

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 30 September 2015

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 1-4534

**AIR PRODUCTS AND CHEMICALS, INC.**

7201 Hamilton Boulevard  
Allentown, Pennsylvania, 18195-1501  
Tel. (610) 481-4911

State of incorporation: Delaware  
I.R.S. identification number: 23-1274455

**Securities registered pursuant to Section 12(b) of the Act:**

**Title of Each Class:**  
Common Stock, par value \$1.00 per share  
Preferred Stock Purchase Rights

**Registered on:**  
New York  
New York

**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 Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) 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 (§ 229.405) 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.

Large accelerated filer

Accelerated filer

Non-accelerated filer

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

The aggregate market value of the voting stock held by non-affiliates of the registrant on 31 March 2015 was approximately \$32.4 billion. For purposes of the foregoing calculations all directors and/or executive officers have been deemed to be affiliates, but the registrant disclaims that any such director and/or executive officer is an affiliate.

The number of shares of common stock outstanding as of 31 October 2015 was 215,426,569.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's definitive Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016 are incorporated by reference into Part III.

**AIR PRODUCTS AND CHEMICALS, INC.**  
**ANNUAL REPORT ON FORM 10-K**  
**For the fiscal year ended 30 September 2015**

**TABLE OF CONTENTS**

ITEM 1.	<a href="#">BUSINESS</a>	3
ITEM 1A.	<a href="#">RISK FACTORS</a>	10
ITEM 1B.	<a href="#">UNRESOLVED STAFF COMMENTS</a>	15
ITEM 2.	<a href="#">PROPERTIES</a>	15
ITEM 3.	<a href="#">LEGAL PROCEEDINGS</a>	16
ITEM 4.	<a href="#">NOT APPLICABLE</a>	18
ITEM 5.	<a href="#">MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES</a>	18
ITEM 6.	<a href="#">SELECTED FINANCIAL DATA</a>	20
ITEM 7.	<a href="#">MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS</a>	22
ITEM 7A.	<a href="#">QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK</a>	53
ITEM 8.	<a href="#">FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA</a>	55
ITEM 9.	<a href="#">CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE</a>	112
ITEM 9A.	<a href="#">CONTROLS AND PROCEDURES</a>	112
ITEM 9B.	<a href="#">OTHER INFORMATION</a>	112
ITEM 10.	<a href="#">DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE</a>	112
ITEM 11.	<a href="#">EXECUTIVE COMPENSATION</a>	112
ITEM 12.	<a href="#">SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS</a>	113
ITEM 13.	<a href="#">CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE</a>	114
ITEM 14.	<a href="#">PRINCIPAL ACCOUNTANT FEES AND SERVICES</a>	114
ITEM 15.	<a href="#">EXHIBITS AND FINANCIAL STATEMENT SCHEDULES</a>	114
	<a href="#">SIGNATURES</a>	115

PART I

**ITEM 1. BUSINESS**

**General Description of Business**

Air Products and Chemicals, Inc. (“we,” “our,” “us,” the “Company,” “Air Products,” or “registrant”), a Delaware corporation originally founded in 1940, serves energy, electronics, chemicals, metals, and manufacturing customers globally with a unique portfolio of products, services, and solutions that include atmospheric gases, process and specialty gases, electronics and performance materials, equipment, and services. The Company is the world’s largest supplier of hydrogen and has built leading positions in growth markets such as helium, refinery hydrogen, semiconductor materials, natural gas liquefaction, and advanced coatings and adhesives. As used in this report, unless the context indicates otherwise, the terms “we,” “our,” “us,” the “Company,” or “registrant” include controlled subsidiaries, affiliates, and predecessors of Air Products and its controlled subsidiaries and affiliates.

The Company manufactures and distributes products in two principal lines of business: Industrial Gases and Materials Technologies. Industrial Gases’ primary products are atmospheric gases, process gases, and equipment for air separation. Materials Technologies’ primary products are performance materials and chemicals, such as epoxy amine curing agents, polyurethane catalysts, additives, and specialty surfactants, and electronics materials such as specialty gases, chemical mechanical planarization slurries, and specialty chemicals. The Company also designs and manufactures equipment for natural gas liquefaction and helium distribution and is constructing waste-to-energy facilities for the production of electricity.

On 1 October 2014, the Company reorganized its business into seven reporting segments under which it manages its operations, assesses performance and reports earnings: Industrial Gases – Americas; Industrial Gases – EMEA (Europe, Middle East, and Africa); Industrial Gases – Asia; Industrial Gases – Global; Materials Technologies; Energy-from-Waste; and Corporate and other. Previously, we organized our operations into four reportable business segments: Merchant Gases, Tonnage Gases, Electronics and Performance Materials, and Equipment and Energy. Refer to Note 26, Business Segment and Geographic Information, to the consolidated financial statements for additional details on our reportable business segments and segment reorganization.

On 16 September 2015, the Company announced that its Board of Directors approved a preliminary plan to spin off its Materials Technologies business, subject to customary conditions including regulatory approvals, into a standalone, publicly traded corporation via a distribution to its shareholders. The targeted completion and final approval of the spin-off is prior to September 2016, subject to approvals. The distribution is intended to be tax-free to the Company and its shareholders for U.S. federal income tax purposes. The results of operations, financial condition and cash flows for the Materials Technologies business to be included in the spin-off are, and will continue to be, presented within the Company’s consolidated financial statements as continuing operations until the spin-off is complete, at which time the financial presentation of the historical results of this business will be reflected as a discontinued operation.

## Narrative Description of Business by Segments

### Industrial Gases Business

The Company's Industrial Gases business produces atmospheric gases (oxygen, nitrogen, argon, and rare gases), process gases (hydrogen, helium, carbon dioxide, carbon monoxide, syngas and specialty gases) and equipment for the production or processing of gases such as air separation units and non-cryogenic generators. Atmospheric gases are produced through various air separation processes of which cryogenic is the most prevalent. Process gases are produced by methods other than air separation. For example, hydrogen is produced by steam methane reforming of natural gas or by purifying byproduct sources obtained from the chemical and petrochemical industries; and helium is produced mainly as a byproduct of natural gas production and purified before resale. The Company has recently pioneered new technology for extracting helium from a carbon dioxide stream.

The Company's Industrial Gases business is organized and operated regionally. The regional Industrial Gases segments (Americas, EMEA, and Asia) include the results of our regional Industrial Gases businesses, which supply gases and related equipment in the relevant region to diversified customers in many industries, including those in metals, glass, chemical processing, electronics, energy production and refining, food processing, metallurgical industries, medical, and general manufacturing. Hydrogen is used by refiners to facilitate the conversion of heavy crude feedstock and lower the sulfur content of gasoline and diesel fuels. The chemicals industry uses hydrogen, oxygen, nitrogen, carbon monoxide and syngas as feedstocks in the production of many basic chemicals. The energy production industry uses nitrogen injection for enhanced recovery of oil and natural gas and oxygen for gasification. Oxygen is used in combustion and industrial heating applications, including in the steel, certain nonferrous metals, glass and cement industries. Nitrogen applications are used in food processing for freezing and preserving flavor and nitrogen for inerting is used in various fields, including the metallurgical, chemical, and semiconductor industries. Helium is used in laboratories and healthcare for cooling and in other industries for pressurizing, purging and lifting. Argon is used in the metals and other industries for its unique inerting, thermal conductivity and other properties. Industrial gases are also used in welding and providing healthcare and are utilized in various manufacturing processes to make them more efficient and to optimize performance.

We distribute gases to our customers through a variety of supply modes:

**Liquid Bulk**—Product is delivered in bulk (in liquid or gaseous form) by tanker or tube trailer and stored, usually in its liquid state, in equipment designed and installed typically by the Company at the customer's site for vaporizing into a gaseous state as needed. Liquid bulk sales are usually governed by three- to five-year contracts.

**Packaged Gases**—Small quantities of product are delivered in either cylinders or dewars. The Company operates packaged gas businesses in Europe, Asia, and Latin America. In the United States, the Company's packaged gas business sells products only for the electronics and magnetic resonance imaging (principally helium) industries.

**On-Site Gases**—Large quantities of hydrogen, carbon monoxide, nitrogen, oxygen, and syngas (a mixture of hydrogen and carbon monoxide) are provided to customers, principally the energy production and refining, chemical, and metallurgical industries worldwide who require large volumes of gases that have relatively constant demand. Gases are produced at large facilities located adjacent to customers' facilities or by pipeline systems from centrally located production facilities and are generally governed by 15- to 20- year contracts. The Company also delivers small quantities of product through small on-site plants (cryogenic or non-cryogenic generators), typically either via a 10- to 15- year sale of gas contract or through the sale of the equipment to the customer.

Electricity is the largest cost component in the production of atmospheric gases, and natural gas is the principal raw material for hydrogen, carbon monoxide, and syngas production. We mitigate energy and natural gas price fluctuations contractually through pricing formulas, surcharges, and cost pass-through arrangements. During fiscal year 2015, no significant difficulties were encountered in obtaining adequate supplies of power and natural gas.

The regional Industrial Gases segments also include our share of the results of several joint ventures accounted for by the equity method. The largest of these joint ventures operate in Mexico, Italy, South Africa, India, Saudi Arabia, and Thailand.

## [Table of Contents](#)

Each of the regional Industrial Gases segments competes against three global industrial gas companies: Air Liquide S.A., Linde AG, and Praxair, Inc.; as well as regional competitors, including Airgas, Inc. Competition in Industrial Gases is based primarily on price, reliability of supply, and the development of industrial gas applications. In locations where we have pipeline networks, which enable us to provide reliable and economic supply of products to larger customers, we derive a competitive advantage.

Overall regional industrial gases sales constituted approximately 76% of consolidated sales in fiscal year 2015, 77% in fiscal year 2014, and 78% in fiscal year 2013. Sales of tonnage hydrogen and related products constituted approximately 19% of consolidated sales in fiscal year 2015, 22% in fiscal year 2014 and 21% in fiscal year 2013. Sales of atmospheric gases constituted approximately 35% of consolidated sales in fiscal year 2015, 33% in fiscal year 2014 and 35% in fiscal year 2013.

### **Industrial Gases Equipment**

The Company designs and manufactures equipment for air separation, hydrocarbon recovery and purification, natural gas liquefaction (LNG), and liquid helium and liquid hydrogen transport and storage. The Industrial Gases – Global segment includes cryogenic and non-cryogenic equipment for air separation. The equipment is sold worldwide to customers in a variety of industries, including chemical and petrochemical manufacturing, oil and gas recovery, and processing and steel and primary metals processing. Other activities, which are managed globally instead of regionally, are also part of this segment, such as technology development for air separation. The Corporate and other segment includes two global equipment businesses, our LNG sale of equipment business and our liquid helium and liquid hydrogen transport and storage containers business. Steel, aluminum, and capital equipment subcomponents (compressors, etc.) are the principal raw materials in the manufacturing of equipment in this business segment. Adequate raw materials for individual projects are acquired under firm purchase agreements. Equipment is produced at the Company's manufacturing sites with certain components being procured from subcontractors and vendors. Competition in the equipment business is based primarily on technological performance, service, technical know-how, price and performance guarantees.

The backlog of equipment orders (including letters of intent believed to be firm) was approximately \$1.9 billion on 30 September 2015 (as compared with a total backlog of approximately \$520 million on 30 September 2014). The increase in the sales backlog primarily results from a new multi-year contract with a joint venture in Jazan, Saudi Arabia for the construction of an industrial gas facility that will supply gases to Saudi Aramco. Revenue from this contract is recognized under the percent complete method based on costs incurred to date compared with total costs to be incurred. The Company estimates that up to 85% of the total sales backlog as of 30 September 2015 will not be recognized as revenue during fiscal year 2016, dependent on execution schedules of the relevant projects.

### **Energy-from-Waste**

The Energy-from-Waste business consists of two projects that are under construction in Tees Valley, United Kingdom. These projects are designed to process waste materials and generate renewable power for customers under long-term contracts. In November 2015, the Company suspended construction of the second project until certain design issues of the first project are understood, remediated, and can be efficiently integrated into the design of the second project.

### **Materials Technologies**

Materials Technologies is a global business that delivers innovation-driven solutions for specific customer applications within niche markets. This segment employs applications technology to provide solutions to a broad range of global industries through chemical synthesis, analytical technology, process engineering, and surface science. It is comprised of two business divisions: Performance Materials, which is focused on a portfolio of additives products that provide high value properties at low cost across a variety of industries, and Electronics Materials, which is focused on supplying critical materials and equipment to the semiconductor industry.

The Performance Materials Division is based on critical competencies in specialty amines, alkoxylates and silicone chemistries. The business provides a range of products concentrated in the areas of epoxy curing agents, accelerators and catalysts, polyurethane catalysts, surfactants and curatives and specialty additives, including surfactants, wetting agents, dispersants and de-foaming agents. The products are used in a variety of industry applications, including coatings, inks, adhesives, construction and civil engineering, personal care, institutional and industrial cleaning, mining, oil refining, and polyurethanes. The Performance Materials businesses focus on the development of new additive materials aimed at providing unique technologies and functionality.

## [Table of Contents](#)

The Electronics Materials Division maintains critical competencies in molecular design, formulation expertise and ultra-high purity chemistry. This division provides the semiconductor industry with high purity process materials for deposition, metallization, chamber cleaning and etching, chemicals mechanical planarization slurries, organosilanes, organometalics and liquid dopants for thin film deposition, formulated chemical products for post-etch cleaning and delivery equipment and services primarily for the manufacture of silicon and compound semiconductors and thin film transistor liquid crystal displays.

Both businesses are based on strong customer relationships and collaborative development, technology and innovation leadership, unique product positioning, and a strong global infrastructure with in-region flexible manufacturing capabilities. The segment maintains manufacturing operations in North America, Europe and Asia and manages a complex global supply chain. Products are delivered in bulk containers of different sizes, some of which are returnable.

Materials Technologies uses a wide variety of raw materials including amines and amine derivatives, alcohols and surfactants, tungsten powder, ethylene oxide, and ketones. During fiscal year 2015, no significant difficulties were encountered in obtaining adequate supplies of energy or raw materials.

Materials Technologies faces competition on a product-by-product basis against competitors ranging from niche suppliers with a single product to larger and more vertically integrated companies. Competition is principally conducted on the basis of price, quality, product performance, reliability of product supply, technical innovation, service, and global infrastructure.

Total sales from Materials Technologies constituted approximately 21% of consolidated sales in fiscal year 2015, 20% in fiscal year 2014, and 18% in fiscal year 2013. Performance Materials Division sales constituted approximately 11% of consolidated sales in fiscal year 2015, 11% in fiscal year 2014 and 10% in fiscal year 2013, and Electronics Materials Division sales constituted approximately 10% of consolidated sales in fiscal year 2015, 9% in fiscal year 2014 and 8% in fiscal year 2013.

### **Narrative Description of the Company's Business Generally**

The Company, through subsidiaries, affiliates, and less-than-controlling interests, conducts business in 50 countries outside the United States. Its international businesses are subject to risks customarily encountered in foreign operations, including fluctuations in foreign currency exchange rates and controls; import and export controls; and other economic, political, and regulatory policies of local governments.

The Company has majority or wholly owned foreign subsidiaries that operate in Canada, 17 European countries (including the United Kingdom, the Netherlands, and Spain), 11 Asian countries (including China, Korea, and Taiwan), 7 Latin American countries (including Chile and Brazil), 2 African countries, and 1 Middle Eastern country. The Company also owns less-than-controlling interests in entities operating in Europe, Asia, Africa, the Middle East, and Latin America (including Italy, Germany, China, India, Saudi Arabia, Singapore, Thailand, United Arab Emirates, South Africa, and Mexico).

Financial information about the Company's foreign operations and investments is included in Note 8, Summarized Financial Information of Equity Affiliates; Note 23, Income Taxes; and Note 26, Business Segment and Geographic Information, to the consolidated financial statements included under Item 8, herein. Information about foreign currency translation is included under "Foreign Currency" in Note 1, Major Accounting Policies, and information on the Company's exposure to currency fluctuations is included in Note 13, Financial Instruments, to the consolidated financial statements, included under Item 8, below, and in "Foreign Currency Exchange Rate Risk," included under Item 7A, below. Export sales from operations in the United States to third-party customers amounted to \$398.8 million, \$378.7 million, and \$410.3 million in fiscal years 2015, 2014, and 2013, respectively.

### **Technology Development**

The Company pursues a market-oriented approach to technology development through research and development, engineering, and commercial development processes. It conducts research and development principally in its laboratories located in the United States (Trexlerstown, Pennsylvania; Carlsbad, California; Milton, Wisconsin; and Phoenix, Arizona), Canada (Vancouver), the United Kingdom (Basingstoke and Carrington), Germany (Hamburg), the Netherlands (Utrecht), Spain (Barcelona), Japan (Kawasaki), China (Shanghai), Korea (Giheung), and Taiwan (Chupei and Hsinchu City). The Company also funds and cooperates in research and development programs conducted by a number of major universities and undertakes research work funded by others—principally the United States government.

## [Table of Contents](#)

The Company's research groups are aligned with and support the research efforts of various businesses throughout the Company. Development of technology for use within the Industrial Gases business focuses primarily on new and improved processes and equipment for the production and delivery of industrial gases and new or improved applications for industrial gas products. Research and technology development for Materials Technologies supports development of new products and applications to strengthen and extend the Company's present positions as well as to lower processing costs and develop new processes for the new products.

Research and development expenditures were \$138.8 million during fiscal year 2015, \$141.4 million in fiscal year 2014, and \$133.7 million in fiscal year 2013. In addition, the Company expended \$6.0 million on customer-sponsored research activities during fiscal year 2015, \$18.9 million in fiscal year 2014, and \$45.5 million in fiscal year 2013.

The Company owns approximately 1,000 United States patents, approximately 4,000 foreign patents, and is a licensee under certain patents owned by others. While the patents and licenses are considered important, the Company does not consider its business as a whole to be materially dependent upon any particular patent, patent license, or group of patents or licenses.

### **Environmental Controls**

The Company is subject to various environmental laws and regulations in the countries in which it has operations. Compliance with these laws and regulations results in higher capital expenditures and costs. In the normal course of business, the Company is involved in proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the federal Superfund law; Resource Conservation and Recovery Act (RCRA); and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Additional information with respect to these proceedings is included under Item 3, Legal Proceedings, below. The Company's accounting policy for environmental expenditures is discussed in Note 1, Major Accounting Policies, and environmental loss contingencies are discussed in Note 17, Commitments and Contingencies, to the consolidated financial statements, included under Item 8, below.

The amounts charged to income from continuing operations related to environmental matters totaled \$28.3 million in fiscal 2015, \$35.1 million in 2014, and \$37.1 million in 2013. These amounts represent an estimate of expenses for compliance with environmental laws and activities undertaken to meet internal Company standards. Refer to Note 17, Commitments and Contingencies, to the consolidated financial statements for additional information.

The Company estimates that we spent \$4.0 million in 2015 and \$5.0 million in 2014 on capital projects to control pollution. Capital expenditures to control pollution in future years are estimated to be approximately \$4.0 million in both 2016 and 2017.

### **Employees**

On 30 September 2015, the Company (including majority-owned subsidiaries) had approximately 19,700 employees, of whom approximately 19,400 were full-time employees and of whom approximately 12,500 were located outside the United States. The Company has collective bargaining agreements with unions at various locations that expire on various dates over the next four years. The Company considers relations with its employees to be satisfactory.

