Ashland's internal auditor and independent auditors, with and without management present, to discuss the findings of their audits, the overall quality of Ashland's financial reporting and their evaluation of Ashland's internal controls. The report of Ashland's Audit Committee can be found in Ashland's 2016 Proxy Statement.

Management assessed the effectiveness of Ashland's internal control over financial reporting as of September 30, 2016. Management conducted its assessment utilizing the framework described in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on this assessment, management believes that Ashland maintained effective internal control over financial reporting as of September 30, 2016.

Ernst & Young LLP, an independent registered public accounting firm, has audited and reported on the Consolidated Financial Statements of Ashland Global Holdings Inc. and Consolidated Subsidiaries as of and for the year ended September 30, 2016 and the effectiveness of Ashland's internal control over financial reporting as of September 30, 2016. The reports of the independent registered public accounting firm are contained in this Annual Report on Form 10-K.

/s/ William A. Wulfsohn  
William A. Wulfsohn  
Chairman of the Board and Chief Executive Officer

/s/ J. Kevin Willis  
J. Kevin Willis  
Senior Vice President and Chief Financial Officer

November 21, 2016



## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of  
Ashland Global Holdings Inc. and Consolidated Subsidiaries

We have audited Ashland Global Holdings Inc. and Consolidated Subsidiaries' internal control over financial reporting as of September 30, 2016, based on criteria established in the Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). Ashland Global Holdings Inc. and Consolidated Subsidiaries' management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit 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 effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Ashland Global Holdings Inc. and Consolidated Subsidiaries maintained, in all material respects, effective internal control over financial reporting as of September 30, 2016, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Ashland Global Holdings Inc. and Consolidated Subsidiaries as of September 30, 2016 and 2015, and the related consolidated statements of comprehensive income, equity and cash flows for each of the two years in the period ended September 30, 2016 of Ashland Global Holdings Inc. and Consolidated Subsidiaries and our report dated November 21, 2016 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Cincinnati, Ohio  
November 21, 2016

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of  
Ashland Global Holdings Inc. and Consolidated Subsidiaries

We have audited the accompanying consolidated balance sheets of Ashland Global Holdings Inc. and Consolidated Subsidiaries (the “Company”) as of September 30, 2016 and 2015, and the related consolidated statements of comprehensive income, equity and cash flows for each of the two years in the period ended September 30, 2016. These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these 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 financial statements referred to above present fairly, in all material respects, the consolidated financial position of Ashland Global Holdings Inc. and Consolidated Subsidiaries as of September 30, 2016 and 2015, and the consolidated results of their operations and their cash flows for each of the two years in the period ended September 30, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Ashland Global Holdings Inc. and Consolidated Subsidiaries’ internal control over financial reporting as of September 30, 2016, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated November 21, 2016 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Cincinnati, Ohio  
November 21, 2016

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders  
of Ashland Global Holdings Inc.:

In our opinion, the consolidated statements of comprehensive income, equity and cash flows for the year ended September 30, 2014 present fairly, in all material respects, the results of operations and cash flows of Ashland Global Holdings Inc. (formerly known as Ashland Inc.) and its subsidiaries for the year ended September 30, 2014, in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these statements 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, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP  
Cincinnati, Ohio  
November 24, 2014, except for Note S which is as of November 21, 2016

Ashland Global Holdings Inc. and Consolidated Subsidiaries  
**Statements of Consolidated Comprehensive Income**  
Years Ended September 30

(In millions except per share data)	2016	2015	2014
Sales	\$ 4,948	\$ 5,387	\$ 6,121
Cost of sales	3,321	3,814	4,605
Gross profit	1,627	1,573	1,516
Selling, general and administrative expense (a)	1,228	1,028	1,358
Research and development expense	100	110	114
Equity and other income - Note E	28	23	2
Operating income	327	458	46
Net interest and other financing expense - Note J	182	174	166
Net gain (loss) on divestitures - Notes B and C	(9)	(115)	4
Income (loss) from continuing operations before income taxes	136	169	(116)
Income tax expense (benefit) - Note M	133	(22)	(188)
Income from continuing operations	3	191	72
Income (loss) from discontinued operations (net of tax) - Note D	(31)	118	161
Net income (loss)	(28)	309	233
Net income attributable to noncontrolling interest	1	—	—
Net income (loss) attributable to Ashland	\$ (29)	\$ 309	\$ 233

**PER SHARE DATA - NOTE A**

Basic earnings per share

Income from continuing operations attributable to Ashland	\$ 0.03	\$ 2.81	\$ 0.94
Income (loss) from discontinued operations	(0.50)	1.73	2.10
Net income (loss) attributable to Ashland	\$ (0.47)	\$ 4.54	\$ 3.04

Diluted earnings per share

Income from continuing operations attributable to Ashland	\$ 0.03	\$ 2.78	\$ 0.93
Income (loss) from discontinued operations	(0.49)	1.70	2.07
Net income (loss) attributable to Ashland	\$ (0.46)	\$ 4.48	\$ 3.00

**COMPREHENSIVE INCOME (LOSS)**

Net income (loss)	\$ (28)	\$ 309	\$ 233
Other comprehensive income (loss), net of tax			
Unrealized translation loss	(14)	(369)	(160)
Pension and postretirement obligation adjustment	14	(18)	(21)
Unrealized gain (loss) on available-for-sale securities	17	(11)	—
Other comprehensive income (loss)	17	(398)	(181)
Comprehensive income (loss)	(11)	(89)	52
Comprehensive income attributable to noncontrolling interest	1	—	—
Comprehensive income (loss) attributable to Ashland	\$ (12)	\$ (89)	\$ 52

(a) During 2016, selling, general and administrative expense included an impairment charge of \$181 million related to Intermediates/Solvents within the Performance Materials reportable segment. See Note I for more information.

See Notes to Consolidated Financial Statements.

Ashland Global Holdings Inc. and Consolidated Subsidiaries  
**Consolidated Balance Sheets**  
At September 30

(In millions)	2016	2015
<b>Assets</b>		
<b>Current assets</b>		
Cash and cash equivalents	\$ 1,188	\$ 1,257
Accounts receivable (a)	894	961
Inventories - Note A	671	706
Other assets	113	169
Total current assets	2,866	3,093
<b>Noncurrent assets</b>		
Property, plant and equipment - Note H		
Cost	4,343	4,144
Accumulated depreciation	2,119	1,962
Net property, plant and equipment	2,224	2,182
Goodwill - Note I	2,401	2,486
Intangibles - Note I	1,064	1,142
Restricted investments - Note G	292	285
Asbestos insurance receivable - Note O	196	180
Equity and other unconsolidated investments - Note E	57	65
Deferred income taxes - Note M	177	212
Other assets - Note K	420	409
Total noncurrent assets	6,831	6,961
<b>Total assets</b>	<b>\$ 9,697</b>	<b>\$ 10,054</b>
<b>Liabilities and Equity</b>		
<b>Current liabilities</b>		
Short-term debt - Note J	\$ 170	\$ 326
Current portion of long-term debt - Note J	19	55
Trade and other payables	541	573
Accrued expenses and other liabilities	486	488
Total current liabilities	1,216	1,442
<b>Noncurrent liabilities</b>		
Long-term debt - Note J	3,055	3,348
Employee benefit obligations - Note N	1,080	1,076
Asbestos litigation reserve - Note O	686	661
Deferred income taxes - Note M	69	85
Other liabilities - Note K	426	405
Total noncurrent liabilities	5,316	5,575
Commitments and contingencies - Notes L and O		
<b>Equity - Notes P and Q</b>		
Common stock, par value \$.01 per share, 200 million shares authorized		
Issued 62 million shares in 2016 and 67 million shares in 2015	1	1
Paid-in capital	923	46
Retained earnings	2,704	3,281
Accumulated other comprehensive loss	(281)	(291)
Total Ashland stockholders' equity	3,347	3,037
Noncontrolling interest	(182)	—
Total equity	3,165	3,037
<b>Total liabilities and equity</b>	<b>\$ 9,697</b>	<b>\$ 10,054</b>

(a) Accounts receivable includes an allowance for doubtful accounts of \$14 million and \$11 million at September 30, 2016 and 2015, respectively.

See Notes to Consolidated Financial Statements.

Ashland Global Holdings Inc. and Consolidated Subsidiaries  
**Statements of Consolidated Equity**

(In millions)	Common stock	Paid-in capital	Retained earnings	Accumulated other comprehensive income (loss) (a)	Noncontrolling interest (b)	Total
<b>Balance at September 30, 2013</b>	\$ 1	\$ 506	\$ 3,758	\$ 288	\$ —	\$ 4,553
Total comprehensive income (loss)			233	(181)	—	52
Dividends, \$1.36 per common share			(103)			(103)
Common shares issued under stock incentive and other plans (c) (d)		35				35
Repurchase of common shares (e)		(541)	(413)			(954)
<b>Balance at September 30, 2014</b>	1	—	3,475	107	—	3,583
Total comprehensive income (loss)			309	(398)	—	(89)
Dividends, \$1.46 per common share			(98)			(98)
Common shares issued under stock incentive and other plans (c) (d)		46	(8)			38
Repurchase of common shares (e)			(397)			(397)
<b>Balance at September 30, 2015</b>	1	46	3,281	(291)	—	3,037
Total comprehensive income (loss)			(29)	17	1	(11)
Dividends, \$1.56 per common share			(97)			(97)
Common shares issued under stock incentive and other plans (c) (d)		24	—			24
Repurchase of common shares (e)		(49)	(451)			(500)
Valvoline Inc. initial public offering - Note B		902		(7)	(183)	712
<b>Balance at September 30, 2016</b>	<u>\$ 1</u>	<u>\$ 923</u>	<u>\$ 2,704</u>	<u>\$ (281)</u>	<u>\$ (182)</u>	<u>\$ 3,165</u>

(a) At September 30, 2016 and 2015, the accumulated other comprehensive loss of \$281 million and \$291 million, respectively, was comprised of unrecognized prior service credits as a result of certain employee benefit plan amendments of \$46 million and \$41 million, respectively, net unrealized translation losses of \$333 million and \$321 million, respectively, and net unrealized gain and loss on available for sale securities of \$6 million and \$11 million, respectively. As of September 30, 2016, the unrecognized prior service credits and the net unrealized translation loss excluded amounts attributable to noncontrolling interest of \$9 million and \$2 million, respectively.

(b) See Note B for discussion of Valvoline Inc. noncontrolling interest.

(c) Includes income tax benefits resulting from the exercise of stock options of \$4 million in 2016, \$8 million in 2015 and \$23 million in 2014.

(d) Common shares issued were 417,584, 441,609 and 615,049 for 2016, 2015 and 2014, respectively.

(e) Common shares repurchased were 5,049,911, 3,944,356 and 7,812,342 for 2016, 2015 and 2014, respectively.

See Notes to Consolidated Financial Statements.

Ashland Global Holdings Inc. and Consolidated Subsidiaries

**Statements of Consolidated Cash Flows**

Years Ended September 30

(In millions)	2016	2015	2014
<b>Cash flows provided (used) by operating activities from continuing operations</b>			
Net income (loss)	\$ (28)	\$ 309	\$ 233
Loss (income) from discontinued operations (net of tax)	31	(118)	(161)
Adjustments to reconcile income from continuing operations to cash flows from operating activities			
Depreciation and amortization	337	341	393
Debt issuance cost amortization	23	18	14
Deferred income taxes	(23)	(57)	(294)
Equity income from affiliates	(13)	(15)	(25)
Distributions from equity affiliates	18	22	14
Stock based compensation expense - Note Q	30	30	34
Loss on early retirement of debt	—	9	—
Gain on available-for-sale securities	(8)	(3)	—
Net loss (gain) on divestitures - Notes B and C	9	115	(4)
Impairments	181	25	63
Pension contributions	(35)	(610)	(38)
Losses on pension and other postretirement plan remeasurements	124	255	438
Change in operating assets and liabilities (a)	57	(232)	(87)
Total cash flows provided by operating activities from continuing operations	<u>703</u>	<u>89</u>	<u>580</u>
<b>Cash flows provided (used) by investing activities from continuing operations</b>			
Additions to property, plant and equipment	(300)	(265)	(248)
Proceeds from disposal of property, plant and equipment	2	3	3
Purchase of operations - net of cash acquired	(83)	(13)	—
Proceeds from sale of operations or equity investments	16	161	92
Proceeds from sale of available-for-sale securities	10	315	—
Purchase of available-for-sale securities	(10)	(315)	—
Net purchases of funds restricted for specific transactions	(4)	(320)	(15)
Reimbursement from restricted investments	33	6	—
Proceeds from the settlement of derivative instruments	9	18	—
Payments for the settlement of derivative instruments	(5)	(7)	—
Total cash flows used by investing activities from continuing operations	<u>(332)</u>	<u>(417)</u>	<u>(168)</u>
<b>Cash flows provided (used) by financing activities from continuing operations</b>			
Proceeds from issuance of long-term debt	1,250	1,100	—
Repayment of long-term debt	(1,595)	(623)	(11)
Premium on long-term debt repayment	—	(9)	—
Proceeds (repayment) from short-term debt	(156)	(3)	22
Net proceeds from Valvoline Inc. initial public offering	712	—	—
Repurchase of common stock	(500)	(397)	(954)
Debt issuance costs	(15)	(9)	—
Cash dividends paid	(97)	(98)	(103)
Excess tax benefits related to share-based payments	7	9	12
Total cash flows used by financing activities from continuing operations	<u>(394)</u>	<u>(30)</u>	<u>(1,034)</u>
<b>Cash used by continuing operations</b>			
Cash provided (used) by discontinued operations	(23)	(358)	(622)
Operating cash flows	(40)	245	63
Investing cash flows	—	24	1,608
Total cash provided (used) by discontinued operations	<u>(40)</u>	<u>269</u>	<u>1,671</u>
Effect of currency exchange rate changes on cash and cash equivalents	(6)	(47)	(2)
<b>Increase (decrease) in cash and cash equivalents</b>	<u>(69)</u>	<u>(136)</u>	<u>1,047</u>
Cash and cash equivalents - beginning of year	1,257	1,393	346
<b>Cash and cash equivalents - end of year</b>	<u>\$ 1,188</u>	<u>\$ 1,257</u>	<u>\$ 1,393</u>
<b>Changes in assets and liabilities (a)</b>			
Accounts receivable	\$ 55	\$ 261	\$ (16)
Inventories	44	39	(4)
Trade and other payables	(59)	(229)	64
Other assets and liabilities	17	(303)	(131)
<b>Change in operating assets and liabilities</b>	<u>\$ 57</u>	<u>\$ (232)</u>	<u>\$ (87)</u>
<b>Supplemental disclosures</b>			
Interest paid	\$ 162	\$ 149	\$ 154
Income taxes paid	108	226	88

(a) Excludes changes resulting from operations acquired or sold.

See Notes to Consolidated Financial Statements.

## **NOTE A – SIGNIFICANT ACCOUNTING POLICIES**

### **Principles of consolidation and basis of presentation**

On September 20, 2016, Ashland was reincorporated under the laws of the State of Delaware through a tax-free reorganization under a new holding company structure (the Reorganization). As a result of the Reorganization, Ashland Global Holdings Inc. replaced Ashland Inc. as the publicly held corporation and, through its subsidiaries, now conducts all of the operations that historically were conducted by Ashland Inc. Pursuant to the terms of the Reorganization, each outstanding share of Ashland common stock was automatically converted into one share of Ashland Global Holdings Inc. common stock. Following consummation of the Reorganization, (i) Ashland Inc. was converted into Ashland LLC, an indirect, wholly owned subsidiary of Ashland Global Holdings Inc., and (ii) Ashland Global Holdings Inc., as the new holding company, will, through its subsidiaries, conduct all of the operations conducted by Ashland Inc. immediately prior to the Reorganization. The Consolidated Financial Statements include the accounts of Ashland Global Holdings Inc. and its majority owned subsidiaries and, when applicable, entities for which Ashland has a controlling financial interest or is the primary beneficiary (Ashland). For entities for which Ashland has a controlling financial interest but owns less than 100%, the outside stockholders' interests are shown as noncontrolling interests. Investments in joint ventures and 20% to 50% owned affiliates where Ashland has the ability to exert significant influence are accounted for under the equity method.

The accompanying Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and U.S. Securities and Exchange Commission regulations. All material intercompany transactions and balances have been eliminated. Additionally, certain prior period data has been reclassified in the Consolidated Financial Statements and accompanying notes to conform to the current period presentation, which includes the adoption of new accounting guidance during the current year related to the classification as noncurrent of all deferred tax assets and liabilities in the Consolidated Balance Sheet.

Ashland is composed of three reportable segments: Ashland Specialty Ingredients (Specialty Ingredients), Ashland Performance Materials (Performance Materials) and Valvoline. As of September 30, 2016, Ashland maintains an approximately 83% controlling interest in Valvoline Inc., which holds the Valvoline reportable segment. See Note B for additional information. The term Valvoline as used herein, depending on context, refers to either Valvoline Inc. or Valvoline as a reportable segment of Ashland. On July 31, 2014, Ashland completed the sale of the assets and liabilities of Ashland Water Technologies (Water Technologies). As a result of the sale, all prior period operating results and cash flows related to Water Technologies have been reflected as discontinued operations in the Statements of Consolidated Comprehensive Income and Statements of Consolidated Cash Flows. During 2015, Ashland sold certain assets in its portfolio of businesses which were not reflected as discontinued operations. See Notes C and R for additional information on these activities as well as Ashland's current reportable segment results.

### **Use of estimates, risks and uncertainties**

The preparation of Ashland's Consolidated Financial Statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and the disclosures of contingent assets and liabilities. Significant items that are subject to such estimates and assumptions include, but are not limited to, long-lived assets (including goodwill and other intangible assets), employee benefit obligations, income taxes and liabilities and receivables associated with asbestos litigation and environmental remediation. Although management bases its estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances, actual results could differ significantly from the estimates under different assumptions or conditions.

Ashland's results are affected by domestic and international economic, political, legislative, regulatory and legal actions. Economic conditions, such as recessionary trends, inflation, interest and monetary exchange rates, government fiscal policies and changes in the prices of certain key raw materials, can have a significant effect on operations. While Ashland maintains reserves for anticipated liabilities and carries various levels of insurance, Ashland could be affected by civil, criminal, regulatory or administrative actions, claims or proceedings relating to asbestos, environmental remediation or other matters.

### **Cash and cash equivalents**

Cash and cash equivalents include cash on hand and highly liquid investments maturing within three months after purchase.

### **Allowance for doubtful accounts**

Ashland records an allowance for doubtful accounts as a best estimate of the amount of probable credit losses for accounts receivable. Each month, Ashland reviews this allowance and considers factors such as customer credit, past transaction history



**NOTE A – SIGNIFICANT ACCOUNTING POLICIES (continued)**

with the customer and changes in customer payment terms when determining whether the collection of a receivable is reasonably assured. Past due balances over 90 days and over a specified amount are reviewed individually for collectibility. The allowance for doubtful accounts is adjusted when it becomes probable a receivable will not be recovered.

A progression of activity in the allowance for doubtful accounts is presented in the following table.

(In millions)	2016	2015	2014
Allowance for doubtful accounts - beginning of year	\$ 11	\$ 13	\$ 12
Adjustments to net income	5	2	5
Reserves utilized	(2)	(3)	(4)
Other changes	—	(1)	—
Allowance for doubtful accounts - end of year	<u>\$ 14</u>	<u>\$ 11</u>	<u>\$ 13</u>

**Inventories**

Inventories are carried at the lower of cost or market. Inventories are primarily stated at cost using the weighted-average cost method. In addition, certain chemicals and lubricants with a replacement cost of \$162 million at September 30, 2016 and \$170 million at September 30, 2015 are valued at cost using the last-in, first-out (LIFO) method.

The following summarizes Ashland's inventories as of the Consolidated Balance Sheet dates.

(In millions)	2016	2015
Finished products	\$ 516	\$ 542
Raw materials, supplies and work in process	184	198
LIFO reserves	(29)	(34)
	<u>\$ 671</u>	<u>\$ 706</u>

A progression of activity in the inventory reserves, which reduce the amounts of finished products and raw materials, supplies and work in process reported, is presented in the following table.

(In millions)	2016	2015	2014
Inventory reserves - beginning of year	\$ 35	\$ 53	\$ 59
Adjustments to net income	6	9	4
Reserves utilized	(5)	(6)	(10)
Dispositions and other changes	—	(21)	—
Inventory reserves - end of year	<u>\$ 36</u>	<u>\$ 35</u>	<u>\$ 53</u>

**Property, plant and equipment**

The cost of property, plant and equipment is depreciated by the straight-line method over the estimated useful lives of the assets. Buildings are depreciated principally over 25 to 35 years and machinery and equipment principally over 2 to 25 years. Such costs are periodically reviewed for recoverability when impairment indicators are present. Such indicators include, among other factors, operating losses, unused capacity, market value declines and technological obsolescence. Recorded values of asset groups of property, plant and equipment that are not expected to be recovered through undiscounted future net cash flows are written down to current fair value, which generally is determined from estimated discounted future net cash flows (assets held for use) or net realizable value (assets held for sale).

**Goodwill and other intangibles**

Ashland tests goodwill and other indefinite-lived intangible assets for impairment annually as of July 1 and when events and circumstances indicate an impairment may have occurred. Ashland reviews goodwill for impairment based on its identified reporting units, which are defined as operating segments or groupings of businesses one level below the operating segment level. Ashland tests goodwill for impairment by comparing the carrying value to the estimated fair value of its reporting units, determined using a combination of discounted cash flow models and valuations based on earnings multiples for guideline public companies in each reporting unit's industry peer group, when externally quoted market prices are not readily available. If this

## **NOTE A – SIGNIFICANT ACCOUNTING POLICIES (continued)**

comparison indicates that a reporting unit's estimated fair value is less than its carrying value, a second step is required. If applicable, the second step requires the fair value of the reporting unit to be allocated to the estimated fair value of the reporting unit's net assets, with any fair value in excess of amounts allocated to such net assets representing the implied fair value of goodwill for that reporting unit. The implied goodwill balance is compared to the actual carrying value of goodwill for the reporting unit to determine the goodwill impairment amount.

Ashland tests its indefinite-lived intangible assets, principally trademarks and trade names, using a "relief-from-royalty" valuation method compared to the carrying value. Significant assumptions inherent in the valuation methodologies for goodwill and other intangibles are employed and include, but are not limited to, such estimates as future projected business results, growth rates, the weighted-average cost of capital for a market participant, and royalty and discount rates. If the carrying value of an individual indefinite-lived intangible asset exceeds its fair value, such individual indefinite-lived intangible asset is written down by an amount equal to such excess.

Finite-lived intangible assets principally consist of certain trademarks and trade names, intellectual property, and customer lists. These intangible assets are amortized on a straight-line basis over their estimated useful lives. The cost of trademarks and trade names is amortized principally over 3 to 25 years, intellectual property over 5 to 20 years and customer relationships over 3 to 24 years. Ashland reviews finite-lived intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Ashland monitors these changes and events on at least a quarterly basis. For further information on goodwill and other intangible assets, see Note I.

### **Derivative instruments**

Ashland regularly uses derivative instruments to manage its exposure to fluctuations in foreign currencies and certain commodities. All derivative instruments are recognized as either assets or liabilities on the balance sheet and are measured at fair value. Changes in the fair value of all derivatives are recognized immediately in income unless the derivative qualifies as a hedge of future cash flows or a hedge of a net investment in a foreign operation. Gains and losses related to a hedge are either recognized in income immediately to offset the gain or loss on the hedged item, or deferred and recorded in the stockholders' equity section of the Consolidated Balance Sheets as a component of accumulated other comprehensive income and subsequently recognized in the Statements of Consolidated Comprehensive Income when the hedged item affects net income. The ineffective portion of the change in fair value of a hedge is recognized in income immediately. For additional information on derivative instruments, see Note G.

### **Restricted investments**

On January 13, 2015, Ashland and Hercules LLC (formerly Hercules Incorporated), an indirect wholly-owned subsidiary of Ashland that was acquired in 2009, entered into a comprehensive settlement agreement related to certain insurance coverage for asbestos bodily injury claims with Underwriters at Lloyd's, certain London companies and Chartis (AIG) member companies, along with National Indemnity Company and Resolute Management, Inc., under which Ashland and Hercules received a total of \$398 million (the January 2015 asbestos insurance settlement). During 2015, Ashland placed \$335 million of the settlement funds into a renewable annual trust restricted for the purpose of paying ongoing and future litigation defense and claim settlement costs incurred in conjunction with asbestos claims. These funds are presented primarily as noncurrent assets, with \$30 million classified within other current assets in the Consolidated Balance Sheets as of September 30, 2016 and 2015.

As of September 30, 2016, the funds within the trust were primarily invested in equity and corporate bond investments with a portion maintained in demand deposits. The funds within the trust are classified as available-for-sale securities. Available-for-sale securities are reported at fair value with unrealized gains and losses, net of related deferred income taxes, included in the stockholders' equity section of the Consolidated Balance Sheets as a component of accumulated other comprehensive income. Interest income and realized gains and losses on the available-for-sale securities are reported in the net interest and other financing expense caption in the Statements of Consolidated Comprehensive Income. See Notes G and O for additional information regarding fair value of these investments within the trust and the January 2015 asbestos insurance settlement.

### **Revenue recognition**

Sales generally are recognized when persuasive evidence of an arrangement exists, products are received or services are provided to customers, the sales price is fixed or determinable and collectibility is reasonably assured. Certain shipping and handling costs paid by the customer are recorded in sales, while those costs paid by Ashland are recorded in cost of sales.

### **Expense recognition**

Cost of sales include material and production costs, as well as the costs of inbound and outbound freight, purchasing and receiving, inspection, warehousing, internal transfers and all other distribution network costs. Selling, general and administrative expense includes sales and marketing costs, advertising, customer support, environmental remediation, corporate and divisional administrative and other costs. Advertising costs (\$64 million in 2016, \$62 million in 2015 and \$63 million in 2014) and research and development costs (\$100 million in 2016, \$110 million in 2015 and \$114 million in 2014) are expensed as incurred.