### **Available Information**

All periodic and current reports, registration statements, and other filings that the Company is required to file with the Securities and Exchange Commission (SEC), including the Company's annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) of the Securities Exchange Act of 1934 (the 1934 Act Reports), are available free of charge through the Company's Internet website at [www.airproducts.com](http://www.airproducts.com). Such documents are available as soon as reasonably practicable after electronic filing of the material with the SEC. All 1934 Act Reports filed during the period covered by this report were available on the Company's website on the same day as filing.

The public may also read and copy any materials filed by the Company with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., 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 that contains reports, proxy, and information statements, and other information regarding issuers that file electronically with the SEC. The address of that site is [www.sec.gov](http://www.sec.gov).

### **Seasonality**

Although the Company's businesses are not subject to seasonal fluctuations to any material extent, Materials Technologies is susceptible to the cyclical nature of the electronics industry and to seasonal fluctuations in underlying end-use performance materials markets.

### **Working Capital**

Due to the anticipated spin-off of our Materials Technologies business in 2016, our debt portfolio has a higher balance of short-term borrowings and long-term debt due within the next 12 months, which has resulted in negative working capital as of 30 September 2015. Maintaining the short-term borrowing balance at its current level provides flexibility in how we manage cash flows associated with the anticipated spin-off.

The Company maintains inventory where required to facilitate the supply of products to customers on a reasonable delivery schedule. Industrial Gases' inventory consists primarily of industrial, specialty gas, and crude helium inventories supplied to customers through liquid bulk and packaged gases supply modes. Materials Technologies' inventories consist primarily of bulk and packaged specialty gases and chemicals, bulk and packaged performance chemical solutions and also include inventories to support sales of equipment and services.

### **Customers**

We do not have a homogeneous customer base or end market, and no single customer accounts for more than 10% of our consolidated revenues. We do have concentrations of customers in specific industries, primarily refining, chemicals, and electronics. Within each of these industries, the Company has several large-volume customers with long-term contracts. A negative trend affecting one of these industries, or the loss of one of these major customers, although not material to our consolidated revenue, could have an adverse impact on the affected segment.

### **Governmental Contracts**

No segment's business is subject to a government entity's renegotiation of profits or termination of contracts that would be material to our business as a whole.



[Table of Contents](#)

**Executive Officers of the Company**

The Company's executive officers and their respective positions and ages on 24 November 2015 follow. Information with respect to offices held is stated in fiscal years.

<b>Name</b>	<b>Age</b>	<b>Office</b>
M. Scott Crocco	51	Senior Vice President and Chief Financial Officer (became Senior Vice President and Chief Financial Officer in 2013 and Vice President and Corporate Controller in 2008).
Seifi Ghasemi	71	Chairman, President, and Chief Executive Officer (became Chairman, President and Chief Executive Officer in 2014 and Chairman and Chief Executive Officer of Rockwood Holdings, Inc. in 2001). Mr. Ghasemi is a member and Chairman of the Board of Directors and the Chairman of the Executive Committee of the Board of Directors.
Guillermo Novo	53	Executive Vice President Material Technologies (became Executive Vice President Material Technologies in 2015; Senior Vice President and General Manager - Electronics, Performance Materials, Strategy and Technology in 2012; and Group Vice President, Dow Coating Materials at Dow Chemical Company in 2010).
Corning F. Painter	53	Executive Vice President Industrial Gases (became Executive Vice President Industrial Gases in 2015; Senior Vice President and General Manager - Merchant Gases in 2014; Senior Vice President - Supply Chain in 2012; Senior Vice President - Corporate Strategy and Technology in 2011; and Vice President and General Manager, Global Electronics in 2007).
John D. Stanley	57	Senior Vice President, General Counsel and Chief Administrative Officer (became Senior Vice President, General Counsel and Chief Administrative Officer in 2013; and Senior Vice President and General Counsel in 2009).

## ITEM 1A. RISK FACTORS

In conjunction with evaluating an investment in the Company and the forward-looking information contained in this Annual Report on Form 10-K or presented elsewhere by management from time to time, you should carefully read the following risk factors. Any of the following risks could have a material adverse effect on our business, operating results, financial condition, and the actual outcome of matters as to which forward-looking statements are made and could adversely affect the value of an investment in our common stock as well. While we believe we have identified and discussed below the key risk factors affecting our business, there may be additional risks and uncertainties that adversely affect our business, performance, or financial condition in the future that are not presently known, are not currently believed to be significant, or are not identified below because they are common to all businesses.

### **Overall Economic and Supply/Demand Conditions—A weakening or reversal of economic recovery or product supply versus demand imbalance in certain markets in which the Company does business may decrease the demand for its goods and services and adversely impact its revenues, operating results, and cash flow.**

Demand for the Company's products and services depends in part on the general economic conditions affecting the countries and industries in which the Company does business. In the past few years, uncertain economic conditions in certain geographies and changing supply and demand balances in markets served by the Company have impacted and may in the future impact demand for the Company's products and services, in turn negatively impacting the Company's revenues and earnings. Unfavorable conditions can depress sales in a given market, affect our margins, constrain our operating flexibility, impact new project on-stream timing, or result in charges which are unusual or nonrecurring. Excess capacity in the Company's or its competitors' manufacturing facilities could decrease the Company's ability to maintain pricing and generate profits. Unanticipated contract terminations or project delays by current customers can also negatively impact financial results. Our operating results in one or more segments may also be affected by uncertain or deteriorating economic conditions particularly germane to that segment or to particular customer markets within that segment.

### **Operational, Political, and Legal Risks of International Operations—The Company's foreign operations can be adversely impacted by nationalization or expropriation of property, undeveloped property rights and legal systems, or political instability. Developing market operations present special risks.**

The Company has extensive international operations. In addition, the Company is actively investing significant capital and other resources in emerging markets. The Company's operations in certain foreign jurisdictions may be subject to project delays due to unanticipated government actions and to nationalization and expropriation risk, and some of its contractual relationships within these jurisdictions are subject to cancellation without full compensation for loss. Economic and political conditions within foreign jurisdictions, social unrest, or strained relations between countries can cause fluctuations in demand, price volatility, supply disruptions, or loss of property. The occurrence of any of these risks could have a material adverse impact on the Company's financial condition, results of operation, and cash flow.

Our developing market operations may be subject to greater risks than those faced by our operations in mature economies, including geopolitical, legal, economic and talent risks. Our success will depend, in part, on our ability to manage the risks inherent in operating in a developing market, including unfamiliar regulatory environments, new relationships with local partners, language and cultural differences, and tailoring products for acceptance by local markets.

### **Currency Fluctuations—Changes in foreign currencies may adversely affect the Company's financial results.**

The majority of the Company's revenue is generated from sales outside the United States, exposing it to risks related to fluctuations in foreign currency exchange rates. Our Industrial Gases business is primarily exposed to translational currency risk as the results of its foreign operations are translated into U.S. dollars at current exchange rates throughout the fiscal period. Our Materials Technologies business is also significantly exposed to transactional currency impacts as many of its products are manufactured in one country and sold in another.

The Company uses certain financial instruments to mitigate some of these effects. The Company's policy is to minimize cash flow volatility from changes in currency exchange rates. The Company chooses not to hedge the translation of its foreign subsidiaries' earnings into dollars. Accordingly, reported sales, net earnings, cash flows,

and fair values have been and in the future will be affected by changes in foreign exchange rates. For a more detailed discussion of currency exposure, see Item 7A, below.

**Interest Rate Increases—The Company's earnings, cash flow, and financial position can be impacted by interest rate increases and access to credit.**

At 30 September 2015, the Company had total consolidated debt of \$5,879.0 million, of which \$1,929.9 million will mature in the next twelve months. The Company expects to continue to incur indebtedness to fund new projects and replace maturing debt. Although the Company actively manages its interest rate risk through the use of derivatives and diversified debt obligations, not all borrowings at variable rates are hedged, and new debt will be priced at market rates. If interest rates increase, the Company's interest expense could increase significantly, affecting earnings and reducing cash flow available for working capital, capital expenditures, acquisitions, and other purposes. In addition, changes by any rating agency to the Company's outlook or credit ratings could increase the Company's cost of borrowing and weaken our ability to access capital and credit markets on terms commercially acceptable to us. For a more detailed discussion of interest rate risk, see Item 7A, below.

**New Technologies—New technologies create performance risks that could impact our financial results or reputation.**

A number of new technologies and new product offerings are being developed or implemented by the Company. Some of our existing technologies are being implemented in products and designs beyond our experience base. These technological expansions can create nontraditional performance risks to our operations. Failure of the technologies to work as predicted or unintended consequences of new designs or uses, could lead to cost overruns, project delays, financial penalties, damage to our reputation, or impairment of assets. In particular, the Company has invested approximately \$1 billion to date into two waste-to-energy projects in Tees Valley, United Kingdom, which rely on technological processes that have not been commercialized to date at the same scale or in the same combination. The Company has experienced technical challenges and on-stream delays in starting up the first of these projects and, as a result, additional capital investments are expected.

**Our restructuring actions could have long-term adverse effects on our business.**

We reorganized the Company effective 1 October 2014. This reorganization and our cost reduction measures may reduce our available talent and other resources, impact our ability to attract and retain key employees, could slow improvements in our products and services, and adversely affect our ability to respond to customers. Failure to achieve targeted improvements may diminish the operational and financial benefits we realize from such actions. These circumstances could adversely impact our business and financial statements.

**Raw Material and Energy Cost and Availability—Interruption in ordinary sources of supply or an inability to recover increases in energy and raw material costs from customers could result in lost sales or reduced profitability.**

Hydrocarbons, including natural gas, are the primary feedstock for the production of hydrogen, carbon monoxide, and syngas. Energy, including electricity, natural gas, and diesel fuel for delivery trucks, is the largest cost component of the Company's business. Because the Company's industrial gas facilities use substantial amounts of electricity, energy price fluctuations could materially impact the Company's revenues and earnings. A disruption in the supply of energy, components, or raw materials, whether due to market conditions, legislative or regulatory actions, natural events, or other disruption, could prevent the Company from meeting its contractual commitments, harming its business and financial results.

The Company's supply of crude helium for purification and resale is largely dependent upon natural gas production by crude helium suppliers. Lower natural gas production (which may result from natural gas pricing or supplier operating issues) or interruptions in sales from other crude helium suppliers, can reduce the Company's supplies of crude helium available for processing and resale to its customers.

The Materials Technologies segment uses a wide variety of raw materials, including alcohols, ethyleneamines, cyclohexylamine, acrylonitriles, and glycols. Shortages or price escalation in these materials could negatively impact financial results.

The Company typically contracts to pass through cost increases in energy and raw materials to its customers, but cost variability can still have a negative impact on its results. The Company may not be able to raise prices as quickly as costs rise, or competitive pressures may prevent full recovery. Increases in energy or raw material

costs that cannot be passed on to customers for competitive or other reasons would negatively impact the Company's revenues and earnings. Even where costs are passed through, price increases can cause lower sales volume.

**Regulatory Compliance—The Company is subject to extensive government regulation in jurisdictions around the globe in which it does business. Changes in regulations addressing, among other things, environmental compliance, import/export restrictions, anti-bribery and corruption, and taxes, can negatively impact the Company's financial condition, results of operation and cash flow.**

The Company is subject to government regulation in the United States and foreign jurisdictions in which it conducts its business. The application of laws and regulations to the Company's business is sometimes unclear. Compliance with laws and regulations may involve significant costs or require changes in business practice that could result in reduced profitability. Determination of noncompliance can result in penalties or sanctions that could also impact financial results. Compliance with changes in laws or regulations can require additional capital expenditures or increase operating costs. Export controls or other regulatory restrictions could prevent the Company from shipping its products to and from some markets or increase the cost of doing so. Export restrictions continue to attract external focus by multiple customs and export enforcement authorities. Changes in tax laws and regulations and international tax treaties could affect the financial results of the Company's businesses. Increasingly aggressive enforcement of anti-bribery and anti-corruption requirements, including the U.S. Foreign Corrupt Practices Act, the United Kingdom Bribery Act and the China Anti-Unfair Competition Law, could subject the Company to criminal or civil sanctions if a violation occurs. We have internal control policies and procedures to foster compliance with these laws, including compliance and training programs for our employees and established due diligence procedures with regard to third parties; however, the foregoing cannot eliminate the risk that violations could be committed by our employees, agents or joint venture partners.

**Greenhouse Gases—Legislative and regulatory responses to global climate change create financial risk.**

Some of the Company's operations are within jurisdictions that have or are developing regulatory regimes governing emissions of greenhouse gases (GHG). These include existing coverage under the European Union Emission Trading Scheme, California's cap and trade scheme, Alberta's Emission Reduction Program, China's Emission Trading Scheme pilots, South Korea's Emission Trading Scheme, and mandatory reporting and anticipated constraints on GHG emissions under an Ontario cap and trade scheme, nation-wide expansion of the China Emission Trading Scheme, and federal emission performance standards in Canada. In addition, the U.S. Environmental Protection Agency (EPA) requires mandatory reporting of GHG emissions and is regulating GHG emissions for new construction and major modifications to existing facilities. Moreover, some jurisdictions have various mechanisms to target the power sector (e.g. U.S. EPA Clean Power Plan) to achieve emission reductions. These reductions often result in higher power costs.

Increased public concern may result in more international, U.S. federal, and/or regional requirements to reduce or mitigate the effects of GHG. Although uncertain, these developments could increase the Company's costs related to consumption of electric power, hydrogen production, and fluorinated gases production. The Company believes it will be able to mitigate some of the increased costs through its contractual terms, but the lack of definitive legislation or regulatory requirements prevents an accurate estimate of the long-term impact on the Company. Any legislation that limits or taxes GHG emissions could impact the Company's growth, increase its operating costs, or reduce demand for certain of its products.

**Environmental Compliance—Costs and expenses resulting from compliance with environmental regulations may negatively impact the Company's operations and financial results.**

The Company is subject to extensive federal, state, local, and foreign environmental and safety laws and regulations concerning, among other things, emissions in the air; discharges to land and water; and the generation, handling, treatment, and disposal of hazardous waste and other materials. The Company takes its environmental responsibilities very seriously, but there is a risk of environmental impact inherent in our manufacturing operations and transportation of chemicals. Future developments and more stringent environmental regulations may require the Company to make additional unforeseen environmental expenditures. In addition, laws and regulations may require significant expenditures for environmental protection equipment, compliance, and remediation. These additional costs may adversely affect financial results. For a more detailed description of these matters, see "Narrative Description of the Company's Business Generally—Environmental Controls," above.

**We may not be able to successfully control or reduce costs to improve productivity and streamline operations.**

Achieving our financial goals depends significantly on our efforts to control or reduce our operating costs. Because many of our costs are affected by factors outside or substantially outside our control, we generally must seek to control or reduce costs through operating efficiency. If we are not able to identify and execute efforts designed to control or reduce costs and increase operating efficiency, our ability to attain our goals could be adversely impacted.

**Catastrophic Events—Catastrophic events could disrupt the Company's operations or the operations of its suppliers or customers, having a negative impact on the Company's business, financial results, and cash flow.**

The Company's operations could be impacted by catastrophic events outside the Company's control, including severe weather conditions such as hurricanes, floods, earthquakes, storms, epidemics, or acts of war and terrorism. Any such event could cause a serious business disruption that could affect the Company's ability to produce and distribute its products and possibly expose it to third-party liability claims. Additionally, such events could impact the Company's suppliers or customers, in which event energy and raw materials may be unavailable to the Company, or its customers may be unable to purchase or accept the Company's products and services. Any such occurrence could have a negative impact on the Company's operations and financial results.

**Operational Risks—Operational and execution risks may adversely affect the Company's operations or financial results.**

The Company's operation of its facilities, pipelines, and delivery systems inherently entails hazards that require continuous oversight and control, such as pipeline leaks and ruptures, fire, explosions, toxic releases, mechanical failures, or vehicle accidents. If operational risks materialize, they could result in loss of life, damage to the environment, or loss of production, all of which could negatively impact the Company's ongoing operations, reputation, financial results, and cash flow. In addition, the Company's operating results are dependent on the continued operation of its production facilities and its ability to meet customer requirements, which depends, in part, on the Company's ability to properly maintain and replace aging assets. Operating results are also dependent on the Company's ability to complete new construction projects on time, on budget, and in accordance with performance requirements, which depends, in part, on the availability of adequate sources of labor in the geographies where the Company intends to build new plants. Failure to do so may expose the Company to loss of revenue, potential litigation, and loss of business reputation.

**Information Security—The security of the Company's Information Technology systems could be compromised, which could adversely affect its ability to operate.**

We depend on information technology to enable us to operate efficiently and interface with customers as well as to maintain financial accuracy and efficiency. Our information technology capabilities are delivered through a combination of internal and external services and services providers. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology infrastructure, we could be subject to transaction errors, processing inefficiencies, the loss of customers, business disruptions, or the loss of or damage to our confidential business information or multiple site impact through a security breach. As with all large systems, our information systems could be penetrated by outside parties intent on extracting information, corrupting information, disrupting business processes, or causing harm to persons or property. The Company's systems have in the past been and likely will in the future be subject to sophisticated cyber security threats. To date, the Company is not aware of any significant impact on its operations or financial results from such attempts; however, unauthorized access could disrupt our business operations, result in the loss of assets, and have a material adverse effect on our business, financial condition, or results of operations.

The Company's business involves the use, storage, and transmission of information about its employees, vendors, and customers. The protection of such information, as well as the Company's information, is critical to the Company. The regulatory environment surrounding information security and privacy is increasingly demanding, with the frequent imposition of new and constantly changing requirements. The Company has established policies and procedures to help protect the security and privacy of this information. The Company also, from time to time, exports sensitive customer data and technical information to recipients outside the United States. Breaches of our security measures or the accidental loss, inadvertent disclosure, or unapproved dissemination of proprietary information or sensitive or confidential data about us or our customers, including the

potential loss or disclosure of such information or data as a result of fraud, trickery, or other forms of deception, could expose us, our customers, or the individuals affected to a risk of loss or misuse of this information, result in litigation and potential liability for us, damage our reputation, or otherwise harm our business.

**Litigation and Regulatory Proceedings—The Company’s financial results may be affected by various legal and regulatory proceedings, including those involving antitrust, tax, environmental, or other matters.**

The Company is subject to litigation and regulatory proceedings in the normal course of business and could become subject to additional claims in the future, some of which could be material. While the Company seeks to limit its liability in its commercial contractual arrangements, there are no guarantees that each contract will contain suitable limitations of liability or that limitations of liability will be enforceable at law. Also, the outcome of existing legal proceedings may differ from the Company’s expectations because the outcomes of litigation, including regulatory matters, are often difficult to predict reliably. Various factors or developments can lead the Company to change current estimates of liabilities and related insurance receivables, where applicable, or make such estimates for matters previously not susceptible to reasonable estimates, such as a significant judicial ruling or judgment, a significant settlement, significant regulatory developments, or changes in applicable law. A future adverse ruling, settlement, or unfavorable development could result in charges that could have a material adverse effect on the Company’s financial condition, results of operations and cash flow in any particular period. For a more detailed discussion of the legal proceedings involving the Company, see Item 3, below.

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

While we strive to maintain high standards, we cannot provide assurance that our internal controls and compliance systems will always protect us from acts committed by our employees, agents, or business partners that would violate U.S. and/or non-U.S. laws or fail to protect our confidential information. Any such violations of law or improper actions could subject us to civil or criminal investigations in the U.S. and in other jurisdictions, lead to substantial civil or criminal, monetary and non-monetary penalties, and increased costs of compliance, and damage our reputation.

**Asset Impairments—The Company may be required to record impairment on its long-lived assets.**

Weak demand may cause underutilization of the Company’s manufacturing capacity or elimination of product lines; contract terminations, customer shutdowns or default, or other inability to profitably operate facilities may force sale or abandonment of facilities and equipment or projects not to reach on-stream; and contractual provisions may allow customer buyout of facilities or equipment. These or other events associated with weak economic conditions or specific end market, product, or customer events may require the Company to record an impairment on tangible assets, such as facilities and equipment, or intangible assets, such as intellectual property or goodwill, which would have a negative impact on its financial results. If the Company is unable to recover its investment in the Tees Valley waste-to-energy projects, the Company may record an impairment on those investments.

**Competition—Inability to compete effectively in a segment could adversely impact sales and financial performance.**

The Company faces strong competition from several large global competitors and many smaller regional ones in many of its business segments. Introduction by competitors of new technologies, competing products, or additional capacity could weaken demand for or impact pricing of the Company’s products, negatively impacting financial results. In addition, competitors’ pricing policies could affect the Company’s profitability or its market share.

**The proposed spin-off of our Materials Technologies business may not be completed on the currently contemplated timeline or terms, or at all, and may not achieve the intended benefits.**

There can be no assurance that the spin-off of Materials Technologies will be completed in the contemplated manner or timeframe or at all. If the spin-off transaction is not completed in the contemplated manner or timeframe or not completed at all, among other things, the price of the Company’s stock may decline.

We cannot predict with certainty when the benefits expected from the proposed transaction will occur or the extent to which they will be achieved, if at all. For example, there can be no assurance that analysts and investors will place values on each of the independent companies that combined will equal the current trading value of the

## [Table of Contents](#)

Company. In addition, if the proposed spin-off is consummated, our operational and financial profile will change and we will face new risks, including the possibility of reduced financial resources and less diversification of our revenue sources which could adversely impact our future results. Also, the changes in our operational and financial profile may not coincide with some of our shareholders' investment strategies, which could cause investors to sell their shares and otherwise decrease demand for the Company's common stock. Excess selling could cause the relative market price of our common stock to decrease and be subject to greater volatility following the consummation of the proposed spin-off.

**If the spin-off of the Materials Technologies business, together with certain related transactions, does not qualify as a transaction that is generally tax-free for U.S. federal income tax purposes, the Company and its shareholders could be subject to significant tax liabilities.**

A condition to the spin-off of the Materials Technologies business is the receipt by us of an opinion of tax counsel, substantively to the effect that, among other things, the distribution of shares to our shareholders, will qualify as tax-free for U.S. federal income tax purposes under Sections 355 and 368(a)(1)(D) of the Internal Revenue Code. Notwithstanding receipt of an opinion of tax counsel, the U.S. Internal Revenue Service could determine on audit that the distribution is taxable if it determines that any of the facts, assumptions, representations or undertakings underlying the opinion are not correct or have been violated or if it disagrees with the conclusions in the opinion. In addition, we intend for certain related transactions to qualify for tax-free treatment under federal, state and local tax law and/or foreign tax law.

If the distribution is determined to be taxable for U.S. federal income tax purposes, the Company and its shareholders that are subject to U.S. federal income tax could incur significant U.S. federal income tax liabilities. For example, if the distribution fails to qualify for tax-free treatment, we would, for U.S. federal income tax purposes, be treated as if we had sold the common stock of the new company in a taxable sale for its fair market value, and our shareholders who are subject to U.S. federal income tax would be treated as receiving a taxable distribution in an amount equal to the fair market value of the common stock received in the distribution. In addition, if certain related transactions fail to qualify for tax-free treatment under federal, state, and local tax law and/or foreign tax law, the Company could incur significant tax liabilities under U.S. federal, state, local and/or foreign tax law.

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

We have not received any written comments from the Commission staff that remain unresolved.

### **ITEM 2. PROPERTIES**

Air Products and Chemicals, Inc. owns its principal administrative offices, which are the Company's headquarters located in Trexlertown, Pennsylvania, as well as Hersham, England and Santiago, Chile. The Company leases administrative offices in Spain, Malaysia, and China for its Global Business Support organization.

The following is a description of the properties used by our seven business segments. We believe that our facilities are suitable and adequate for our current and anticipated future levels of operation.

#### **Industrial Gases – Global**

Management, sales, and engineering support for this business segment is based in our principal administrative offices noted above, and an office in India.

Air separation equipment is manufactured in Missouri, Utah, Pennsylvania, and China.

Research and development (R&D) activities for this business segment are conducted at 3 owned locations in the U.S. and Europe and 4 leased locations in Canada, Europe, and Asia.

Hydrogen fueling stations built by the Company support demonstration projects in California, Europe, and Asia.

Helium is processed at sites in Kansas, Wyoming, Colorado, and Texas; and then distributed to/from transfill sites in the U.S., Canada, Europe, and Asia.

#### **Industrial Gases – Americas**

This business segment currently operates from over 295 production and distribution facilities in North and South America (approximately 1/4<sup>th</sup> of which are located on owned property), and 10% of which are integrated sites that serve dedicated customers as well as merchant customers. The Company has sufficient property rights and



## [Table of Contents](#)

permits for the ongoing operation of our pipeline systems in the Gulf Coast, California, and Arizona in the United States and Alberta and Ontario, Canada. Management and sales support is based in our Trexlertown and Santiago offices referred to above, and at 10 leased properties located throughout North and South America.

### **Industrial Gases – EMEA**

This business segment currently operates from over 150 production and distribution facilities in Europe, the Middle East, and Africa (approximately 1/3<sup>rd</sup> of which are on owned property). The Company has sufficient property rights and permits for the ongoing operation of our pipeline systems in the Netherlands, the United Kingdom, Belgium, France, and Germany. Management and sales support for this business segment is based in Hersham, England referred to above, Barcelona, Spain and at 12 leased office sites located throughout the region.

### **Industrial Gases – Asia**

Industrial Gases – Asia currently operates from over 160 production and distribution facilities within Asia (approximately 1/4<sup>th</sup> of which are on owned property or long duration term grants). The Company has sufficient property rights and permits for the ongoing operation of our pipeline systems in China, Korea, Taiwan, Malaysia, Singapore, and Indonesia. Management and sales support for this business segment is based in Shanghai, China and Kuala Lumpur, Malaysia, and in 7 leased office locations throughout the region.

### **Materials Technologies**

The Electronics Materials portion of this business segment has production, equipment manufacturing, and distribution operations at 24 sites in the United States, Europe, and Asia (1/3<sup>rd</sup> of which are owned sites, and the remainder of which are on leased sites or on sites where long duration term grants have been obtained).

The Performance Materials portion of this business segment operates at 12 production sites globally, 50% of which are owned.

This business segment conducts R&D related activities at 11 locations worldwide, including: Pennsylvania, California, Wisconsin, and Arizona in the United States, the Netherlands, China, Japan, and multiple sites in Germany and Taiwan.

The management and sales support for Materials Technologies is based in our Trexlertown offices referred to above, Utrecht, the Netherlands, Shanghai, China, Kawasaki, Japan, Singapore, Seoul, Korea, and Hsin Chu, Taiwan.

### **Corporate and other**

Corporate administrative functions are based in the Company's administrative offices referred to above.

The Gardner Cryogenic business operates at facilities in Pennsylvania and Kansas in the United States and in France.

The LNG business has owned manufacturing facilities in Pennsylvania and Florida in the United States with management, engineering, and sales support based in the Trexlertown offices referred to above and a nearby leased office.

### **Energy-from-Waste**

The Energy-from-Waste business is constructing two renewable energy facilities in Tees Valley, United Kingdom on properties under long-term leases. The management, engineering, and sales support staff for this business segment are located in the Trexlertown and Hersham offices referred to above and in Tees Valley.

## **ITEM 3. LEGAL PROCEEDINGS**

In the normal course of business, the Company and its subsidiaries are involved in various legal proceedings, including contract, product liability, intellectual property, and insurance matters. Although litigation with respect to these matters is routine and incidental to the conduct of our business, such litigation could result in large monetary awards, especially if a civil jury is allowed to determine compensatory and/or punitive damages. However, we believe that litigation currently pending to which we are a party will be resolved without any material adverse effect on our financial position, earnings, or cash flows.



## [Table of Contents](#)

From time to time, we are also involved in proceedings, investigations, and audits involving governmental authorities in connection with environmental, health, safety, competition, and tax matters.

The Company is a party to proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, the federal Superfund law); Resource Conservation and Recovery Act (RCRA); and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Presently there are approximately 37 sites on which a final settlement has not been reached where the Company, along with others, has been designated a potentially responsible party by the Environmental Protection Agency or is otherwise engaged in investigation or remediation, including cleanup activity at certain of its current and former manufacturing sites. We do not expect that any sums we may have to pay in connection with these matters would have a material adverse impact on our consolidated financial position. Additional information on the Company's environmental exposure is included under "Narrative Description of the Company's Business Generally—Environmental Controls."

In September 2010, the Brazilian Administrative Council for Economic Defense (CADE) issued a decision against our Brazilian subsidiary, Air Products Brasil Ltda., and several other Brazilian industrial gas companies for alleged anticompetitive activities. CADE imposed a civil fine of R\$179.2 million (approximately \$45 million at 30 September 2015) on Air Products Brasil Ltda. This fine was based on a recommendation by a unit of the Brazilian Ministry of Justice, whose investigation began in 2003, alleging violation of competition laws with respect to the sale of industrial and medical gases. The fines are based on a percentage of the Company's total revenue in Brazil in 2003.

We have denied the allegations made by the authorities and filed an appeal in October 2010 to the Brazilian courts. On 6 May 2014, our appeal was granted and the fine against Air Products Brasil Ltda. was dismissed. CADE has appealed that ruling and the matter remains pending. The Company, with advice of its outside legal counsel, has assessed the status of this matter and has concluded that, although an adverse final judgment after exhausting all appeals is possible, such a judgment is not probable. As a result, no provision has been made in the consolidated financial statements.

While we do not expect that any sums we may have to pay in connection with these or any other legal proceeding would have a material adverse effect on our consolidated financial position or net cash flows, a future charge for regulatory fines or damage awards could have a significant impact on our net income in the period in which it is recorded.

**ITEM 4. NOT APPLICABLE****PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS, AND ISSUER PURCHASES OF EQUITY SECURITIES**

Our common stock (ticker symbol APD) is listed on the New York Stock Exchange. Our transfer agent and registrar is Broadridge Corporate Issuer Solutions, Inc., P.O. Box 1342, Brentwood, New York 11717, telephone (844) 318-0129 (U.S.) or (720) 358-3595 (all other locations); Internet website, <http://shareholder.broadridge.com/airproducts>; and e-mail address, [shareholder@broadridge.com](mailto:shareholder@broadridge.com). As of 30 October 2015, there were 6,333 record holders of our common stock. Quarterly stock prices, as reported on the New York Stock Exchange composite tape of transactions, and dividend information for the last two fiscal years appear below. Cash dividends on the Company's common stock are paid quarterly. Our objective is to pay dividends consistent with the reinvestment of earnings necessary for long-term growth. It is our expectation that we will continue to pay comparable cash dividends in the future.

**Quarterly Stock Information**

2015	High	Low	Close	Dividend
First	\$149.61	\$118.20	\$144.23	\$0.77
Second	158.20	137.07	151.28	0.81
Third	153.93	136.69	136.83	0.81
Fourth	148.56	123.66	127.58	0.81
				\$3.20

2014	High	Low	Close	Dividend
First	\$113.99	\$102.23	\$111.78	\$0.71
Second	124.40	102.73	119.04	0.77
Third	131.48	114.28	128.62	0.77
Fourth	137.45	126.82	130.18	0.77
				\$3.02

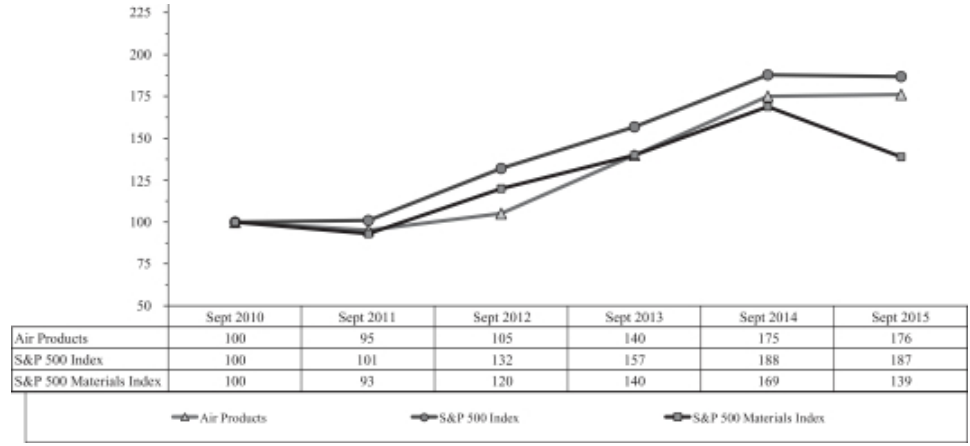
**Purchases of Equity Securities by the Issuer**

On 15 September 2011, the Board of Directors authorized the repurchase of up to \$1.0 billion of our outstanding common stock. This program does not have a stated expiration date. We repurchase shares pursuant to Rules 10b5-1 and 10b-18 under the Securities Exchange Act of 1934, as amended, through repurchase agreements established with several brokers. There were no purchases of stock during fiscal year 2015. At 30 September 2015, \$485.3 million in share repurchase authorization remained. Additional purchases will be completed at the Company's discretion while maintaining sufficient funds for investing in its businesses and growth opportunities.

**Performance Graph**

The performance graph below compares the five-year cumulative returns of the Company's common stock with those of the Standard & Poor's 500 Index (S&P 500 Index) and the Standard & Poor's 500 Materials Index (S&P 500 Materials Index). The figures assume an initial investment of \$100 and the reinvestment of all dividends.

**COMPARISON OF FIVE YEAR CUMULATIVE SHAREHOLDER RETURN**  
**Air Products, S&P 500 Index, and S&P 500 Materials Index**  
**Comparative Growth of a \$100 Investment**  
**(Assumes Reinvestment of All Dividends)**



**ITEM 6. SELECTED FINANCIAL DATA**

(Millions of dollars, except per share)

	2015(A)	2014(A)	2013(A)	2012(A)	2011(A)
<b>Operating Results</b>					
Sales	\$9,895	\$10,439	\$10,180	\$9,612	\$9,674
Cost of sales	6,944	7,635	7,472	7,052	7,098
Selling and administrative	942	1,059	1,066	947	942
Research and development	139	141	134	126	119
Business restructuring and cost reduction actions	208	13	232	327	—
Operating income	1,699	1,328	1,324	1,282	1,508
Equity affiliates' income	155	151	168	154	154
Income from continuing operations attributable to Air Products	1,278	987	1,004	999	1,134
Net income attributable to Air Products	1,278	992	994	1,167	1,224
Basic earnings per common share attributable to Air Products:					
Income from continuing operations	5.95	4.64	4.79	4.73	5.33
Net income	5.95	4.66	4.74	5.53	5.75
Diluted earnings per common share attributable to Air Products:					
Income from continuing operations	5.88	4.59	4.73	4.66	5.22
Net income	5.88	4.61	4.68	5.44	5.63
<b>Year-End Financial Position</b>					
Plant and equipment, at cost	\$20,355	\$20,224	\$19,530	\$18,046	\$16,859
Total assets	17,438	17,779	17,850	16,942	14,291
Working capital	(737)	332	212	726	848
Total debt (B)	5,879	6,119	6,274	5,292	4,562
Redeemable noncontrolling interest	—	287	376	393	—
Air Products shareholders' equity	7,249	7,366	7,042	6,477	5,796
Total equity	7,381	7,521	7,199	6,623	5,939
<b>Financial Ratios</b>					
Return on average Air Products shareholders' equity (C)	17.3 %	13.4 %	15.3 %	16.1 %	19.4 %
Operating margin	17.2 %	12.7 %	13.0 %	13.3 %	15.6 %
Selling and administrative as a percentage of sales	9.5 %	10.1 %	10.5 %	9.9 %	9.7 %
Total debt to total capitalization(B)(D)	44.3 %	43.9 %	45.3 %	43.0 %	43.4 %
<b>Other Data</b>					
Adjusted EBITDA on a non-GAAP basis (E)	\$2,975	\$2,765	\$2,641	\$2,528	\$2,545
Depreciation and amortization	936	957	907	841	834
Capital expenditures on a GAAP basis (F)	1,654	1,682	1,748	2,560	1,366
Capital expenditures on a non-GAAP basis (F)	2,028	1,885	1,997	2,778	1,539
Cash provided by operating activities	2,438	2,186	1,553	1,765	1,710
Cash used for investing activities	1,600	1,638	1,697	2,435	1,170
Cash (used for) provided by financing activities	(945)	(504)	115	(78)	(485)
Dividends declared per common share	3.20	3.02	2.77	2.50	2.23
Weighted Average Common Shares – Basic (in millions)	215	213	210	211	213
Weighted Average Common Shares – Diluted (in millions)	217	215	212	215	218
Book value per common share at year-end	\$33.66	\$34.49	\$33.35	\$30.48	\$27.57
Shareholders at year-end	6,400	6,600	7,000	7,500	7,900
Employees at year-end (G)	19,700	21,200	21,600	21,300	18,900

## Table of Contents

- (A) Unless otherwise stated, selected financial data is presented on a GAAP basis. Our operating results were impacted by certain items which management does not believe to be indicative of ongoing business trends and are excluded from the non-GAAP measure. Refer to pages 34-38 for a reconciliation of the GAAP to non-GAAP measures for 2015, 2014, and 2013. Descriptions of the excluded items appear on pages 27-28. For 2012, these items include: (i) a charge to operating income of \$327 (\$222 after-tax, or \$1.03 per share) related to business restructuring and cost reduction actions, (ii) a gain of \$86 (\$55 after-tax, or \$.25 per share) related to the gain on our previously held equity interest in DA NanoMaterials, (iii) a charge of \$10 (\$6 after-tax, or \$.03 per share) related to a customer bankruptcy, (iv) a tax expense of \$44 (\$.20 per share) for a Spanish tax settlement, and (v) a tax benefit of \$58 (\$.27 per share) for a favorable Spanish tax ruling. For 2011, these items include expenses of \$49 (\$32 after-tax, or \$.14 per share) related to the Company's attempt to acquire Airgas, Inc.
- (B) Total debt includes long-term debt, current portion of long-term debt, and short-term borrowings as of the end of the year.
- (C) Calculated using income from continuing operations attributable to Air Products and five-quarter average Air Products shareholders' equity.
- (D) Total capitalization includes total debt plus total equity plus redeemable noncontrolling interest as of the end of the year.
- (E) A reconciliation of reported GAAP results to Adjusted EBITDA is presented on pages 36-37.
- (F) Capital expenditures on a GAAP basis include additions to plant and equipment, investment in and advances to unconsolidated affiliates, and acquisitions. The Company utilizes a non-GAAP measure in the computation of capital expenditures and includes spending associated with facilities accounted for as capital leases and purchases of noncontrolling interests. Refer to page 40 for a reconciliation of the GAAP to non-GAAP measures for 2015, 2014, and 2013. For 2012, the GAAP measure was adjusted by \$212 and \$6 for spending associated with facilities accounted for as capital leases and purchases of noncontrolling interests, respectively. For 2011, the GAAP measure was adjusted by \$174 for spending associated with facilities accounted for as capital leases.
- (G) Includes full- and part-time employees from continuing and discontinued operations.