## NOTE A – SIGNIFICANT ACCOUNTING POLICIES (continued)

### Income taxes

Ashland is subject to income taxes in the United States and numerous foreign jurisdictions. Significant judgment in the forecasting of taxable income using historical and projected future operating results is required in determining Ashland's provision for income taxes and the related assets and liabilities. The provision for income taxes includes income taxes paid, currently payable or receivable, and deferred taxes. Deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities, and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Deferred tax assets are also recognized for the estimated future effects of tax loss carryforwards. The effect on deferred taxes of changes in tax rates is recognized in the period in which the enactment date occurs. Valuation allowances are established when necessary on a jurisdictional basis to reduce deferred tax assets to the amounts expected to be realized. In the event that the actual outcome of future tax consequences differs from Ashland's estimates and assumptions due to changes or future events such as tax legislation, geographic mix of earnings, completion of tax audits or earnings repatriation plans, the resulting change to the provision for income taxes could have a material effect on the Statements of Consolidated Comprehensive Income and Consolidated Balance Sheets. For additional information on income taxes, see Note M.

A progression of activity in the tax valuation allowances for both continuing and discontinued operations is presented in the following table.

(In millions)	2016	2015	2014
Tax valuation allowances - beginning of year	\$ 107	\$ 148	\$ 166
Adjustments to net income	43	(27)	(5)
Reserves utilized	(8)	(14)	(14)
Other changes	—	—	1
Tax valuation allowances - end of year	<u>\$ 142</u>	<u>\$ 107</u>	<u>\$ 148</u>

### Asbestos-related litigation

Ashland is subject to liabilities from claims alleging personal injury caused by exposure to asbestos. Such claims result from indemnification obligations undertaken in 1990 in connection with the sale of Riley Stoker Corporation (Riley) and the acquisition of Hercules Incorporated (Hercules) in November 2008. Although Riley, a former subsidiary, was neither a producer nor a manufacturer of asbestos, its industrial boilers contained some asbestos-containing components provided by other companies. Hercules, an indirect wholly-owned subsidiary of Ashland, has liabilities from claims alleging personal injury caused by exposure to asbestos. Such claims typically arise from alleged exposure to asbestos fibers from resin encapsulated pipe and tank products sold by one of Hercules' former subsidiaries to a limited industrial market.

Ashland retained Hamilton, Rabinovitz & Associates, Inc. (HR&A) to assist in developing and annually updating independent reserve estimates for future asbestos claims and related costs given various assumptions. The methodology used by HR&A to project future asbestos costs is based largely on Ashland's recent experience, including claim-filing and settlement rates, disease mix, enacted legislation, open claims, and litigation defense. Ashland's claim experience is compared to the results of previously conducted epidemiological studies estimating the number of people likely to develop asbestos-related diseases. Those studies were undertaken in connection with national analyses of the population expected to have been exposed to asbestos. Using that information, HR&A estimates a range of the number of future claims that may be filed, as well as the related costs that may be incurred in resolving those claims. From the range of estimates, Ashland records the amount it believes to be the best estimate of future payments for litigation defense and claim settlement costs. For additional information on asbestos-related litigation, see Note O.

### Environmental remediation

Accruals for environmental remediation are recognized when it is probable a liability has been incurred and the amount of that liability can be reasonably estimated. Such costs are charged to expense if they relate to the remediation of conditions caused by past operations or are not expected to mitigate or prevent contamination from future operations. Liabilities are recorded at estimated cost values based on experience, assessments and current technology, without regard to any third-party recoveries and are regularly adjusted as environmental assessments and remediation efforts continue. For additional information on environmental remediation, see Note O.

### Pension and other postretirement benefits

The funded status of Ashland's pension and other postretirement benefit plans is recognized in the Consolidated Balance Sheets. The funded status is measured as the difference between the fair value of plan assets and the benefit obligation at September 30, the measurement date. For defined benefit pension plans, the benefit obligation is the projected benefit obligation (PBO) and for the other postretirement benefit plans, the benefit obligation is the accumulated postretirement benefit obligation

## NOTE A – SIGNIFICANT ACCOUNTING POLICIES (continued)

(APBO). The PBO represents the actuarial present value of benefits expected to be paid upon retirement based on estimated future compensation levels. The APBO represents the actuarial present value of postretirement benefits attributed to employee services already rendered. The measurement of the benefit obligation is based on Ashland's estimates and actuarial valuations. These valuations reflect the terms of the plans and use participant-specific information such as compensation, age and years of service, as well as certain key assumptions that require significant judgment, including, but not limited to, estimates of discount rates, expected return on plan assets, rate of compensation increases, interest rates and mortality rates. The fair value of plan assets represents the current market value of assets held by an irrevocable trust fund for the sole benefit of participants. For additional information regarding plan assumptions and the current financial position of the pension and other postretirement plans, see Note N.

Ashland recognizes the change in the fair value of plan assets and net actuarial gains and losses annually in the fourth quarter of each fiscal year and whenever a plan is determined to qualify for a remeasurement. The remaining components of pension and other postretirement benefits expense are recorded ratably on a quarterly basis. Pension and other postretirement benefits adjustments charged directly to cost of sales that are applicable to inactive participants are excluded from inventoriable costs. The service cost component of pension and other postretirement benefits costs is allocated to each reportable segment on a ratable basis; while the remaining components of pension and other postretirement benefits costs are recorded to Unallocated and other.

### Foreign currency translation

Operations outside the United States are measured primarily using the local currency as the functional currency. Upon consolidation, the results of operations of the subsidiaries and affiliates whose functional currency is other than the U.S. dollar are translated into U.S. dollars at the average exchange rates for the year while assets and liabilities are translated at year-end exchange rates. Adjustments to translate assets and liabilities into U.S. dollars are recorded in the stockholders' equity section of the Consolidated Balance Sheets as a component of accumulated other comprehensive income and are included in net earnings only upon sale or substantial liquidation of the underlying foreign subsidiary or affiliated company.

### Stock incentive plans

Ashland recognizes compensation expense for stock incentive plans awarded to key employees and directors, primarily in the form of stock appreciation rights (SARs), restricted stock and restricted stock units, performance shares and other non-vested stock awards, that are generally based upon the grant-date fair value over the appropriate vesting period. Ashland utilizes several industry accepted valuation models to determine the fair value. For further information concerning stock incentive plans, see Note Q.

### Earnings per share

The following is the computation of basic and diluted earnings per share (EPS) from continuing operations attributable to Ashland. Earnings per share are reported under the treasury stock method. Stock options and SARs for each reported year whose grant price was greater than the market price of Ashland Common Stock at the end of each fiscal year were not included in the computation of income from continuing operations per diluted share because the effect of these instruments would be antidilutive. The total number of these shares outstanding was 1.2 million for 2016, 0.7 million for 2015 and 0.6 million for 2014.

(In millions except per share data)	2016	2015	2014
<b>Numerator</b>			
Numerator for basic and diluted EPS -			
Income from continuing operations attributable to Ashland, net of tax	\$ 2	\$ 191	\$ 72
<b>Denominator</b>			
Denominator for basic EPS - Weighted-average			
common shares outstanding	63	68	77
Share based awards convertible to common shares	1	1	1
Denominator for diluted EPS - Adjusted weighted-			
average shares and assumed conversions	64	69	78
<b>EPS from continuing operations attributable to Ashland</b>			
Basic	\$ 0.03	\$ 2.81	\$ 0.94
Diluted	0.03	2.78	0.93

### New accounting pronouncements

In August 2016, the FASB issued new accounting guidance on eight specific cash flow classification issues. The amendments in this guidance will become effective retrospectively for Ashland on October 1, 2018. Early adoption is permitted in any interim

## NOTE A – SIGNIFICANT ACCOUNTING POLICIES (continued)

or annual period. Ashland is currently evaluating the impact this guidance may have on Ashland's Consolidated Financial Statements.

In March 2016, the FASB issued new accounting guidance for certain aspects of share-based payments to employees. This guidance requires all excess tax benefits and tax deficiencies related to share-based payments to be recognized as income tax expense in the income statement instead of additional paid in capital, and changes the classification of excess tax benefits from a financing activity to an operating activity within the statement of cash flows. This guidance also allows entities to make an accounting policy election to either estimate the number of awards that are expected to vest or account for forfeitures when they occur. Lastly, this guidance increases the amount an employer can withhold to cover income taxes on awards and still qualify for equity classification and requires that cash paid by an employer when directly withholding shares for tax-withholding purposes be classified as a financing activity within the statement of cash flows. The guidance will become effective for Ashland on October 1, 2017. Ashland is currently evaluating the impact this guidance may have on Ashland's Consolidated Financial Statements.

In February 2016, the FASB issued new accounting guidance related to lease transactions. The main objective of this guidance is to increase transparency and comparability among organizations by requiring lessees to recognize assets and liabilities on the balance sheet for the rights and obligations created by leases and to disclose key information about leasing arrangements. The presentation of the statements of comprehensive income and the statements of cash flows is largely unchanged under this guidance. This guidance retains a distinction between finance leases and operating leases, and the classification criteria for distinguishing between finance leases and operating leases are substantially similar to the classification criteria for distinguishing between capital leases and operating leases in the current accounting literature. The guidance will become effective for Ashland on October 1, 2019. Ashland is currently evaluating the impact this guidance may have on Ashland's Consolidated Financial Statements.

In January 2016, the FASB issued accounting guidance related to the recognition and measurement of financial assets and financial liabilities. The main objective of this guidance is enhancing the reporting model for financial instruments to provide users of financial statements with more decision-useful information. The amendments in this guidance address certain aspects of recognition, measurement, presentation and disclosure of financial instruments. The guidance also eliminates the requirement for public business entities to disclose the method(s) and significant assumptions used to estimate the fair value that is required to be disclosed for financial instruments measured at amortized cost on the balance sheet and clarifies that an entity should evaluate the need for a valuation allowance on a deferred tax asset related to available-for-sale securities in combination with the entity's other deferred tax assets. The guidance will become effective for Ashland on October 1, 2018. Early application to financial statements of fiscal years or interim periods that have not yet been issued is permitted as of the beginning of the fiscal year of adoption. Ashland is currently evaluating the impact this guidance may have on Ashland's Consolidated Financial Statements.

In November 2015, the FASB issued accounting guidance requiring all deferred tax assets and liabilities to be classified as noncurrent on the balance sheet instead of separating deferred taxes into current and noncurrent amounts. During 2016, Ashland adopted this new guidance and applied it retrospectively to the September 30, 2015 Consolidated Balance Sheet. The impact of this new guidance within this statement resulted in the reclassification of net current deferred taxes of \$149 million with an increase to noncurrent deferred tax assets of \$145 million and a decrease to noncurrent deferred tax liabilities of \$4 million.

In July 2015, the FASB issued accounting guidance to simplify the subsequent measurement of certain inventories by replacing the current lower of cost or market test with a lower of cost and net realizable value test. The guidance applies only to inventories for which cost is determined by methods other than last-in first-out and the retail inventory method. This guidance will become effective prospectively for Ashland on October 1, 2017, with early adoption permitted. Ashland is currently evaluating the new accounting standard and the impact this new guidance will have on Ashland's Consolidated Financial Statements.

In April 2015, the FASB issued accounting guidance to help entities evaluate the accounting for fees paid by a customer in a cloud computing arrangement. Cloud computing arrangements represent the delivery of hosted services over the internet which includes software, platforms, infrastructure and other hosting arrangements. Under the guidance, customers that gain access to software in a cloud computing arrangement account for the software as internal-use software only if the arrangement includes a software license. This guidance will become effective prospectively for Ashland on October 1, 2016.

In April 2015 and August 2015, the FASB issued accounting guidance to simplify the presentation of debt issuance costs by requiring that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of that debt liability, consistent with debt discounts. The recognition and measurement guidance for debt issuance costs were not affected by this amendment. The adoption of the new guidance was on a retrospective basis. As a result of Ashland electing to early adopt this guidance during 2015, \$28 million of debt issuance costs was presented as long-term debt as of September 30, 2015.

In May 2014, the FASB issued accounting guidance outlining a single comprehensive five step model for entities to use in accounting for revenue arising from contracts with customers (ASC 606 Revenue from Contracts with Customers). The new guidance supersedes most current revenue recognition guidance, in an effort to converge the revenue recognition principles within U.S. GAAP. This new guidance also requires entities to disclose certain quantitative and qualitative information regarding the nature, amount, timing and uncertainty of qualifying revenue and cash flows arising from contracts with customers. Entities have

## **NOTE A – SIGNIFICANT ACCOUNTING POLICIES (continued)**

the option of using a full retrospective or a modified retrospective approach to adopt the new guidance. This guidance becomes effective for Ashland on October 1, 2018. Ashland is currently evaluating the new accounting standard and the available implementation options the standard allows as well as the impact this new guidance will have on Ashland's Consolidated Financial Statements.

In April 2014, the FASB issued accounting guidance amending the requirements for reporting discontinued operations (ASC 205 Presentation of Financial Statements and ASC 360 Property, Plant and Equipment). This guidance limits the requirement for discontinued operations treatment to the disposal of a component of an entity, or a group of components of an entity, that represents a strategic shift that has (or will have) a major effect on an entity's operations and financial results. Additionally, this new guidance no longer precludes discontinued operations presentation based on continuing involvement or cash flows following the disposal. Ashland adopted this guidance on October 1, 2014, which is applicable only to divestitures subsequent to the adoption date, and has evaluated each divestiture during the current and prior years under this new guidance.

## **NOTE B – VALVOLINE**

### **Ashland Separation of Valvoline**

On September 22, 2015, Ashland announced that the Board of Directors approved proceeding with a plan to separate Ashland into two independent, publicly traded companies comprising of the new Ashland (now known as Ashland Global Holdings Inc.) and Valvoline Inc. The initial step of the separation, the initial public offering of Valvoline Inc., closed on September 28, 2016. The new Ashland is a premier global leader in providing specialty chemical solutions to customers in a wide range of consumer and industrial markets. These markets are currently served by Specialty Ingredients and Performance Materials. Key markets and applications include pharmaceutical, personal care, food and beverage, architectural coatings, adhesives, automotive, construction and energy. Valvoline Inc., a controlled subsidiary, operates on a stand-alone basis as a premium consumer-branded lubricant supplier.

On September 22, 2016, Ashland and Valvoline Inc. announced the pricing of an initial public offering (IPO) of 30 million shares of Valvoline Inc.'s common stock at a price to the public of \$22.00 per share and closed the IPO on September 28, 2016. The underwriters exercised an option to purchase an additional 4.5 million shares of Valvoline Inc.'s common stock to cover over-allotments. After completing the IPO, Ashland now owns 170 million shares of Valvoline Inc.'s common stock, representing approximately 83% of the total outstanding shares of Valvoline Inc.'s common stock. Valvoline Inc.'s common stock is listed on the New York Stock Exchange under the symbol "VVV". Ashland presently intends to distribute the remaining Valvoline Inc. shares in 2017 following the release of March-quarter earnings results by both Ashland and Valvoline Inc.

During September 2016, the total net proceeds after deducting underwriters' discount and other offering expenses received from the IPO were \$712 million. These net proceeds were used primarily to repay debt incurred prior to the IPO and retained for Valvoline Inc.'s cash on hand. See further discussion in Note J regarding certain financing related activities executed for both Ashland and Valvoline in connection with the separation process.

During 2016, Ashland recognized separation costs of \$88 million, which are primarily related to transaction and legal fees. Separation costs are primarily recorded within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income.

### **Transferring of Assets and Liabilities**

As of September 30, 2016, Valvoline Inc. includes substantially all of the Valvoline business as historically reported by Ashland, as well as certain other assets and liabilities transferred to Valvoline Inc. by Ashland as a part of the separation process. The largest transferred liabilities are the net pension and other postretirement plan liabilities, which include a substantial portion of the largest U.S. qualified pension plan and non-qualified U.S. pension plans. As of September 30, 2016, Valvoline Inc.'s net pension and other postretirement plan liabilities totaled approximately \$900 million.

Other transferred assets and liabilities primarily consist of deferred compensation, certain Ashland legacy business insurance reserves, tax attributes and certain trade payables. The impact of these other transferring assets and liabilities was approximately \$15 million of net assets. Additionally, any deferred tax assets and liabilities that relate specifically to these assets and liabilities have been transferred to Valvoline Inc. as well as certain other tax liabilities as a result of the Tax Matters Agreement. For purposes of Ashland's 2016 segment reporting and consistent with prior periods, these transferred assets and liabilities remain included within Unallocated and other.

## **NOTE B – VALVOLINE (continued)**

### **Noncontrolling Interest**

As a result of the Valvoline Inc. IPO, the outside stockholders' interests in Valvoline Inc., which was approximately 17% as of September 30, 2016, are presented separately as a noncontrolling interest within Ashland's equity in the Consolidated Balance Sheet. As of September 30, 2016, the noncontrolling interest was \$182 million. The amount of consolidated net income attributable to these minority holders is presented as a separate caption on the Statement of Consolidated Comprehensive Income.

The following represents Valvoline acquisition and divestiture activity.

#### **Acquisition**

##### *Oil Can Henry's*

On December 11, 2015, Ashland announced that it signed a definitive agreement to acquire OCH International, Inc. (Oil Can Henry's), which was the 13<sup>th</sup> largest quick-lube network in the United States, servicing approximately 1 million vehicles annually with 89 quick-lube stores, consisting of 47 company-owned stores and 42 franchise locations, in Oregon, Washington, California, Arizona, Idaho and Colorado. On February 1, 2016, Ashland completed the acquisition.

The acquisition of Oil Can Henry's was valued at \$72 million, which included acquired indebtedness of \$11 million and other working capital adjustments. Net of acquired indebtedness and certain purchase price adjustments, the net cash outlay was \$62 million during 2016. The purchase price allocation primarily included \$83 million of goodwill.

#### **Divestitures**

##### *Valvoline Car Care Products*

In April 2015, Ashland entered into a definitive sale agreement to sell Valvoline's car care product assets for \$24 million, which included Car Brite™ and Eagle One™ automotive appearance products. Prior to the sale, Ashland recognized a loss of \$26 million before tax in 2015 to recognize the assets at fair value less cost to sell, using Level 2 nonrecurring fair value measurements. The loss was reported within the net gain (loss) on divestitures caption within the Statements of Consolidated Comprehensive Income. The transaction closed on June 30, 2015 and Ashland received net proceeds of \$19 million after adjusting for certain customary closing costs and final working capital totals.

The sale of Valvoline's car care product assets did not qualify for discontinued operations treatment since it did not represent a strategic shift that had or will have a major effect on Ashland's operations and financial results.

##### *Valvoline Joint Venture*

During April 2015, Ashland sold a Valvoline joint venture equity investment in Venezuela. Prior to the sale, Ashland recognized a \$14 million impairment in 2015, for which there was no tax effect, using Level 2 nonrecurring fair value measurements within the equity and other income caption of the Statements of Consolidated Comprehensive Income.

Ashland's decision to sell the equity investment and the resulting charge recorded in the prior year was reflective of the continued devaluation of the Venezuelan currency (bolivar) based on changes to the Venezuelan currency exchange rate mechanisms during the fiscal year. In addition, the continued lack of exchangeability between the Venezuelan bolivar and U.S. dollar had restricted the joint venture's ability to pay dividends and obligations denominated in U.S. dollars. These exchange regulations and cash flow limitations, combined with other recent Venezuelan regulations and the impact of declining oil prices on the Venezuelan economy, had significantly restricted Ashland's ability to conduct normal business operations through the joint venture arrangement. Ashland determined this divestiture did not represent a strategic shift that had or will have a major effect on Ashland's operations and financial results, and thus it did not qualify for discontinued operations treatment.

## **NOTE C – ACQUISITIONS AND DIVESTITURES**

### **Acquisition**

##### *Zeta Fraction™*

In September 2015, Specialty Ingredients completed the acquisition of the patented Zeta Fraction™ technology from AkzoNobel for \$8 million. The acquisition broadens Ashland's value-added portfolio in the personal care, pharmaceutical, food and beverage, and agriculture markets. The patented Zeta Fraction™ process and technology selectively isolates efficacious components from living plants and marine sources to produce a wide range of biofunctional ingredients. The purchase price allocation primarily included intellectual property and property, plant and equipment.

## NOTE C – ACQUISITIONS AND DIVESTITURES (continued)

### Divestitures

#### *Specialty Ingredients Joint Venture*

During September 2016, Ashland entered into a definitive sale agreement to sell its ownership interest in a Specialty Ingredients consolidated joint venture. Ashland recognized a loss of \$12 million before tax in 2016 to recognize the assets at fair value less cost to sell, using Level 2 nonrecurring fair value measurements. The loss was reported within the net gain (loss) on divestitures caption within the Statement of Consolidated Comprehensive Income. The net assets held for sale are not material to Ashland's Consolidated Balance Sheets.

Ashland determined this transaction did not qualify for discontinued operations treatment since it did not represent a strategic shift that had or will have a major effect on Ashland's operations and financial results. Any additional gain or loss recognized as a result of the transaction is expected to be nominal and would be recognized in the period incurred.

#### *Industrial Biocides*

During May 2015, Ashland entered into a definitive sale agreement to sell the industrial biocides assets within Specialty Ingredients, which closed on July 1, 2015. As a result of the sale, Ashland received net cash proceeds of approximately \$30 million during the fourth quarter of 2015 and recognized a nominal gain before tax and after customary closing costs within the net gain (loss) on divestitures caption within the Statements of Consolidated Comprehensive Income.

The sale of Specialty Ingredients' industrial biocides assets did not qualify for discontinued operations treatment since it did not represent a strategic shift that had or will have a major effect on Ashland's operations and financial results.

#### *MAP Transaction*

As part of the 2005 transfer of Ashland's 38% interest in the Marathon Ashland Petroleum LLC (MAP) joint venture and two other small businesses to Marathon Oil Corporation (Marathon) (the MAP Transaction), Marathon is entitled to the tax deductions for Ashland's future payments of certain contingent liabilities, including asbestos liabilities, related to previously owned businesses of Ashland. Marathon agreed to compensate Ashland for these tax deductions and Ashland established a discounted receivable, which represented the estimated present value of probable recoveries from Marathon for the portion of their future tax deductions. As a result of the January 2015 asbestos insurance settlement, Ashland recorded a \$7 million charge during 2015 within the net gain (loss) on divestitures caption of the Statements of Consolidated Comprehensive Income. The total MAP receivable remaining as of September 30, 2016 was \$8 million. See Note O for more information related to the January 2015 asbestos insurance settlement.

#### *Elastomers*

On October 9, 2014, Ashland entered into a definitive agreement to sell the Elastomers division of the Performance Materials reportable segment, which operated a 250-person manufacturing facility in Port Neches, Texas, to Lion Copolymer Holdings, LLC. The Elastomers division, which primarily served the North American replacement tire market, accounted for approximately 5% of Ashland's 2014 sales of \$6.1 billion and 18% of Ashland Performance Materials' \$1.6 billion in sales in 2014. The sale was completed on December 1, 2014 in a transaction valued at approximately \$120 million which was subject to working capital adjustments. The total post-closing adjusted cash proceeds received before taxes by Ashland during 2015 was \$105 million, which included working capital adjustments and transaction costs, as defined in the definitive agreement.

Elastomers' net assets as of November 30, 2014 were \$191 million which primarily included accounts receivable, inventory, property, plant and equipment, non-deductible goodwill and other intangibles and payables. Since the net proceeds received were less than book value, Ashland recorded a loss of \$86 million pre-tax, using Level 2 nonrecurring fair value measurements, within the net gain (loss) on divestitures caption of the Statements of Consolidated Comprehensive Income during 2015. The related tax effect was a benefit of \$28 million included in the income tax expense (benefit) caption within the Statements of Consolidated Comprehensive Income.

Ashland determined that the sale of Elastomers did not represent a strategic shift that had or will have a major effect on Ashland's operations and financial results. As such, Elastomers' results were included in the Performance Materials reportable segment results of operations and financial position within the Statements of Consolidated Comprehensive Income and Consolidated Balance Sheets, respectively, until its December 1, 2014 sale. Certain indirect corporate costs of \$11 million for 2015 were included within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income that were previously allocated to the Elastomers division.

#### *Water Technologies*

On July 31, 2014, Ashland sold the Water Technologies business to a fund managed by Clayton, Dubilier & Rice (CD&R) in a transaction valued at approximately \$1.8 billion. The total post-closing adjusted cash proceeds received by Ashland during 2014, before taxes, was \$1.6 billion, which includes estimates for certain working capital and other post-closing adjustments, as defined



## **NOTE C – ACQUISITIONS AND DIVESTITURES (continued)**

in the definitive agreement. Ashland recognized a gain of \$92 million after tax, which is included within the discontinued operations caption in the Statement of Consolidated Comprehensive Income for 2014. During 2015, Ashland received \$48 million of delayed purchase price funds related to a foreign entity which completed certain regulatory closing requirements. Final settlement of working capital and other post-closing adjustments occurred during 2015 resulting in a payment of approximately \$20 million to CD&R.

Since this transaction signified Ashland's exit from the Water Technologies business, Ashland has classified Water Technologies' results of operations and cash flows within the Statements of Consolidated Comprehensive Income and Statements of Consolidated Cash Flows as discontinued operations for prior periods presented. Certain indirect corporate costs included within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income that were previously allocated to the Water Technologies reportable segment did not qualify for classification within discontinued operations. These costs were \$31 million during 2014.

Ashland retained and agreed to indemnify CD&R for certain liabilities of the Water Technologies business arising prior to the closing of the sale, including certain pension and postretirement liabilities, environmental remediation liabilities and certain legacy liabilities relating to businesses disposed or discontinued by the Water Technologies business. Costs directly related to these retained liabilities have been included within the discontinued operations caption of the Statements of Consolidated Comprehensive Income. The ongoing effects of the pension and other postretirement plans for former Water Technologies employees are reported within the Unallocated and other segment.

Ashland provided certain transition services to CD&R for a fee. During 2016, 2015 and 2014, Ashland recognized transition service fees of \$5 million, \$28 million and \$7 million, respectively, within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income. While the transition services vary in duration depending upon the type of service provided, Ashland continued to reduce costs as the transition services were completed. See Note D for further information on the results of operations of Water Technologies for all periods presented.