## [Table of Contents](#)

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

<a href="#">Business Overview</a>	22
<a href="#">2015 in Summary</a>	23
<a href="#">2016 Outlook</a>	24
<a href="#">Results of Operations</a>	25
<a href="#">Reconciliation of Non-GAAP Financial Measures</a>	34
<a href="#">Liquidity and Capital Resources</a>	39
<a href="#">Contractual Obligations</a>	42
<a href="#">Pension Benefits</a>	43
<a href="#">Environmental Matters</a>	45
<a href="#">Off-Balance Sheet Arrangements</a>	46
<a href="#">Related Party Transactions</a>	46
<a href="#">Inflation</a>	46
<a href="#">Critical Accounting Policies and Estimates</a>	46
<a href="#">New Accounting Guidance</a>	52
<a href="#">Forward-Looking Statements</a>	52

The following discussion should be read in conjunction with the consolidated financial statements and the accompanying notes contained in this report. All comparisons in the discussion are to the corresponding prior year unless otherwise stated. All amounts presented are in accordance with U.S. generally accepted accounting principles (GAAP), except as noted. All amounts are presented in millions of dollars, except for share data, unless otherwise indicated.

Items such as income from continuing operations attributable to Air Products, net income attributable to Air Products, and diluted earnings per share attributable to Air Products are simply referred to as "income from continuing operations," "net income," and "diluted earnings per share" throughout this Management's Discussion and Analysis, unless otherwise stated.

The discussion of results that follows includes comparisons to non-GAAP financial measures. The presentation of non-GAAP measures is intended to enhance the usefulness of financial information by providing measures that our management uses internally to evaluate our performance. The reconciliation of reported GAAP results to non-GAAP measures is presented on pages 34-38. Descriptions of the excluded items appear on pages 27-28.

#### **BUSINESS OVERVIEW**

Air Products and Chemicals, Inc. is a world-leading Industrial Gases company celebrating 75 years of operation. The Company's core Industrial Gases business provides atmospheric and process gases and related equipment to manufacturing markets, including refining and petrochemical, metals, electronics, and food and beverage. Air Products is also the world's leading supplier of liquefied natural gas process technology and equipment. The Company's Materials Technologies business serves the semiconductor, polyurethanes, cleaning and coatings, and adhesives industries. With operations in over 50 countries, in 2015 we had sales of \$9.9 billion, assets of \$17.4 billion, and a worldwide workforce of approximately 19,700 employees.

Effective 1 October 2014, we began operating under a new organizational structure that is aligned with the regional nature of the industrial gases business. We began reporting our results under the following seven new segments: Industrial Gases – Americas, Industrial Gases – EMEA (Europe, Middle East, and Africa), Industrial Gases – Asia, Industrial Gases – Global, Materials Technologies, Energy-from-Waste, and Corporate and other. The financial statements and analysis that follow discuss our results based on these operations. Prior year segment information has been restated to conform with the fiscal year 2015 presentation.

Refer to Note 26, Business Segment and Geographic Information, to the consolidated financial statements for additional details on our reportable business segments and segment reorganization beginning in fiscal year 2015.

## 2015 IN SUMMARY

In 2015, we made significant progress in focusing on our core industrial gases business, we reorganized the Company into a more decentralized structure, including realignment of our businesses into new reporting segments, and announced our intention to spin-off the Materials Technologies business by September 2016. We also began changing our culture, improved our focus on safety, implemented a more rigorous capital review process, delivered on our cost reduction targets, and aligned employee rewards to performance at the business unit level. These changes drove increased profitability as we delivered earnings per share growth of 28% and increased operating margin by 450 basis points (bp) to 17.2%, despite significant unfavorable currency impacts. On a non-GAAP basis, earnings per share growth increased 14% and operating margin increased by 310 bp to 19.0%.

### Highlights for 2015

- Sales of \$9,894.9 decreased 5%, or \$544.1. Underlying sales growth of 3% was more than offset by unfavorable currency and lower energy contractual cost pass-through to customers. Sales increased 2% from higher volumes in Industrial Gases – Asia and Materials Technologies and 1% from improved pricing in Industrial Gases – Americas and Materials Technologies.
- Operating income of \$1,699.1 increased 28%, or \$370.9. On a non-GAAP basis, operating income of \$1,884.0 increased 14%, or \$227.5, with higher volumes, favorable price, and lower costs driven by restructuring, partially offset by unfavorable currency.
- Adjusted EBITDA of \$2,974.9 increased 8%, or \$210.1, primarily due to higher volumes, higher pricing, and favorable cost performance.
- Income from continuing operations of \$1,277.9 increased 29%, or \$290.8, and diluted earnings per share from continuing operations of \$5.88 increased 28%, or \$1.29. On a non-GAAP basis, income from continuing operations of \$1,427.0 increased 15%, or \$184.0, and diluted earnings per share from continuing operations of \$6.57 increased 14%, or \$.79. A summary table of changes in diluted earnings per share, including a non-GAAP reconciliation, is presented below.
- We increased our quarterly dividend by 5% from \$.77 to \$.81 per share. This represents the 33<sup>rd</sup> consecutive year that we have increased our dividend payment.

For a discussion of the challenges, risks, and opportunities on which management is focused, refer to our 2016 Outlook below.

**Changes in Diluted Earnings per Share Attributable to Air Products**

	2015	2014	Increase (Decrease)
<b>Diluted Earnings per Share</b>			
Net income	\$5.88	\$4.61	\$1.27
Income (Loss) from discontinued operations	—	.02	(.02)
<b>Income from Continuing Operations—GAAP Basis</b>	<b>\$5.88</b>	<b>\$4.59</b>	<b>\$1.29</b>
Business restructuring and cost reduction actions	.71	.04	.67
Pension settlement loss	.06	.02	.04
Goodwill and intangible asset impairment charge	—	1.27	(1.27)
Business separation costs	.03	—	.03
Gain on previously held equity interest	(.05)	—	(.05)
Gain on land sales	(.13)	—	(.13)
Loss on early retirement of debt	.07	—	.07
Chilean tax rate change	—	.10	(.10)
Tax election benefit	—	(.24)	.24
<b>Income from Continuing Operations—Non-GAAP Basis</b>	<b>\$6.57</b>	<b>\$5.78</b>	<b>\$.79</b>
<b>Operating income (after-tax)</b>			
Underlying business			
Volume			.50
Price/raw materials			.37
Costs/other			.33
Currency			(.41)
<b>Operating Income</b>			<b>.79</b>
<b>Other (after-tax)</b>			
Equity affiliates' income			.01
Interest expense			.08
Income tax rate			(.01)
Noncontrolling interests			(.02)
Average shares outstanding			(.06)
<b>Total Change in Diluted Earnings per Share from Continuing Operations—Non-GAAP Basis</b>			<b>\$.79</b>

**2016 OUTLOOK**

For 2016, we intend to remain focused on key actions we can control to continue to improve cash flow and drive earnings growth. We intend to accomplish this by bringing new projects on-stream, realizing full year benefits of our fiscal year 2015 cost reduction actions, and continued operational improvement actions. We expect overall economic growth to be modest in 2016, which may limit opportunities for underlying growth. Additionally, we expect lower LNG results due to delays in customer investment decisions. We expect to complete the separation of our Materials Technologies segment via a spin-off into a standalone company to be distributed to shareholders by September 2016.

The above guidance should be read in conjunction with the section entitled "Forward-Looking Statements."



## RESULTS OF OPERATIONS

### Discussion of Consolidated Results

	2015	2014	2013
Sales	\$9,894.9	\$10,439.0	\$10,180.4
Operating income—GAAP Basis	1,699.1	1,328.2	1,324.4
Operating margin—GAAP Basis	17.2%	12.7%	13.0%
Equity affiliates' income	154.5	151.4	167.8
<b>Non-GAAP Basis</b>			
Adjusted EBITDA	2,974.9	2,764.8	2,640.9
Adjusted EBITDA margin	30.1%	26.5%	25.9%
Operating income	1,884.0	1,656.5	1,566.1
Operating margin	19.0%	15.9%	15.4%

### Sales

	% Change from Prior Year	
	2015	2014
Underlying business		
Volume	2%	2%
Price	1%	—%
Energy and raw material cost pass-through	(3)%	1%
Currency	(5)%	—%
<b>Total Consolidated Change</b>	<b>(5)%</b>	<b>3%</b>

### 2015 vs. 2014

Sales of \$9,894.9 decreased 5%, or \$544.1. Underlying sales were up 3% from higher volumes of 2% and higher pricing of 1%. Volumes increased primarily from new plant on-streams in Industrial Gases – Asia and growth in Materials Technologies. The favorable pricing was primarily driven by price increases in the Industrial Gases – Americas and Materials Technologies segments. Currency unfavorably impacted sales by 5% and lower energy and raw material contractual cost pass-through to customers decreased sales by 3%.

### 2014 vs. 2013

Sales of \$10,439.0 increased 3%, or \$258.6. Underlying business increased 2%, primarily due to higher volumes in the Materials Technologies and Industrial Gases – Americas segments, partially offset by the exit of our polyurethane intermediates (PUI) business which reduced sales by 1%. Higher energy and raw material contractual cost pass-through to customers increased sales by 1%. Currency was flat as the impacts from a stronger Euro were offset by a weaker Chilean Peso.

### Operating Income and Margin

#### 2015 vs. 2014

On a GAAP basis, operating income of \$1,699.1 increased 28%, or \$370.9. Current year operating income included a charge for business reorganization and cost reduction actions of \$207.7, a pension settlement loss of \$21.2, business separation costs of \$7.5, gain on land sales of \$33.6, and a gain of \$17.9 on revaluing a previously held equity interest upon purchase of our partner's shares. Prior year operating income included a goodwill and intangible asset charge of \$310.1, a business restructuring and cost reduction charge of \$12.7, and a pension settlement loss of \$5.5. Operating margin of 17.2% increased 450 bp.

On a non-GAAP basis, operating income of \$1,884.0 increased 14%, or \$227.5. The increase was primarily due to higher volumes of \$144, favorable pricing net of energy and fuel costs of \$105, and favorable cost performance across most segments of \$94, partially offset by unfavorable currency of \$115. Costs were lower as benefits from our cost reduction actions of approximately \$170 and lower maintenance expense of \$33 were offset by higher incentive compensation of approximately \$100 due to improved results. Non-GAAP operating margin of 19.0% increased 310 bp due to favorable costs, higher volumes, and higher pricing.

### **2014 vs. 2013**

On a GAAP basis, operating income of \$1,328.2 increased \$3.8. Operating income in 2014 was reduced by \$310.1 for a goodwill and intangible asset impairment charge, \$12.7 for a business reorganization and cost reduction charge, and \$5.5 for pension settlement losses. Operating income in 2013 was reduced by a charge of \$231.6 for a business restructuring and cost reduction charge and \$10.1 for advisory costs. On a non-GAAP basis, operating income of \$1,656.5 increased 6%, or \$90.4. The increase in operating income was primarily due to higher volumes of \$140, partially offset by lower recovery of raw material costs in pricing of \$29 and higher operating costs of \$9. Operating income in 2013 included \$10 for gains from the sale of assets and investments.

### **Adjusted EBITDA**

We define Adjusted EBITDA as income from continuing operations (including noncontrolling interests) excluding certain disclosed items, which the Company does not believe to be indicative of underlying business trends, before interest expense, income tax provision, and depreciation and amortization expense. We believe Adjusted EBITDA provides a useful metric for management to assess operating performance.

### **2015 vs. 2014**

Adjusted EBITDA of \$2,974.9 increased \$210.1, or 8%, due to higher volumes, higher pricing, and favorable costs. Adjusted EBITDA margin of 30.1% increased 360 bp.

### **2014 vs. 2013**

Adjusted EBITDA of \$2,764.8 increased \$123.9, or 5%, primarily due to the increase in volumes.

### **Equity Affiliates' Income**

#### **2015 vs. 2014**

Income from equity affiliates of \$154.5 increased \$3.1, primarily due to higher volumes and favorable cost performance in our Industrial Gases – Asia and Industrial Gases – Americas affiliates.

#### **2014 vs. 2013**

Income from equity affiliates of \$151.4 decreased \$16.4, due to higher costs from maintenance outages and an unfavorable arbitration award, unfavorable currency impacts, and weaker oil field services volume in Mexico.

### **Cost of Sales and Gross Margin**

#### **2015 vs. 2014**

Cost of sales of \$6,944.1 decreased \$690.5, or 9%, primarily due to a favorable currency impact of \$368, lower energy costs of \$313, and lower operating costs of \$102, partially offset by costs attributable to higher sales volumes of \$92. Operating costs included favorable impacts from cost reduction actions of \$48 and lower other costs, including maintenance, of \$115, partially offset by higher incentive compensation of \$61.

Gross margin of 29.8% increased 290 bp, primarily due to lower costs of 120 bp, higher price, net of raw materials, of 100 bp, and higher volumes of 80 bp.

#### **2014 vs. 2013**

Cost of sales of \$7,634.6 increased \$162.5, primarily due to higher energy costs of \$104, higher operating costs, including maintenance, of \$72, and an unfavorable currency impact of \$24, partially offset by favorable volume mix of \$37.

Gross margin of 26.9% increased 30 bp, primarily due to favorable volume mix of 100 bp and higher price, net of raw materials, of 20 bp, partially offset by higher operating costs of 90 bp.

### **Selling and Administrative Expense**

#### **2015 vs. 2014**

Selling and administrative expense of \$941.7 decreased \$117.6, or 11%, primarily due to the benefits of our cost reduction actions of \$122 and favorable currency effects of \$62, partially offset by higher costs of \$66, driven by higher incentive compensation. Selling and administrative expense as a percent of sales decreased to 9.5% from 10.1%.

#### **2014 vs. 2013**

Selling and administrative expense of \$1,059.3 decreased \$7.0, or 1%, as productivity, including the benefits of recent cost reduction actions, and favorable currency effects more than offset other cost increases. Selling and administrative expense as a percent of sales decreased to 10.1% from 10.5%.

## **Research and Development**

### **2015 vs. 2014**

Research and development expense of \$138.8 decreased \$2.6, or 2%. Fiscal year 2015 and 2014 research and development expense as a percent of sales was 1.4%.

### **2014 vs. 2013**

Research and development expense of \$141.4 increased \$7.7, or 6%, primarily due to lower government grants and other cost increases. Research and development expense as a percent of sales increased to 1.4% from 1.3%.

## **Business Restructuring and Cost Reduction Actions**

We recorded charges in 2015, 2014, and 2013 for business restructuring and cost reduction actions. The charges for these actions are excluded from segment operating income.

### **Business Realignment and Reorganization**

On 18 September 2014, we announced plans to reorganize the Company, including realignment of our businesses in new reporting segments and other organizational changes, effective as of 1 October 2014, which resulted in the largest transformational change in the history of the Company. As a result of this reorganization, we have incurred ongoing severance and other charges.

In fiscal year 2015, we recognized an expense of \$207.7 (\$153.2 after-tax, or \$.71 per share). Severance and other benefits totaled \$151.9 and related to the elimination of approximately 2,000 positions. Asset and associated contract actions totaled \$55.8 and related primarily to a plant shutdown in the Corporate and other segment and the exit of product lines within the Industrial Gases – Global and Materials Technologies segments.

During the fourth quarter of 2014, an expense of \$12.7 (\$8.2 after-tax, or \$.04 per share) was incurred relating to the elimination of approximately 50 positions.

### **2013 Plan**

During the fourth quarter of 2013, we recorded an expense of \$231.6 (\$157.9 after-tax, or \$.74 per share) reflecting actions to better align our cost structure with current market conditions. The charge included asset and contract actions that primarily related to the Electronics Materials business due to continued weakness in the photovoltaic (PV) and light-emitting diode (LED) markets. In addition, the charge included severance, benefits, and other contractual obligations primarily related to our Industrial Gases businesses and corporate functions in response to weaker than expected conditions in Europe and Asia, reorganization of our operations and functional areas, and senior executive changes.

Refer to Note 5, Business Restructuring and Cost Reduction Actions, to the consolidated financial statements for additional details on these actions.

## **Pension Settlement Loss**

Certain of our pension plans provide for a lump sum benefit payment option at the time of retirement, or for corporate officers, six months after the retirement date. Pension settlements are immediately recognized when cash payments exceed the sum of the service and interest cost components of net periodic pension cost of the plan for the fiscal year. The participant's vested benefit is considered fully settled upon cash payment of the lump sum. We recognized \$21.2 (\$13.7 after-tax, or \$.06 per share), \$5.5 (\$3.6 after-tax, or \$.02 per share) and \$12.4 (\$7.8 after-tax, or \$.04 per share) of settlement charges in 2015, 2014, and 2013, respectively, to accelerate recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss primarily related to our U.S. Supplementary Pension Plan.

## **Goodwill and Intangible Asset Impairment Charge**

In July 2012, we acquired a controlling interest in the outstanding shares of Indura S.A., a Latin American industrial gases company. In connection with this acquisition, we recorded \$626.2 of goodwill, which is incorporated into the Latin American reporting unit of our Industrial Gases – Americas segment. During the fourth quarter of 2014, we concluded that the goodwill and indefinite-lived intangible assets (primarily acquired trade names) associated with this reporting unit were impaired and recorded a noncash impairment charge of \$310.1 (\$275.1 attributable to Air Products after-tax, or \$1.27 per share). Refer to the Critical Accounting Policies and Estimates section below for additional details.

**Business Separation Costs**

On 16 September 2015, the Company announced that it intends to separate its Materials Technologies business via a spin-off. During the fourth quarter, we incurred legal and other advisory fees of \$7.5 (\$.03 per share).

**Gain on Previously Held Equity Interest**

On 30 December 2014, we acquired our partner's equity ownership interest in a liquefied atmospheric industrial gases production joint venture in North America for \$22.6 which increased our ownership from 50% to 100%. The transaction was accounted for as a business combination, and subsequent to the acquisition, the results are consolidated within our Industrial Gases – Americas segment. The assets acquired, primarily plant and equipment, were recorded at their fair value as of the acquisition date.

The acquisition date fair value of the previously held equity interest was determined using a discounted cash flow analysis under the income approach. During the first quarter of 2015, we recorded a gain of \$17.9 (\$11.2 after-tax, or \$.05 per share) as a result of revaluing our previously held equity interest to fair value as of the acquisition date.

**Advisory Costs**

During the fourth quarter of 2013, we incurred legal and other advisory fees of \$10.1 (\$6.4 after-tax, or \$.03 per share) in connection with our response to the rapid acquisition of a large position in shares of our common stock by Pershing Square Capital Management LLC and its affiliates.

**Other Income (Expense), Net**

Items recorded to other income (expense), net arise from transactions and events not directly related to our principal income earning activities. The detail of other income (expense), net is presented in Note 24, Supplemental Information, to the consolidated financial statements.

**2015 vs. 2014**

Other income (expense), net of \$47.3 decreased \$5.5. The current year includes a gain of \$33.6 (\$28.3 after-tax, or \$.13 per share) resulting from the sale of two parcels of land. The gain was partially offset by unfavorable foreign exchange impacts and lower gains on other sales of assets and emissions credits. No other individual items were significant in comparison to the prior year.

**2014 vs. 2013**

Other income (expense), net of \$52.8 decreased \$17.4, primarily due to higher gains from the sale of a number of small assets and investments, higher government grants, and a favorable commercial contract settlement in 2013. Otherwise, no individual items were significant in comparison to 2013.

**Interest Expense**

	2015	2014	2013
Interest incurred	<b>\$152.6</b>	\$158.1	\$167.6
Less: Capitalized interest	<b>49.1</b>	33.0	25.8
<b>Interest Expense</b>	<b>\$103.5</b>	\$125.1	\$141.8

**2015 vs. 2014**

Interest incurred decreased \$5.5. The decrease was driven by the impact of a stronger U.S. dollar on the translation of foreign currency interest of \$12, partially offset by a higher average debt balance of \$7. The change in capitalized interest was driven by a higher carrying value in construction in progress.

**2014 vs. 2013**

Interest incurred decreased \$9.5. The decrease was primarily due to a lower average interest rate on the debt portfolio which reduced interest by \$13, partially offset by a higher average debt balance which increased interest by \$6. The change in capitalized interest was driven by a higher carrying value in construction in progress.

**Loss on early retirement of debt**

In September 2015, we made a payment of \$146.6 to redeem 3,000,000 Unidades de Fomento ("UF") Series E 6.30% Bonds due 22 January 2030 that had a carrying value of \$130.0 and resulted in a net loss of \$16.6 (\$14.2 after-tax, or \$.07 per share).

## Effective Tax Rate

The effective tax rate equals the income tax provision divided by income from continuing operations before taxes. Refer to Note 23, Income Taxes, to the consolidated financial statements for details on factors affecting the effective tax rate.

### 2015 vs. 2014

On a GAAP basis, the effective tax rate was 24.0% and 27.0% in 2015 and 2014, respectively. The effective tax rate was higher in the prior year primarily due to the goodwill impairment charge of \$305.2, which was not deductible for tax purposes, and the Chilean tax reform enacted in September 2014 which increased income tax expense by \$20.6. These impacts were partially offset by an income tax benefit of \$51.6 associated with losses from transactions and a tax election in a non-U.S. subsidiary. Refer to Note 10, Goodwill, and Note 23, Income Taxes, to the consolidated financial statements for additional information. On a non-GAAP basis, the effective tax rate was 24.2% and 24.0% in 2015 and 2014, respectively.

### 2014 vs. 2013

On a GAAP basis, the effective tax rate was 27.0% and 22.8% in 2014 and 2013, respectively. As discussed above, the effective tax rate was higher in 2014 primarily due to the goodwill impairment charge and the Chilean tax rate change, which were partially offset by a tax benefit associated with losses from transactions and a tax election in a non-U.S. subsidiary. The 2013 rate included income tax benefits of \$73.7 related to the business restructuring and cost reduction plan and \$3.7 for the advisory costs. On a non-GAAP basis, the effective tax rate was 24.0% and 24.2% in 2014 and 2013, respectively.

## Discontinued Operations

During the second quarter of 2012, the Board of Directors authorized the sale of our Homecare business, which has been accounted for as a discontinued operation.

In 2012, we sold the majority of our Homecare business to The Linde Group and recognized a gain of \$207.4. In addition, an impairment charge of \$33.5 was recorded to write down the remaining business, which was primarily in the United Kingdom and Ireland, to its estimated net realizable value. In 2013, we recorded an additional charge of \$18.7 to update our estimate of the net realizable value. In 2014, a gain of \$3.9 was recognized for the sale of the remaining Homecare business and settlement of contingencies on the sale to The Linde Group.

## Segment Analysis

### Industrial Gases – Americas

	2015	2014	2013
Sales	\$3,693.9	\$4,078.5	\$3,866.1
Operating income	808.4	762.6	776.7
Operating margin	21.9 %	18.7 %	20.1 %
Equity affiliates' income	64.6	60.9	70.9
Adjusted EBITDA	1,289.9	1,237.9	1,257.4
Adjusted EBITDA margin	34.9 %	30.4 %	32.5 %

### Industrial Gases – Americas Sales

	% Change from Prior Year	
	2015	2014
Underlying business		
Volume	—%	1%
Price	2%	2%
Energy and raw material cost pass-through	(8)%	4%
Currency	(3)%	(2)%
<b>Total Industrial Gases – Americas Change</b>	<b>(9)%</b>	<b>5%</b>

[Table of Contents](#)

**2015 vs. 2014**

Underlying sales increased 2% from higher pricing. Volumes were flat as growth in liquid oxygen and nitrogen and gaseous hydrogen were offset by lower helium and gaseous oxygen demand. Pricing was higher due to strength in helium and price increases to recover higher costs. Currency decreased sales by 3% primarily due to the impacts of the Chilean Peso, Brazilian Real, and Canadian Dollar. Lower energy contractual cost pass-through to customers, primarily natural gas, decreased sales by 8%.

Operating income of \$808.4 increased 6%, or \$45.8, due to higher pricing net of energy and fuel costs of \$65 and favorable volume mix impacts of \$6, partially offset by unfavorable currency impacts of \$21 and higher costs of \$4 mainly due to higher incentive compensation mostly offset by the benefits of our recent restructuring actions. Operating margin increased 320 bp from the prior year, primarily due to the higher pricing and lower energy contractual cost pass-through to customers.

Equity affiliates' income of \$64.6 increased \$3.7 due to improved performance in our Mexican equity affiliate.

**2014 vs. 2013**

Underlying sales increased 3% from higher volumes of 1% and higher pricing of 2%. Volumes increased 1% as higher liquid oxygen, nitrogen, and argon volumes and strong demand in the United States Gulf Coast hydrogen system were partially offset by lower helium volumes due to supply limitations. Pricing was higher due to improved pricing in liquid oxygen, liquid nitrogen, and helium. Higher energy contractual cost pass-through to customers increased sales by 4%. Currency decreased sales by 2%, primarily due to impacts of the Brazilian Real and Chilean Peso.

Operating income of \$762.6 decreased 2%, or \$14.1, primarily from higher operating costs of \$29, driven by maintenance, and unfavorable currency impacts of \$12, partially offset by higher pricing net of energy and fuel costs of \$16 and volumes of \$11. Operating margin decreased 140 bp from the prior year, due to the higher operating costs and higher energy contractual cost pass-through.

Equity affiliates' income of \$60.9 decreased \$10.0 primarily from unfavorable currency impacts and lower oil field services volume in Mexico.

**Industrial Gases – EMEA**

	2015	2014	2013
Sales	\$1,864.9	\$2,150.7	\$2,102.8
Operating income	330.7	351.2	331.2
Operating margin	17.7 %	16.3 %	15.8 %
Equity affiliates' income	42.4	44.1	47.7
Adjusted EBITDA	567.4	615.5	581.5
Adjusted EBITDA margin	30.4 %	28.6 %	27.7 %

**Industrial Gases – EMEA Sales**

	% Change from Prior Year	
	2015	2014
Underlying business		
Volume	—%	(1)%
Price	1%	—%
Energy and raw material cost pass-through	(1)%	(1)%
Currency	(13)%	4%
<b>Total Industrial Gases – EMEA Change</b>	<b>(13)%</b>	<b>2%</b>

**2015 vs. 2014**

Underlying sales increased 1% from pricing improvement in both packaged gas and liquid bulk. Volumes were flat as higher liquid oxygen and nitrogen volumes were offset by lower cylinder and helium volumes. Unfavorable currency effects, primarily from the Euro, the British Pound Sterling, and the Polish Zloty, reduced sales by 13%. Lower energy contractual cost pass-through to customers decreased sales by 1%.

Operating income of \$330.7 decreased 6%, or \$20.5, due to unfavorable currency impacts of \$44, partially offset by lower costs of \$13 resulting from restructuring actions, favorable volume mix impacts of \$5, and higher pricing net of energy and fuel costs of \$5. Operating margin increased 140 bp from the prior year primarily due to the lower costs.

Equity affiliates' income of \$42.4 decreased \$1.7.

[Table of Contents](#)**2014 vs. 2013**

Underlying sales decreased 1% from lower volumes. Volumes decreased as higher liquid oxygen, nitrogen, and argon volumes were more than offset by lower helium, cylinder, and tonnage volumes. Lower energy and contractual cost pass-through to customers decreased sales by 1%. Favorable currency impacts increased sales by 4%, primarily from the Euro and the British Pound Sterling.

Operating income of \$351.2 increased 6%, or \$20.0, primarily due to favorable currency impacts of \$10, favorable volume mix of \$7, higher price of \$2, and lower operating costs of \$1. Operating margin increased 50 bp from the prior year, due to the favorable volume mix.

Equity affiliates' income of \$44.1 decreased \$3.6 primarily due to a favorable contractual settlement in 2013.

**Industrial Gases – Asia**

	2015	2014	2013
Sales	\$1,637.5	\$1,527.0	\$1,613.9
Operating income	380.5	310.4	329.3
Operating margin	23.2 %	20.3 %	20.4 %
Equity affiliates' income	46.1	38.0	45.0
Adjusted EBITDA	629.5	553.7	549.2
Adjusted EBITDA margin	38.4 %	36.3 %	34.0 %

**Industrial Gases – Asia Sales**

	% Change from Prior Year	
	2015	2014
Underlying business		
Volume	12%	(4)%
Price	(2)%	—%
Energy and raw material cost pass-through	1%	(2)%
Currency	(4)%	1%
<b>Total Industrial Gases – Asia Change</b>	<b>7%</b>	<b>(5)%</b>

**2015 vs. 2014**

Underlying sales increased by 10% from higher volumes of 12%, partially offset by lower pricing of 2%. Volumes were higher primarily from new plants, and in particular, a large onsite project in China. Pricing was down due to continued pricing pressure on merchant products in China. Unfavorable currency impacts decreased sales by 4%. Higher energy contractual cost-pass through to customers increased sales by 1%.

Operating income of \$380.5 increased 23%, or \$70.1, primarily due to higher volumes of \$76 and lower costs of \$42 resulting from restructuring and underlying productivity, partially offset by lower pricing net of energy and fuel costs of \$35 and an unfavorable currency impact of \$13. Operating margin increased 290 bp, primarily due to favorable cost performance and higher volumes, partially offset by lower pricing.

Equity affiliates' income of \$46.1 increased \$8.1 primarily due to higher volumes and favorable cost performance.

**2014 vs. 2013**

Underlying sales decreased by 4% due to lower tonnage and helium volumes, partially offset by higher liquid oxygen, nitrogen, and argon volumes. Sales decreased 2% due to lower contractual cost pass-through to customers. Favorable currency impacts increased sales by 1%.

Operating income of \$310.4 decreased 6%, or \$18.9, primarily due to lower pricing net of energy and fuel costs of \$22 and higher operating costs of \$21, partially offset by favorable volume mix of \$22 and favorable currency impacts of \$2. Operating margin decreased 10 bp from the prior year as lower pricing net of energy and fuel costs and higher operating costs, were mostly offset by favorable volume mix and lower energy contractual pass-through to customers.

Equity affiliates' income of \$38.0 decreased \$7.0 primarily due to unfavorable currency impacts and an unfavorable arbitration award.



[Table of Contents](#)

**Industrial Gases – Global**

	2015	2014	2013
Sales	\$286.8	\$296.0	\$309.0
Operating loss	(51.6)	(57.3)	(56.5)
Adjusted EBITDA	(35.9)	(44.4)	(49.6)

**2015 vs. 2014**

Sales of \$286.8 decreased \$9.2, or 3%, due to unfavorable currency impacts. Operating loss of \$51.6 decreased 10%, or \$5.7, primarily due to benefits of our recent cost reduction actions and a gain associated with the cancellation of a sale of equipment contract, partly offset by less profitable business mix, unfavorable project costs, and bad debt expense.

**2014 vs. 2013**

Sales of \$296.0 decreased \$13.0, or 4%, due to lower air separation unit (ASU) project activity. Operating loss of \$57.3 increased \$0.8 as favorable volume mix was offset by higher operating costs.

**Materials Technologies**

	2015	2014	2013
Sales	\$2,087.1	\$2,064.6	\$1,870.3
Operating income	476.7	379.0	279.5
Operating margin	22.8 %	18.4 %	14.9 %
Adjusted EBITDA	571.7	480.7	390.0
Adjusted EBITDA margin	27.4 %	23.3 %	20.9 %

**Materials Technologies Sales**

	% Change from Prior Year	
	2015	2014
Underlying business		
Volume	3%	11%
Price	2%	(1)%
Currency	(4)%	—%
<b>Total Materials Technologies Change</b>	<b>1%</b>	<b>10%</b>

**2015 vs. 2014**

Underlying sales increased by 5% from higher volumes of 3% and positive pricing of 2%. Unfavorable currency impacts decreased sales by 4%. Electronics Materials underlying sales increased 10% from positive volume and price from new products and memory market demand, partially offset by lower delivery systems activity. Performance Materials underlying sales were flat as higher volumes of 1% were offset by lower pricing of 1%.

Operating income of \$476.7 increased 26%, or \$97.7, due to favorable price and mix, net of raw material costs, of \$70, higher volumes of \$40, and lower costs of \$13, partially offset by unfavorable currency impacts of \$25. The cost improvement came primarily from optimization of our production and supply chain network and benefits of our cost reduction actions. Operating margin increased 440 bp, from higher pricing, higher volumes and lower operating costs.



## [Table of Contents](#)

### **2014 vs. 2013**

Underlying sales increased 10%, as higher volumes of 11% were partially offset by lower pricing of 1%. Electronics Materials underlying sales increased 10%, as higher delivery systems equipment sales and materials volumes of 11% were partially offset by lower pricing of 1%. Performance Materials underlying sales increased 10%, as higher volumes of 11% were partially offset by lower pricing of 1%. The higher volumes were across all product lines and major regions. The lower pricing was primarily due to unfavorable mix impacts.

Operating income of \$379.0 increased 36%, or \$99.5, primarily from higher volumes of \$91, lower operating costs of \$30, and favorable currency impacts of \$4, partially offset by unfavorable price and mix impacts of \$25. Operating margin of 18.4% increased 350 bp, primarily due to improved loading and leverage from the higher volumes and improved cost performance, partially offset by the unfavorable pricing impacts.

### **Energy-from-Waste**

	2015	2014	2013
Operating loss	<b>\$(10.1)</b>	\$(12.4)	\$(9.8)
Adjusted EBITDA	<b>(10.1)</b>	(12.4)	(9.8)

The Energy-from-Waste segment consists of two projects that are under construction in Tees Valley, United Kingdom. These projects are designed to process municipal solid waste to generate renewable power for customers under long-term contracts. Costs being expensed during project construction include land leases and commercial management.

Despite technical challenges and on-stream delays, the Company remains focused on efforts to bring the first project on-stream. In November 2015, the Company suspended construction of the second project until certain design issues of the first project are understood, remediated, and can be efficiently integrated into the design of the second project. We are evaluating the incremental costs associated with idling the project, including the impact on capitalized interest. Future actions and assessments could impact the disposition of the investment.

### **Corporate and other**

	2015	2014	2013
Sales	<b>\$324.7</b>	\$322.2	\$418.3
Operating loss	<b>(50.6)</b>	(77.0)	(84.3)
Adjusted EBITDA	<b>(37.6)</b>	(66.2)	(77.8)

### **2015 vs. 2014**

Sales of \$324.7 increased \$2.5, or 1%, primarily due to higher liquefied natural gas (LNG) project activity, mostly offset by lower helium container sales and the impact of exiting our PUI business which was completed as of the end of the first quarter of 2014. Operating loss of \$50.6 decreased 34%, or \$26.4, primarily due to higher LNG project activity and the benefits of our cost reduction actions.

### **2014 vs. 2013**

Sales of \$322.2 decreased \$96.1, or 23%, due to the exit of our PUI business, partially offset by higher LNG project activity. Operating loss of \$77.0 decreased \$7.3, or 9%, from the higher LNG project activity.

## RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

(Millions of dollars unless otherwise indicated, except for share data)

The discussion of our annual results includes comparisons to non-GAAP financial measures, including Adjusted EBITDA. The presentation of non-GAAP measures is intended to enhance the usefulness of financial information by providing measures which management uses internally to evaluate our operating performance.

We use non-GAAP measures to assess our operating performance by excluding certain disclosed items that we believe are not representative of our underlying business. We believe non-GAAP financial measures provide investors with meaningful information to understand our underlying operating results and to analyze financial and business trends. Non-GAAP financial measures, including Adjusted EBITDA, should not be viewed in isolation, are not a substitute for GAAP measures, and have limitations which include but are not limited to:

- Our measure excludes certain disclosed items, which we do not consider to be representative of underlying business operations. However, these disclosed items represent costs (benefits) to the Company.
- Though not business operating costs, interest expense and income tax provision represent ongoing costs of the Company.
- Depreciation, amortization, and impairment charges represent the wear and tear and/or reduction in value of the plant, equipment, and intangible assets which permit us to manufacture and/or market our products.
- Other companies may define non-GAAP measures differently than we do, limiting their usefulness as comparative measures.

A reader may find any one or all of these items important in evaluating our performance. Management compensates for the limitations of using non-GAAP financial measures by using them only to supplement our GAAP results to provide a more complete understanding of the factors and trends affecting our business. In evaluating these financial measures, the reader should be aware that we may incur expenses similar to those eliminated in this presentation in the future.

In 2013, we had pension settlement losses of \$12.4 (\$7.8 after-tax, or \$.04 per share). These impacts were included in the non-GAAP operating performance measures for fiscal year 2013.

Presented below are reconciliations of the reported GAAP results to the non-GAAP measures:

**CONSOLIDATED RESULTS**

	Continuing Operations			
	Operating Income	Operating Margin (D)	Net Income	Diluted EPS
<b>2015 GAAP</b>	<b>\$1,699.1</b>	<b>17.2%</b>	<b>\$1,277.9</b>	<b>\$5.88</b>
<b>2014 GAAP</b>	<b>1,328.2</b>	<b>12.7%</b>	<b>987.1</b>	<b>4.59</b>
Change GAAP	\$370.9	450bp	\$290.8	\$1.29
% Change GAAP	28%		29%	28%
2015 GAAP	\$1,699.1	17.2%	\$1,277.9	\$5.88
Business restructuring and cost reduction actions (tax impact \$54.5)	207.7	2.1%	153.2	.71
Pension settlement loss (tax impact \$7.5)	21.2	.2%	13.7	.06
Business separation costs	7.5	.1%	7.5	.03
Gain on previously held equity interest (tax impact \$6.7)	(17.9)	(.2)%	(11.2)	(.05)
Gain on land sales (tax impact \$5.3)(A)	(33.6)	(.4)%	(28.3)	(.13)
Loss on early retirement of debt (tax impact \$2.4)(B)	—	—	14.2	.07
<b>2015 Non—GAAP Measure</b>	<b>\$1,884.0</b>	<b>19.0%</b>	<b>\$1,427.0</b>	<b>\$6.57</b>
2014 GAAP	\$1,328.2	12.7%	\$987.1	\$4.59
Business restructuring and cost reduction actions (tax impact \$4.5)	12.7	.1%	8.2	.04
Pension settlement loss (tax impact \$1.9)	5.5	.1%	3.6	.02
Goodwill and intangible asset impairment charge(C)	310.1	3.0%	275.1	1.27
Chilean tax rate change	—	—	20.6	.10
Tax election benefit	—	—	(51.6)	(.24)
<b>2014 Non-GAAP Measure</b>	<b>\$1,656.5</b>	<b>15.9%</b>	<b>\$1,243.0</b>	<b>\$5.78</b>
Change Non-GAAP Measure	\$227.5	310bp	\$184.0	\$7.9
% Change Non-GAAP Measure	14%		15%	14%

	Continuing Operations			
	Operating Income	Operating Margin (D)	Net Income	Diluted EPS
<b>2014 GAAP</b>	<b>\$1,328.2</b>	<b>12.7%</b>	<b>\$987.1</b>	<b>\$4.59</b>
<b>2013 GAAP</b>	<b>1,324.4</b>	<b>13.0%</b>	<b>1,004.2</b>	<b>4.73</b>
Change GAAP	\$3.8	(30bp)	\$(17.1)	\$(.14)
% Change GAAP	—		(2)%	(3)%
2014 GAAP	\$1,328.2	12.7%	\$987.1	\$4.59
Business restructuring and cost reduction actions (tax impact \$4.5)	12.7	.1%	8.2	.04
Pension settlement loss (tax impact \$1.9)	5.5	.1%	3.6	.02
Goodwill and intangible asset impairment charge(C)	310.1	3.0%	275.1	1.27
Chilean tax rate change	—	—	20.6	.10
Tax election benefit	—	—	(51.6)	(.24)
<b>2014 Non-GAAP Measure</b>	<b>\$1,656.5</b>	<b>15.9%</b>	<b>\$1,243.0</b>	<b>\$5.78</b>
2013 GAAP	\$1,324.4	13.0%	\$1,004.2	\$4.73
Business restructuring and cost reduction actions (tax impact \$73.7)	231.6	2.3%	157.9	.74
Advisory costs (tax impact \$3.7)	10.1	.1%	6.4	.03
<b>2013 Non-GAAP Measure</b>	<b>\$1,566.1</b>	<b>15.4%</b>	<b>\$1,168.5</b>	<b>\$5.50</b>
Change Non-GAAP Measure	\$90.4	50bp	\$74.5	\$2.8
% Change Non-GAAP Measure	6%		6%	5%

(A) Reflected on the consolidated income statements in "Other income (expense), net."