### *Castling Solutions joint venture*

During 2014, Ashland, in conjunction with its partner, initiated a process to sell the ASK Chemicals GmbH (ASK) joint venture, in which Ashland had 50% ownership. As part of the sale process, Ashland determined during 2014 that the fair value of its investment in the ASK joint venture was less than the carrying value and that an other than temporary impairment had occurred. As a result, Ashland recognized an impairment charge of \$50 million related to its investment in the ASK joint venture. The charge was recognized within the equity and other income caption of the Statements of Consolidated Comprehensive Income.

On June 30, 2014, Ashland, in conjunction with its partner, sold the ASK joint venture to investment funds affiliated with Rhône Capital, LLC (Rhône), a London and New York-based private equity investment firm. From the sale, total pre-tax proceeds to the sellers, which were split evenly between Ashland and its partner, under the terms of the 50/50 joint venture, were \$205 million, which included \$176 million in cash and a \$29 million note from Rhône due in calendar year 2022.

## **NOTE D – DISCONTINUED OPERATIONS**

In previous periods, Ashland has divested certain businesses that have qualified as discontinued operations. The operating results from these divested businesses and subsequent adjustments related to ongoing assessments of certain retained liabilities and tax items have been recorded within the discontinued operations caption in the Statements of Consolidated Comprehensive Income for all periods presented and are discussed further within this note.

Ashland is subject to liabilities from claims alleging personal injury caused by exposure to asbestos. Such claims result primarily from indemnification obligations undertaken in 1990 in connection with the sale of Riley, a former subsidiary, which qualified as a discontinued operation and from the acquisition during 2009 of Hercules, an indirect wholly-owned subsidiary of Ashland. Adjustments to the recorded litigation reserves and related insurance receivables are recorded within the discontinued operations caption and continue periodically. During 2015, Ashland recorded an after-tax gain of \$120 million within discontinued operations due to the January 2015 asbestos insurance settlement. See Note O for further discussion of Ashland's asbestos-related activity.

As previously described in Note C, on July 31, 2014, Ashland completed the sale of the Water Technologies business to CD&R. Sales recognized for the ten month period Water Technologies was still owned by Ashland in 2014 were \$1.5 billion. The previous results of operation related to Water Technologies have been reflected as discontinued operations in the Statements of Consolidated Comprehensive Income. Ashland made subsequent post-closing adjustments to the discontinued operations caption in 2016, 2015 and 2014.

On March 31, 2011, Ashland completed the sale to Nexeo Solutions, LLC of substantially all of the assets and certain liabilities of its global distribution business, which previously comprised the Ashland Distribution (Distribution) reportable segment. Ashland

**NOTE D – DISCONTINUED OPERATIONS (continued)**

determined that this sale qualified as a discontinued operation, in accordance with U.S. GAAP, since Ashland does not have significant continuing involvement in the Distribution business. Ashland made subsequent adjustments to the discontinued operations caption for Distribution during 2015.

On August 28, 2006, Ashland completed the sale of the stock of Ashland Paving And Construction, Inc. (APAC) for \$1.3 billion. The sale qualified as a discontinued operation, and as a result, the previous operating results related to APAC have been reflected as discontinued operations in the Statements of Consolidated Comprehensive Income. Ashland has made subsequent adjustments to the gain on the sale of APAC, primarily relating to the tax effects of the sale, during 2015 and 2014.

Due to the ongoing assessment of certain matters associated with previous divestitures, subsequent adjustments to these divestitures may continue in future periods in the discontinued operations caption in the Statements of Consolidated Comprehensive Income. Components of amounts reflected in the Statements of Consolidated Comprehensive Income related to discontinued operations are presented in the following table for each of the years ended September 30.

(In millions)	2016	2015	2014
<b>Income (loss) from discontinued operations</b>			
Asbestos-related litigation	\$ (37)	\$ 132	\$ 5
Water Technologies	7	(3)	84
Distribution	(2)	(3)	—
<b>Gain on disposal of discontinued operations</b>			
Water Technologies	—	4	148
<b>Income (loss) before taxes</b>	<u>(32)</u>	<u>130</u>	<u>237</u>
<b>Income tax benefit (expense)</b>			
Benefit (expense) related to income (loss) from discontinued operations			
Asbestos-related litigation	7	(22)	1
Water Technologies	(7)	2	(25)
Distribution	1	1	—
Benefit (expense) related to gain on disposal of discontinued operations			
Water Technologies	—	3	(56)
Distribution	—	3	—
APAC	—	1	4
<b>Income (loss) from discontinued operations (net of taxes)</b>	<u>\$ (31)</u>	<u>\$ 118</u>	<u>\$ 161</u>

**NOTE E – UNCONSOLIDATED AFFILIATES**

Summarized financial information for companies accounted for on the equity method is presented in the following table, along with a summary of the amounts recorded in Ashland's Consolidated Financial Statements. These amounts exclude any applicable affiliates from the Water Technologies business for prior periods presented since it was divested during 2014 and in accordance with provisions within U.S. GAAP the results of this business have been reclassified to discontinued operations in the Statements of Consolidated Comprehensive Income. The results of operations and amounts recorded by Ashland as of and for the years ended September 30, 2015 and 2014 only include results for the Valvoline joint venture within Venezuela and the ASK joint venture, respectively, prior to their divestitures. See Note C for further information on these divestitures in 2015 and 2014.

At September 30, 2016 and 2015, Ashland's retained earnings included \$48 million and \$54 million, respectively, of undistributed earnings from unconsolidated affiliates accounted for on the equity method. The summarized financial information for all companies accounted for on the equity method by Ashland is as of and for the years ended September 30, 2016, 2015 and 2014, respectively.

**NOTE E – UNCONSOLIDATED AFFILIATES (continued)**

(In millions)	2016	2015	2014
<b>Financial position</b>			
Current assets	\$ 199	\$ 211	
Current liabilities	(50)	(54)	
Working capital	<u>149</u>	<u>157</u>	
Noncurrent assets	38	40	
Noncurrent liabilities	(2)	(1)	
Stockholders' equity	<u>\$ 185</u>	<u>\$ 196</u>	
<b>Results of operations</b>			
Sales	\$ 336	\$ 398	\$ 966
Income from operations	51	57	74
Net income	25	31	63
<b>Amounts recorded by Ashland</b>			
Investments and advances	\$ 57	\$ 65	\$ 81
Equity income (loss) (a)	13	1	(25)
Distributions received	18	22	14

(a) The results in 2015 and 2014 include a \$14 million and \$50 million impairment on the Valvoline joint venture in Venezuela and the ASK joint venture, respectively.

**NOTE F – RESTRUCTURING ACTIVITIES**

Ashland periodically implements company-wide restructuring programs related to acquisitions, divestitures and other cost reduction programs in order to enhance profitability through streamlined operations and an improved overall cost structure for each business.

*Severance costs*

During 2014, Ashland announced a global restructuring program to streamline the resources used across the organization. As part of this global restructuring program, Ashland executed a voluntary severance offer (VSO) to certain U.S. employees and an involuntary program for certain employees. Substantially all payments related to the VSO and involuntary programs were paid by the end of fiscal year 2015. The VSO and involuntary programs resulted in expense of \$95 million being recognized during 2014, with \$13 million being recorded within the cost of sales caption and \$82 million being recorded within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income. In addition, the employee reductions resulted in a pension curtailment being recorded during 2014. See Note N for further information. As of September 30, 2015, the remaining restructuring reserve for the global restructuring program was \$7 million and was fully paid during 2016. Additional restructuring reserves of \$1 million for other previously announced programs also remained as of September 30, 2016 and 2015.

*Facility costs*

In prior years, Ashland incurred lease abandonment charges related to its exit from office facilities obtained as part of the Hercules acquisition. During 2014, Ashland incurred an additional \$4 million lease abandonment charge related to its exit from a Hercules related office facility. As of September 30, 2015, the remaining restructuring reserve for all qualifying facility costs totaled \$3 million. During 2016, all remaining lease payments were made, reducing the reserve to zero as of September 30, 2016.

The following table details at September 30, 2016, 2015 and 2014, the amount of restructuring reserves related to the programs discussed above, and the related activity in these reserves during 2016, 2015 and 2014. The severance reserves are included in accrued expenses and other liabilities in the Consolidated Balance Sheets for all periods presented. As of September 30, 2015, facility cost reserves were included in accrued expenses and other liabilities in the Consolidated Balance Sheet, while these reserves were primarily within other noncurrent liabilities as of September 30, 2014.

**NOTE F – RESTRUCTURING ACTIVITIES (continued)**

(In millions)	Severance	Facility costs	Total
<b>Balance as of September 30, 2013</b>	\$ 17	\$ 8	\$ 25
Restructuring reserves	95	4	99
Reserve adjustments	(4)	—	(4)
Utilization (cash paid)	(52)	(3)	(55)
<b>Balance as of September 30, 2014</b>	<u>56</u>	<u>9</u>	<u>65</u>
Reserve adjustments	(3)	(2)	(5)
Utilization (cash paid)	(45)	(4)	(49)
<b>Balance as of September 30, 2015</b>	<u>8</u>	<u>3</u>	<u>11</u>
Utilization (cash paid)	(7)	(3)	(10)
<b>Balance as of September 30, 2016</b>	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ 1</u>

*Specialty Ingredients Restructuring*

During 2015, Specialty Ingredients committed to a restructuring plan within an existing manufacturing facility. As a result, restructuring charges of \$23 million were recorded within the cost of sales caption of the Statements of Consolidated Comprehensive Income. As of September 30, 2015, the remaining restructuring reserve related to severance for the Specialty Ingredients manufacturing facility totaled \$13 million. During 2016, the severance reserve was reduced by a \$5 million reversal of the accrual, as well as reclassifications of certain non-severance related costs, and was fully paid as of September 30, 2016. The severance reserve was included in accrued expenses and other liabilities in the Consolidated Balance Sheets.

**NOTE G – FAIR VALUE MEASUREMENTS**

As required by U.S. GAAP, Ashland uses applicable guidance for defining fair value, the initial recording and periodic remeasurement of certain assets and liabilities measured at fair value and related disclosures for instruments measured at fair value. Fair value accounting guidance establishes a fair value hierarchy, which prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). An instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the instrument's fair value measurement. The three levels within the fair value hierarchy are described as follows.

Level 1 – Observable inputs such as unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2 – Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3 – Unobservable inputs for the asset or liability for which there is little, if any, market activity at the measurement date. Unobservable inputs reflect Ashland's own assumptions about what market participants would use to price the asset or liability. The inputs are developed based on the best information available in the circumstances, which might include Ashland's own financial data such as internally developed pricing models, discounted cash flow methodologies, as well as instruments for which the fair value determination requires significant management judgment.

For assets that are measured using quoted prices in active markets (Level 1), the total fair value is the published market price per unit multiplied by the number of units held without consideration of transaction costs. Assets and liabilities that are measured using significant other observable inputs (Level 2) are primarily valued by reference to quoted prices of similar assets or liabilities in active markets, adjusted for any terms specific to that asset or liability. For all other assets and liabilities for which unobservable inputs are used (Level 3), fair value is derived through the use of fair value models, such as a discounted cash flow model or other standard pricing models that Ashland deems reasonable.

The following table summarizes financial instruments subject to recurring fair value measurements as of September 30, 2016. For additional information on fair value hierarchy measurements of pension plan asset holdings, see Note N.

**NOTE G – FAIR VALUE MEASUREMENTS (continued)**

(In millions)	Carrying value	Total fair value	Quoted prices in active markets for identical assets Level 1	Significant other observable inputs Level 2	Significant unobservable inputs Level 3
<b>Assets</b>					
Cash and cash equivalents	\$ 1,188	\$ 1,188	\$ 1,188	\$ —	\$ —
Restricted investments (a)	322	322	322	—	—
Deferred compensation investments (b)	185	185	35	150	—
Investments of captive insurance company (b)	4	4	4	—	—
Foreign currency derivatives	3	3	—	3	—
Total assets at fair value	<u>\$ 1,702</u>	<u>\$ 1,702</u>	<u>\$ 1,549</u>	<u>\$ 153</u>	<u>\$ —</u>
<b>Liabilities</b>					
Foreign currency derivatives	\$ 5	\$ 5	\$ —	\$ 5	\$ —

(a) Included in restricted investments and \$30 million within other current assets in the Consolidated Balance Sheets.

(b) Included in other noncurrent assets in the Consolidated Balance Sheets.

The following table summarizes financial instruments subject to recurring fair value measurements as of September 30, 2015.

(In millions)	Carrying value	Total fair value	Quoted prices in active markets for identical assets Level 1	Significant other observable inputs Level 2	Significant unobservable inputs Level 3
<b>Assets</b>					
Cash and cash equivalents	\$ 1,257	\$ 1,257	\$ 1,257	\$ —	\$ —
Restricted investments (a)	315	315	315	—	—
Deferred compensation investments (b)	180	180	40	140	—
Investments of captive insurance company (b)	4	4	4	—	—
Foreign currency derivatives	13	13	—	13	—
Total assets at fair value	<u>\$ 1,769</u>	<u>\$ 1,769</u>	<u>\$ 1,616</u>	<u>\$ 153</u>	<u>\$ —</u>
<b>Liabilities</b>					
Foreign currency derivatives	\$ 16	\$ 16	\$ —	\$ 16	\$ —

(a) Included in restricted investments and \$30 million within other current assets in the Consolidated Balance Sheets.

(b) Included in other noncurrent assets in the Consolidated Balance Sheets.

**Restricted investments**

As discussed in Note A, Ashland maintains certain investments in a restricted renewable annual trust for the purpose of paying future asbestos indemnity and defense costs. The investments are designated as available-for-sale securities, classified as Level 1 measurements within the fair value hierarchy. These securities were classified primarily as noncurrent restricted investment assets, with \$30 million classified within other current assets, in the Consolidated Balance Sheets. The following table provides a summary of the activity within the available-for-sale securities portfolio as of September 30, 2016 and 2015:

**NOTE G – FAIR VALUE MEASUREMENTS (continued)**

(In millions)	2016	2015
Original cost	\$ 335	\$ 335
Accumulated investment income and disbursements, net	(3)	—
Adjusted cost (a)	332	335
Investment income (b)	8	3
Unrealized gain	11	—
Unrealized loss	—	(17)
Settlement funds	4	—
Disbursements	(33)	(6)
Fair value	<u>\$ 322</u>	<u>\$ 315</u>

(a) The adjusted cost in September 30, 2016 represents the carrying value of the demand deposit and the adjusted cost of the equity and corporate bond mutual funds as of September 30, 2015.

(b) Investment income relates to the demand deposit and includes interest income as well as dividend income transferred from the equity and corporate bond mutual funds.

The following table presents gross unrealized gains and losses for the available-for-sale securities as of September 30, 2016 and 2015:

(In millions)	Adjusted Cost	Gross Unrealized Gain	Gross Unrealized Loss	Fair Value
<b>As of September 30, 2016</b>				
Demand Deposit	6	—	—	6
Equity Mutual Fund	185	8	—	193
Corporate bond Mutual Fund	120	3	—	123
Fair value	<u>\$ 311</u>	<u>\$ 11</u>	<u>\$ —</u>	<u>\$ 322</u>
<b>As of September 30, 2015</b>				
Demand Deposit	17	—	—	17
Equity Mutual Fund	195	—	(14)	181
Corporate bond Mutual Fund	120	—	(3)	117
Fair value	<u>\$ 332</u>	<u>\$ —</u>	<u>\$ (17)</u>	<u>\$ 315</u>

The unrealized gains and losses as of September 30, 2016 and 2015 were recognized within accumulated other comprehensive income (AOCI). Ashland invests in highly-rated investment grade mutual funds. No realized gain or loss was reclassified out of AOCI and no other-than-temporary impairment was recognized in AOCI during 2016 and 2015.

*Deferred compensation investments*

Deferred compensation investments consist of Level 1 and Level 2 measurements within the fair value hierarchy. Level 1 investments consist primarily of fixed income U.S. government bonds while Level 2 investments are comprised primarily of a guaranteed interest fund, a common stock index fund and an intermediate government bond fund. Gains and losses related to deferred compensation investments are immediately recognized within the Statements of Consolidated Comprehensive Income.

**Derivative and hedging activities***Currency hedges*

Ashland conducts business in a variety of foreign currencies. Accordingly, Ashland regularly uses foreign currency derivative instruments to manage exposure on certain transactions denominated in foreign currencies to curtail potential earnings volatility effects of certain assets and liabilities, including short-term inter-company loans, denominated in currencies other than Ashland's functional currency of an entity. These derivative contracts generally require exchange of one foreign currency for another at a fixed rate at a future date and generally have maturities of less than twelve months. All contracts are valued at fair value with net changes in fair value recorded within the selling, general and administrative expense caption. The impacts of these contracts were largely offset by gains and losses resulting from the impact of changes in exchange rates on transactions denominated in non-

**NOTE G – FAIR VALUE MEASUREMENTS (continued)**

functional currencies. The following table summarizes the gains and losses recognized during 2016, 2015 and 2014 within the Statements of Consolidated Comprehensive Income.

(In millions)	2016	2015	2014
Foreign currency derivative gain (loss)	\$ 2	\$ (17)	\$ (7)

The following table summarizes the fair values of the outstanding foreign currency derivatives as of September 30, 2016 and 2015 included in accounts receivable and accrued expenses and other liabilities of the Consolidated Balance Sheets.

(In millions)	2016	2015
Foreign currency derivative assets	\$ 3	\$ 5
Notional contract values	333	192
Foreign currency derivative liabilities	\$ 4	\$ 16
Notional contract values	530	673

*Net investment hedges*

Since 2014, Ashland has entered into foreign currency contracts in order to manage the foreign currency exposure of the net investment in certain foreign operations. These foreign currency contracts were primarily the result of certain proceeds from the sale of Water Technologies being received in non-U.S. denominated currencies during 2014 and ongoing management of the volatility in foreign currency exchange rates. Ashland designated the foreign currency contracts as hedges of net investments in its foreign subsidiaries. As a result, Ashland records these hedges at fair value using forward rates, with the effective portion of the gain or loss reported as a component of the cumulative translation adjustment within AOCI and subsequently recognized in the Statements of Consolidated Comprehensive Income when the hedged item affects net income. During 2016 and 2015, these foreign currency contracts were settled and Ashland entered into new foreign currency contracts designated as hedges of net investments in foreign subsidiaries. These settlements resulted in net gains recorded within the cumulative translation adjustment within AOCI of \$4 million and \$11 million during 2016 and 2015, respectively.

As of September 30, 2016 and 2015, the total notional value of foreign currency contracts equaled \$94 million and \$175 million, respectively. The fair value of Ashland's net investment hedge assets and liabilities are calculated using forward rates. Accordingly, these instruments are deemed to be Level 2 measurements within the fair value hierarchy. Counterparties to these net investment hedges are highly rated financial institutions which Ashland believes carry only a nominal risk of nonperformance. The following table summarizes the fair value of the outstanding net investment hedge instruments as of September 30, 2016 and 2015.

(In millions)	Consolidated balance sheet caption	2016	2015
Net investment hedge assets (a)	Accounts receivable	\$ —	\$ 8
Net investment hedge liabilities (a)	Accrued expenses and other liabilities	1	—

(a) Fair values of \$0 denote a value less than \$1 million.

The following table summarizes the change in the unrealized gain (loss) on the net investment hedge instruments recognized within the cumulative translation adjustment within AOCI during 2016 and 2015. No portion of the gain or loss was reclassified to income during 2016 and 2015. There was no hedge ineffectiveness with these instruments during 2016 and 2015.

(In millions)	2016	2015
Change in unrealized gain (loss) in AOCI	\$ (1)	\$ 8
Tax impact of change in unrealized (gain) loss in AOCI (a)	—	(2)

(a) \$0 denotes a value less than \$1 million.

## NOTE G – FAIR VALUE MEASUREMENTS (continued)

### Other financial instruments

At September 30, 2016 and 2015, Ashland's long-term debt (including current portion and excluding debt issuance cost discounts) had a carrying value of \$3,103 million and \$3,431 million, respectively, compared to a fair value of \$3,336 million and \$3,484 million, respectively. The fair values of long-term debt are based on quoted market prices or, if market prices are not available, the present values of the underlying cash flows discounted at Ashland's incremental borrowing rates, which are deemed to be Level 2 measurements within the fair value hierarchy.

## NOTE H – PROPERTY, PLANT AND EQUIPMENT

The following table describes the various components of property, plant and equipment within the Consolidated Balance Sheets.

(In millions)	2016	2015
Land	\$ 226	\$ 202
Buildings	744	710
Machinery and equipment	3,024	2,957
Construction in progress	349	275
Total property, plant and equipment (gross)	4,343	4,144
Accumulated depreciation (a)	(2,119)	(1,962)
Total property, plant and equipment (net)	\$ 2,224	\$ 2,182

(a) As of September 30, 2016, accumulated depreciation included impairment charges to buildings and machinery and equipment of \$1 million and \$9 million, respectively, related to Intermediates/Solvents. See Note I for more information.

The following table summarizes various property, plant and equipment charges included within the Statements of Consolidated Comprehensive Income.

(In millions)	2016	2015	2014
Depreciation	\$ 260	\$ 263	\$ 304
Capitalized interest	1	2	1

During 2016 and 2015, depreciation included \$4 million and \$6 million, respectively, of accelerated depreciation related to the restructuring plan of an existing manufacturing facility within the Specialty Ingredients reportable segment. These charges were recorded within the cost of sales caption of the Statements of Consolidated Comprehensive Income. Additionally, during 2016, depreciation included \$2 million of accelerated depreciation within Unallocated and other and was recorded within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income. During 2014, depreciation included \$36 million of accelerated depreciation and asset impairment, including a \$19 million impairment charge related to the impairment of a product line within the Specialty Ingredients reportable segment. This charge was recorded within the cost of sales caption of the Statements of Consolidated Comprehensive Income. The remaining \$17 million relates to accelerated depreciation associated with plant closures within the Performance Materials reportable segment.

## NOTE I – GOODWILL AND OTHER INTANGIBLES

### Goodwill

Ashland reviews goodwill and indefinite-lived intangible assets for impairment annually or when events and circumstances indicate an impairment may have occurred. This annual assessment is performed as of July 1 and consists of Ashland determining each reporting unit's current fair value compared to its current carrying value. Ashland determined that its reporting units for the allocation of goodwill include the Specialty Ingredients reportable segment, the Composites and Intermediates/Solvents reporting units within the Performance Materials reportable segment, and the Core North America, Quick Lubes and International reporting units within the Valvoline reportable segment.

In the first step of the impairment model, Ashland compares the carrying value of each reporting unit to its respective estimated fair value. Ashland makes various estimates and assumptions in determining the estimated fair values of those units through the



## NOTE I – GOODWILL AND OTHER INTANGIBLES (continued)

use of a combination of discounted cash flow models and valuations based on earnings multiples for guideline public companies in each reporting unit's industry peer group. Discounted cash flow models are highly reliant on various assumptions. Significant assumptions Ashland utilized in these models for the current year included: projected business results and future industry direction, long-term growth factors and weighted-average cost of capital. Ashland uses assumptions that it deems to be reasonable estimates of likely future events and compares the total fair values of each reporting unit to Ashland's market capitalization, and implied control premium, to determine if the fair values are reasonable compared to external market indicators. Subsequent changes in these key assumptions could affect the results of future goodwill impairment reviews.

In conjunction with the July 1, 2016 annual assessment of goodwill, Ashland's valuation techniques did not indicate any impairment for Specialty Ingredients, Composites, Core North America, Quick Lubes or International. Due to deterioration in the butanediol commodity market during 2016 in which the Intermediates/Solvents reporting unit operates (and the impact thereof on Ashland's most recently completed three-year business plan), Ashland determined that the carrying value of the Intermediates/Solvents reporting unit exceeded its fair value at July 1, 2016, which resulted in the reporting unit failing the first step of the goodwill impairment test. Ashland then performed the second step of the goodwill impairment test, which involved, among other things, obtaining third-party appraisals of substantially all of Intermediates/Solvents tangible and intangible assets. Based on the results of its goodwill impairment testing as of July 1, 2016, Ashland recorded a pre-tax goodwill impairment charge of \$171 million in the fourth quarter of 2016, which is in addition to a \$10 million impairment related to Intermediates/Solvents property, plant and equipment, resulted in a total \$181 million impairment charge for Intermediates/Solvents during 2016. A portion of the goodwill impairment was nondeductible.

Ashland's assessment of an impairment charge on any of these remaining assets currently classified as having indefinite lives, including goodwill, could result in additional impairment charges in future periods if any or all of the following events were to occur with respect to a particular reporting unit: a significant change in projected business results, a divestiture decision, increase in Ashland's weighted-average cost of capital rates, decrease in growth rates or other assumptions, economic deterioration that is more severe or of a longer duration than anticipated, or another significant economic event.

The following is a progression of goodwill by reportable segment for the years ended September 30, 2016 and 2015.

(In millions)	Specialty Ingredients	Performance Materials (a)	Valvoline (b)	Total
<b>Balance at September 30, 2014</b>	\$ 2,129	\$ 346	\$ 168	\$ 2,643
Acquisitions (c)	—	—	3	3
Divestitures (d)	(10)	(10)	(1)	(21)
Currency translation	(115)	(23)	(1)	(139)
<b>Balance at September 30, 2015</b>	<u>2,004</u>	<u>313</u>	<u>169</u>	<u>2,486</u>
Acquisitions (c)	—	—	94	94
Divestitures (d)	(10)	—	—	(10)
Impairment	—	(171)	—	(171)
Currency translation	(3)	5	—	2
<b>Balance at September 30, 2016</b>	<u><u>\$ 1,991</u></u>	<u><u>\$ 147</u></u>	<u><u>\$ 263</u></u>	<u><u>\$ 2,401</u></u>

(a) As of September 30, 2016, goodwill was completely attributable to the Composites reporting unit due to the full impairment of the goodwill for the Intermediates/Solvents reporting unit during 2016. Accumulated impairment for the reportable segment was \$171 million at September 30, 2016.