(B) Income from continuing operations before taxes impact of \$16.6.

(C) Noncontrolling interests impact of \$33.7 and tax impact of \$1.3.

(D) Operating margin is calculated by dividing operating income by sales.

[Table of Contents](#)**ADJUSTED EBITDA**

We define Adjusted EBITDA as income from continuing operations (including noncontrolling interests) excluding certain disclosed items, which the Company does not believe to be indicative of underlying business trends, before interest expense, income tax provision, and depreciation and amortization expense. Adjusted EBITDA provides a useful metric for management to assess operating performance.

Below is a reconciliation of Income from Continuing Operations on a GAAP basis to Adjusted EBITDA:

	2015	2014	2013	2012	2011
<b>Income from Continuing Operations(A)</b>	<b>\$1,317.6</b>	<b>\$988.5</b>	<b>\$1,042.5</b>	<b>\$1,025.2</b>	<b>\$1,171.6</b>
Add: Interest expense	103.5	125.1	141.8	123.7	115.5
Add: Income tax provision	415.9	366.0	307.9	287.3	375.3
Add: Depreciation and amortization	936.4	956.9	907.0	840.8	834.3
Add: Business restructuring and cost reduction actions	207.7	12.7	231.6	327.4	—
Add: Pension settlement loss	21.2	5.5	—	—	—
Add: Goodwill and intangible asset impairment charge	—	310.1	—	—	—
Add: Business separation costs	7.5	—	—	—	—
Less: Gain on previously held equity interest	17.9	—	—	85.9	—
Add: Advisory costs	—	—	10.1	—	—
Add: Customer bankruptcy	—	—	—	9.8	—
Add: Net loss on Airgas transaction	—	—	—	—	48.5
Less: Gain on land sales(B)	33.6	—	—	—	—
Add: Loss on early retirement of debt	16.6	—	—	—	—
<b>Adjusted EBITDA</b>	<b>\$2,974.9</b>	<b>\$2,764.8</b>	<b>\$2,640.9</b>	<b>\$2,528.3</b>	<b>\$2,545.2</b>
Change from prior year	\$210.1	\$123.9	\$112.6	\$(16.9)	
% change from prior year	8%	5%	4%	(1)%	

(A) Includes net income attributable to noncontrolling interests.

(B) Reflected on the consolidated income statements in "Other income (expense), net."

[Table of Contents](#)

Below is a reconciliation of segment Operating Income to Adjusted EBITDA:

	Industrial Gases— Americas	Industrial Gases— EMEA	Industrial Gases— Asia	Industrial Gases— Global	Materials Technologies	Energy- from- Waste	Corporate and other	Segment Total
<b>Twelve Months Ended</b>								
<b>30 September 2015</b>								
Operating income (loss)	\$808.4	\$330.7	\$380.5	\$(51.6)	\$476.7	\$(10.1)	\$(50.6)	\$1,884.0
Add: Depreciation and amortization	416.9	194.3	202.9	16.5	92.8	—	13.0	936.4
Add: Equity affiliates' income (loss)	64.6	42.4	46.1	(.8)	2.2	—	—	154.5
<b>Adjusted EBITDA</b>	<b>\$1,289.9</b>	<b>\$567.4</b>	<b>\$629.5</b>	<b>\$(35.9)</b>	<b>\$571.7</b>	<b>\$(10.1)</b>	<b>\$(37.6)</b>	<b>\$2,974.9</b>
<b>Adjusted EBITDA margin(A)</b>	<b>34.9%</b>	<b>30.4%</b>	<b>38.4%</b>		<b>27.4%</b>			<b>30.1%</b>
<b>Twelve Months Ended</b>								
<b>30 September 2014</b>								
Operating income (loss)	\$762.6	\$351.2	\$310.4	\$(57.3)	\$379.0	\$(12.4)	\$(77.0)	\$1,656.5
Add: Depreciation and amortization	414.4	220.2	205.3	7.1	99.1	—	10.8	956.9
Add: Equity affiliates' income	60.9	44.1	38.0	5.8	2.6	—	—	151.4
<b>Adjusted EBITDA</b>	<b>\$1,237.9</b>	<b>\$615.5</b>	<b>\$553.7</b>	<b>\$(44.4)</b>	<b>\$480.7</b>	<b>\$(12.4)</b>	<b>\$(66.2)</b>	<b>\$2,764.8</b>
<b>Adjusted EBITDA margin(A)</b>	<b>30.4%</b>	<b>28.6%</b>	<b>36.3%</b>		<b>23.3%</b>			<b>26.5%</b>
<b>Twelve Months Ended</b>								
<b>30 September 2013</b>								
Operating income (loss)	\$776.7	\$331.2	\$329.3	\$(56.5)	\$279.5	\$(9.8)	\$(84.3)	\$1,566.1
Add: Depreciation and amortization	409.8	202.6	174.9	5.5	107.7	—	6.5	907.0
Add: Equity affiliates' income	70.9	47.7	45.0	1.4	2.8	—	—	167.8
<b>Adjusted EBITDA</b>	<b>\$1,257.4</b>	<b>\$581.5</b>	<b>\$549.2</b>	<b>\$(49.6)</b>	<b>\$390.0</b>	<b>\$(9.8)</b>	<b>\$(77.8)</b>	<b>\$2,640.9</b>
<b>Adjusted EBITDA margin(A)</b>	<b>32.5%</b>	<b>27.7%</b>	<b>34.0%</b>		<b>20.9%</b>			<b>25.9%</b>
<b>2015 vs. 2014</b>								
Adjusted EBITDA change	\$52.0	\$(48.1)	\$75.8	\$8.5	\$91.0	\$2.3	\$28.6	\$210.1
Adjusted EBITDA % change	4%	(8)%	14%	19%	19%	19%	43%	8%
Adjusted EBITDA margin change	450bp	180bp	210bp		410bp			360bp
<b>2014 vs. 2013</b>								
Adjusted EBITDA change	\$(19.5)	\$34.0	\$4.5	\$5.2	\$90.7	\$(2.6)	\$11.6	\$123.9
Adjusted EBITDA % change	(2)%	6%	1%	10%	23%	(27)%	15%	5%
Adjusted EBITDA margin change	(210bp)	90bp	230bp		240bp			60bp

(A) Adjusted EBITDA margin is calculated by dividing Adjusted EBITDA by sales.

**INCOME TAXES**

	Effective Tax Rate		
	2015	2014	2013
<b>Income Tax Provision—GAAP</b>	<b>\$415.9</b>	<b>\$366.0</b>	<b>\$307.9</b>
<b>Income from Continuing Operations before Taxes—GAAP</b>	<b>\$1,733.5</b>	<b>\$1,354.5</b>	<b>\$1,350.4</b>
<b>Effective Tax Rate—GAAP</b>	<b>24.0%</b>	<b>27.0%</b>	<b>22.8%</b>
Income Tax Provision—GAAP	\$415.9	\$366.0	\$307.9
Business restructuring and cost reduction actions tax impact	54.5	4.5	73.7
Pension settlement loss tax impact	7.5	1.9	—
Goodwill and intangible asset impairment charge tax impact	—	1.3	—
Gain on previously held equity interest tax impact	(6.7)	—	—
Advisory costs tax impact	—	—	3.7
Gain on land sales tax impact	(5.3)	—	—
Loss on early retirement of debt tax impact	2.4	—	—
Chilean tax rate change	—	(20.6)	—
Tax election benefit	—	51.6	—
<b>Income Tax Provision—Non-GAAP Measure</b>	<b>\$468.3</b>	<b>\$404.7</b>	<b>\$385.3</b>
Income from Continuing Operations before Taxes—GAAP	\$1,733.5	\$1,354.5	\$1,350.4
Business restructuring and cost reduction actions	207.7	12.7	231.6
Pension settlement loss	21.2	5.5	—
Goodwill and intangible asset impairment charge	—	310.1	—
Business separation costs	7.5	—	—
Gain on previously held equity interest	(17.9)	—	—
Advisory costs	—	—	10.1
Gain on land sales	(33.6)	—	—
Loss on early retirement of debt	16.6	—	—
<b>Income from Continuing Operations Before Taxes—Non-GAAP Measure</b>	<b>\$1,935.0</b>	<b>\$1,682.8</b>	<b>\$1,592.1</b>
<b>Effective Tax Rate—Non-GAAP Measure</b>	<b>24.2%</b>	<b>24.0%</b>	<b>24.2%</b>

**LIQUIDITY AND CAPITAL RESOURCES**

We maintained a strong financial position throughout 2015. We continue to have consistent access to commercial paper markets, and cash flows from operations and financing activities are expected to meet liquidity needs for the foreseeable future.

As of 30 September 2015, we had \$195.7 of foreign cash and cash items compared to a total amount of cash and cash items of \$206.4. If the foreign cash and cash items are needed for operations in the U.S. or we otherwise elect to repatriate the funds, we may be required to accrue and pay U.S. taxes on a significant portion of these amounts. However, since we have significant current investment plans outside the U.S., it is our intent to permanently reinvest the majority of our foreign cash and cash items outside the U.S. Current financing alternatives do not require the repatriation of foreign funds.

Our cash flows from operating, investing, and financing activities from continuing operations, as reflected in the consolidated statements of cash flows, are summarized in the following table:

	2015	2014	2013
<b>Cash provided by (used for)</b>			
Operating activities	<b>\$2,437.8</b>	\$2,186.4	\$1,553.1
Investing activities	<b>(1,599.7)</b>	(1,638.0)	(1,697.0)
Financing activities	<b>(945.4)</b>	(504.3)	115.4

**Operating Activities**

For the year ended 2015, cash provided by operating activities was \$2,437.8. Income from continuing operations of \$1,277.9 reflected the write-down of long-lived assets associated with business restructuring of \$47.4, a non-cash gain on the previously held equity interest of \$17.9, and a loss on early retirement of debt of \$16.6. Income from continuing operations is adjusted for reconciling items that include depreciation and amortization, deferred income taxes, undistributed earnings of equity affiliates, gains on sale of assets and investments, share-based compensation expense, and noncurrent capital lease receivables. Other adjustments included pension and postretirement expense of \$141.4 and contributions to our pension plans of \$137.5, primarily for plans in the U.S. and U.K. Management considers various factors when making pension funding decisions, including tax, cash flow, and regulatory implications. The working capital accounts were a source of cash of \$218.8. The increase of payables and accrued liabilities of \$157.8 includes an increase in accrued incentive compensation of \$97.0.

For the year ended 2014, cash provided by operating activities was \$2,186.4. Income from continuing operations of \$987.1 reflected the goodwill and intangible asset impairment charge of \$310.1. Other adjustments included \$143.2 for pension and other postretirement expense, partially offset by a use of cash of \$78.2 for pension contributions. The working capital accounts were a use of cash of \$246.5. Inventory was a use of cash of \$23.5 primarily due to the timing of helium purchases from the U.S. Bureau of Land Management. The reduction of payables and accrued liabilities of \$234.8 includes \$148.5 for payments associated with projects accounted for as capital leases and \$52.5 of payments related to the 2013 business restructuring and cost reduction plan.

For the year ended 2013, cash provided by operating activities was \$1,553.1. Income from continuing operations of \$1,004.2 reflected the write-down of long-lived assets associated with business restructuring of \$100.4. The other adjustments included a use of cash of \$300.8 for pension contributions, partially offset by \$178.2 of pension and other postretirement expense. The working capital accounts were a use of cash of \$207.8. The reduction of accrued liabilities of \$130.3 includes \$185.8 for payments made in relation to the 2012 business restructuring and cost reduction plans, including the settlement of a long-term take-or-pay silane contract. These payments were partially offset by a \$69.7 net increase to accrued liabilities for the 2013 business restructuring and cost reduction plan.

**Investing Activities**

For the year ended 30 September 2015, cash used for investing activities was \$1,599.7, primarily capital expenditures for plant and equipment. On 30 December 2014, we acquired our partner's equity ownership interest in a liquefied industrial gases production joint venture in North America which increased our ownership from 50% to 100%. Refer to Note 6, Business Combinations, to the consolidated financial statements for additional information. For the year ended 30 September 2014, cash used for investing activities was \$1,638.0, primarily

## [Table of Contents](#)

capital expenditures for plant and equipment. For the year ended 30 September 2013, cash used for investing activities was \$1,697.0, primarily capital expenditures for plant and equipment and acquisitions. Refer to the Capital Expenditures section below for additional detail.

### Capital Expenditures

Capital expenditures are detailed in the following table:

	2015	2014	2013
Additions to plant and equipment	\$1,614.8	\$1,684.2	\$1,524.2
Acquisitions, less cash acquired	34.5	—	224.9
Investments in and advances to unconsolidated affiliates	4.3	(2.0)	(1.3)
<b>Capital Expenditures on a GAAP Basis</b>	<b>\$1,653.6</b>	<b>\$1,682.2</b>	<b>\$1,747.8</b>
Capital lease expenditures (A)	95.6	202.4	234.9
Purchase of noncontrolling interests in a subsidiary(A)	278.4	.5	14.0
<b>Capital Expenditures on a Non-GAAP Basis</b>	<b>\$2,027.6</b>	<b>\$1,885.1</b>	<b>\$1,996.7</b>

(A) We utilize a non-GAAP measure in the computation of capital expenditures and include spending associated with facilities accounted for as capital leases and purchases of noncontrolling interests. Certain contracts associated with facilities that are built to provide product to a specific customer are required to be accounted for as leases, and such spending is reflected as a use of cash within cash provided by operating activities, if the arrangement qualifies as a capital lease. Additionally, the purchase of subsidiary shares from noncontrolling interests is accounted for as a financing activity in the statement of cash flows. The presentation of this non-GAAP measure is intended to enhance the usefulness of information by providing a measure that our management uses internally to evaluate and manage our expenditures.

Capital expenditures on a GAAP basis in 2015 totaled \$1,653.6, compared to \$1,682.2 in 2014. The decrease of \$28.6 was primarily due to a stronger U.S. dollar which reduced the value of foreign currency capital expenditures, partially offset by acquisitions in 2015. Additions to plant and equipment also included support capital of a routine, ongoing nature, including expenditures for distribution equipment and facility improvements. Spending in 2015 and 2014 included plant and equipment constructed to provide oxygen for coal gasification in China, hydrogen to the global market, and renewable energy in the U.K.

In 2013, we completed three acquisitions with an aggregate cash use, net of cash acquired, of \$224.9. In the fourth quarter, we acquired an air separation unit and integrated gases liquefier in Guiyang, China. During the third quarter, we acquired EPCO Carbondioxide Products, Inc, the largest independent U.S. producer of liquid carbon dioxide, and Wuxi Chem-Gas Company, Ltd. Refer to Note 6, Business Combinations, to the consolidated financial statements for additional details regarding the acquisitions.

Capital expenditures on a non-GAAP basis in 2015 totaled \$2,027.6 compared to \$1,885.1 in 2014. This increase was primarily due to the purchase of the 30.5% equity interest in our Indura S.A. subsidiary from the largest minority shareholder for \$277.9. Refer to Note 21, Noncontrolling Interests, to the consolidated financial statements for additional details. Additionally, capital lease expenditures of \$95.6 decreased by \$106.8, reflecting lower project spending.

On 19 April 2015, a joint venture between Air Products and ACWA Holding entered into a 20-year oxygen and nitrogen supply agreement to supply Saudi Aramco's oil refinery and power plant being built in Jazan, Saudi Arabia. Air Products owns 25% of the joint venture and expects to invest approximately \$100. Air Products has also entered into a sale of equipment contract with the joint venture to engineer, procure, and construct the industrial gas facilities that will supply the gases to Saudi Aramco.

Sales backlog represents our estimate of revenue to be recognized in the future on sale of equipment orders and related process technology that are under firm contracts. The sales backlog for the Company at 30 September 2015 was \$1,931, compared to \$520 at 30 September 2014. The increase in the sales backlog includes a new contract with one of our joint ventures in Saudi Arabia for the construction of an industrial gas facility that will supply gases to Saudi Aramco.

### 2016 Outlook

Excluding acquisitions, capital expenditures for new plant and equipment in 2016 are expected to be between \$1,500 and \$1,600. A majority of the total capital expenditures is expected to be for new plants. It is anticipated that capital expenditures will be funded principally with cash from continuing operations. In addition, we intend to continue to evaluate acquisition opportunities and investments in equity affiliates.



## Financing Activities

For the year ended 2015, cash used for financing activities was \$945.4 primarily attributable to cash used to pay dividends of \$677.5 and payments for subsidiary shares from noncontrolling interest of \$278.4, which was partially offset by proceeds from stock option exercises of \$121.3. Our borrowings (short- and long-term proceeds, net of repayments) were a net use of cash (repayment) of \$85.9 and included \$284.0 of net commercial paper and other short-term debt issuances, debt proceeds from the issuance of a 1.0% Eurobond of €300 million (\$335.3), repayment of a 3.875% Eurobond of €300 million (\$335.9), repayment of Industrial Revenue Bonds totaling \$147.2, and repayment of 3,000,000 Unidades de Fomento (“UF”) Series E 6.30% Bonds totaling \$146.6. Refer to Note 15, Debt, to the consolidated financial statements for additional details.

For the year ended 2014, cash used for financing activities was \$504.3 primarily attributable to cash used to pay dividends of \$627.7, which was partially offset by proceeds from stock option exercises of \$141.6. Our borrowings (short- and long-term proceeds, net of repayments) were a net source of cash (issuance) of \$1.1 and included \$148.7 of net commercial paper and other short-term debt issuances, debt proceeds from the issuance of a \$400 senior fixed-rate 3.35% note on 31 July 2014 and \$61.0 of other, primarily international, debt issuances and debt repayments of a 3.75% Eurobond of €300 million (\$401.0) in November 2013 and \$207.6 of other, primarily international, debt.

For the year ended 2013, cash provided by financing activities was \$115.4. Our borrowings (short- and long-term proceeds, net of repayments) were a net source of cash (issuance) of \$927.4 and included \$437.7 of net commercial paper and other short-term debt issuances and the issuances of a €300 million (\$397) 2.0% Eurobond on 7 August 2013, and a \$400.0 senior fixed-rate 2.75% note on 4 February 2013, which were partially offset by the repayment of a \$300.0 senior fixed-rate 4.15% note on 1 February 2013. Proceeds from stock option exercises provided cash of \$226.4. The primary uses of cash were to purchase 5.7 million shares of treasury stock for \$461.6 and to pay dividends of \$565.6.

## Discontinued Operations

For the year ended 2015, there were no discontinued operations.

For the year ended 2014, cash used for discontinued operations was \$146.6 and primarily included a payment made to the Linde Group for contingent proceeds we were obligated to return from the sale of our Homecare business. For the year ended 2013, cash provided by discontinued operations was \$13.1. Refer to Note 4, Discontinued Operations, to the consolidated financial statements for additional information.