(b) As of September 30, 2016, goodwill consisted of \$89 million for the Core North America reporting unit, \$135 million for the Quick Lubes reporting unit and \$39 million for the International reporting unit.

(c) Relates to \$83 million for the acquisition of Oil Can Henry's and \$11 million for Valvoline Instant Oil Change<sup>SM</sup> center acquisitions during 2016. See Note B for more information on the acquisition of Oil Can Henry's. Relates to Valvoline Instant Oil Change<sup>SM</sup> acquisitions during 2015.

(d) Divestitures caption represents the amounts of goodwill related to the Specialty Ingredients joint venture during 2016 and the sale of Elastomers, Valvoline car care products and industrial biocides during 2015. See Notes B and C for additional information.

### Other intangible assets

Intangible assets principally consist of trademarks and trade names, intellectual property, customer relationships and in-process research and development (IPR&D). Intangible assets classified as finite are amortized on a straight-line basis over their estimated useful lives. The cost of trademarks and trade names is amortized principally over 3 to 25 years, intellectual property over 5 to 20 years and customer relationships over 3 to 24 years.

During 2015 and 2014, there was impairments of certain IPR&D assets associated with the acquisition of International Specialty Products Inc. (ISP) of \$11 million and \$13 million, respectively, which were classified within the research and development expense caption of the Statements of Consolidated Comprehensive Income. These impairments represented Level 2 nonrecurring fair value measurements. As of September 30, 2015, IPR&D and certain intangible assets within trademarks and tradenames were classified

**NOTE I – GOODWILL AND OTHER INTANGIBLES (continued)**

as indefinite-lived and had a balance of \$311 million. During 2016, Ashland started amortizing the remaining IPR&D assets since the technology was commercialized during this period. As a result, as of September 30, 2016, the indefinite-lived intangible assets consisted only of certain trademarks and trade names of \$301 million.

Ashland annually reviews indefinite-lived intangible assets for possible impairment or whenever events or changes in circumstances indicate that carrying amounts may not be recoverable. In conjunction with the July 1, 2016 annual assessment of indefinite-lived intangible assets, Ashland's models did not indicate any additional impairment for indefinite-lived intangible assets. Intangible assets were comprised of the following as of September 30, 2016 and 2015.

(In millions)	2016			2015		
	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
<b>Definite-lived intangible assets</b>						
Trademarks and trade names (a)	\$ 42	\$ (19)	\$ 23	\$ 38	\$ (16)	\$ 22
Intellectual property	667	(273)	394	657	(228)	429
Customer relationships (b)	546	(200)	346	555	(175)	380
<b>Total definite-lived intangible assets</b>	<b>1,255</b>	<b>(492)</b>	<b>763</b>	<b>1,250</b>	<b>(419)</b>	<b>831</b>
<b>Indefinite-lived intangible assets</b>						
IPR&D	—	—	—	8	—	8
Trademarks and trade names	301	—	301	303	—	303
<b>Total intangible assets</b>	<b>\$ 1,556</b>	<b>\$ (492)</b>	<b>\$ 1,064</b>	<b>\$ 1,561</b>	<b>\$ (419)</b>	<b>\$ 1,142</b>

(a) Acquired trade names during 2016 had gross carrying amounts of \$2 million for Oil Can Henry's. See Note B for more information on the acquisition of Oil Can Henry's.

(b) Intangibles of the Specialty Ingredients joint venture were included in the loss to recognize the fair value less cost to sell during September 2016. These intangibles included customer relationships with a gross carrying amount of \$9 million and accumulated amortization of \$4 million that were impaired during 2016. See Note C for more information related to the Specialty Ingredients joint venture.

Amortization expense recognized on intangible assets was \$77 million for 2016, \$78 million for 2015 and \$89 million for 2014, and is primarily included in the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income. As of September 30, 2016, all of Ashland's intangible assets that had a carrying value were being amortized except for certain trademarks and trade names that have been determined to have indefinite lives. Estimated amortization expense for future periods is \$76 million in 2017, \$76 million in 2018, \$72 million in 2019, \$71 million in 2020 and \$70 million in 2021. The amortization expense for future periods is an estimate. Actual amounts may change from such estimated amounts due to fluctuations in foreign currency exchange rates, additional intangible asset acquisitions and divestitures, potential impairment, accelerated amortization, or other events.

**NOTE J – DEBT**

The following table summarizes Ashland's current and long-term debt at September 30, 2016 and 2015.

**NOTE J – DEBT (continued)**

(In millions)	2016	2015
4.750% notes, due 2022	\$ 1,121	\$ 1,120
3.875% notes, due 2018	700	700
6.875% notes, due 2043	376	376
Term Loan, due 2021 (a)	375	—
5.500% notes, due 2024 (a)	375	—
Term Loan, due 2017	150	—
6.50% junior subordinated notes, due 2029	140	136
Other international loans, interest at a weighted-average rate of 4.9% at September 30, 2016 (4.8% to 5.0%)	20	25
Medium-term notes, due 2019, interest of 9.4% at September 30, 2016	5	5
Term Loan, due 2020	—	1,086
2015 Revolving Credit Facility	—	110
Accounts receivable securitization (b)	—	190
Other (c)	(18)	(19)
Total debt	<u>3,244</u>	<u>3,729</u>
Short-term debt	(170)	(326)
Current portion of long-term debt	(19)	(55)
Long-term debt (less current portion and debt issuance cost discounts)	<u>\$ 3,055</u>	<u>\$ 3,348</u>

(a) These debt instruments were issued as part of the Valvoline Financing Activities discussed further within this Note.

(b) The potential funding for qualified receivables was reduced from \$275 million to \$250 million during 2015 and from \$250 million to \$100 million during 2016.

(c) Other includes \$29 million and \$28 million of debt issuance cost discounts as of September 30, 2016 and 2015, respectively.

At September 30, 2016, Ashland's total debt had an outstanding principal balance of \$3,419 million, discounts of \$146 million and debt issuance costs of \$29 million. The scheduled aggregate maturities of long-term debt for the next five fiscal years (including the current portion and excluding debt issuance costs) are as follows: \$19 million in 2017, \$719 million in 2018, \$43 million in 2019, \$38 million in 2020 and \$263 million in 2021.

**Ashland Financing Activities***Senior notes refinancing, 2015 Senior Credit Agreement and 2016 Amendment*

During June of 2015, Ashland completed certain refinancing transactions related to the \$600 million 3.000% senior notes due in 2016 (2016 senior notes). Ashland commenced and completed a cash tender offer to purchase for cash any and all of its outstanding 2016 senior notes. At the close of the tender offer, \$550 million aggregate principal amount of the 2016 senior notes was tendered by note holders, representing approximately 92% of the outstanding 2016 senior notes, which have been purchased by Ashland. Subsequently, Ashland redeemed the remaining balance of the 2016 senior notes of \$50 million on July 23, 2015.

In connection with the tender offer and redemption, in June 2015, Ashland entered into a new Credit Agreement (the 2015 Senior Credit Agreement). The 2015 Senior Credit Agreement replaced the \$1.2 billion senior unsecured revolving credit facility (the 2013 Senior Credit Facility), and was comprised of a new five-year senior unsecured revolving credit facility in an aggregate amount of \$1.2 billion (the 2015 revolving credit facility), which includes a \$250 million letter of credit sublimit and a \$100 million swing line loan sublimit, and a five-year senior unsecured term loan facility in an aggregate principal amount of \$1.1 billion (the 2015 term loan facility). The 2015 Senior Credit Agreement is not guaranteed, is unsecured and can be prepaid at any time without premium or penalty.

At Ashland's option, borrowings under the 2015 revolving credit facility bear interest at either LIBOR or an alternate base rate, in each case plus the applicable interest rate margin. The loans' interest rate fluctuate between LIBOR plus 1.375% per annum and LIBOR plus 2.50% per annum (or between the alternate base rate plus 0.375% per annum and the alternate base rate plus 1.50% per annum), based upon Ashland's corporate credit ratings or the consolidated gross leverage ratio (as defined in the 2015 Senior Credit Agreement) (whichever yields a lower applicable interest rate margin) at such time. In addition, Ashland was required to pay fees of 0.25% per annum on the daily unused amount of the 2015 revolving credit facility through and including June 30, 2015, and thereafter the fee rate will fluctuate between 0.175% and 0.40% per annum, based upon Ashland's corporate credit ratings or the consolidated gross leverage ratio (whichever yields a lower fee rate).

## NOTE J – DEBT (continued)

During 2015, Ashland used the proceeds from borrowings under the \$1.1 billion term loan facility along with cash on hand (i) to fund the tender offer of the 2016 senior notes, (ii) to prepay in full the outstanding loans under the 2013 Senior Credit Facility, (iii) to pay accrued interest, fees and expenses under the 2013 Senior Credit Facility and the 2016 senior notes, (iv) to contribute funds to the U.S. pension plans impacted by the pension plan settlement program discussed in Note N, and (v) to pay fees and expenses incurred in connection with the entry into the 2015 Senior Credit Agreement. As a result of the tender offer and redemption, Ashland recognized a \$9 million charge related to early redemption premium payments, which is included in the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income in 2015.

Ashland incurred \$10 million of new debt issuance costs in connection with the 2015 Senior Credit Agreement, of which \$2 million was recognized immediately during 2015 within the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income. The remaining balance is amortized over the term of the 2015 Senior Credit Agreement using the effective interest method. Additionally, as a result of the termination of the 2013 Senior Credit Facility and the repayment of the 2016 senior notes, Ashland recognized a \$2 million charge during 2015 for the accelerated amortization of previously capitalized debt issuance costs, which is included in the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income.

During July 2016, Ashland amended the 2015 Senior Credit Agreement to permit the Reorganization and the series of events relating to the separation of Valvoline Inc. Additionally, the amendment provided that if the aggregate principal amount of the Valvoline debt reaches \$750 million, Ashland would be required to use the net proceeds of such borrowings to repay the 2015 term loan facility and/or permanently reduce its existing revolving credit commitments under the 2015 Senior Credit Agreement in an aggregate amount of up to \$1 billion. As a result of the July 2016 amendment and the Valvoline debt borrowings in connection with the separation, Ashland reduced its revolving borrowing capacity to \$800 million as of September 30, 2016.

The 2015 term loan facility balance was repaid in full in connection with the combined Ashland and Valvoline financing activities during September 2016. In connection with these transactions, Ashland recognized a \$6 million charge for the accelerated amortization of previously capitalized debt issuance costs, which is included in the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income.

Total borrowing capacity remaining under the 2015 revolving credit facility was \$742 million due a reduction of \$58 million for letters of credit outstanding at September 30, 2016.

### *Parent Guarantee of 4.750% notes due 2022, 3.875% notes due 2018 and 6.875% notes due 2043*

On October 20, 2016, Ashland received the requisite consents with respect to its consent solicitation from the holders of Ashland LLC's 3.875% Senior Notes due 2018, 4.750% Senior Notes due 2022 and 6.875% Senior Notes due 2043 (the Notes) to certain amendments to the reporting covenants in the indentures governing the Notes. Following receipt of the consents, Ashland LLC, as issuer, Ashland and the trustee, entered into two supplemental indentures that (1) modify the applicable reporting covenants contained in the indentures governing the Notes to provide that so long as any parent entity of Ashland LLC guarantees the Notes, the reports, information and other documents required to be filed and furnished to holders of the Notes pursuant to the applicable indenture may, at the option of Ashland LLC, be filed by and be those of such parent entity rather than Ashland LLC and (2) provide for the guarantee of the Notes by Ashland.

### *Subsidiary senior unsecured term loan*

During August 2016, a wholly owned foreign subsidiary of Ashland entered into a credit agreement which provides for an aggregate principal amount of \$150 million in a senior unsecured term loan facility maturing on February 15, 2017. This term loan was drawn in full as of September 30, 2016. At the subsidiary's option, loans issued under this term loan facility bear interest at either LIBOR plus 1.75% per annum or an alternate base rate plus 0.75% per annum. The subsidiary may prepay the term loan facility after three months from the date it was drawn upon without any premium or penalty.

### *Accounts receivable securitization*

On August 31, 2012, Ashland entered into a \$350 million accounts receivable securitization facility pursuant to (i) a Sale Agreement, among Ashland and certain of its direct and indirect subsidiaries (each an Originator and collectively, the Originators) and CVG Capital III LLC, a wholly-owned "bankruptcy remote" special purpose subsidiary of the Originators (CVG) and (ii) a Transfer and Administration Agreement, among CVG, each Originator, Ashland, as Master Servicer, certain Conduit Investors, Uncommitted Investors, Letter of Credit Issuers, Managing Agents, Administrators and Committed Investors, and The Bank of Nova Scotia, as agent for various secured parties (the Agent). The Transfer and Administration Agreement had a term of three years, but was extendable at the discretion of Ashland and the Investors. During 2016, the termination date of the commitments under the Transfer and Administration Agreement was extended from December 31, 2015, the previous termination extension date, to March 22, 2017.

## **NOTE J – DEBT (continued)**

Under the Sale Agreement, each Originator will transfer, on an ongoing basis, certain of its accounts receivable, certain related assets and the right to the collections on those accounts receivable to CVG. Under the terms of the Transfer and Administration Agreement, CVG could, from time to time, obtain up to \$350 million (in the form of cash or letters of credit for the benefit of Ashland and its subsidiaries) from the Conduit Investors, the Uncommitted Investors and/or the Committed Investors through the sale of an undivided interest in such accounts receivable, related assets and collections. Subsequently during 2014 and 2015, the available funding for qualifying receivables under the accounts receivable securitization facility was reduced from \$350 million to \$275 million during 2014 and from \$275 million to \$250 million during 2015 due to the divestitures that occurred during the fiscal years. The accounts receivable securitization facility was reduced from \$250 million to \$100 million when Valvoline was removed as an Originator as part of the combined Ashland and Valvoline financing activities in September 2016. Ashland accounts for the securitization facility as secured borrowings, and the receivables sold pursuant to the facility are included in the Consolidated Balance Sheets as accounts receivable. Fundings under the Transfer and Administration Agreement will be repaid as accounts receivable are collected, with new fundings being advanced (through daily reinvestments) as new accounts receivable are originated by the Originators and transferred to CVG, with settlement generally occurring monthly. Ashland continues to classify any borrowings under this facility as a short-term debt instrument within the Consolidated Balance Sheets. Once sold to CVG, the accounts receivable, related assets and rights to collection described above are separate and distinct from each Originator's own assets and are not available to its creditors should such Originator become insolvent. Substantially all of CVG's assets have been pledged to the Agent in support of its obligations under the Transfer and Administration Agreement.

At September 30, 2016 and 2015, the outstanding amount of accounts receivable transferred by Ashland to CVG was \$133 million and \$381 million, respectively. There were no borrowings under the facility as of September 30, 2016, while Ashland had drawn \$190 million under the facility as of September 30, 2015. The available borrowing capacity under the facility was \$80 million as of September 30, 2016. The weighted-average interest rate for this instrument was 1.5% for 2016 and 1.8% for 2015.

### *Other debt*

At September 30, 2016 and 2015, Ashland held other debt totaling \$176 million and \$175 million, respectively, comprised primarily of the 6.60% and 6.50% notes due 2027 and 2029, respectively, assumed in the Hercules acquisition, other short-term international loans, and a medium-term note.

### *Covenants related to current Ashland debt agreements*

Ashland's debt contains usual and customary representations, warranties and affirmative and negative covenants, including financial covenants for leverage and interest coverage ratios, limitations on liens, additional subsidiary indebtedness, restrictions on subsidiary distributions, investments, mergers, sale of assets and restricted payments and other customary limitations. As of September 30, 2016, Ashland was in compliance with all debt agreement covenant restrictions.

The maximum consolidated leverage ratios permitted under the 2015 Senior Credit Agreement are as follows: 3.75 through December 31, 2016 and 3.5 from March 31, 2017 and each fiscal quarter thereafter. The 2015 Senior Credit Agreement defines the consolidated leverage ratio as the ratio of consolidated indebtedness minus unrestricted cash and cash equivalents to consolidated EBITDA (Covenant Adjusted EBITDA) for any measurement period. In general, the 2015 Senior Credit Agreement defines Covenant Adjusted EBITDA as net income plus consolidated interest charges, taxes, depreciation and amortization expense, fees and expenses related to capital market transactions, restructuring and integration charges, noncash stock and equity compensation expense, and any other nonrecurring expenses or losses that do not represent a cash item in such period or any future period; less any noncash gains or other items increasing net income. The computation of Covenant Adjusted EBITDA differs from the calculation of EBITDA and Adjusted EBITDA, which have been reconciled on page M-8. In general, consolidated indebtedness includes debt plus all purchase money indebtedness, banker's acceptances and bank guaranties, deferred purchase price of property or services, attributable indebtedness and guaranties.

The minimum required consolidated interest coverage ratio under the 2015 Senior Credit Agreement during its entire duration is 3.0. The 2015 Senior Credit Agreement defines the consolidated interest coverage ratio as the ratio of Covenant Adjusted EBITDA to consolidated interest charges for any measurement period.

At September 30, 2016, Ashland's calculation of the consolidated leverage ratio was 2.7, which is below the maximum consolidated leverage ratio permitted under the 2015 Senior Credit Agreement of 3.75. At September 30, 2016, Ashland's calculation of the consolidated interest coverage ratio was 3.9, which exceeds the minimum required consolidated ratio of 3.0.

## **Valvoline Financing Activities**

### *Valvoline Credit Agreement*

The Valvoline Credit Agreement provides for an aggregate principal amount of \$1,325 million in senior secured credit facilities (Valvoline Credit Facilities), comprised of (i) a five-year \$875 million term loan A facility (the 2016 term loan facility) and (ii) a

## NOTE J – DEBT (continued)

five-year \$450 million revolving credit facility (the 2016 revolving credit facility) (including a \$100 million letter of credit sublimit). The Valvoline Credit Facilities may be prepaid at any time without premium.

The Valvoline Credit Facilities are guaranteed by Valvoline Inc.'s existing and future subsidiaries (other than certain immaterial subsidiaries, joint ventures, special purpose financing subsidiaries, regulated subsidiaries, foreign subsidiaries and certain other subsidiaries), and are secured by a first-priority security interest in substantially all the personal property assets, and certain real property assets, of Valvoline Inc. and the guarantors, including all or a portion of the equity interests of certain of Valvoline Inc.'s domestic subsidiaries and first-tier foreign subsidiaries and, in certain cases, a portion of the equity interests of other foreign subsidiaries.

At Valvoline Inc.'s option, the loans issued under the Valvoline Credit Agreement will bear interest at either LIBOR or an alternate base rate, in each case plus the applicable interest rate margin. Loans initially bear interest at LIBOR plus 2.375% per annum, in the case of LIBOR borrowings, or at the alternate base rate plus 1.375%, in the alternative, through and including the date of delivery of a quarterly compliance certificate and thereafter the interest rate will fluctuate between LIBOR plus 1.500% per annum and LIBOR plus 2.500% per annum (or between the alternate base rate plus 0.500% per annum and the alternate base rate plus 1.500% per annum), based upon Valvoline Inc.'s corporate credit ratings or the consolidated first lien net leverage ratio (as defined in the Valvoline Credit Agreement) (whichever yields a lower applicable interest rate margin) at such time.

During September 2016, Valvoline Inc. borrowed \$875 million of principal on the 2016 term loan facility and \$137 million on the 2016 revolving credit facility. The net proceeds of these borrowings of \$865 million (after deducting fees and expenses) for the 2016 term loan facility and \$137 million for the 2016 revolving credit facility were transferred to Ashland. With these proceeds, Ashland repaid \$785 million of its 2015 loan facility, \$150 million of the 2015 revolving credit facility and \$45 million of its accounts receivable securitization.

Valvoline Inc. used the net proceeds of its September 2016 IPO to repay \$500 million of the outstanding balance under its 2016 term loan facility and all of the \$137 million outstanding balance of its 2016 revolving credit facility. See Note B for more information on the IPO of Valvoline Inc. common stock.

Valvoline Inc. incurred \$10 million of new debt issuance costs in connection with the Valvoline Credit Agreement. These debt issuance costs were capitalized and will be amortized over the term of the Valvoline Credit Agreement using the effective interest method. Additionally, as a result of the \$500 million repayment of the Valvoline 2016 term loan facility, Valvoline Inc. recognized a \$4 million charge for the accelerated amortization of previously capitalized debt issuance costs, which is included in the net interest and other financing expense caption of the Statements of Consolidated Comprehensive Income.

At September 30, 2016, the total borrowing capacity remaining under the 2016 revolving credit facility was \$435 million due to a reduction of \$15 million for letters of credit outstanding.

### *Valvoline senior notes*

During July 2016, Valvoline completed its issuance of 5.500% senior unsecured notes due 2024 (2024 notes) with an aggregate principal amount of \$375 million. Valvoline incurred \$6 million of new debt issuance costs in connection with the issuance of the 2024 notes. These debt issuance costs were capitalized and will be amortized over the term of the 2024 notes using the effective interest method.

During July 2016, the net proceeds of the offering of \$370 million (after deducting initial purchasers' discounts) were transferred to Ashland. Ashland used these proceeds to repay \$110 million of the outstanding balance under Ashland's 2015 revolving credit facility and \$260 million of the 2015 term loan facility.

### *Covenants related to current Valvoline debt agreements*

The Valvoline Credit Agreement contains usual and customary representations and warranties, and usual and customary affirmative and negative covenants, including limitations on liens, additional indebtedness, investments, restricted payments, asset sales, mergers, affiliate transactions and other customary limitations, as well as financial covenants (including maintenance of a maximum consolidated leverage ratio and a minimum consolidated interest coverage ratio) and other customary limitations. As of September 30, 2016, Valvoline Inc. was in compliance with all debt agreement covenant restrictions.

The maximum consolidated leverage ratio permitted under the Valvoline Credit Agreement is 4.5. The Valvoline Credit Agreement defines the consolidated leverage ratio as the ratio of consolidated indebtedness minus unrestricted cash and cash equivalents to consolidated EBITDA (Covenant Adjusted EBITDA) for any measurement period. In general, the Valvoline Credit Agreement defines Covenant Adjusted EBITDA as net income plus consolidated interest charges, taxes, depreciation and amortization expense, fees and expenses related to capital market transactions, restructuring and integration charges, noncash stock and equity compensation expense, and any other nonrecurring expenses or losses that do not represent a cash item in such period or any future period; less any noncash gains or other items increasing net income.

## NOTE J – DEBT (continued)

The minimum required consolidated interest coverage ratio under the Valvoline Credit Agreement during its entire duration is 3.0. The Valvoline Credit Agreement defines the consolidated interest coverage ratio as the ratio of Covenant Adjusted EBITDA to consolidated interest charges for any measurement period.

At September 30, 2016, Valvoline's calculation of the consolidated leverage ratio was 1.4, which is below the maximum consolidated leverage ratio permitted under the Valvoline Credit Agreement of 4.5. At September 30, 2016, Valvoline's calculation of the consolidated interest coverage ratio was 13.3, which exceeds the minimum required consolidated ratio of 3.0.

### Net interest and other financing expense (income)

(In millions)	2016	2015	2014
Interest expense (a)	\$ 190	\$ 166	\$ 163
Interest income	(6)	(6)	(6)
Available-for-sale securities income (b)	(8)	(3)	—
Other financing costs (c)	6	17	9
	<u>\$ 182</u>	<u>\$ 174</u>	<u>\$ 166</u>

(a) Includes \$10 million and \$4 million of accelerated amortization for debt issuance costs during 2016 and 2015, respectively.

(b) Represents investment income related to the restricted investments discussed in Note G.

(c) Includes \$9 million related to the early redemption premium payments for the tender and redemption of the 2016 senior notes during 2015.

The following table details the debt issuance cost and original issue discount amortization included in interest expense during 2016, 2015 and 2014.

(In millions)	2016	2015	2014
Normal amortization	\$ 13	\$ 14	\$ 14
Accelerated amortization (a)	10	4	—
Total	<u>\$ 23</u>	<u>\$ 18</u>	<u>\$ 14</u>

(a) Accelerated amortization of \$10 million for debt issuance costs during 2016 resulted from the combined Ashland and Valvoline financing activities, including the full repayment of the 2015 term loan facility and the \$500 million repayment of the 2016 term loan facility. Accelerated amortization of \$4 million for debt issuance costs during 2015 resulted from early redemption of the 2016 senior notes and the entrance into the 2015 Senior Credit Agreement.

## NOTE K – OTHER NONCURRENT ASSETS AND LIABILITIES

The following table provides the components of other noncurrent assets in the Consolidated Balance Sheets as of September 30.

(In millions)	2016	2015
Deferred compensation investments	\$ 185	\$ 180
Notes receivable	47	36
Defined benefit plan assets	36	29
Manufacturing catalyst supplies	35	37
Land use rights	21	22
Life insurance policies	16	18
Environmental insurance receivables	15	16
Debt issuance costs	13	16
Customer incentive	12	16
Tax receivables	6	7
Debt defeasance assets	6	6
Other	28	26
	<u>\$ 420</u>	<u>\$ 409</u>

**NOTE K – OTHER NONCURRENT ASSETS AND LIABILITIES (continued)**

The following table provides the components of other noncurrent liabilities in the Consolidated Balance Sheets as of September 30.

(In millions)	2016	2015
Environmental remediation reserves	\$ 134	\$ 139
Accrued tax liabilities (including sales and franchise)	113	103
Deferred compensation	63	66
Reserves related to workers compensation and general liability	15	24
Other	101	73
	<u>\$ 426</u>	<u>\$ 405</u>

**NOTE L – LEASE COMMITMENTS**

Ashland and its subsidiaries are lessees of office buildings, retail outlets, transportation equipment, warehouses and storage facilities, other equipment, facilities and properties under leasing agreements that expire at various dates. Capitalized lease obligations are not significant and are included in long-term debt while capital lease assets are included in property, plant and equipment. Future minimum rental payments at September 30, 2016 were \$52 million in 2017, \$45 million in 2018, \$39 million in 2019, \$25 million in 2020, \$22 million in 2021 and \$125 million in 2022 and later years. Rental expense under operating leases for continuing operations was as follows:

(In millions)	2016	2015	2014
Minimum rentals (including rentals under short-term leases)	\$ 65	\$ 57	\$ 69
Contingent rentals	3	4	7
Sublease rental income	(2)	(2)	(2)
	<u>\$ 66</u>	<u>\$ 59</u>	<u>\$ 74</u>

**NOTE M – INCOME TAXES**

A summary of the provision for income taxes related to continuing operations follows.