## Financing and Capital Structure

Capital needs in 2015 were satisfied primarily with cash from operations. At the end of 2015, total debt outstanding was \$5,879.0 compared to \$6,118.5 at the end of 2014, and cash and cash items were \$206.4 compared to \$336.6 at the end of 2014. Total debt at 30 September 2015 and 2014, expressed as a percentage of total capitalization (total debt plus total equity plus redeemable noncontrolling interest), was 44.3% and 43.9%, respectively.

During fiscal 2013, we entered into a five-year \$2,500.0 revolving credit agreement maturing 30 April 2018 with a syndicate of banks (the “2013 Credit Agreement”), under which senior unsecured debt is available to both the Company and certain of its subsidiaries. There have been subsequent amendments to the 2013 Credit Agreement, and as of 30 September 2015, the maximum borrowing capacity was \$2,690.0. The 2013 Credit Agreement provides a source of liquidity for the Company and supports its commercial paper program. This credit facility includes a financial covenant for a maximum ratio of total debt to total capitalization (total debt plus total equity plus redeemable noncontrolling interest) no greater than 70%. No borrowings were outstanding under the 2013 Credit Agreement as of 30 September 2015.

Commitments totaling \$119.4 are maintained by our foreign subsidiaries, of which \$110.6 was borrowed and outstanding at 30 September 2015.

As of 30 September 2015, we are in compliance with all of the financial and other covenants under our debt agreements.

On 15 September 2011, the Board of Directors authorized the repurchase of up to \$1,000 of our outstanding common stock. During fiscal year 2013, 5.7 million of our outstanding shares were purchased at a cost of \$461.6. We did not purchase any of our outstanding shares during fiscal years 2015 and 2014. At 30 September 2015, \$485.3 in share repurchase authorization remains.

**2016 Outlook**

Cash flows from operations and financing activities are expected to meet liquidity needs for the foreseeable future. We project a modest need to access the long-term debt markets in 2016, primarily to refinance maturing long-term debt. We expect that we will continue to be in compliance with all of our financial covenants. Also, we anticipate that we will continue to be able to access the commercial paper and other short-term debt markets. At 30 September, our working capital balance was (\$737), primarily due to \$1,929.9 of short-term borrowings and long-term debt due within the next 12 months. Maintaining the short-term borrowings balance at its current level provides flexibility in how we manage cash flows associated with the anticipated spin-off of our Materials Technologies business in 2016.

**Dividends**

Dividends are declared by the Board of Directors and are usually paid during the sixth week after the close of the fiscal quarter. During 2015, the Board of Directors increased the quarterly dividend from \$.77 per share to \$.81 per share.

**CONTRACTUAL OBLIGATIONS**

We are obligated to make future payments under various contracts, such as debt agreements, lease agreements, unconditional purchase obligations, and other long-term obligations. The following table summarizes our obligations as of 30 September 2015:

	Total	Payments Due by Period					
		2016	2017	2018	2019	2020	Thereafter
<b>Long-term debt obligations</b>							
Debt maturities	\$4,385	\$436	\$373	\$428	\$415	\$361	\$2,372
Contractual interest	501	102	84	70	69	50	126
Capital leases	3	1	1	—	—	—	1
Operating leases	367	66	54	46	36	27	138
Pension obligations	871	100	85	85	90	45	466
Unconditional purchase obligations	1,370	917	117	63	55	54	164
Obligation for future contribution to an equity affiliate	100	—	—	—	—	100	—
<b>Total Contractual Obligations</b>	<b>\$7,597</b>	<b>\$1,622</b>	<b>\$714</b>	<b>\$692</b>	<b>\$665</b>	<b>\$637</b>	<b>\$3,267</b>

**Long-Term Debt Obligations**

The long-term debt obligations include the maturity payments of long-term debt, including current portion, and the related contractual interest obligations. Refer to Note 15, Debt, to the consolidated financial statements for additional information on long-term debt.

Contractual interest is the interest we are contracted to pay on the long-term debt obligations without taking into account the interest impact of interest rate swaps related to any of this debt, which at current interest rates would slightly decrease contractual interest. We had \$929 of long-term debt subject to variable interest rates at 30 September 2015, excluding fixed-rate debt that has been swapped to variable-rate debt. The rate assumed for the variable interest component of the contractual interest obligation was the rate in effect at 30 September 2015. Variable interest rates are primarily determined by interbank offer rates and by U.S. short-term tax-exempt interest rates.

**Leases**

Refer to Note 12, Leases, to the consolidated financial statements for additional information on capital and operating leases.

**Pension Obligations**

The amounts in the table above represent the current estimated cash payments to be made by us that in total equal the recognized pension liabilities. Refer to Note 16, Retirement Benefits, to the consolidated financial statements. These payments are based upon the current valuation assumptions and regulatory environment.

The total accrued liability for pension benefits is impacted by interest rates, plan demographics, actual return on plan assets, continuation or modification of benefits, and other factors. Such factors can significantly impact the amount of the liability and related contributions.

## Unconditional Purchase Obligations

Approximately \$390 of our long-term unconditional purchase obligations relate to feedstock supply for numerous HyCO (hydrogen, carbon monoxide, and syngas) facilities. The price of feedstock supply is principally related to the price of natural gas. However, long-term take-or-pay sales contracts to HyCO customers are generally matched to the term of the feedstock supply obligations and provide recovery of price increases in the feedstock supply. Due to the matching of most long-term feedstock supply obligations to customer sales contracts, we do not believe these purchase obligations would have a material effect on our financial condition or results of operations. Refer to Note 17, Commitments and Contingencies, to the consolidated financial statements for additional information on our unconditional purchase obligations.

The unconditional purchase obligations also include other product supply and purchase commitments and electric power and natural gas supply purchase obligations, which are primarily pass-through contracts with our customers. In addition, purchase commitments to spend approximately \$540 for additional plant and equipment are included in the unconditional purchase obligations in 2016.

We also purchase materials, energy, capital equipment, supplies, and services as part of the ordinary course of business under arrangements that are not unconditional purchase obligations. The majority of such purchases are for raw materials and energy, which are obtained under requirements-type contracts at market prices.

## Obligation for Future Contribution to an Equity Affiliate

On 19 April 2015, a joint venture between Air Products and ACWA Holding entered into a 20-year oxygen and nitrogen supply agreement to supply Saudi Aramco's oil refinery and power plant being built in Jazan, Saudi Arabia. Air Products owns 25% of the joint venture and guarantees the repayment of its share of an equity bridge loan. In total, we expect to invest approximately \$100 in this joint venture. As of 30 September 2015, we recorded a noncurrent liability of \$67.5 for our obligation to make future equity contributions based on advances received by the joint venture under the loan.

## Income Tax Liabilities

Noncurrent deferred income tax liabilities as of 30 September 2015 were \$903.3. Tax liabilities related to unrecognized tax benefits as of 30 September 2015 were \$97.5. These tax liabilities were excluded from the Contractual Obligations table, as it is impractical to determine a cash impact by year given that payments will vary according to changes in tax laws, tax rates, and our operating results. In addition, there are uncertainties in timing of the effective settlement of our uncertain tax positions with respective taxing authorities. Refer to Note 23, Income Taxes, to the consolidated financial statements for additional information.

## PENSION BENEFITS

The Company sponsors defined benefit pension plans and defined contribution plans that cover a substantial portion of its worldwide employees. The principal defined benefit pension plans—the U.S. salaried pension plan and the U.K. pension plan—were closed to new participants in 2005 and were replaced with defined contribution plans. Over the long run, the shift to defined contribution plans is expected to reduce volatility of both plan expense and contributions.

The fair market value of plan assets for our defined benefit pension plans as of the 30 September 2015 measurement date decreased to \$3,916.4 from \$4,114.6 at the end of fiscal year 2014. The projected benefit obligation for these plans was \$4,787.8 and \$4,738.6 at the end of the fiscal years 2015 and 2014, respectively. Refer to Note 16, Retirement Benefits, to the consolidated financial statements for comprehensive and detailed disclosures on our postretirement benefits.

## Pension Expense

	2015	2014	2013
Pension expense	\$135.6	\$135.9	\$169.7
Special terminations, settlements, and curtailments (included above)	35.2	5.8	19.8
Weighted average discount rate	4.0%	4.6%	4.0%
Weighted average expected rate of return on plan assets	7.4%	7.7%	7.7%
Weighted average expected rate of compensation increase	3.5%	3.9%	3.8%

### **2015 vs. 2014**

Pension expense, excluding special items, decreased from the prior year due to the impact from expected return on assets, a 40 bp reduction in the weighted average compensation increase assumption, and lower service cost and interest cost. This was partially offset by the impact of higher amortization of actuarial losses, which resulted primarily from a 60 bp decrease in weighted average discount rate. Special items of \$35.2 included pension settlement losses of \$21.2, special termination benefits of \$8.7, and curtailment losses of \$5.3. These resulted primarily from our recent business restructuring and cost reduction actions.

### **2014 vs. 2013**

The decrease in pension expense, excluding special items, was primarily attributable to the 60 bp increase in weighted average discount rate, which resulted in lower amortization of actuarial losses. The decrease was partially offset by unfavorable impacts associated with changes in mortality assumptions. Special items of \$5.8 included \$5.5 for pension settlement losses and \$.3 for special termination benefits, a portion of which relates to the 2013 business restructuring and cost reduction plan.

### **2016 Outlook**

In 2016, we will change the method utilized to estimate the service cost and interest cost components of net periodic benefit costs for our major defined benefit pension plans. Historically, we estimated the service cost and interest cost components using a single weighted average discount rate derived from the yield curve used to measure the benefit obligation at the beginning of the period. We will elect to use a spot rate approach for our major plans in the estimation of these components of benefit cost by applying the specific spot rates along the yield curve to the relevant projected cash flows, as we believe this provides a better estimate of service and interest costs. We consider this a change in estimate and, accordingly, will account for it prospectively starting in 2016. This change does not affect the measurement of our total benefit obligation.

In 2015, we adopted the Society of Actuaries new mortality tables for the U.S. Supplementary Pension Plan when we re-measured the plan due to pension settlements and curtailment. In 2016, we will adopt the new mortality tables for all major plans.

In 2016, pension expense is estimated to be approximately \$80 to \$100, excluding special items, which would be flat to down versus 2015 and results from a reduction of the service cost and interest cost from adoption of the spot rate approach defined above and the impact of the expected return on plan assets, partially offset by adoption of the new mortality tables. Pension settlement losses of \$10 to \$20 are expected, dependent on the timing of retirements. In 2016, we expect pension expense to include approximately \$125 for amortization of actuarial losses compared to \$120 in 2015. Net actuarial losses of \$431 were recognized in accumulated other comprehensive income in 2015, primarily attributable to lower than expected actual returns on plan assets, improved mortality projections and lower discount rates. Actuarial gains/losses are amortized into pension expense over prospective periods to the extent they are not offset by future gains or losses. Future changes in the discount rate and actual returns on plan assets different from expected returns would impact the actuarial gains/losses and resulting amortization in years beyond 2016.

### **Pension Funding**

Pension funding includes both contributions to funded plans and benefit payments for unfunded plans, which are primarily non-qualified plans. With respect to funded plans, our funding policy is that contributions, combined with appreciation and earnings, will be sufficient to pay benefits without creating unnecessary surpluses.

In addition, we make contributions to satisfy all legal funding requirements while managing our capacity to benefit from tax deductions attributable to plan contributions. With the assistance of third party actuaries, we analyze the liabilities and demographics of each plan, which help guide the level of contributions. During 2015 and 2014, our cash contributions to funded plans and benefit payments for unfunded plans were \$137.5 and \$78.2, respectively.

For 2016, cash contributions to defined benefit plans are estimated to be \$100 to \$120. The estimate is based on expected contributions to certain international plans and anticipated benefit payments for unfunded plans, which are dependent upon the timing of retirements and future cost reduction actions. Actual future contributions will depend on future funding legislation, discount rates, investment performance, plan design, and various other factors. Refer to the Contractual Obligations discussion on page 42 for a projection of future contributions.

## ENVIRONMENTAL MATTERS

We are subject to various environmental laws and regulations in the countries in which we have operations. Compliance with these laws and regulations results in higher capital expenditures and costs. In the normal course of business, we are involved in legal proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA: the federal Superfund law); Resource Conservation and Recovery Act (RCRA); and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Our accounting policy for environmental expenditures is discussed in Note 1, Major Accounting Policies, to the consolidated financial statements, and environmental loss contingencies are discussed in Note 17, Commitments and Contingencies, to the consolidated financial statements.

The amounts charged to income from continuing operations related to environmental matters totaled \$28.3, \$35.1, and \$37.1 in 2015, 2014, and 2013, respectively. These amounts represent an estimate of expenses for compliance with environmental laws and activities undertaken to meet internal Company standards. Future costs are not expected to be materially different from these amounts. Refer to Note 17, Commitments and Contingencies, to the consolidated financial statements for additional information.

Although precise amounts are difficult to determine, we estimate that we spent \$4 and \$5 in 2015 and 2014, respectively, on capital projects to control pollution. Capital expenditures to control pollution in future years are estimated to be approximately \$4 in both 2016 and 2017.

We accrue environmental investigatory and remediation costs for identified sites when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The potential exposure for such costs is estimated to range from \$80 to a reasonably possible upper exposure of \$93 as of 30 September 2015. The consolidated balance sheets at 30 September 2015 and 2014 included an accrual of \$80.6 and \$86.2, respectively. The accrual for the environmental obligations includes amounts for the Pace, Florida; Piedmont, South Carolina; and Pasadena, Texas, locations which were a part of previously divested chemicals businesses. Refer to Note 17, Commitments and Contingencies, to the consolidated financial statements for further details on these facilities.

Actual costs to be incurred at identified sites in future periods may vary from the estimates, given inherent uncertainties in evaluating environmental exposures. Subject to the imprecision in estimating future environmental costs, we do not expect that any sum we may have to pay in connection with environmental matters in excess of the amounts recorded or disclosed above would have a material adverse impact on our financial position or results of operations in any one year.

Some of our operations are within jurisdictions that have or are developing regulations governing emissions of greenhouse gases (GHG). These include existing and expanding coverage under the European Union Emissions Trading Scheme and California's cap and trade scheme; mandatory reporting and reductions at manufacturing facilities in Alberta, Canada; and mandatory reporting and anticipated constraints on GHG emissions in Ontario, Canada, China, and South Korea. In addition, the U.S. Environmental Protection Agency is regulating GHG emissions for new construction and major modifications to existing facilities. At the U.S. state level, California's cap and trade program rules have been officially adopted, and our compliance obligation as a hydrogen producer began 1 January 2013. We have been able to mitigate some of the costs through our contractual terms.

Increased public awareness and concern may result in more international, U.S. federal, and/or regional requirements to reduce or mitigate the effects of GHG. Although uncertain, these developments could increase our costs related to consumption of electric power, hydrogen production, and fluorinated gases production. We believe we will be able to mitigate some of the potential costs through our contractual terms, but the lack of definitive legislation or regulatory requirements in some of the jurisdictions where we operate prevents accurate prediction of the long-term impact on us. Any legislation that limits or taxes GHG emissions from our facilities could impact our growth by increasing our operating costs or reducing demand for certain of our products.

Regulation of GHG may also produce new opportunities for us. We continue to develop technologies to help our facilities and our customers lower energy consumption, improve efficiency, and lower emissions. We are also developing a portfolio of technologies that capture carbon dioxide from power and chemical plants before it reaches the atmosphere, enable cleaner transportation fuels, and facilitate alternate fuel source development. In addition, the potential demand for clean coal and our carbon capture solutions could increase demand for oxygen, one of our main products, and our proprietary technology for delivering low-cost oxygen.

## **OFF-BALANCE SHEET ARRANGEMENTS**

We have entered into certain guarantee agreements as discussed in Note 17, Commitments and Contingencies, to the consolidated financial statements. We are not a primary beneficiary in any material variable interest entity. Our off-balance sheet arrangements are not reasonably likely to have a material impact on financial condition, changes in financial condition, results of operations, or liquidity.

## **RELATED PARTY TRANSACTIONS**

Our principal related parties are equity affiliates operating in the industrial gas business. During the third quarter of 2015, we entered into a long-term sale of equipment contract to engineer, procure, and construct industrial gas facilities for our 25% owned joint venture to serve Saudi Aramco's Jazan oil refinery and power plant in Saudi Arabia. The principal terms of the agreement are consistent with those that we believe would have been negotiated at an arm's length with an independent party. Sales related to this contract are included in the results of our Industrial Gases – Global segment and were not material during fiscal year 2015.

## **INFLATION**

We operate in many countries that experience volatility in inflation and foreign exchange rates. The ability to pass on inflationary cost increases is an uncertainty due to general economic conditions and competitive situations. It is estimated that the cost of replacing our plant and equipment today is greater than its historical cost. Accordingly, depreciation expense would be greater if the expense were stated on a current cost basis.

## **CRITICAL ACCOUNTING POLICIES AND ESTIMATES**

Note 1, Major Accounting Policies, to the consolidated financial statements describes our major accounting policies. Judgments and estimates of uncertainties are required in applying our accounting policies in many areas. However, application of the critical accounting policies discussed below requires management's significant judgments, often as the result of the need to make estimates of matters that are inherently uncertain. If actual results were to differ materially from the estimates made, the reported results could be materially affected. Our management has reviewed these critical accounting policies and estimates and related disclosures with our audit committee.

### **Depreciable Lives of Plant and Equipment**

Net plant and equipment at 30 September 2015 totaled \$9,636.9, and depreciation expense totaled \$900.4 during 2015. Plant and equipment is recorded at cost and depreciated using the straight-line method, which deducts equal amounts of the cost of each asset from earnings every year over its estimated economic useful life.

Economic useful life is the duration of time an asset is expected to be productively employed by us, which may be less than its physical life. Assumptions on the following factors, among others, affect the determination of estimated economic useful life: wear and tear, obsolescence, technical standards, contract life, market demand, competitive position, raw material availability, and geographic location.

The estimated economic useful life of an asset is monitored to determine its appropriateness, especially in light of changed business circumstances. For example, changes in technology, changes in the estimated future demand for products, or excessive wear and tear may result in a shorter estimated useful life than originally anticipated. In these cases, we would depreciate the remaining net book value over the new estimated remaining life, thereby increasing depreciation expense per year on a prospective basis. Likewise, if the estimated useful life is increased, the adjustment to the useful life decreases depreciation expense per year on a prospective basis.

The regional Industrial Gases segments have numerous long-term customer supply contracts for which we construct an on-site plant adjacent to or near the customer's facility. These contracts typically have initial contract terms of 10 to 20 years. Depreciable lives of the production assets related to long-term contracts are matched to the contract lives. Extensions to the contract term of supply frequently occur prior to the expiration of the initial term. As contract terms are extended, the depreciable life of the remaining net book value of the production assets is adjusted to match the new contract term, as long as it does not exceed the remaining physical life of the asset.

Our regional Industrial Gases segments also have contracts for liquid or gaseous bulk supply and, for smaller customers, packaged gases. The depreciable lives of production facilities associated with these contracts are generally 15 years. The depreciable lives of production facilities within the Materials Technologies segment, where there is not an associated long-term supply agreement, range from 10 to 15 years. These depreciable lives



## [Table of Contents](#)

have been determined based on historical experience combined with judgment on future assumptions such as technological advances, potential obsolescence, competitors' actions, etc. Management monitors its assumptions and may potentially need to adjust depreciable life as circumstances change.