(In millions)	2016	2015	2014
Current			
Federal	\$ 60	\$ (32)	\$ 34
State	17	1	10
Foreign	79	66	62
	<u>156</u>	<u>35</u>	<u>106</u>
Deferred	(23)	(57)	(294)
Income tax expense (benefit)	<u>\$ 133</u>	<u>\$ (22)</u>	<u>\$ (188)</u>

Deferred income taxes are provided for income and expense items recognized in different years for tax and financial reporting purposes. As of September 30, 2016, management intends to indefinitely reinvest approximately \$1.5 billion of foreign earnings. Because these earnings are considered indefinitely reinvested, no U.S. tax provision has been accrued related to the repatriation of these earnings, and it is not practicable to estimate the amount of U.S. tax that might be payable if these earnings were ever to be remitted.

Foreign net operating loss carryforwards primarily relate to certain European and Asian Pacific operations and generally may be carried forward. U.S. state net operating loss carryforwards relate to operational losses within certain states and generally may be carried forward. Temporary differences that give rise to significant deferred tax assets and liabilities as of September 30 are presented in the following table.



**NOTE M – INCOME TAXES (continued)**

(In millions)	2016	2015
<b>Deferred tax assets</b>		
Foreign net operating loss carryforwards (a)	\$ 76	\$ 81
Employee benefit obligations	397	392
Environmental, self-insurance and litigation reserves (net of receivables)	219	218
State net operating loss carryforwards (net of unrecognized tax benefits) (b)	62	73
Compensation accruals	84	88
Credit carryforwards (net of unrecognized tax benefits) (c)	65	89
Other items	19	26
Valuation allowances (d)	(142)	(107)
Total deferred tax assets	<u>780</u>	<u>860</u>
<b>Deferred tax liabilities</b>		
Goodwill and other intangibles (e)	349	371
Property, plant and equipment	316	351
Unremitted earnings	7	11
Total deferred tax liabilities	<u>672</u>	<u>733</u>
Net deferred tax asset	<u>\$ 108</u>	<u>\$ 127</u>

- (a) Gross net operating loss carryforwards of \$263 million will expire in future years beyond 2018 or have no expiration.
- (b) Apportioned net operating loss carryforwards generated of \$1.7 billion, will expire in future years as follows: \$24 million in 2017, \$72 million in 2018 and the remaining balance in other future years.
- (c) Credit carryforwards consist primarily of foreign tax credits of \$62 million expiring in future years beyond 2018, research and development credits of \$17 million expiring in future years beyond 2018 and alternative minimum tax credits of \$18 million with no expiration date.
- (d) Valuation allowances primarily relate to certain state and foreign net operating loss carryforwards and certain domestic tax credit carryforwards.
- (e) The total gross amount of goodwill as of September 30, 2016 expected to be deductible for tax purposes is \$32 million.

The U.S. and foreign components of income from continuing operations before income taxes and a reconciliation of the statutory federal income tax with the provision for income taxes follow. The foreign components of income from continuing operations disclosed in the following table exclude any allocations of certain corporate expenses incurred in the U.S.

**NOTE M – INCOME TAXES (continued)**

(In millions)	2016	2015	2014
Income (loss) from continuing operations before income taxes			
United States (a), (b)	\$ (152)	\$ (158)	\$ (364)
Foreign (b)	288	327	248
Total income (loss) from continuing operations before income taxes	<u>\$ 136</u>	<u>\$ 169</u>	<u>\$ (116)</u>
Income taxes computed at U.S. statutory rate (35%)	\$ 47	\$ 59	\$ (40)
Increase (decrease) in amount computed resulting from			
Net gain on divestitures	—	11	37
Uncertain tax positions	27	23	33
Valuation allowance changes (c)	43	(29)	14
Claim for research and development credits (d)	(10)	(7)	(2)
State taxes (e)	2	(8)	(16)
Goodwill impairment (f)	55	—	—
Net impact of foreign results (g)	(32)	(73)	(214)
Other items (h)	1	2	—
Income tax expense (benefit)	<u>\$ 133</u>	<u>\$ (22)</u>	<u>\$ (188)</u>

- (a) A significant component of the fluctuations within this caption relates to the annual remeasurements of the U.S. pension and other postretirement plans.
- (b) For 2014, the United States and Foreign amounts for income (loss) from continuing operations before income taxes have been revised to reflect a change in the classification of the elimination of foreign intercompany dividends. There was no impact on the total loss from continuing operations before income taxes or on the computation of income tax expense (benefit) for the year end September 30, 2014 and therefore Ashland does not believe that this revision is material to the previously filed financial information.
- (c) Related to foreign tax credit carryforward of \$24 million and state deferred tax asset valuation allowances of \$19 million during 2016.
- (d) 2016 and 2015 includes a tax benefit related to credits signed into law on a retroactive basis.
- (e) 2016 includes a \$3 million benefit and 2014 includes an expense of \$5 million recorded for deferred tax adjustments, primarily attributable to state rate changes.
- (f) 2016 includes tax expense related to nondeductible goodwill impairment.
- (g) 2014 includes a \$168 million tax benefit related to the reversal of deferred tax liabilities for outside basis differences and other related matters and a \$14 million expense recorded for a rate change in a foreign jurisdiction.
- (h) Other items principally includes permanent items in all periods presented, specifically, 2016 includes expense of \$11 million for nondeductible transaction costs associated with the separation of Valvoline.

The 2016 effective tax rate was impacted by jurisdictional income mix and net unfavorable adjustments primarily related to a nondeductible goodwill impairment for the Intermediates/Solvents division, valuation allowances for domestic attributes, accruals for unrecognized tax benefits and other items related to the separation of Valvoline.

The 2015 effective tax rate was impacted by net favorable items predominantly due to certain valuation allowance releases related to state deferred tax assets. These favorable adjustments were partially offset by an accrual for an unrecognized tax benefit and tax related to certain global restructuring steps.

Income tax benefit for 2014 included a \$168 million tax benefit related to the reversal of deferred tax liabilities for outside basis differences and other related matters, a charge of \$39 million for taxes associated with the sale of shares of subsidiaries included in the sale of the Water Technologies business, net charges of \$32 million for uncertain tax positions and related matters, a charge of \$14 million for a foreign income tax rate change and other net discrete item charges of \$7 million primarily related to changes in valuation allowances.

**Unrecognized tax benefits**

U.S. GAAP prescribes a recognition threshold and measurement attribute for the accounting and financial statement disclosure of tax positions taken or expected to be taken in a tax return. The evaluation of a tax position is a two-step process. The first step requires Ashland to determine whether it is more likely than not that a tax position will be sustained upon examination based on the technical merits of the position. The second step requires Ashland to recognize in the financial statements each tax position that meets the more likely than not criteria, measured at the amount of benefit that has a greater than 50% likelihood of being realized. Ashland had \$168 million and \$144 million of unrecognized tax benefits, of which \$14 million and \$16 million relate to discontinued operations at September 30, 2016 and 2015, respectively. As of September 30, 2016, the total amount of unrecognized tax benefits that, if recognized, would affect the tax rate for continuing and discontinued operations was \$148 million. The remaining unrecognized tax benefits relate to tax positions for which ultimate deductibility is highly certain but for which there is uncertainty as to the timing of such deductibility. Recognition of these tax benefits would not have an impact on the effective tax rate.

## NOTE M – INCOME TAXES (continued)

Ashland recognizes interest and penalties related to uncertain tax positions as a component of income tax expense (benefit) in the Statements of Consolidated Comprehensive Income. Such interest and penalties totaled a \$5 million expense in 2016, \$1 million expense in 2015 and \$2 million benefit in 2014. Ashland had \$21 million and \$18 million in interest and penalties related to unrecognized tax benefits accrued as of September 30, 2016 and 2015, respectively.

Changes in unrecognized tax benefits were as follows:

(In millions)	
<b>Balance at September 30, 2014</b>	\$ 155
Increases related to positions taken on items from prior years	10
Decreases related to positions taken on items from prior years	(15)
Increases related to positions taken in the current year	24
Lapse of statute of limitations	(6)
Settlement of uncertain tax positions with tax authorities	(24)
<b>Balance at September 30, 2015</b>	<u>144</u>
Increases related to positions taken on items from prior years	10
Decreases related to positions taken on items from prior years	(4)
Increases related to positions taken in the current year	22
Lapse of statute of limitations	(2)
Settlement of uncertain tax positions with tax authorities	(2)
<b>Balance at September 30, 2016</b>	<u><u>\$ 168</u></u>

From a combination of statute expirations and audit settlements in the next twelve months, Ashland expects a decrease in the amount of accrual for uncertain tax positions of up to \$3 million for continuing operations and zero for discontinued operations. For the remaining balance as of September 30, 2016, it is reasonably possible that there could be material changes to the amount of uncertain tax positions due to activities of the taxing authorities, settlement of audit issues, reassessment of existing uncertain tax positions, or the expiration of applicable statute of limitations; however, Ashland is not able to estimate the impact of these items at this time.

Ashland or one of its subsidiaries files income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. Foreign taxing jurisdictions significant to Ashland include Australia, Canada, Spain, Switzerland, Brazil, Mexico, China, Germany, Singapore and the Netherlands. Ashland is subject to U.S. federal income tax examinations by tax authorities for periods after September 30, 2011 and U.S. state income tax examinations by tax authorities for periods after September 30, 2003. With respect to countries outside of the United States, with certain exceptions, Ashland's foreign subsidiaries are subject to income tax audits for years after 2005.

## NOTE N – EMPLOYEE BENEFIT PLANS

### Pension plans

Ashland and its subsidiaries sponsor contributory and noncontributory qualified defined benefit pension plans that cover certain employees in the United States and in a number of other countries. In addition, Ashland has non-qualified unfunded pension plans which provide supplemental defined benefits to those employees whose benefits under the qualified pension plans are limited by the Employee Retirement Income Security Act of 1974 and the Internal Revenue Code. Ashland funds the costs of the non-qualified plans as the benefits are paid. Pension obligations for applicable employees of non-U.S. consolidated subsidiaries are provided for in accordance with local practices and regulations of the respective countries. Benefits for those eligible for Ashland's U.S. pension plans generally are based on employees' years of service and compensation during the years immediately preceding their retirement.

The majority of Ashland's U.S. pension plans have been closed to new participants since January 1, 2011 and most foreign pension plans are closed to new participants while those that remain open relate to areas where jurisdictions require plans to operate within the applicable country. During March 2016, Ashland announced plans to amend the majority of its U.S. pension plans, with the exception of certain union plans, to freeze the accrual of pension benefits for participants. The plan changes were effective September 30, 2016. During September 2016, Ashland transferred a substantial portion of the largest U.S. qualified pension and non-qualified U.S. pension plans as well as certain other postretirement obligations to Valvoline Inc. as part of the separation process discussed further in Note B. As of September 30, 2016, the net pension and other postretirement plan liabilities attributable to plans now held at Valvoline Inc. was approximately \$900 million.

## **NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

### *Pension annuity program*

On September 15, 2016, Valvoline Inc. purchased a non-participating annuity contract with pension plan assets from Prudential Insurance Company of America (Prudential) to pay and administer future pension benefits for approximately 14,800 participants within the primary U.S. pension plan. Ashland transferred \$378 million of the outstanding pension benefit obligation to Prudential in exchange for pension trust assets whose value approximated the liability value. The annuity purchase transaction did not generate a material settlement adjustment during 2016. Prudential has unconditionally and irrevocably guaranteed the full payment of benefits to plan participants associated with the annuity purchase and benefit payments will be in the same form that was in effect under the Plan. Prudential has also assumed all investment risk associated with the pension assets that were delivered as annuity contract premiums.

### *Pension plan settlement program*

During 2015, Ashland informed approximately 20,000 former employees, who were included in the approximately 53,000 participants within the primary U.S. pension plans, that Ashland was offering these participants the option of receiving a lump sum payment on their vested retirement benefit or a reduced annuity now, in lieu of receiving monthly annuity payments deferred until retirement eligibility or when the participant may choose to initiate payment. During August 2015, approximately 12,000 participants elected to participate in the settlement program which resulted in approximately \$475 million in settlement payments made from the affected pension plans during September 2015. Settlement payments were funded with pension plan assets, which included the \$500 million contribution made during the third quarter of fiscal 2015. Additionally, as a result of this settlement program, Ashland recognized a \$3 million settlement gain during 2015, of which \$1 million and \$2 million was recognized in the cost of sales and selling, general and administrative expense captions, respectively, within the Statements of Consolidated Comprehensive Income.

### *Pension plans divested*

As a result of the sale of the Water Technologies business on July 31, 2014, certain non-U.S. pension plans, with a net benefit obligation of \$70 million were fully transferred.

### **Other postretirement benefit plans**

Ashland and its subsidiaries sponsor health care and life insurance plans for eligible employees in the U.S. and Canada who retire or are disabled. Ashland's retiree life insurance plans are noncontributory, while Ashland shares the costs of providing health care coverage with its retired employees through premiums, deductibles and coinsurance provisions. Ashland funds its share of the costs of the postretirement benefit plans as the benefits are paid. Employees hired after June 30, 2003, and participating in the Ashland plans, will have access to any retiree health care coverage that may be provided, but will have no Ashland company funds available to help pay for such coverage.

Since January 1, 2004, Ashland's legacy plans have limited their annual per capita costs to an amount equivalent to base year per capita costs, plus annual increases of up to 1.5% per year for costs incurred. As a result, health care cost trend rates have no significant effect on the amounts reported for the health care plans. Premiums for retiree health care coverage are equivalent to the excess of the estimated per capita costs over the amounts borne by Ashland.

For certain other plans that have been acquired, the assumed postretirement health care plans include a limit on Ashland's share of costs for recent and future retirees. The assumed pre-65 health care cost trend rate as of September 30, 2016 was 7.9% and continues to be reduced to 4.50% in 2037 and thereafter. The assumptions used to project the liability anticipate future cost-sharing changes to the written plans that are consistent with the increase in health care cost. Employees hired after December 31, 2002 will have access to any retiree health care coverage that may be provided, but will have no Ashland company funds available to help pay for such coverage.

In May 2010, Ashland implemented changes for all plans, effective January 1, 2011, eliminating post-65 benefit coverage for those eligible participants retiring on or after January 1, 2016. In September 2011, Ashland adopted a plan amendment for the legacy Ashland plans to change the current post-65 Ashland Medical plan to Medicare Advantage plan. This change was effective January 1, 2012, at which time Ashland no longer applied for the Medicare Part D subsidy. In September 2012, Ashland further reduced the employer subsidy for the post-65 Ashland legacy Medicare Advantage Plan to account for the impact of certain changes to the prescription drug program adopted as part of the September 2011 plan amendment. During March 2016, Ashland announced that it will eliminate post-65 and pre-65 retiree medical subsidies for active employees participating in Ashland sponsored plans. Additionally, Ashland announced that it will eliminate retiree life insurance benefits to active employees. These changes to retiree medical and life benefits are effective January 1, 2017 and October 1, 2016, respectively. This amendment reduced the benefit obligations by \$86 million, which will be amortized to income in future periods.

## NOTE N – EMPLOYEE BENEFIT PLANS (continued)

### Change in Applying Discount Rate to Measure Benefit Costs

During 2016, Ashland changed the method used to estimate the service and interest cost components of net periodic benefit cost for pension and other postretirement benefits. This change compared to the previous method resulted in a decrease in the service and interest cost components for pension and other postretirement benefit costs during the quarter. Historically, Ashland estimated these service and interest cost components utilizing a single weighted-average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. Ashland has elected to utilize a full yield curve approach in the estimation of these components by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. Ashland has made this change to provide a more precise measurement of service and interest costs by improving the correlation between projected benefit cash flows to the corresponding spot yield curve rates. This change does not affect the measurement of Ashland's total benefit obligations or annual net periodic benefit costs as the change in the service and interest costs will be offset in the actuarial gain or loss reported, which typically occurs during the fourth fiscal quarter. Ashland has accounted for this change as a change in accounting estimate that is inseparable from a change in accounting principle and accordingly has accounted for it prospectively.

The impact of this discount rate change compared to the previous method decreased the estimated pension and other postretirement benefits service and interest cost by \$33 million for the full year 2016. The impact on service cost is not significant due to the nature of Ashland's largest U.S. pension plan, which is closed to new entrants and has curtailed other benefits. Of this annual decrease, \$13 million was reported in cost of sales and \$20 million was reported in selling, general, and administrative expense within the Statements of Consolidated Comprehensive Income in the Unallocated and other segment. Service and interest cost, as well as the other components of net periodic benefit costs, were subject to change for such reasons as an event requiring a remeasurement. Ashland's total projected benefit obligations was not impacted by these reductions in service and interest costs as the decrease was substantially offset within the actuarial gain or loss caption when the plans were remeasured during the fiscal year.

### Plan Amendments and Remeasurements

During the year ended September 30, 2016, Ashland was required to remeasure a majority of its U.S. pension plans and certain postretirement benefit plans due to the previously discussed plan changes announced during March 2016. The net effect of these plan changes resulted in a curtailment of benefits requiring a remeasurement of the benefit obligation and plan assets. Ashland recognized a loss of \$23 million within the Statements of Consolidated Comprehensive Income during 2016 as a result of the plan remeasurements. The following details the components of the remeasurement impact:

- As a result of the remeasurement of the affected U.S. pension plans, Ashland recognized a curtailment gain of \$65 million and actuarial loss of \$123 million during 2016.
- As a result of the remeasurement of other postretirement benefit plans, Ashland recognized a curtailment gain of \$39 million and actuarial loss of \$7 million during 2016.
- Ashland was also required to remeasure a non-U.S. pension plan and as a result recognized a curtailment gain of \$6 million and actuarial loss of \$3 million during 2016.

During the year ended September 30, 2015, Ashland was required to remeasure a non-U.S. pension plan due to the exit of Water Technologies' employees from the plan. As a result of the remeasurement, Ashland recognized a curtailment gain of \$7 million and actuarial loss of \$11 million during 2015. Of these amounts, all of the curtailment gain and \$2 million of the actuarial loss were attributable to the Water Technologies business and therefore included in the discontinued operations caption of the Statements of Consolidated Comprehensive Income during 2015.

During the year ended September 30, 2014, Ashland settled two non-U.S. pension plans, which required the plans to be remeasured. These remeasurements resulted in Ashland recognizing a settlement loss of \$38 million and actuarial loss of \$17 million. Of these amounts, \$6 million of the settlement loss and \$3 million of the actuarial loss were attributable to the Water Technologies business and therefore included in the discontinued operations caption of the Statements of Consolidated Comprehensive Income during 2014.

Due to the global restructuring plan initiated in January 2014, Ashland was required to remeasure certain pension and other postretirement plan obligations, which included updating assumptions related to these plans such as the discount rate, asset values and demographic data that were last updated at Ashland's fiscal year end. As a result of the remeasurements, Ashland recognized a curtailment loss of \$6 million and actuarial loss of \$83 million during the year ended September 30, 2014. Of these amounts, \$14 million of the actuarial loss was attributable to the Water Technologies business and included in the discontinued operations caption of the Statements of Consolidated Comprehensive Income during 2014.

As a result of the completion of the sale of Water Technologies on July 31, 2014, Ashland was required to remeasure certain pension and other postretirement plan obligations. As a result of the remeasurements, Ashland recognized a curtailment gain of

**NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

\$31 million and actuarial loss of \$140 million during the year ended September 30, 2014. Of these amounts, all of the curtailment gain and \$27 million of the actuarial loss were attributable to the Water Technologies business and included in the discontinued operations caption of the Statements of Consolidated Comprehensive Income during 2014.

**Components of net periodic benefit costs (income)**

For segment reporting purposes, service cost for continuing operations is proportionately allocated to each reportable segment, excluding the Unallocated and other segment, while all other costs for continuing operations are recorded within the Unallocated and other segment. During the year ended September 30, 2014, income of \$7 million, representing a portion of the other components of pension and other postretirement benefit costs (i.e., interest cost, expected return on assets, and amortization of prior service credit) related to Water Technologies, was reclassified to discontinued operations in the Statements of Consolidated Comprehensive Income.

The following table summarizes the components of pension and other postretirement benefit costs for both continuing and discontinued operations and the assumptions used to determine net periodic benefit costs (income) for the plans.

(In millions)	Pension benefits			Other postretirement benefits		
	2016	2015	2014	2016	2015	2014
<b>Net periodic benefit costs (income)</b>						
Service cost	\$ 27	\$ 26	\$ 38	\$ 1	\$ 1	\$ 2
Interest cost	121	175	190	4	8	9
Curtailment, settlement and other	(74)	(11)	31	(39)	—	(20)
Expected return on plan assets	(192)	(216)	(237)	—	—	—
Amortization of prior service credit (a)	(1)	(4)	(2)	(14)	(17)	(21)
Actuarial loss	200	260	431	37	1	15
	<u>\$ 81</u>	<u>\$ 230</u>	<u>\$ 451</u>	<u>\$ (11)</u>	<u>\$ (7)</u>	<u>\$ (15)</u>
<b>Weighted-average plan assumptions (b)</b>						
Discount rate for service cost (c)	3.94%	4.18%	4.68%	4.31%	3.85%	4.28%
Discount rate for interest cost (c)	3.30%	4.18%	4.68%	3.04%	3.85%	4.28%
Rate of compensation increase	3.01%	3.18%	3.59%	—	—	—
Expected long-term rate of return on plan assets	6.66%	7.27%	7.67%	—	—	—

(a) Changes to the post-65 Ashland Medical plan resulted in negative plan amendments that were amortized within the other postretirement benefits caption during 2016, 2015 and 2014. Pension and other postretirement plan changes announced in March 2016 resulted in negative plan amendments that are being amortized within this caption during 2016.

(b) The plan assumptions discussed are a blended weighted-average rate for Ashland's U.S. and non-U.S. plans. The U.S. pension plan represented approximately 88% of the projected benefit obligation at September 30, 2016. Other postretirement benefit plans consist of U.S. and Canada, with the U.S. plan representing approximately 89% of the accumulated postretirement benefit obligation at September 30, 2016. Non-U.S. plans use assumptions generally consistent with those of U.S. plans.

(c) Weighted-average discount rates in 2016 reflect the adoption of the full yield curve approach.

The following table shows other changes in prior service credit recognized in accumulated other comprehensive income.

(In millions)	Pension		Postretirement	
	2016	2015	2016	2015
Prior service cost (credit)	\$ 2	\$ 2	\$ (88)	\$ —
Curtailment, settlement and other	6	3	39	—
Amortization of prior service credit	1	4	14	17
Total	<u>\$ 9</u>	<u>\$ 9</u>	<u>\$ (35)</u>	<u>\$ 17</u>

Total recognized in net periodic benefit cost (income) and accumulated other comprehensive income

	\$ 90	\$ 239	\$ (46)	\$ 10
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The following table shows the amount of prior service credit in accumulated other comprehensive income at September 30, 2016 that is expected to be recognized as a component of net periodic benefit cost (income) during the next fiscal year.

**NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

(In millions)	Pension benefits	Other postretirement benefits
Prior service credit (a)	\$ —	\$ (12)

(a) \$0 denotes a value less than \$1 million.

At September 30, 2016 and 2015, the amounts recognized in accumulated other comprehensive income are shown in the following table.

(In millions)	Pension		Postretirement	
	2016	2015	2016	2015
Prior service credit	\$ (3)	\$ (12)	\$ (80)	\$ (45)

**Obligations and funded status**

Actuarial valuations are performed for the pension and other postretirement benefit plans to determine Ashland's obligation for each plan. In accordance with U.S. GAAP, Ashland recognizes the unfunded status of the plans as a liability in the Consolidated Balance Sheets. Summaries of the change in benefit obligations, plan assets, funded status of the plans, amounts recognized in the balance sheet, and assumptions used to determine the benefit obligations for 2016 and 2015 are as follows.

**NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

(In millions)	Pension plans		Other postretirement benefit plans	
	2016	2015	2016	2015
<b>Change in benefit obligations</b>				
Benefit obligations at October 1	\$ 3,819	\$ 4,326	\$ 199	\$ 210
Service cost	27	26	1	1
Interest cost	121	175	4	8
Participant contributions	1	1	15	15
Benefits paid	(226)	(217)	(37)	(33)
Actuarial loss	329	59	37	1
Plan amendment	2	2	(88)	—
Foreign currency exchange rate changes	(30)	(40)	1	(3)
Other	(3)	14	—	—
Curtailment and settlement	(454)	(527)	—	—
Benefit obligations at September 30	<u>\$ 3,586</u>	<u>\$ 3,819</u>	<u>\$ 132</u>	<u>\$ 199</u>
<b>Change in plan assets</b>				
Value of plan assets at October 1	\$ 2,951	\$ 3,075	\$ —	\$ —
Actual return on plan assets	321	15	—	—
Employer contributions	35	610	22	18
Participant contributions	1	1	15	15
Benefits paid	(226)	(217)	(37)	(33)
Foreign currency exchange rate changes	(35)	(28)	—	—
Settlement	(387)	(519)	—	—
Other	—	14	—	—
Value of plan assets at September 30	<u>\$ 2,660</u>	<u>\$ 2,951</u>	<u>\$ —</u>	<u>\$ —</u>
Unfunded status of the plans	<u>\$ (926)</u>	<u>\$ (868)</u>	<u>\$ (132)</u>	<u>\$ (199)</u>
<b>Amounts recognized in the balance sheet</b>				
Noncurrent benefit assets	\$ 36	\$ 29	\$ —	\$ —
Current benefit liabilities	(15)	(19)	(15)	(17)
Noncurrent benefit liabilities	(947)	(878)	(117)	(182)
Net amount recognized	<u>\$ (926)</u>	<u>\$ (868)</u>	<u>\$ (132)</u>	<u>\$ (199)</u>
<b>Weighted-average plan assumptions</b>				
Discount rate	3.38%	4.21%	3.14%	3.93%
Rate of compensation increase	3.05%	3.01%	—	—

The accumulated benefit obligation for all pension plans was \$3,569 million at September 30, 2016 and \$3,750 million at September 30, 2015. Information for pension plans with an accumulated benefit obligation in excess of plan assets follows:

(In millions)	2016			2015		
	Qualified plans (a)	Non-qualified plans	Total	Qualified plans (a)	Non-qualified plans	Total
Projected benefit obligation	\$ 3,218	\$ 152	\$ 3,370	\$ 3,446	\$ 162	\$ 3,608
Accumulated benefit obligation	3,203	152	3,355	3,390	156	3,546
Fair value of plan assets	2,410	—	2,410	2,712	—	2,712

(a) Includes qualified U.S. and non-U.S. pension plans.



**NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

**Plan assets**

The expected long-term rate of return on U.S. pension plan assets was 7.10% and 7.65% for 2016 and 2015, respectively. The basis for determining the expected long-term rate of return is a combination of future return assumptions for various asset classes in Ashland's investment portfolio, historical analysis of previous returns, market indices and a projection of inflation.

The following table summarizes the various investment categories that the pension plan assets are invested in and the applicable fair value hierarchy that the financial instruments are classified within these investment categories as of September 30, 2016. For additional information and a detailed description of each level within the fair value hierarchy, see Note G.

(In millions)	Total fair value	Quoted prices	Significant	Significant
		in active markets for identical assets	other observable inputs	unobservable inputs
	Level 1	Level 2	Level 3	
Cash and cash equivalents	\$ 184	\$ 184	\$ —	\$ —
U.S. government securities	85	—	85	—
Other government securities	184	—	184	—
Corporate debt instruments	1,177	877	300	—
Corporate stocks	270	134	136	—
Insurance contracts	11	—	11	—
Private equity and hedge funds	726	—	—	726
Other investments	23	—	—	23
Total assets at fair value	<u>\$ 2,660</u>	<u>\$ 1,195</u>	<u>\$ 716</u>	<u>\$ 749</u>

The following table summarizes the various investment categories that the pension plan assets are invested in and the applicable fair value hierarchy that the financial instruments are classified within these investment categories as of September 30, 2015.

(In millions)	Total fair value	Quoted prices	Significant	Significant
		in active markets for identical assets	other observable inputs	unobservable inputs
	Level 1	Level 2	Level 3	
Cash and cash equivalents	\$ 91	\$ 91	\$ —	\$ —
U.S. government securities	130	4	126	—
Other government securities	163	1	162	—
Corporate debt instruments	1,398	1,036	362	—
Corporate stocks	289	146	143	—
Insurance contracts	10	—	10	—
Private equity and hedge funds	842	—	—	842
Other investments	28	—	—	28
Total assets at fair value	<u>\$ 2,951</u>	<u>\$ 1,278</u>	<u>\$ 803</u>	<u>\$ 870</u>

Ashland's pension plan holds a variety of investments designed to diversify risk. Investments classified as a Level 1 fair value measure principally represent marketable securities priced in active markets. Cash and cash equivalents and public equity and debt securities are well diversified and invested in U.S. and international small-to-large companies across various asset managers and styles. Investments classified as a Level 2 fair value measure principally represents fixed-income securities in U.S. treasuries and agencies and other investment grade corporate bonds and debt obligations.

Ashland's pension plans also hold Level 3 investments primarily within hedge funds and private equity funds with hedge funds accounting for nearly all of the Level 3 investments. Ashland's investments in these funds are primarily valued using the net asset value per share of underlying investments as determined by the respective individual fund administrators on a daily,

**NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

weekly or monthly basis, depending on the fund. Such valuations are reviewed by the portfolio managers who determine the estimated value of the collective funds based on these inputs. The following table provides a reconciliation of the beginning and ending balances for these Level 3 assets.

(In millions)	Total Level 3 assets	Private equity and hedge funds	Other investments
<b>Balance as of September 30, 2014</b>	\$ 1,118	\$ 1,085	\$ 33
Purchases	1	1	—
Sales	(252)	(252)	—
Actual return on plan assets			
Relating to assets held at September 30, 2015	3	8	(5)
Relating to assets sold during 2015	—	—	—
<b>Balance as of September 30, 2015</b>	<u>870</u>	<u>842</u>	<u>28</u>
Purchases	28	28	—
Sales	(152)	(152)	—
Actual return on plan assets			
Relating to assets held at September 30, 2016	10	15	(5)
Relating to assets sold during 2016	(7)	(7)	—
<b>Balance as of September 30, 2016</b>	<u>\$ 749</u>	<u>\$ 726</u>	<u>\$ 23</u>

*Investments and Strategy*

In developing an investment strategy for its defined benefit plans, Ashland has considered the following factors: the nature of the plans' liabilities, the allocation of liabilities between active, deferred and retired members, the funded status of the plans, the applicable investment horizon, the respective size of the plans and historical and expected capital market returns. Ashland's U.S. pension plan assets are managed by outside investment managers, which are monitored against investment return benchmarks and Ashland's established investment strategy. Investment managers are selected based on an analysis of, among other things, their investment process, historical investment results, frequency of management turnover, cost structure and assets under management. Assets are periodically reallocated between investment managers to maintain an appropriate asset mix and diversification of investments and to optimize returns.

The current target asset allocation for the U.S. plan is 51% fixed securities and 49% equity securities. Fixed income securities primarily include long duration high grade corporate debt obligations. Risk assets include both traditional equity as well as a mix of non-traditional assets such as hedge funds and private equity. Investment managers may employ a limited use of derivatives to gain efficient exposure to markets.

Ashland's investment strategy and management practices relative to plan assets of non-U.S. plans generally are consistent with those for U.S. plans, except in those countries where investment of plan assets is dictated by applicable regulations. The weighted-average asset allocations for Ashland's U.S. and non-U.S. plans at September 30, 2016 and 2015 by asset category follow.

(In millions)	Target	Actual at September 30	
		2016	2015
<b>Plan assets allocation</b>			
Equity securities	15 - 60%	41%	42%
Debt securities	40 - 85%	57%	56%
Other	0 - 20%	2%	2%
		<u>100%</u>	<u>100%</u>

**Cash flows**

*U.S. pension legislation and future funding requirements*

Ashland's U.S. qualified pension plans funding requirements through fiscal 2017 are calculated in accordance with the regulations set forth in the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), which provides temporary relief for employers who sponsor defined benefit pension plans related to funding contributions under the Employee Retirement Income

**NOTE N – EMPLOYEE BENEFIT PLANS (continued)**

Security Act of 1974. Specifically, MAP-21 allows for the use of a 25-year average interest rate within an upper and lower range for purposes of determining minimum funding obligations instead of an average interest rate for the two most recent years, as was previously required.

During fiscal 2016 and 2015, Ashland contributed \$23 million and \$596 million, respectively, to its U.S. pension plans and \$12 million and \$14 million, respectively, to its non-U.S. pension plans. The 2015 contributions included \$500 million to the U.S. pension plans impacted by the pension plan settlement program discussed previously. Ashland expects to contribute approximately \$15 million to its non-qualified U.S. pension plans and \$10 million to its non-U.S. pension plans during 2017.

The following benefit payments, which reflect future service expectations, are projected to be paid in each of the next five years and in aggregate for five years thereafter.

(In millions)	Pension benefits	Other postretirement benefits
2017	\$ 210	\$ 15
2018	209	12
2019	209	11
2020	209	9
2021	209	8
2022 - 2026	1,030	38

**Other plans**

Ashland sponsors savings plans to assist eligible employees in providing for retirement or other future needs. Under such plans, company contributions amounted to \$35 million in 2016, \$38 million in 2015 and \$31 million in 2014. Ashland also sponsors various other benefit plans, some of which are required by different countries. The total noncurrent liabilities associated with these plans were \$16 million as of September 30, 2016 and 2015.

**NOTE O – LITIGATION, CLAIMS AND CONTINGENCIES****Asbestos litigation**

Ashland and Hercules have liabilities from claims alleging personal injury caused by exposure to asbestos. To assist in developing and annually updating independent reserve estimates for future asbestos claims and related costs given various assumptions, Ashland retained Hamilton, Rabinovitz & Associates, Inc. (HR&A). The methodology used by HR&A to project future asbestos costs is based largely on recent experience, including claim-filing and settlement rates, disease mix, enacted legislation, open claims and litigation defense. The claim experience of Ashland and Hercules are separately compared to the results of previously conducted third party epidemiological studies estimating the number of people likely to develop asbestos-related diseases. Those studies were undertaken in connection with national analyses of the population expected to have been exposed to asbestos. Using that information, HR&A estimates a range of the number of future claims that may be filed, as well as the related costs that may be incurred in resolving those claims. Changes in asbestos-related liabilities and receivables are recorded on an after-tax basis within the discontinued operations caption in the Statements of Consolidated Comprehensive Income.

*Ashland asbestos-related litigation*

The claims alleging personal injury caused by exposure to asbestos asserted against Ashland result primarily from indemnification obligations undertaken in 1990 in connection with the sale of Riley, a former subsidiary. The amount and timing of settlements and number of open claims can fluctuate from period to period. A summary of Ashland asbestos claims activity, excluding Hercules claims, follows.

(In thousands)	2016	2015	2014
Open claims - beginning of year	60	65	65
New claims filed	2	2	2
Claims settled	—	—	(1)
Claims dismissed	(5)	(7)	(1)
Open claims - end of year	<u>57</u>	<u>60</u>	<u>65</u>

## NOTE O – LITIGATION, CLAIMS AND CONTINGENCIES (continued)

### *Ashland asbestos-related liability*

From the range of estimates, Ashland records the amount it believes to be the best estimate of future payments for litigation defense and claim settlement costs, which generally approximates the mid-point of the estimated range of exposure from model results. Ashland reviews this estimate and related assumptions quarterly and annually updates the results of a non-inflated, non-discounted approximate 50-year model developed with the assistance of HR&A.

During the most recent update completed during 2016, it was determined that the liability for Ashland asbestos-related claims should be increased by \$37 million. Total reserves for asbestos claims were \$415 million at September 30, 2016 compared to \$409 million at September 30, 2015.

A progression of activity in the asbestos reserve is presented in the following table.

(In millions)	2016	2015	2014
Asbestos reserve - beginning of year	\$ 409	\$ 438	\$ 463
Reserve adjustment	37	—	4
Amounts paid	(31)	(29)	(29)
Asbestos reserve - end of year	<u>\$ 415</u>	<u>\$ 409</u>	<u>\$ 438</u>

### *Ashland asbestos-related receivables*

Ashland has insurance coverage for certain litigation defense and claim settlement costs incurred in connection with its asbestos claims, and coverage-in-place agreements exist with the insurance companies that provide substantially all of the coverage that will be accessed.

For the Ashland asbestos-related obligations, Ashland has estimated the value of probable insurance recoveries associated with its asbestos reserve based on management's interpretations and estimates surrounding the available or applicable insurance coverage, including an assumption that all solvent insurance carriers remain solvent. Substantially all of the estimated receivables from insurance companies are expected to be due from domestic insurers, all of which are solvent.

In October 2012, Ashland and Hercules initiated various arbitration proceedings against Underwriters at Lloyd's, certain London companies and/or Chartis (AIG) member companies seeking to enforce these insurers' contractual obligations to provide indemnity for asbestos liabilities and defense costs under existing coverage-in-place agreements. In addition, Ashland and Hercules initiated a lawsuit in Kentucky state court against certain Berkshire Hathaway entities (National Indemnity Company and Resolute Management, Inc.) on grounds that these Berkshire Hathaway entities had wrongfully interfered with Underwriters' and Chartis' performance of their respective contractual obligations to provide asbestos coverage by directing the insurers to reduce and delay certain claim payments.

On January 13, 2015, Ashland and Hercules entered into a comprehensive settlement agreement related to certain insurance coverage for asbestos bodily injury claims with Underwriters at Lloyd's, certain London companies and Chartis (AIG) member companies, along with National Indemnity Company and Resolute Management, Inc., under which Ashland and Hercules received a total of \$398 million. In exchange, all claims were released against these entities for past, present and future coverage obligations arising out of the asbestos coverage-in-place agreements that were the subject of the pending arbitration proceedings. In addition, as part of this settlement, Ashland and Hercules released all claims against National Indemnity Company and Resolute Management, Inc. in the Kentucky state court action. As a result, the arbitration proceedings and the Kentucky state court action have been terminated.

As a result of this settlement, Ashland recorded an after-tax gain of \$120 million within the discontinued operations caption of the Statements of Consolidated Comprehensive Income during 2015. The Ashland insurance receivable balance was also reduced as a result of this settlement by \$227 million within the Consolidated Balance Sheets.

In addition, during 2015, Ashland placed \$335 million of the settlement funds received into a renewable annual trust restricted for the purpose of paying for ongoing and future litigation defense and claim settlement costs incurred in conjunction with asbestos claims.

At September 30, 2016, Ashland's receivable for recoveries of litigation defense and claim settlement costs from insurers amounted to \$151 million (excluding the Hercules receivable for asbestos claims), of which \$6 million relates to costs previously paid. Receivables from insurers amounted to \$150 million at September 30, 2015. During 2016, the annual update of the model used for purposes of valuing the asbestos reserve and its impact on valuation of future recoveries from insurers, was completed. This model update resulted in a \$16 million increase in the receivable for probable insurance recoveries.

**NOTE O – LITIGATION, CLAIMS AND CONTINGENCIES (continued)**

During 2016, Ashland entered into settlement agreements totaling \$4 million with certain insurers, which resulted in a reduction of the Ashland insurance receivable within the Consolidated Balance Sheets by the same amount. Ashland placed \$4 million of the settlement funds into the renewable annual trust.

A progression of activity in the Ashland insurance receivable is presented in the following table.

(In millions)	2016	2015	2014
Insurance receivable - beginning of year	\$ 150	\$ 402	\$ 408
Receivable adjustment	16	(3)	22
Insurance settlement	(4)	(227)	—
Amounts collected	(11)	(22)	(28)
Insurance receivable - end of year	<u>\$ 151</u>	<u>\$ 150</u>	<u>\$ 402</u>

*Hercules asbestos-related litigation*

Hercules has liabilities from claims alleging personal injury caused by exposure to asbestos. Such claims typically arise from alleged exposure to asbestos fibers from resin encapsulated pipe and tank products which were sold by one of Hercules' former subsidiaries to a limited industrial market. The amount and timing of settlements and number of open claims can fluctuate from period to period. A summary of Hercules' asbestos claims activity follows.

(In thousands)	2016	2015	2014
Open claims - beginning of year	20	21	21
New claims filed	1	1	1
Claims dismissed	(6)	(2)	(1)
Open claims - end of year	<u>15</u>	<u>20</u>	<u>21</u>

*Hercules asbestos-related liability*

From the range of estimates, Ashland records the amount it believes to be the best estimate of future payments for litigation defense and claim settlement costs, which generally approximates the mid-point of the estimated range of exposure from model results. Ashland reviews this estimate and related assumptions quarterly and annually updates the results of a non-inflated, non-discounted approximate 50-year model developed with the assistance of HR&A. As a result of the most recent annual update of this estimate, completed during 2016, it was determined that the liability for Hercules asbestos-related claims should be increased by \$25 million. Total reserves for asbestos claims were \$321 million at September 30, 2016 compared to \$311 million at September 30, 2015.

A progression of activity in the asbestos reserve is presented in the following table.

(In millions)	2016	2015	2014
Asbestos reserve - beginning of year	\$ 311	\$ 329	\$ 342
Reserve adjustments	25	4	10
Amounts paid	(15)	(22)	(23)
Asbestos reserve - end of year	<u>\$ 321</u>	<u>\$ 311</u>	<u>\$ 329</u>

*Hercules asbestos-related receivables*

For the Hercules asbestos-related obligations, certain reimbursement obligations pursuant to coverage-in-place agreements with insurance carriers exist. As a result, any increases in the asbestos reserve have been partially offset by probable insurance recoveries. Ashland has estimated the value of probable insurance recoveries associated with its asbestos reserve based on management's interpretations and estimates surrounding the available or applicable insurance coverage, including an assumption that all solvent insurance carriers remain solvent. The estimated receivable consists exclusively of solvent domestic insurers.

As of September 30, 2016 and 2015, the receivables from insurers amounted to \$63 million and \$56 million, respectively. During 2016, the annual update of the model used for purposes of valuing the asbestos reserve and its impact on

**NOTE O – LITIGATION, CLAIMS AND CONTINGENCIES (continued)**

valuation of future recoveries from insurers was completed. This model update resulted in a \$7 million increase in the receivable for probable insurance recoveries.

As a result of the January 2015 asbestos insurance settlement previously described, Hercules resolved all disputes with Chartis (AIG) member companies under their existing coverage-in-place agreement for past, present and future Hercules asbestos claims. As a result, during 2015, a \$22 million reduction in the insurance receivable balance within the Consolidated Balance Sheets was recorded.

A progression of activity in the Hercules insurance receivable is presented in the following table.

(In millions)	2016	2015	2014
Insurance receivable - beginning of year	\$ 56	\$ 77	\$ 75
Receivable adjustment	7	1	3
Insurance settlement	—	(22)	—
Amounts collected	—	—	(1)
Insurance receivable - end of year	<u>\$ 63</u>	<u>\$ 56</u>	<u>\$ 77</u>

*Asbestos litigation cost projection*

Projecting future asbestos costs is subject to numerous variables that are extremely difficult to predict. In addition to the significant uncertainties surrounding the number of claims that might be received, other variables include the type and severity of the disease alleged by each claimant, the long latency period associated with asbestos exposure, mortality rates, dismissal rates, costs of medical treatment, the impact of bankruptcies of other companies that are co-defendants in claims, uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, and the impact of potential changes in legislative or judicial standards. Furthermore, any predictions with respect to these variables are subject to even greater uncertainty as the projection period lengthens. In light of these inherent uncertainties, Ashland believes that the asbestos reserves for Ashland and Hercules represent the best estimate within a range of possible outcomes. As a part of the process to develop these estimates of future asbestos costs, a range of long-term cost models was developed. These models are based on national studies that predict the number of people likely to develop asbestos-related diseases and are heavily influenced by assumptions regarding long-term inflation rates for indemnity payments and legal defense costs, as well as other variables mentioned previously. Ashland has currently estimated in various models ranging from approximately 40 to 50 year periods that it is reasonably possible that total future litigation defense and claim settlement costs on an inflated and undiscounted basis could range as high as approximately \$670 million for the Ashland asbestos-related litigation (current reserve of \$415 million) and approximately \$490 million for the Hercules asbestos-related litigation (current reserve of \$321 million), depending on the combination of assumptions selected in the various models. If actual experience is worse than projected, relative to the number of claims filed, the severity of alleged disease associated with those claims or costs incurred to resolve those claims, or actuarial refinement or improvements to the assumptions used within these models are initiated, Ashland may need to further increase the estimates of the costs associated with asbestos claims and these increases could be material over time.

**Environmental remediation and asset retirement obligations**

Ashland is subject to various federal, state and local environmental laws and regulations that require environmental assessment or remediation efforts (collectively environmental remediation) at multiple locations. At September 30, 2016, such locations included 81 waste treatment or disposal sites where Ashland has been identified as a potentially responsible party under Superfund or similar state laws, 130 current and former operating facilities (including certain operating facilities conveyed as part of the MAP Transaction) and about 1,225 service station properties, of which 64 are being actively remediated.

Ashland's reserves for environmental remediation and related environmental litigation amounted to \$177 million at September 30, 2016 compared to \$186 million at September 30, 2015, of which \$134 million at September 30, 2016 and \$139 million at September 30, 2015 were classified in other noncurrent liabilities on the Consolidated Balance Sheets.

The following table provides a reconciliation of the changes in the environmental remediation reserves during 2016 and 2015.

**NOTE O – LITIGATION, CLAIMS AND CONTINGENCIES (continued)**

(In millions)	2016	2015
Environmental remediation reserve - beginning of year	\$ 186	\$ 197
Disbursements	(44)	(47)
Revised obligation estimates and accretion	35	36
Environmental remediation reserve - end of year	<u>\$ 177</u>	<u>\$ 186</u>

The total reserves for environmental remediation reflect Ashland's estimates of the most likely costs that will be incurred over an extended period to remediate identified conditions for which the costs are reasonably estimable, without regard to any third-party recoveries. Engineering studies, probability techniques, historical experience and other factors are used to identify and evaluate remediation alternatives and their related costs in determining the estimated reserves for environmental remediation. Ashland continues to discount certain environmental sites and regularly adjusts its reserves as environmental remediation continues. Ashland has estimated the value of its probable insurance recoveries associated with its environmental reserve based on management's interpretations and estimates surrounding the available or applicable insurance coverage. At September 30, 2016 and 2015, Ashland's recorded receivable for these probable insurance recoveries was \$23 million, of which \$15 million and \$16 million, respectively, were classified in other noncurrent assets in the Consolidated Balance Sheets.

Components of environmental remediation expense included within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income are presented in the following table for the years ended September 30, 2016, 2015 and 2014.

(In millions)	2016	2015	2014
Environmental expense	\$ 33	\$ 32	\$ 29
Accretion	2	4	3
Legal expense	8	6	5
Total expense	<u>43</u>	<u>42</u>	<u>37</u>
Insurance receivable	(3)	(2)	(4)
Total expense, net of receivable activity (a)	<u>\$ 40</u>	<u>\$ 40</u>	<u>\$ 33</u>

(a) Net expense of \$2 million, \$5 million and \$4 million for the fiscal years ended September 30, 2016, 2015 and 2014, respectively, relates to divested businesses which qualified for treatment as discontinued operations and for which certain environmental liabilities were retained by Ashland. These amounts are classified within the income from discontinued operations caption of the Statements of Consolidated Comprehensive Income.

Environmental remediation reserves are subject to numerous inherent uncertainties that affect Ashland's ability to estimate its share of the costs. Such uncertainties involve the nature and extent of contamination at each site, the extent of required cleanup efforts under existing environmental regulations, widely varying costs of alternate cleanup methods, changes in environmental regulations, the potential effect of continuing improvements in remediation technology, and the number and financial strength of other potentially responsible parties at multiparty sites. Although it is not possible to predict with certainty the ultimate costs of environmental remediation, Ashland currently estimates that the upper end of the reasonably possible range of future costs for identified sites could be as high as approximately \$380 million. No individual remediation location is significant, as the largest reserve for any site is less than 15% of the remediation reserve.

**Other legal proceedings and claims**

In addition to the matters described above, there are other various claims, lawsuits and administrative proceedings pending or threatened against Ashland and its current and former subsidiaries. Such actions are with respect to commercial matters, product liability, toxic tort liability, and other environmental matters, which seek remedies or damages, some of which are for substantial amounts. While Ashland cannot predict with certainty the outcome of such actions, it believes that adequate reserves have been recorded and losses already recognized with respect to such actions were immaterial as of September 30, 2016 and 2015. There is a reasonable possibility that a loss exceeding amounts already recognized may be incurred related to these actions; however, Ashland believes that such potential losses were immaterial as of September 30, 2016 and 2015. For additional information on legal proceedings and claims, see the Legal Proceedings section of Form 10-K (Part I, Item 3).

## NOTE P – EQUITY ITEMS

### Stock repurchase programs

During 2015, Ashland's Board of Directors approved a \$1 billion share repurchase authorization that will expire on December 31, 2017 (the 2015 stock repurchase program). This authorization allows for common shares to be repurchased in open market transactions, privately negotiated transactions or pursuant to one or more accelerated stock repurchase programs or Rule 10b5-1 plans.

During 2014, the Board of Directors of Ashland authorized a \$1.35 billion common stock repurchase program (the 2014 stock repurchase program). Under the program, Ashland's common shares were repurchased pursuant to accelerated stock repurchase agreements, a Rule 10b5-1 plan, and a prepaid variable share repurchase agreement. This repurchase program was completed during 2015.

The 2014 stock repurchase program authorization replaced Ashland's previous \$600 million share repurchase authorization (the 2013 stock repurchase program), approved in May 2013, which had \$450 million remaining when it was terminated.

### 2015 stock repurchase program agreement

In November 2015, under the 2015 stock repurchase program, Ashland announced that it entered into an accelerated share repurchase agreement (2016 ASR Agreement) with Goldman, Sachs & Co. Under the 2016 ASR Agreement, Ashland paid an initial purchase price of \$500 million and received an initial delivery of approximately 3.9 million shares of common stock during November 2015. In February 2016, Goldman, Sachs & Co. exercised their early termination option under the 2016 ASR Agreement and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$99.01 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by Goldman, Sachs & Co. under the 2016 ASR Agreement was 5.1 million shares. Ashland received the additional 1.2 million shares during 2016 to settle the difference between the initial share delivery and the total number of shares repurchased. After the 2016 ASR Agreement, \$500 million of share repurchase authorization remains under the 2015 stock repurchase program.

### 2014 stock repurchase program agreements

#### *Accelerated stock repurchase agreements*

During 2014, Ashland announced that it had entered into accelerated share repurchase agreements (2014 ASR Agreements) with Deutsche Bank AG, London Branch (Deutsche Bank), and JPMorgan Chase Bank, N.A. (JPMorgan) to repurchase an aggregate of \$750 million of Ashland's common stock. Under the 2014 ASR Agreements, Ashland paid an initial purchase price of \$750 million, split evenly between the financial institutions. As of September 30, 2014, Ashland received an initial delivery of approximately 5.9 million shares of common stock under the 2014 ASR Agreements. The 2014 ASR Agreements had a variable maturity, at the financial institutions option, with a maximum pricing period termination date of June 30, 2015. During 2015, the 2014 ASR Agreements terminated pursuant to their terms and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$116.33 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by the financial institutions under the 2014 ASR Agreements was 6.4 million shares. Ashland received the additional 0.5 million shares from the financial institutions during 2015 to settle the difference between the initial share delivery and the total number of shares repurchased.

During 2015, Ashland announced and completed accelerated share repurchase agreements (2015 ASR Agreements) with Deutsche Bank and JPMorgan to repurchase an aggregate of \$270 million of Ashland's common stock. Under the 2015 ASR Agreements, Ashland paid an initial purchase price of \$270 million, split evenly between the financial institutions and received an initial delivery of approximately 1.9 million shares of common stock. The 2015 ASR Agreements had a variable maturity, at the financial institutions option, with a maximum pricing period termination date of July 31, 2015. During 2015, Deutsche Bank and JPMorgan exercised their early termination option under the 2015 ASR Agreements and the pricing period was closed. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$125.22 per share. Based on this settlement price, the final number of shares repurchased by Ashland that were delivered by the financial institutions under the 2015 ASR Agreements was 2.2 million shares. Ashland received the additional 0.3 million shares from the financial institutions during 2015 to settle the difference between the initial share delivery and the total number of shares repurchased.

#### *Additional stock repurchase agreements*

Ashland entered into and completed a \$125 million prepaid variable share repurchase agreement during 2014. The settlement price, which represents the weighted average price of Ashland's common stock over the pricing period less a discount, was \$105.22 per share. Ashland received 0.8 million shares and \$45 million in cash for the unused portion of the \$125 million prepayment, for a net cash outlay of \$80 million.



**NOTE P - EQUITY ITEMS (continued)**

During 2014, Ashland announced that it had entered into an agreement with each of Deutsche Bank Securities Inc. and JPMorgan to repurchase an aggregate of \$250 million of Ashland's common stock. Under the terms of the agreement, the financial institutions purchased a pre-determined number of shares on various trading days dependent upon Ashland's prevailing stock price on that date. During 2014, Ashland received 1.2 million shares of common stock for a total cost of \$124 million. During 2015, Ashland completed these agreements, receiving an additional 1.2 million shares of common stock for a total cost of \$127 million. The settlement price, which represents the average amount spent after commissions over the common shares repurchased throughout the program, was \$104.51 per share. In total, Ashland paid \$250 million and received 2.4 million shares of common stock under the agreements.

**Stockholder dividends**

In May 2015, the Board of Directors of Ashland announced a quarterly cash dividend increase to 39 cents per share to eligible shareholders of record. This amount was paid for quarterly dividends during each quarter of fiscal 2016 and the third and fourth quarters of fiscal 2015, and was an increase from the quarterly cash dividend of 34 cents per share paid during the first and second quarters of fiscal 2015 and each quarter of fiscal 2014.

**Shares reserved for issuance**

At September 30, 2016, 7.7 million common shares are reserved for issuance under stock incentive and deferred compensation plans.

**Accumulated other comprehensive income (loss)**

Components of other comprehensive income (loss) recorded in the Statements of Consolidated Comprehensive Income are presented in the following table, before tax and net of tax effects.

**NOTE P - EQUITY ITEMS (continued)**

(In millions)	Before tax	Tax (expense) benefit	Net of tax
<b>Year ended September 30, 2016</b>			
Other comprehensive income (loss)			
Unrealized translation loss	\$ (15)	\$ 1	\$ (14)
Pension and postretirement obligation adjustment:			
Adjustment of unrecognized prior service credit	86	(31)	55
Amortization of unrecognized prior service credits included in net income (a)	(60)	19	(41)
Unrealized gain on available-for-sale securities	28	(11)	17
Total other comprehensive income (loss)	<u>\$ 39</u>	<u>\$ (22)</u>	<u>\$ 17</u>
<b>Year ended September 30, 2015</b>			
Other comprehensive income (loss)			
Unrealized translation loss	\$ (368)	\$ (1)	\$ (369)
Pension and postretirement obligation adjustment:			
Adjustment of unrecognized prior service cost	(2)	1	(1)
Amortization of unrecognized prior service credits included in net income (a)	(24)	7	(17)
Unrealized loss on available-for-sale securities	(17)	6	(11)
Total other comprehensive income (loss)	<u>\$ (411)</u>	<u>\$ 13</u>	<u>\$ (398)</u>
<b>Year ended September 30, 2014</b>			
Other comprehensive income (loss)			
Net change in translation gain (loss):			
Unrealized translation loss	\$ (163)	\$ (3)	\$ (166)
Reclassification adjustment for losses included in net income (b)	6	—	6
Pension and postretirement obligation adjustment:			
Adjustment of unrecognized prior service credit	6	(2)	4
Amortization of unrecognized prior service credits included in net income (a)	(36)	11	(25)
Total other comprehensive income (loss)	<u>\$ (187)</u>	<u>\$ 6</u>	<u>\$ (181)</u>

(a) Amortization of unrecognized prior service credits are included in the calculation of net periodic benefit costs (income) for pension and other postretirement plans. For specific financial statement captions impacted by the amortization see the table below.

(b) Losses from the translation adjustment included in net income are attributable to foreign Water Technologies subsidiaries sold with the divestiture. These adjustments are recorded in the discontinued operations caption of the Statements of Consolidated Comprehensive Income.

In accordance with U.S. GAAP, as disclosed in the table above, certain pension and other postretirement costs (income) are amortized from accumulated other comprehensive income and recognized in net income. The captions on the Statements of Consolidated Comprehensive Income impacted by the amortization of unrecognized prior service credits for pension and other postretirement plans are disclosed below. During 2016, the amortization of unrecognized prior service credits includes the curtailment impact of the pension and other postretirement plan remeasurements related to plan amendments of \$40 million. See Note N for more information on curtailments, settlements and other costs.

**NOTE P - EQUITY ITEMS (continued)**

(In millions)	2016	2015	2014
Cost of sales	\$ (25)	\$ (8)	\$ (6)
Selling, general and administrative expense	(35)	(13)	(14)
Discontinued operations	—	(3)	(16)
Total amortization of unrecognized prior service credits	<u>\$ (60)</u>	<u>\$ (24)</u>	<u>\$ (36)</u>

**NOTE Q – STOCK INCENTIVE PLANS**

Ashland has stock incentive plans under which key employees or directors are granted stock appreciation rights (SARs), performance share awards or nonvested stock awards. Each program is typically a long-term incentive plan designed to link employee compensation with increased shareholder value or reward superior performance and encourage continued employment with Ashland. Ashland recognizes compensation expense for the grant date fair value of stock-based awards over the applicable vesting period. The components of Ashland's pretax stock-based awards (net of forfeitures), which is included within the selling, general and administrative expense caption of the Statements of Consolidated Comprehensive Income, and associated income tax benefits are as follows:

(In millions)	2016 (a)	2015 (b)	2014
SARs	\$ 9	\$ 10	\$ 16
Nonvested stock awards	17	15	10
Performance share awards	8	13	8
	<u>\$ 34</u>	<u>\$ 38</u>	<u>\$ 34</u>
Income tax benefit	<u>\$ 13</u>	<u>\$ 13</u>	<u>\$ 13</u>

(a) The year ended September 30, 2016 included \$4 million of expense related primarily to cash-settled nonvested restricted stock awards.

(b) The year ended September 30, 2015 included a \$7 million award modification within performance shares that was designated as a cash item (see table on F-55 for further information) and \$1 million of expense related primarily to cash-settled nonvested restricted stock awards.

**Stock Appreciation Rights (SARs)**

SARs are granted to employees or directors at a price equal to the fair market value of the stock on the date of grant and typically become exercisable over periods of one to three years. Unexercised SARs lapse ten years and one month after the date of grant. Ashland estimates the fair value of SARs granted using the Black-Scholes option-pricing model. This model requires several assumptions, which Ashland has developed and updates based on historical trends and current market observations. The accuracy of these assumptions is critical to the estimate of fair value for these equity instruments. The following table illustrates the weighted-average of key assumptions used within the Black-Scholes option-pricing model. The risk-free interest rate assumption was based on the U.S. Treasury yield curve in effect at the time of the grant for the expected term of the instrument. The dividend yield reflects the assumption that the current dividend payout will continue with no anticipated increases. The volatility assumption was calculated by utilizing an unbiased standard deviation of Ashland's Common Stock closing price for the past five years. The expected life is based on historical data and is not necessarily indicative of exercise patterns that may occur.

(In millions except per share data)	2016	2015	2014
Weighted-average fair value per share of SARs granted	\$ 26.24	\$ 30.70	\$ 34.96
Assumptions (weighted-average)			
Risk-free interest rate	1.8%	1.7%	1.4%
Expected dividend yield	1.4%	1.2%	1.5%
Expected volatility	27.7%	31.8%	49.7%
Expected life (in years)	5	5	5

A progression of activity and various other information relative to SARs and previously issued and vested stock options is presented in the following table.

**NOTE Q – STOCK INCENTIVE PLANS (continued)**

	2016		2015		2014	
	Number of common shares	Weighted-average exercise price per share	Number of common shares	Weighted-average exercise price per share	Number of common shares	Weighted-average exercise price per share
(In thousands except per share data)						
Outstanding - beginning of year	1,383	\$ 73.18	1,798	\$ 62.85	2,658	\$ 55.84
Granted	362	111.89	277	113.65	391	89.69
Exercised	(196)	59.69	(584)	58.80	(1,123)	54.14
Forfeitures and expirations	(38)	95.65	(108)	83.00	(128)	75.82
Outstanding - end of year (a)	<u>1,511</u>	83.64	<u>1,383</u>	73.18	<u>1,798</u>	62.85
Exercisable - end of year	<u>991</u>	69.68	<u>906</u>	59.92	<u>1,066</u>	53.80

(a) Exercise prices per share for SARs outstanding at September 30, 2016 ranged from \$9.49 to \$37.69 for 104 thousand shares, from \$51.86 to \$69.15 for 287 thousand shares, from \$70.37 to \$89.69 for 525 thousand shares, and from \$111.89 to \$117.38 for 595 thousand shares. The weighted-average remaining contractual life of outstanding SARs and stock options was 6.8 years and exercisable SARs and stock options was 5.7 years.

The total intrinsic value of SARs exercised was \$11 million in 2016, \$35 million in 2015 and \$50 million in 2014. The actual tax benefit realized from the exercised SARs was \$2 million in 2016, \$6 million in 2015 and \$18 million in 2014. The total grant date fair value of SARs that vested during 2016, 2015 and 2014 was \$9 million, \$13 million and \$21 million, respectively. As of September 30, 2016, there was \$8 million of total unrecognized compensation costs related to SARs. That cost is expected to be recognized over a weighted-average period of 1.8 years. As of September 30, 2016, the aggregate intrinsic value of outstanding SARs was \$49 million and exercisable SARs was \$46 million.

**Nonvested stock awards**

Nonvested stock awards are granted to employees or directors at a price equal to the fair market value of the stock on the date of grant and generally vest over a one-to-five-year period. However, such shares or units are subject to forfeiture upon termination of service before the vesting period ends. During 2016, these awards were primarily granted as stock units that will convert to shares upon vesting, while the grants in prior years were generally made in nonvested shares. Only nonvested stock awards granted in the form of shares entitle employees or directors to vote the shares. Dividends on nonvested stock awards granted are in the form of additional units or shares of nonvested stock awards, which are subject to vesting and forfeiture provisions.

A progression of activity and various other information relative to nonvested stock awards is presented in the following table.

	2016		2015		2014	
	Number of common shares	Weighted-average grant date fair value	Number of common shares	Weighted-average grant date fair value	Number of common shares	Weighted-average grant date fair value
(In thousands except per share data)						
Nonvested - beginning of year	298	\$ 106.41	221	\$ 88.81	140	\$ 56.97
Granted	107	111.76	187	114.97	192	94.17
Vested	(93)	104.44	(69)	77.51	(78)	47.07
Forfeitures	(19)	104.66	(41)	99.20	(33)	83.84
Nonvested - end of year	<u>293</u>	109.12	<u>298</u>	106.41	<u>221</u>	88.81

The total fair value of nonvested stock awards that vested during 2016, 2015 and 2014 was \$10 million, \$5 million and \$4 million, respectively. As of September 30, 2016, there was \$11 million of total unrecognized compensation costs related to nonvested stock awards. That cost is expected to be recognized over a weighted-average period of 1.6 years.

**Cash-settled nonvested stock awards**

Certain nonvested stock awards are granted to employees and are settled in cash upon vesting. As of September 30, 2016, 94,600 cash-settled nonvested stock awards were outstanding. The value of these cash-settled nonvested stock awards changes in connection with changes in the fair market value of the Ashland Common Stock. These awards generally vest over a period of three years. The expense recognized related to cash-settled nonvested stock awards was \$4 million and \$1 million during 2016 and 2015, respectively.

**NOTE Q – STOCK INCENTIVE PLANS (continued)**

**Performance shares**

Ashland sponsors a long-term incentive plan that awards performance shares/units to certain key employees that are tied to Ashland's overall financial performance relative to the financial performance of selected industry peer groups and/or internal targets. Awards are granted annually, with each award covering a three-year vesting period. Each performance share/unit is convertible to one share of Ashland Common Stock. These plans are recorded as a component of stockholders' equity in the Consolidated Balance Sheets. Performance measures used to determine the actual number of performance shares issuable upon vesting include an equal weighting of Ashland's total shareholder return (TSR) performance and Ashland's return on investment (ROI) performance as compared to the internal targets. TSR relative to peers is considered a market condition while ROI is considered a performance condition under applicable U.S. GAAP. Nonvested performance shares/units do not entitle employees to vote the shares or to receive any dividends thereon.

The following table shows the performance shares/units granted for all plans that award Ashland Common Stock.

(In thousands)	Performance period	Target shares granted (a)	Weighted-average fair value per share
Fiscal Year 2016	October 1, 2015 - September 30, 2018	73	\$ 110.03
Fiscal Year 2015	October 1, 2014 - September 30, 2017	77	\$ 121.87
Fiscal Year 2014	October 1, 2013 - September 30, 2016	110	\$ 85.84

(a) At the end of the performance period, the actual number of shares issued can range from zero to 200% of the target shares granted, which is assumed to be 100%.

The fair value of the ROI portion of the performance share awards is equal to the fair market value of Ashland's Common Stock on the date of the grant discounted for the dividends forgone during the vesting period of the three-year performance cycle. Compensation cost is recognized over the requisite service period if it is probable that the performance condition will be satisfied. The fair value of the TSR portion of the performance share awards is calculated using a Monte Carlo simulation valuation model using key assumptions included in the following table. Compensation cost is recognized over the requisite service period regardless of whether the market condition is satisfied.

	2016	2015	2014
Risk-free interest rate	0.5% - 1.2%	0.1% - 1.0%	0.1% - 0.6%
Expected dividend yield	1.2%	1.4%	1.4%
Expected life (in years)	3	3	3
Expected volatility	21.1%	24.2%	32.1%

The following table shows changes in nonvested performance shares/units for all plans that award Ashland Common Stock.

(In thousands except per share data)	2016		2015		2014	
	Shares	Weighted-average grant date fair value	Shares	Weighted-average grant date fair value	Shares	Weighted-average grant date fair value
Nonvested - beginning of year	204	\$ 93.79	368	\$ 72.20	433	\$ 65.05
Granted (a)	73	110.03	103	115.19	155	81.09
Vested (a)	(72)	76.26	(133)	68.18	(183)	62.05
Forfeitures (b)	(6)	114.83	(134)	74.79	(37)	75.02
Nonvested - end of year	<u>199</u>	<u>106.91</u>	<u>204</u>	<u>93.79</u>	<u>368</u>	<u>72.20</u>

(a) 2015 includes 26 thousand additional shares from the fiscal 2012 through 2014 plan and 2014 includes 45 thousand additional shares from the fiscal 2011 through 2013 plan since a portion of each plans payout was in excess of the initial 100% target.

(b) During the December 2014 quarter, Ashland modified certain awards of its performance shares. The awards were modified to provide that the instruments be paid in cash instead of stock. This change in payment designation caused Ashland to recognize \$7 million in incremental stock-based compensation expense related to 84 thousand shares modified during 2015.

## NOTE Q – STOCK INCENTIVE PLANS (continued)

As of September 30, 2016, there was \$8 million of total unrecognized compensation costs related to nonvested performance share awards. That cost is expected to be recognized over a weighted-average period of approximately 1.7 years.

### Other commitments

#### *Executive performance incentive and retention program*

During 2016, certain executives were granted 260 thousand performance-based restricted shares of Ashland in order to provide an incentive to remain employed in the period after the full separation. At September 30, 2016, total nonvested shares outstanding, assuming vesting at the 100% performance level, are 264 thousand shares, which includes the cumulative value of forfeitable dividends.

The expense associated with these awards is contingent upon the completion of the full separation and therefore will not be recorded until the full and complete separation occurs. Based on the price of Ashland's common stock on the grant date, the total estimated unrecognized compensation expense is \$15 million assuming the performance mid-point target is met. At that time, the awards will be recognized ratably over the remaining vesting period.

## NOTE R – REPORTABLE SEGMENT INFORMATION

Ashland determines its reportable segments based on how operations are managed internally for the products and services sold to customers, including how the results are reviewed by the chief operating decision maker, which includes determining resource allocation methodologies used for reportable segments. Operating income is the primary measure reviewed by the chief operating decision maker in assessing each reportable segment's financial performance.

Ashland performed an internal structural review and comprehensive assessment of its operations and reportable segments and concluded that its operating and reportable segments were Specialty Ingredients, Performance Materials and Valvoline. Ashland does not aggregate operating segments to arrive at these reportable segments.

#### *Reportable segment business descriptions*

Specialty Ingredients is a global leader in cellulose ethers, vinyl pyrrolidones and biofunctionals. It offers industry-leading products, technologies and resources for solving formulation and product-performance challenges. Specialty Ingredients uses natural, synthetic and semisynthetic polymers derived from cellulose ethers, vinyl pyrrolidones, acrylic polymers, polyester and polyurethane-based adhesives, and plant and seed extract. Specialty Ingredients includes two divisions, Consumer Specialties and Industrial Specialties, that offer comprehensive and innovative solutions for today's demanding consumer and industrial applications. Key customers include: pharmaceutical companies; makers of personal care products, food and beverages; manufacturers of paint, coatings and construction materials; packaging and converting; and oilfield service companies. During 2015, Ashland sold the industrial biocides assets within Specialty Ingredients. See Note C for information on the divestiture of these assets.

Performance Materials is a global leader in unsaturated polyester resins and vinyl ester resins. The business unit has leading positions in gelcoats, maleic anhydride, butanediol, tetrahydrofuran, N-Methylpyrrolidone and other intermediates and solvents. Key customers include: manufacturers of residential and commercial building products; industrial product specifiers and manufacturers; wind blade and pipe manufacturers; automotive and truck OEM suppliers; boatbuilders; engineered plastics and electronic producers; and specialty chemical manufacturers. Results from the former Elastomers division were included in Performance Materials' results of operations within the Statements of Consolidated Comprehensive Income until its December 1, 2014 sale. See Note C for information on the divestiture of the Elastomers division.

Valvoline is a leading worldwide producer and distributor of premium-branded automotive, commercial and industrial lubricants, and automotive chemicals. In 2016, it ranked as the #2 quick-lube chain by number of stores and #3 passenger car motor oil in the DIY market by volume brand in the United States. The brand operates and franchises 1,068 Valvoline Instant Oil Change<sup>SM</sup> centers in the United States. It also markets Valvoline<sup>TM</sup> lubricants and automotive chemicals; MaxLife<sup>TM</sup> lubricants created for higher-mileage engines; SynPower<sup>TM</sup> synthetic motor oil; and Zerex<sup>TM</sup> antifreeze. Key customers include: retail auto parts stores and mass merchandisers who sell to consumers; installers, such as car dealers, repair shops and quick lubes; commercial fleets; and distributors. During 2016, Ashland completed the acquisition of Oil Can Henry's resulting in the addition of 89 quick-lube stores. See Note B for information on the acquisition of Oil Can Henry's. During 2015, Ashland sold its Valvoline car care product assets, including Car Brite<sup>TM</sup> and Eagle One<sup>TM</sup> automotive appearance products, and sold its joint venture equity investment in Venezuela. See Note B for information on the divestiture of this investment and the car care product assets.

During 2015, Ashland announced a plan to separate Valvoline into an independent, publicly traded company. On September 22, 2016, Ashland and Valvoline Inc. announced an IPO of Valvoline Inc.'s common stock at a price to the public of \$22.00 per share and closed the IPO on September 28, 2016. As a result of the IPO, Ashland maintains an approximately 83% ownership

**NOTE R – REPORTABLE SEGMENT INFORMATION (continued)**

interest in Valvoline Inc. as of September 30, 2016. See Note B for additional information. The financial information within this footnote is reflective of the manner in which Ashland manages the Valvoline reportable segment and the Valvoline reportable segment does not include any assets or liabilities transferred to Valvoline Inc. by Ashland in September 2016. Valvoline’s financial position and results of operations as reported as a segment of Ashland may be different than how they are reported on a stand-alone basis.

Unallocated and other generally includes items such as components of pension and other postretirement benefit plan expenses (excluding service costs, which are allocated to the reportable segments), certain significant company-wide restructuring activities, including internal separation costs, and legacy costs or adjustments that relate to divested businesses that are no longer operated by Ashland.

*International data*

Information about Ashland’s domestic and international operations follows. Ashland has no material operations in any individual international country and no single customer represented more than 10% of sales in 2016, 2015 or 2014.

(In millions)	Sales to external customers			Net assets (liabilities)		Property, plant and equipment - net	
	2016	2015	2014	2016	2015	2016	2015
United States	\$ 2,561	\$ 2,715	\$ 3,076	\$ 41	\$ (575)	\$ 1,627	\$ 1,569
International	2,387	2,672	3,045	3,124	3,612	597	613
	<u>\$ 4,948</u>	<u>\$ 5,387</u>	<u>\$ 6,121</u>	<u>\$ 3,165</u>	<u>\$ 3,037</u>	<u>\$ 2,224</u>	<u>\$ 2,182</u>

*Reportable segment results*

The following tables present various financial information for each reportable segment for the years ended September 30, 2016, 2015 and 2014 and as of September 30, 2016, 2015 and 2014. Results of Ashland’s reportable segments are presented based on its management structure and internal accounting practices. The structure and practices are specific to Ashland; therefore, the financial results of Ashland’s reportable segments are not necessarily comparable with similar information for other comparable companies. Ashland allocates all costs to its reportable segments except for certain significant company-wide restructuring activities, such as the restructuring plans described in Note F, and other costs or adjustments that relate to former businesses that Ashland no longer operates. The service cost component of pension and other postretirement benefits costs is allocated to each reportable segment on a ratable basis; while the remaining components of pension and other postretirement benefits costs are recorded to Unallocated and other. Ashland refines its expense allocation methodologies to the reportable segments from time to time as internal accounting practices are improved, more refined information becomes available and the industry or market changes. Revisions to Ashland’s methodologies that are deemed insignificant are applied on a prospective basis.

Ashland determined that disclosing sales by specific product was impracticable due to the highly customized and extensive portfolio of products offered to customers and since no one product or a small group of products could be aggregated together to represent a majority of revenue within a reportable segment. As such, the following table provides a summary of 2016 sales by product category for each reportable segment:

Sales by product category for 2016					
Specialty Ingredients		Performance Materials		Valvoline	
Cellulosics	38%	Composites	72%	Lubricants (a)	89%
Poly vinyl pyrrolidones	19%	Intermediates/Solvents	28%	Chemicals	4%
Adhesives	16%		<u>100%</u>	Antifreeze	4%
Actives	7%			Filters	3%
Vinyl ethers	6%				<u>100%</u>
Other	14%				
	<u>100%</u>				

(a) Includes sales for Oil Can Henry’s starting February 1, 2016.

The following table presents various financial information for each reportable segment. The operating results of divested divisions and assets during 2016, 2015 and 2014 that did not qualify for discontinued operations accounting treatment are included in the financial information until the date of sale.

**NOTE R – REPORTABLE SEGMENT INFORMATION (continued)**

Ashland Global Holdings Inc. and Consolidated Subsidiaries

**Reportable Segment Information**

Years Ended September 30

(In millions)	2016	2015	2014
<b>Sales</b>			
Specialty Ingredients	\$ 2,089	\$ 2,263	\$ 2,498
Performance Materials	930	1,157	1,582
Valvoline	1,929	1,967	2,041
	<u>\$ 4,948</u>	<u>\$ 5,387</u>	<u>\$ 6,121</u>
<b>Equity income (expense)</b>			
Specialty Ingredients	\$ —	\$ 1	\$ 2
Performance Materials	1	2	(38)
Valvoline	12	(2)	10
Unallocated and other	—	—	1
	<u>13</u>	<u>1</u>	<u>(25)</u>
<b>Other income (expense)</b>			
Specialty Ingredients	(1)	(1)	(2)
Performance Materials	5	5	5
Valvoline	8	10	20
Unallocated and other	3	8	4
	<u>15</u>	<u>22</u>	<u>27</u>
	<u>\$ 28</u>	<u>\$ 23</u>	<u>\$ 2</u>
<b>Operating income (loss)</b>			
Specialty Ingredients	\$ 237	\$ 239	\$ 253
Performance Materials	(118)	87	7
Valvoline	403	359	323
Unallocated and other	(195)	(227)	(537)
	<u>\$ 327</u>	<u>\$ 458</u>	<u>\$ 46</u>
<b>Assets</b>			
Specialty Ingredients	\$ 5,235	\$ 5,365	\$ 5,756
Performance Materials	831	1,079	1,395
Valvoline	1,158	976	1,073
Unallocated and other	2,473	2,634	2,683
	<u>\$ 9,697</u>	<u>\$ 10,054</u>	<u>\$ 10,907</u>



**NOTE R – REPORTABLE SEGMENT INFORMATION (continued)**

Ashland Global Holdings Inc. and Consolidated Subsidiaries

**Reportable Segment Information (continued)**

Years Ended September 30

(In millions)	2016	2015	2014
<b>Equity and other unconsolidated investments</b>			
Specialty Ingredients	\$ 9	\$ 9	\$ 10
Performance Materials	20	24	23
Valvoline (a)	26	29	44
Unallocated and other	2	3	4
	<u>\$ 57</u>	<u>\$ 65</u>	<u>\$ 81</u>
<b>Depreciation and amortization</b>			
Specialty Ingredients	\$ 243	\$ 244	\$ 262
Performance Materials	53	59	91
Valvoline	38	38	37
Unallocated and other	3	—	3
	<u>\$ 337</u>	<u>\$ 341</u>	<u>\$ 393</u>
<b>Property, plant and equipment - net</b>			
Specialty Ingredients	\$ 1,388	\$ 1,383	\$ 1,433
Performance Materials	335	358	508
Valvoline	318	253	272
Unallocated and other	183	188	201
	<u>\$ 2,224</u>	<u>\$ 2,182</u>	<u>\$ 2,414</u>
<b>Additions to property, plant and equipment</b>			
Specialty Ingredients	\$ 179	\$ 171	\$ 159
Performance Materials	36	33	38
Valvoline	70	45	36
Unallocated and other	15	16	15
	<u>\$ 300</u>	<u>\$ 265</u>	<u>\$ 248</u>

(a) Venezuela joint venture sold during 2015.

## NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION

The following tables present condensed consolidating financial information for (a) Ashland Global Holdings Inc. (for purposes of this discussion and table, Parent Guarantor); (b) Ashland LLC (formerly Ashland Inc.), the issuer of the 3.875% notes due 2018, 4.750% notes due 2022 and 6.875% notes due 2043 (collectively referred to as the Senior Notes) (the Issuer); and (c) all other non-guarantor subsidiaries of the Parent Guarantor on a combined basis, none of which guaranteed the Senior Notes (the Other Non-Guarantor Subsidiaries).

Ashland Global Holdings Inc. was incorporated on May 6, 2016 as a direct wholly owned subsidiary of Ashland Inc. (now Ashland LLC) to reincorporate in Delaware and to help facilitate the separation of the Valvoline business from the specialty chemical businesses. As a result of the Reorganization, Ashland Global Holdings Inc. replaced Ashland Inc. as the publicly held corporation, and Ashland Inc. was converted to a Kentucky limited liability company and is now an indirect, wholly owned subsidiary of Ashland Global Holdings Inc. Ashland Global Holdings Inc. fully and unconditionally guaranteed the Senior Notes and has no significant independent assets or operations. For periods prior to September 30, 2016, the parent entity was Ashland LLC (formerly Ashland Inc.).

Ashland presents all investments in subsidiaries in the supplemental guarantor information using the equity method of accounting. Therefore, the net income (loss) of the subsidiaries accounted for using the equity method is in their parents' investment accounts. For each financial statement period presented within the following tables, Ashland Global Holdings Inc.'s activity reflects the accounting for investments in subsidiaries under the equity method reflective of the 2016 Reorganization and resulting presentation. The elimination entries within the tables primarily eliminate investments in subsidiaries and inter-company balances and transactions. The total net effect of the settlement of these inter-company transactions is reflected in the Condensed Statements of Cash Flows as a financing activity. The following supplemental condensed consolidating financial statements present information about Ashland Global Holdings Inc., Ashland LLC and other non-guarantor subsidiaries.

### Condensed Statements of Comprehensive Income Year ended September 30, 2016

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
Sales	\$ —	\$ 652	\$ 4,323	\$ (27)	\$ 4,948
Cost of sales	—	496	2,850	(25)	3,321
Gross profit	—	156	1,473	(2)	1,627
Selling, general and administrative expense	—	438	790	—	1,228
Research and development expense	—	14	86	—	100
Equity and other income (loss)	—	(12)	40	—	28
Operating income (loss)	—	(308)	637	(2)	327
Net interest and other financing expense	—	157	25	—	182
Net gain (loss) on divestitures	—	1	(10)	—	(9)
Income (loss) from continuing operations before income taxes	—	(464)	602	(2)	136
Income tax expense (benefit)	—	(35)	168	—	133
Equity in net income (loss) of subsidiaries	(29)	137	—	(108)	—
Income (loss) from continuing operations	(29)	(292)	434	(110)	3
Loss from discontinued operations (net of tax)	—	(11)	(20)	—	(31)
Net income (loss)	(29)	(303)	414	(110)	(28)
Net income attributable to noncontrolling interests	—	—	1	—	1
Net income (loss) attributable to Ashland	<u>\$ (29)</u>	<u>\$ (303)</u>	<u>\$ 413</u>	<u>\$ (110)</u>	<u>\$ (29)</u>
Comprehensive income (loss)	(11)	(288)	415	(127)	(11)
Comprehensive income attributable to noncontrolling interests	1	—	—	—	1
Comprehensive income (loss) attributable to Ashland	<u>\$ (12)</u>	<u>\$ (288)</u>	<u>\$ 415</u>	<u>\$ (127)</u>	<u>\$ (12)</u>

**NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION (continued)**

**Condensed Statements of Comprehensive Income**

Year ended September 30, 2015

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
Sales	\$ —	\$ 760	\$ 4,666	\$ (39)	\$ 5,387
Cost of sales	—	658	3,193	(37)	3,814
Gross profit	—	102	1,473	(2)	1,573
Selling, general and administrative expense	—	292	736	—	1,028
Research and development expense	—	15	95	—	110
Equity and other income (loss)	—	(6)	29	—	23
Operating income (loss)	—	(211)	671	(2)	458
Net interest and other financing expense	—	155	19	—	174
Net loss on divestitures	—	(4)	(111)	—	(115)
Income (loss) from continuing operations before income taxes	—	(370)	541	(2)	169
Income tax expense (benefit)	—	(131)	109	—	(22)
Equity in net income (loss) of subsidiaries	309	180	—	(489)	—
Income (loss) from continuing operations	309	(59)	432	(491)	191
Income (loss) from discontinued operations (net of tax)	—	171	(53)	—	118
Net income (loss)	<u>\$ 309</u>	<u>\$ 112</u>	<u>\$ 379</u>	<u>\$ (491)</u>	<u>\$ 309</u>
Comprehensive income (loss)	\$ (89)	\$ 113	\$ (20)	\$ (93)	\$ (89)

**Condensed Statements of Comprehensive Income**

Year ended September 30, 2014

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
Sales	\$ —	\$ 1,038	\$ 5,145	\$ (62)	\$ 6,121
Cost of sales	—	948	3,716	(59)	4,605
Gross profit	—	90	1,429	(3)	1,516
Selling, general and administrative expense	—	564	794	—	1,358
Research and development expense	—	17	97	—	114
Equity and other income (loss)	—	9	(7)	—	2
Operating income (loss)	—	(482)	531	(3)	46
Net interest and other financing expense	—	139	27	—	166
Net gain on divestitures	—	3	1	—	4
Income (loss) from continuing operations before income taxes	—	(618)	505	(3)	(116)
Income tax benefit	—	(169)	(19)	—	(188)
Equity in net income (loss) of subsidiaries	233	406	—	(639)	—
Income (loss) from continuing operations	233	(43)	524	(642)	72
Income from discontinued operations (net of tax)	—	103	58	—	161
Net income (loss)	<u>\$ 233</u>	<u>\$ 60</u>	<u>\$ 582</u>	<u>\$ (642)</u>	<u>\$ 233</u>
Comprehensive income (loss)	\$ 52	\$ 46	\$ 415	\$ (461)	\$ 52

**NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION (continued)**

**Condensed Balance Sheets**

At September 30, 2016

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
<b><u>ASSETS</u></b>					
<b>Current assets</b>					
Cash and cash equivalents	\$ —	\$ 76	\$ 1,112	\$ —	\$ 1,188
Accounts receivable	—	18	876	—	894
Inventories	—	42	629	—	671
Other assets	7	16	98	(8)	113
Total current assets	<u>7</u>	<u>152</u>	<u>2,715</u>	<u>(8)</u>	<u>2,866</u>
<b>Noncurrent assets</b>					
Property, plant and equipment, net	—	246	1,978	—	2,224
Goodwill	—	141	2,260	—	2,401
Intangibles	—	35	1,029	—	1,064
Restricted investments	—	—	292	—	292
Asbestos insurance receivable	—	133	63	—	196
Equity and other unconsolidated investments	—	2	55	—	57
Investment in subsidiaries	3,127	7,597	—	(10,724)	—
Deferred income taxes	31	97	146	(97)	177
Intercompany receivables	—	5	2,264	(2,269)	—
Other assets	—	253	167	—	420
Total noncurrent assets	<u>3,158</u>	<u>8,509</u>	<u>8,254</u>	<u>(13,090)</u>	<u>6,831</u>
<b>Total assets</b>	<u>\$ 3,165</u>	<u>\$ 8,661</u>	<u>\$ 10,969</u>	<u>\$ (13,098)</u>	<u>\$ 9,697</u>
<b><u>LIABILITIES AND EQUITY</u></b>					
<b>Current liabilities</b>					
Short-term debt	\$ —	\$ —	\$ 170	\$ —	\$ 170
Current portion of long-term debt	—	—	19	—	19
Accounts payable and other accrued liabilities	—	244	791	(8)	1,027
Total current liabilities	<u>—</u>	<u>244</u>	<u>980</u>	<u>(8)</u>	<u>1,216</u>
<b>Noncurrent liabilities</b>					
Long-term debt	—	2,182	873	—	3,055
Employee benefit obligations	—	44	1,036	—	1,080
Asbestos litigation reserve	—	381	305	—	686
Deferred income taxes	—	—	166	(97)	69
Intercompany payables	—	2,264	5	(2,269)	—
Other liabilities	—	220	206	—	426
Total noncurrent liabilities	<u>—</u>	<u>5,091</u>	<u>2,591</u>	<u>(2,366)</u>	<u>5,316</u>
<b>Equity</b>					
Total stockholders' equity	3,165	3,326	7,580	(10,724)	3,347
Noncontrolling interests	—	—	(182)	—	(182)
<b>Total equity</b>	<u>3,165</u>	<u>3,326</u>	<u>7,398</u>	<u>(10,724)</u>	<u>3,165</u>
<b>Total liabilities and equity</b>	<u>\$ 3,165</u>	<u>\$ 8,661</u>	<u>\$ 10,969</u>	<u>\$ (13,098)</u>	<u>\$ 9,697</u>

**NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION (continued)**

**Condensed Balance Sheets**

At September 30, 2015

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
<b><u>ASSETS</u></b>					
<b>Current assets</b>					
Cash and cash equivalents	\$ —	\$ 21	\$ 1,236	\$ —	\$ 1,257
Accounts receivable	—	41	920	—	961
Inventories	—	42	664	—	706
Other assets	—	220	161	(212)	169
Total current assets	—	324	2,981	(212)	3,093
<b>Noncurrent assets</b>					
Property, plant and equipment, net	—	249	1,933	—	2,182
Goodwill	—	305	2,181	—	2,486
Intangibles	—	38	1,104	—	1,142
Restricted investments	—	—	285	—	285
Asbestos insurance receivable	—	125	55	—	180
Equity and other unconsolidated investments	—	3	62	—	65
Investment in subsidiaries	3,037	7,367	—	(10,404)	—
Deferred income taxes	—	533	212	(533)	212
Intercompany receivables	—	11	1,621	(1,632)	—
Other assets	—	214	195	—	409
Total noncurrent assets	3,037	8,845	7,648	(12,569)	6,961
<b>Total assets</b>	<b>\$ 3,037</b>	<b>\$ 9,169</b>	<b>\$ 10,629</b>	<b>\$ (12,781)</b>	<b>\$ 10,054</b>
<b><u>LIABILITIES AND STOCKHOLDERS' EQUITY</u></b>					
<b>Current liabilities</b>					
Short-term debt	\$ —	\$ 110	\$ 216	\$ —	\$ 326
Current portion of long-term debt	—	55	—	—	55
Accounts payable and other accrued liabilities	—	302	971	(212)	1,061
Total current liabilities	—	467	1,187	(212)	1,442
<b>Noncurrent liabilities</b>					
Long-term debt	—	3,205	143	—	3,348
Employee benefit obligations	—	844	232	—	1,076
Asbestos litigation reserve	—	375	286	—	661
Deferred income taxes	—	—	618	(533)	85
Intercompany payables	—	1,621	11	(1,632)	—
Other liabilities	—	236	169	—	405
Total noncurrent liabilities	—	6,281	1,459	(2,165)	5,575
<b>Stockholders' equity</b>	<b>3,037</b>	<b>2,421</b>	<b>7,983</b>	<b>(10,404)</b>	<b>3,037</b>
<b>Total liabilities and stockholders' equity</b>	<b>\$ 3,037</b>	<b>\$ 9,169</b>	<b>\$ 10,629</b>	<b>\$ (12,781)</b>	<b>\$ 10,054</b>

**NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION (continued)**

**Condensed Statements of Cash Flows**

Year ended September 30, 2016

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
<b>Total cash flows provided by operating activities from continuing operations</b>	\$ —	\$ 87	\$ 616	\$ —	\$ 703
<b>Cash flows provided (used) by investing activities from continuing operations</b>					
Additions to property, plant and equipment	—	(33)	(267)	—	(300)
Purchase of operations - net of cash acquired	—	—	(83)	—	(83)
Proceeds from sale of operations or equity investments	—	—	16	—	16
Intercompany dividends	—	1,236	—	(1,236)	—
Net purchases of funds restricted for specific transactions	—	(4)	—	—	(4)
Reimbursements from restricted investments	—	33	—	—	33
Proceeds from sales of available-for-sale securities	—	—	10	—	10
Purchase of available-for-sale securities	—	—	(10)	—	(10)
Other investing activities, net	—	2	4	—	6
<b>Total cash flows provided (used) by investing activities from continuing operations</b>	—	1,234	(330)	(1,236)	(332)
<b>Cash flows provided (used) by financing activities from continuing operations</b>					
Proceeds from issuance of long-term debt	—	—	1,250	—	1,250
Repayment of long-term debt	—	(1,086)	(509)	—	(1,595)
Repayment from short-term debt	—	(111)	(45)	—	(156)
Net proceeds from Valvoline Inc. initial public offering	—	—	712	—	712
Repurchase of common stock	—	(500)	—	—	(500)
Cash dividends paid	—	(97)	—	—	(97)
Intercompany dividends	—	—	(1,236)	1,236	—
Other intercompany activity, net	—	547	(547)	—	—
Other financing activities, net	—	3	(11)	—	(8)
<b>Total cash flows provided (used) by financing activities from continuing operations</b>	—	(1,244)	(386)	1,236	(394)
<b>Cash provided (used) by continuing operations</b>	—	77	(100)	—	(23)
Cash used by discontinued operations					
Operating cash flows	—	(22)	(18)	—	(40)
Investing cash flows	—	—	—	—	—
Total cash used by discontinued operations	—	(22)	(18)	—	(40)
Effect of currency exchange rate changes on cash and cash equivalents	—	—	(6)	—	(6)
<b>Increase (decrease) in cash and cash equivalents</b>	—	55	(124)	—	(69)
<b>Cash and cash equivalents - beginning of year</b>	—	21	1,236	—	1,257
<b>Cash and cash equivalents - end of year</b>	<u>\$ —</u>	<u>\$ 76</u>	<u>\$ 1,112</u>	<u>\$ —</u>	<u>\$ 1,188</u>

**NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION (continued)**

**Condensed Statements of Cash Flows**

Year ended September 30, 2015

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
<b>Total cash flows provided (used) by operating activities from continuing operations</b>	\$ —	\$ (616)	\$ 705	\$ —	\$ 89
<b>Cash flows provided (used) by investing activities from continuing operations</b>					
Additions to property, plant and equipment	—	(32)	(233)	—	(265)
Purchase of operations - net of cash acquired	—	—	(13)	—	(13)
Proceeds from sale of operations or equity investments	—	—	161	—	161
Net purchases of funds restricted for specific transactions	—	(320)	—	—	(320)
Reimbursements from restricted investments	—	6	—	—	6
Proceeds from sales of available-for-sale securities	—	—	315	—	315
Purchase of available-for-sale securities	—	—	(315)	—	(315)
Other investing activities, net	—	16	(2)	—	14
<b>Total cash flows used by investing activities from continuing operations</b>	—	(330)	(87)	—	(417)
<b>Cash flows provided (used) by financing activities from continuing operations</b>					
Proceeds from issuance of long-term debt	—	1,100	—	—	1,100
Repayment of long-term debt	—	(623)	—	—	(623)
Proceeds (repayment) from short-term debt	—	65	(68)	—	(3)
Repurchase of common stock	—	(397)	—	—	(397)
Cash dividends paid	—	(98)	—	—	(98)
Other intercompany activity, net	—	338	(338)	—	—
Other financing activities, net	—	(9)	—	—	(9)
<b>Total cash flows provided (used) by financing activities from continuing operations</b>	—	376	(406)	—	(30)
<b>Cash provided (used) by discontinued operations</b>	—	(570)	212	—	(358)
Cash provided (used) by discontinued operations					
Operating cash flows	—	302	(57)	—	245
Investing cash flows	—	—	24	—	24
Total cash provided (used) by discontinued operations	—	302	(33)	—	269
Effect of currency exchange rate changes on cash and cash equivalents	—	—	(47)	—	(47)
<b>Increase (decrease) in cash and cash equivalents</b>	—	(268)	132	—	(136)
<b>Cash and cash equivalents - beginning of year</b>	—	289	1,104	—	1,393
<b>Cash and cash equivalents - end of year</b>	<u>\$ —</u>	<u>\$ 21</u>	<u>\$ 1,236</u>	<u>\$ —</u>	<u>\$ 1,257</u>

**NOTE S – SUPPLEMENTAL GUARANTOR INFORMATION (continued)**

**Condensed Statements of Cash Flows**

Year ended September 30, 2014

(In millions)	Ashland Global Holdings Inc. (Parent Guarantor)	Ashland LLC (Issuer)	Other Non- Guarantor Subsidiaries	Eliminations	Consolidated
<b>Total cash flows provided (used) by operating activities from continuing operations</b>	\$ —	\$ (74)	\$ 654	\$ —	\$ 580
<b>Cash flows provided (used) by investing activities from continuing operations</b>					
Additions to property, plant and equipment	—	(30)	(218)	—	(248)
Proceeds from sale of operations or equity investments	—	55	37	—	92
Net purchases of funds restricted for specific transactions	—	(15)	—	—	(15)
Other investing activities, net	—	1	2	—	3
<b>Total cash flows provided (used) by investing activities from continuing operations</b>	—	11	(179)	—	(168)
<b>Cash flows provided (used) by financing activities from continuing operations</b>					
Repayment of long-term debt	—	—	(11)	—	(11)
Proceeds (repayment) from short-term debt	—	41	(19)	—	22
Repurchase of common stock	—	(954)	—	—	(954)
Cash dividends paid	—	(103)	—	—	(103)
Other intercompany activity, net	—	1,298	(1,298)	—	—
Other financing activities, net	—	12	—	—	12
<b>Total cash flows provided (used) by financing activities from continuing operations</b>	—	294	(1,328)	—	(1,034)
<b>Cash provided (used) by continuing operations</b>	—	231	(853)	—	(622)
Cash provided (used) by discontinued operations					
Operating cash flows	—	(17)	80	—	63
Investing cash flows	—	69	1,539	—	1,608
Total cash provided (used) by discontinued operations	—	52	1,619	—	1,671
Effect of currency exchange rate changes on cash and cash equivalents	—	—	(2)	—	(2)
<b>Increase in cash and cash equivalents</b>	—	283	764	—	1,047
<b>Cash and cash equivalents - beginning of year</b>	—	6	340	—	346
<b>Cash and cash equivalents - end of year</b>	<u>\$ —</u>	<u>\$ 289</u>	<u>\$ 1,104</u>	<u>\$ —</u>	<u>\$ 1,393</u>



## QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

The following table presents quarterly financial information and per share data relative to Ashland's Common Stock.

Quarters ended (In millions except per share data)	December 31		March 31		June 30		September 30	
	2015	2014	2016	2015	2016	2015	2016 (a)	2015 (b)
Sales	\$ 1,163	\$ 1,391	\$ 1,247	\$ 1,350	\$ 1,290	\$ 1,367	\$ 1,248	\$ 1,280
Cost of sales	771	982	823	925	854	939	871	970
Gross profit as a percentage of sales	33.7%	29.4%	34.0%	31.5%	33.8%	31.3%	30.2%	24.2%
Operating income (loss)	151	169	147	193	175	196	(146)	(101)
Income (loss) from continuing operations	91	40	87	95	97	115	(272)	(59)
Net income (loss)	89	32	87	224	71	107	(275)	(55)
Basic earnings per share (c)								
Continuing operations	\$ 1.39	\$ 0.58	\$ 1.39	\$ 1.40	\$ 1.57	\$ 1.70	\$ (4.40)	\$ (0.88)
Net income (loss)	1.37	0.47	1.39	3.30	1.15	1.58	(4.46)	(0.82)
Diluted earnings per share (c)								
Continuing operations	\$ 1.38	\$ 0.57	\$ 1.38	\$ 1.39	\$ 1.55	\$ 1.68	\$ (4.40)	\$ (0.88)
Net income (loss)	1.35	0.46	1.38	3.26	1.13	1.56	(4.46)	(0.82)
Regular cash dividends per share	\$ 0.39	\$ 0.34	\$ 0.39	\$ 0.34	\$ 0.39	\$ 0.39	\$ 0.39	\$ 0.39
Market price per common share								
High	\$ 113.96	\$ 121.35	\$ 110.98	\$ 130.66	\$ 118.54	\$ 132.38	\$ 125.00	\$ 123.60
Low	98.98	95.21	88.30	115.66	108.33	121.83	110.90	97.58

- (a) Fourth quarter results for 2016 include a decrease in operating income of \$181 million related to the impairment of Intermediates/Solvents, \$101 million related to the loss on pension and postretirement benefit plan remeasurement (\$33 million in cost of sales and \$68 million in selling, general and administrative expenses) and a decrease of \$42 million for separation costs. Income tax expense for the fourth quarter included \$83 million of discrete tax expense items.
- (b) Fourth quarter results for 2015 include a decrease in operating income of \$246 million related to the loss on pension and postretirement benefit plan remeasurement (\$97 million in cost of sales and \$149 million in selling, general and administrative expenses), a decrease of \$13 million for a customer claim, a decrease of \$11 million related to the impairment on IPR&D assets associated with the ISP acquisition, a decrease of \$6 million related to restructuring and a decrease of \$3 million for an environmental reserve adjustment. Income tax benefit for the fourth quarter included \$6 million of discrete tax income items.
- (c) Basic and diluted earnings per share exclude net income attributable to the noncontrolling interest in Valvoline Inc.

Ashland Global Holdings Inc. and Consolidated Subsidiaries

**Five-Year Selected Financial Information**

Years Ended September 30

(In millions except per share data)	2016	2015	2014	2013	2012
<b>Summary of operations</b>					
Sales	\$ 4,948	\$ 5,387	\$ 6,121	\$ 6,091	\$ 6,472
Cost of sales	<u>3,321</u>	<u>3,814</u>	<u>4,605</u>	<u>4,304</u>	<u>4,813</u>
Gross profit	1,627	1,573	1,516	1,787	1,659
Selling, general and administrative expense	1,228	1,028	1,358	670	1,327
Research and development expense	100	110	114	142	104
Equity and other income	28	23	2	64	53
Operating income	<u>327</u>	<u>458</u>	<u>46</u>	<u>1,039</u>	<u>281</u>
Net interest and other financing expense	182	174	166	282	317
Net gain (loss) on divestitures	<u>(9)</u>	<u>(115)</u>	<u>4</u>	<u>(8)</u>	<u>(7)</u>
Income (loss) from continuing operations before income taxes	136	169	(116)	749	(43)
Income tax expense (benefit)	<u>133</u>	<u>(22)</u>	<u>(188)</u>	<u>196</u>	<u>(57)</u>
Income from continuing operations	3	191	72	553	14
Income (loss) from discontinued operations	<u>(31)</u>	<u>118</u>	<u>161</u>	<u>130</u>	<u>12</u>
Net income (loss)	<u>(28)</u>	<u>309</u>	<u>233</u>	<u>683</u>	<u>26</u>
Net income attributable to noncontrolling interest	1	—	—	—	—
Net income (loss) attributable to Ashland	<u>\$ (29)</u>	<u>\$ 309</u>	<u>\$ 233</u>	<u>\$ 683</u>	<u>\$ 26</u>
<b>Balance sheet information (as of September 30)</b>					
Current assets (a)	\$ 2,866	\$ 3,093	\$ 3,443	\$ 2,766	\$ 3,093
Current liabilities (a)	<u>1,216</u>	<u>1,442</u>	<u>1,679</u>	<u>1,723</u>	<u>1,911</u>
Working capital (a)	<u>\$ 1,650</u>	<u>\$ 1,651</u>	<u>\$ 1,764</u>	<u>\$ 1,043</u>	<u>\$ 1,182</u>
Total assets (a)	\$ 9,697	\$ 10,054	\$ 10,907	\$ 11,964	\$ 12,441
Short-term debt	\$ 170	\$ 326	\$ 329	\$ 308	\$ 344
Long-term debt (including current portion and debt issuance cost discounts)	3,074	3,403	2,920	2,922	3,193
Equity	3,165	3,037	3,583	4,553	4,029
<b>Cash flow information</b>					
Cash flows from operating activities from continuing operations	\$ 703	\$ 89	\$ 580	\$ 653	\$ 189
Additions to property, plant and equipment	300	265	248	264	242
Cash dividends	97	98	103	88	63
<b>Common stock information</b>					
Basic earnings per share					
Income from continuing operations attributable to Ashland	\$ 0.03	\$ 2.81	\$ 0.94	\$ 7.06	\$ 0.18
Net income (loss) attributable to Ashland	(0.47)	4.54	3.04	8.71	0.33
Diluted earnings per share					
Income from continuing operations attributable to Ashland	0.03	2.78	0.93	6.95	0.17
Net income (loss) attributable to Ashland	(0.46)	4.48	3.00	8.57	0.33
Dividends	1.56	1.46	1.36	1.13	0.80

(a) As a result of the retrospective adoption during 2016 of the new deferred tax guidance referenced in Note A, the September 30, 2012 through September 30, 2015 deferred tax balances have been reclassified from previous SEC filings to reflect the post-adoption presentation of current deferred tax assets and liabilities as noncurrent.

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