A change in the weighted average remaining depreciable life by one year for assets associated with our regional Industrial Gases segments and Materials Technologies segment would impact annual depreciation expense as summarized below:

	Decrease Life By 1 Year	Increase Life By 1 Year
Industrial Gases – Regional	\$38	\$(33)
Materials Technologies	\$4	\$(3)

### **Impairment of Assets**

#### **Plant and Equipment**

Plant and equipment held for use is grouped for impairment testing at the lowest level for which there is identifiable cash flows. Impairment testing of the asset group occurs whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Such circumstances would include a significant decrease in the market value of a long-lived asset grouping, a significant adverse change in the manner in which the asset grouping is being used or in its physical condition, an accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the long-lived asset, a history of operating or cash flow losses associated with the use of the asset grouping, or changes in the expected useful life of the long-lived assets.

If such circumstances are determined to exist, an estimate of undiscounted future cash flows produced by that asset group is compared to the carrying value to determine whether impairment exists. If an asset group is determined to be impaired, the loss is measured based on the difference between the asset group's fair value and its carrying value. An estimate of the asset group's fair value is based on the discounted value of its estimated cash flows. Assets to be disposed of by sale are reported at the lower of carrying amount or fair value less cost to sell.

The assumptions underlying the undiscounted future cash flow projections require significant management judgment. Factors that management must estimate include industry and market conditions, sales volume and prices, costs to produce, inflation, etc. The assumptions underlying the cash flow projections represent management's best estimates at the time of the impairment review. Changes in key assumptions or actual conditions that differ from estimates could result in an impairment charge. We use reasonable and supportable assumptions when performing impairment reviews and cannot predict the occurrence of future events and circumstances that could result in impairment charges. In 2014, we tested the recoverability of Latin America long-lived assets and concluded they were recoverable from expected future undiscounted cash flows.

In 2015, due to continued technical challenges, on-stream delays, and additional capital costs for the two projects associated with our Energy-from-Waste segment that are under construction in Tees Valley, United Kingdom, the Company evaluated different scenarios using undiscounted cash flow analysis to determine whether an indication of impairment exists. Factors specific to this asset grouping include estimating long-term efficiency, output, and on-stream reliability of the projects. The probability weighted undiscounted cash flows of the asset group exceeded the carrying value; therefore, no impairment was indicated. In November 2015, the Company suspended construction of the second project until certain design issues of the first project are understood, remediated, and can be efficiently integrated into the design of the second project. It is reasonably possible that key assumptions or actual conditions may change and result in a future impairment charge.

#### **Goodwill**

The acquisition method of accounting for business combinations requires us to make use of estimates and judgments to allocate the purchase price paid for acquisitions to the fair value of the net tangible and identifiable intangible assets. Goodwill represents the excess of the aggregate purchase price over the fair value of identifiable net assets of an acquired entity. Goodwill was \$1,131.3 as of 30 September 2015. Disclosures related to goodwill are included in Note 10, Goodwill, to the consolidated financial statements.

## [Table of Contents](#)

We review goodwill for impairment annually in the fourth quarter of the fiscal year and whenever events or changes in circumstances indicate the need for more frequent testing. As a result of our reorganization effective 1 October 2014, we also reviewed goodwill for impairment in the first quarter of 2015 as further discussed below. The tests are done at the reporting unit level, which is defined as being equal to or one level below the operating segment for which discrete financial information is available and whose operating results are reviewed by segment managers regularly. As of 30 September 2015, we had seven business segments and thirteen reporting units. Reporting units are primarily based on products within each business segment. The majority of our goodwill is assigned to reporting units within the three regional Industrial Gases segments and the Materials Technologies segment.

As part of the goodwill impairment testing, we have the option to first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. If we choose not to complete a qualitative assessment for a given reporting unit, or if the initial assessment indicates that it is more likely than not that the carrying value of a reporting unit exceeds its estimated fair value, a two-step quantitative test is required. We chose to bypass the qualitative assessment and conduct quantitative testing, as further described below.

The first step of the quantitative test requires that we compare the fair value of our reporting units to their carrying value, including assigned goodwill. To determine the fair value of a reporting unit, we initially use an income approach valuation model, representing the present value of estimated future cash flows. Our valuation model uses a discrete growth period and an estimated exit trading multiple. The income approach is an appropriate valuation method due to our capital-intensive nature, the long-term contractual nature of our business, and the relatively consistent cash flows generated by our reporting units. The principal assumptions utilized in our income approach valuation model include revenue growth rates, operating profit margins, discount rate, and exit multiple. Projected revenue growth rates and operating profit assumptions are consistent with those utilized in our operating plan and long-term financial planning process. The discount rate assumption is calculated based on an estimated market-participant risk-adjusted weighted-average cost of capital, which includes factors such as the risk-free rate of return, cost of debt, and expected equity premiums. The exit multiple is determined from comparable industry transactions and where appropriate, reflects expected long-term growth rates. If our initial review under the income approach indicates there may be impairment, we incorporate results under the market approach to further evaluate the existence of impairment. When the market approach is utilized, fair value is estimated based on market multiples of revenue and earnings derived from comparable publicly-traded industrial gases companies engaged in the same or similar lines of business as the reporting unit, adjusted to reflect differences in size and growth prospects. When both the income and market approach are utilized, we review relevant facts and circumstances and make a qualitative assessment to determine the proper weighting. Management judgment is required in the determination of each assumption utilized in the valuation model, and actual results could differ from the estimates.

If the estimated fair value of the reporting unit is less than the carrying value, we perform the second step of the impairment test to measure the amount of impairment loss, if any. In the second step, the reporting unit's fair value is allocated to all of the assets and liabilities of the reporting unit, including any unrecognized intangible assets, in an analysis that calculates the implied fair value of goodwill in the same manner as if the reporting unit were being acquired in a business combination. If the implied fair value of the reporting unit's goodwill is less than the carrying value, the difference is recorded as an impairment loss.

In 2014, we conducted our annual goodwill impairment testing as of 1 July 2014 and concluded that the goodwill associated with the Latin America reporting unit, previously within the Merchant Gases segment, was impaired and recorded a non-cash impairment charge of \$305.2. The Latin America reporting unit is composed predominately of our Indura business with business units in Chile, Colombia, and other Latin America countries, which the Company acquired in 2012.

The acquisition price in 2012 reflected the Company's expectations for Indura's revenue growth in Chile and across Latin America. At the time of the acquisition, the Indura business had approximately \$480 in revenue and 21% EBITDA margin. We anticipated average revenue to grow at a multiple of up to two times long-term manufacturing growth, which was projected at approximately 4%. In addition, we expected additional revenue growth from the Company's ability to fund increased on-site plant investment and its application technology capability. We also expected EBITDA margins to expand based on production, distribution, supply chain, and overhead synergies. Revenue growth was also anticipated to drive expanding EBITDA margins and increase future cash flows.



## [Table of Contents](#)

In 2014, economic conditions impacting our Latin America reporting unit began to weaken, including a decline in Chilean manufacturing growth, increasing inflation, weaker export demand for many commodities, and the enactment of higher tax rates in Chile. While we achieved expected cost synergies for the Indura business, we did not realize projected revenue growth primarily due to the weakening Chilean economy. Additionally, long-term manufacturing growth forecasts were reduced to 2% to 3% in Chile and other countries in which Indura operates. As a result of these events, we had lowered our growth projections to be in line with lower published growth rates, reduced our expectations for EBITDA margin expansion by approximately 600 basis points, and determined that the associated goodwill was impaired.

In 2014, we conducted an additional impairment test on our reporting units that existed as of 30 September 2014 due to the reorganization of our business effective as of 1 October 2014. The fair value of all of the reporting units except Latin America substantially exceeded their carrying value at 30 September 2014. The fair value of our Latin America reporting unit exceeded its carrying value by approximately 10%. The fair value of the Latin America reporting unit was estimated based on a similar outlook and assumptions as those used for the 1 July 2014 testing, and the fair value of the reporting unit exceeded its carrying value primarily due to depreciation and amortization and the \$20.6 impact of the Chilean tax rate change.

During the first quarter of 2015, we conducted an impairment test based on our new reporting structure. As of 1 October 2014, we determined that the fair value of all of our new reporting units, except Latin America, substantially exceeded their carrying value, and therefore there were no indications of impairment. The Latin America reporting unit, now within the Industrial Gases – Americas segment, did not change as a result of the reorganization and its fair value was based on a similar long-term outlook and assumptions as those used in the 2014 impairment testing.

During the fourth quarter of 2015, we conducted our annual goodwill impairment testing noting no indications of impairment. The fair value of all of our reporting units, except for our Latin America reporting unit, continued to substantially exceed their carrying value. The fair value of our Latin America reporting unit exceeded its carrying value by approximately 10%.

The excess of fair value over carrying value for our other reporting units ranged from approximately 70% to approximately 250%. Management judgement is required in the determination of each assumption utilized in the valuation model, and actual results could differ from the estimates. In order to evaluate the sensitivity of the fair value calculation on the goodwill impairment test, we applied a hypothetical 10% decrease to the fair value of these reporting units. In this scenario, the fair value of our reporting units continued to exceed their carrying value by a range of approximately 50% to 220%.

As of 30 September 2015, the carrying value of the Latin America goodwill was \$200.9, or approximately 1% of consolidated total assets. The reporting unit represents approximately 5% of the Company's total consolidated sales. Revenue growth and EBITDA margin assumptions are two primary drivers of the fair value of our Latin America reporting unit, and these assumptions are underpinned by our expectations for long-term manufacturing growth in the region. In the event of further declines in long-term manufacturing growth projections, we may need to perform additional impairment analysis. We determined that with other assumptions held constant, a decrease in revenue growth rates of approximately 300 basis points or a decrease in EBITDA margins of approximately 200 basis points would result in the fair value of the reporting unit being equal to its carrying value, which would require that we perform step 2 of the impairment analysis to assess the need for additional goodwill impairment.

The Latin America reporting unit has other material assets that include: Plant and equipment, net of \$363.5, customer relationships of \$172.5, and trade names and trademarks of \$60.1. The trade names and trademarks are classified as indefinite-lived intangible assets. See impairment considerations for these assets within the Plant and Equipment and Intangible Assets sections of our Critical Accounting Policies and Estimates.

Future events that could have a negative impact on the level of excess fair value over carrying value of the reporting units include, but are not limited to: longer-term economic weakness, decline in market share, pricing pressures, inability to successfully implement cost improvement measures, increases to our cost of capital, and changes to the structure of our business as a result of future reorganizations or divestitures of assets or businesses. Negative changes in one or more of these factors, among others, could result in additional impairment charges.

We will continue to evaluate goodwill on an annual basis as of the beginning of our fourth fiscal quarter and whenever there are indicators of potential impairment, such as significant adverse changes in business climate or operating results or changes in management's business outlook or strategy.

## **Intangible Assets**

Intangible assets with determinable lives at 30 September 2015 totaled \$448.2 and consisted primarily of customer relationships, purchased patents and technology, and land use rights. These intangible assets are tested for impairment as part of the long-lived asset grouping impairment tests. Impairment testing of the asset group occurs whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. See the impairment discussion above under Plant and Equipment for a description of how impairment losses are determined.

Indefinite-lived intangible assets at 30 September 2015 totaled \$60.1 and consisted of trade names and trademarks. Indefinite-lived intangibles are subject to impairment testing at least annually or more frequently if events or changes in circumstances indicate that potential impairment exists. The impairment test for indefinite-lived intangible assets encompasses calculating the fair value of the indefinite-lived intangible assets and comparing the fair value to their carrying value. If the fair value is less than the carrying value, the difference is recorded as an impairment loss. To determine fair value, we utilize the royalty savings method, a form of the income approach. This method values an intangible asset by estimating the royalties avoided through ownership of the asset.

In the fourth quarter of 2014, we conducted our annual impairment test and determined that our indefinite-lived intangible assets were impaired. Refer to Note 11, Intangible Assets, to the consolidated financial statements for additional information.

In the fourth quarter of 2015, we conducted our annual impairment test of indefinite-lived intangibles and found no indications of impairment.

## **Equity Investments**

Investments in and advances to equity affiliates totaled \$1,265.7 at 30 September 2015. The majority of our investments are non-publicly traded ventures with other companies in the industrial gas business. Summarized financial information of equity affiliates is included in Note 8, Summarized Financial Information of Equity Affiliates, to the consolidated financial statements. Equity investments are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be recoverable.

In the event that a decline in fair value of an investment occurs, and the decline in value is considered to be other than temporary, an impairment loss would be recognized. Management's estimate of fair value of an investment is based on estimated discounted future cash flows expected to be generated by the investee. Changes in key assumptions about the financial condition of an investee or actual conditions that differ from estimates could result in an impairment charge.

## **Income Taxes**

We account for income taxes under the liability method. Under this method, deferred tax assets and liabilities are recognized for the tax effects of temporary differences between the financial reporting and tax bases of assets and liabilities measured using the enacted tax rate. At 30 September 2015, accrued income taxes and net deferred tax liabilities amounted to \$55.8 and \$720.7, respectively. Tax liabilities related to uncertain tax positions as of 30 September 2015 were \$97.5, excluding interest and penalties. Income tax expense for the year ended 30 September 2015 was \$415.9. Disclosures related to income taxes are included in Note 23, Income Taxes, to the consolidated financial statements.

Management judgment is required concerning the ultimate outcome of tax contingencies and the realization of deferred tax assets.

Actual income taxes paid may vary from estimates, depending upon changes in income tax laws, actual results of operations, and the final audit of tax returns by taxing authorities. Tax assessments may arise several years after tax returns have been filed. We believe that our recorded tax liabilities adequately provide for these assessments.

Deferred tax assets are recorded for operating losses and tax credit carryforwards. However, when we do not expect sufficient sources of future taxable income to realize the benefit of the operating losses or tax credit carryforwards, these deferred tax assets are reduced by a valuation allowance. A valuation allowance is recognized if, based on the weight of available evidence, it is considered more likely than not that some portion or all of the deferred tax asset will not be realized. The factors used to assess the likelihood of realization include

forecasted future taxable income and available tax planning strategies that could be implemented to realize or renew net deferred tax assets in order to avoid the potential loss of future tax benefits. The effect of a change in the valuation allowance is reported in the income tax expense.

A 1% point increase/decrease in our effective tax rate would decrease/increase net income by approximately \$17.

### **Pension and Other Postretirement Benefits**

The amounts recognized in the consolidated financial statements for pension and other postretirement benefits are determined on an actuarial basis utilizing numerous assumptions. The discussion that follows provides information on the significant assumptions and expense associated with the defined benefit plans.

Actuarial models are used in calculating the expense and liability related to the various defined benefit plans. These models have an underlying assumption that the employees render service over their service lives on a relatively consistent basis; therefore, the expense of benefits earned should follow a similar pattern.

Several assumptions and statistical variables are used in the models to calculate the expense and liability related to the plans. We determine assumptions about the discount rate, the expected rate of return on plan assets, and the rate of compensation increase. Note 16, Retirement Benefits, to the consolidated financial statements includes disclosure of these rates on a weighted-average basis for both the domestic and international plans. The actuarial models also use assumptions about demographic factors such as retirement age, mortality, and turnover rates. We believe the actuarial assumptions are reasonable. However, actual results could vary materially from these actuarial assumptions due to economic events and different rates of retirement, mortality, and turnover. In fiscal year 2015, our mortality assumptions were aligned with the IRS mortality assumption used to determine funding valuations, with the exception of the U.S. Supplementary Pension Plan, in which we adopted the Society of Actuaries new mortality tables upon re-measurement of the plan required as a result of pension settlements and curtailments in 2015. As of 30 September 2015, our projected benefit obligation reflects the adoption of the Society of Actuaries new mortality tables for all major plans. Our mortality assumptions will differ from the IRS mortality assumptions used to determine funding valuations, as the IRS is not expected to adopt the new tables until 2017.

One of the assumptions used in the actuarial models is the discount rate used to measure benefit obligations. This rate reflects the prevailing market rate for high-quality, fixed-income debt instruments with maturities corresponding to the expected timing of benefit payments as of the annual measurement date for each of the various plans. The timing and amount of the expected benefit payments are matched against the returns of high-quality corporate bonds over the same time period to determine an overall effective discount rate. The rate is used to discount the future cash flows of benefit obligations back to the measurement date. This rate will change from year-to-year based on market conditions that affect corporate bond yields. A higher discount rate decreases the present value of the benefit obligations and results in lower pension expense. A 50 bp increase/decrease in the discount rate decreases/increases pension expense by approximately \$31 per year.

Effective in fiscal year 2016, we will use a spot rate approach to estimate the service cost and interest cost components of net periodic benefit cost for most of our defined benefit pension plans.

The expected rate of return on plan assets represents an estimate of the average rate of return to be earned by plan assets over the period that the benefits included in the benefit obligation are to be paid. The expected return on plan assets assumption is based on a weighted average of estimated long-term returns of major asset classes and the historical performance of plan assets. In determining estimated asset class returns, we take into account historical and future expected long-term returns and the value of active management, as well as the interest rate environment. Asset allocation is determined based on long-term return, volatility and correlation characteristics of the asset classes, the profiles of the plans' liabilities, and acceptable levels of risk. Lower returns on the plan assets result in higher pension expense. A 50 bp increase/decrease in the estimated rate of return on plan assets decreases/increases pension expense by approximately \$19 per year.

We use a market-related valuation method for recognizing certain investment gains or losses for our significant pension plans. Investment gains or losses are the difference between the expected return and actual return on plan assets. The expected return on plan assets is determined based on a market-related value of plan assets. For equities, this is a calculated value that recognizes investment gains and losses in fair value related to equities over a five-year period from the year in which they occur and reduces year-to-year volatility. The market-related value for fixed income investments equals the actual fair value. Expense in future periods will be impacted as gains or losses are recognized in the market-related value of assets.

## [Table of Contents](#)

The expected rate of compensation increase is another key assumption. We determine this rate based on review of the underlying long-term salary increase trend characteristic of labor markets and historical experience, as well as comparison to peer companies. A 50 bp increase/decrease in the expected rate of compensation increases/decreases pension expense by approximately \$14 per year.

### **Loss Contingencies**

In the normal course of business we encounter contingencies, i.e., situations involving varying degrees of uncertainty as to the outcome and effect on us. We accrue a liability for loss contingencies when it is considered probable that a liability has been incurred and the amount of loss can be reasonably estimated. When only a range of possible loss can be established, the most probable amount in the range is accrued. If no amount within this range is a better estimate than any other amount within the range, the minimum amount in the range is accrued.

Contingencies include those associated with litigation and environmental matters, for which our accounting policy is discussed in Note 1, Major Accounting Policies, to the consolidated financial statements, and particulars are provided in Note 17, Commitments and Contingencies, to the consolidated financial statements. Significant judgment is required in both determining probability and whether the amount of loss associated with a contingency can be reasonably estimated. These determinations are made based on the best available information at the time. As additional information becomes available, we reassess probability and estimates of loss contingencies. Revisions in the estimates associated with loss contingencies could have a significant impact on our results of operations in the period in which an accrual for loss contingencies is recorded or adjusted. For example, due to the inherent uncertainties related to environmental exposures, a significant increase to environmental liabilities could occur if a new site is designated, the scope of remediation is increased, or our proportionate share is increased. Similarly, a future charge for regulatory fines or damage awards associated with litigation could have a significant impact on our net income in the period in which it is recorded.

### **NEW ACCOUNTING GUIDANCE**

See Note 2, New Accounting Guidance, to the consolidated financial statements for information concerning the implementation and impact of new accounting guidance.

### **FORWARD-LOOKING STATEMENTS**

This Management's Discussion and Analysis contains "forward-looking statements" within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including statements about earnings guidance and business outlook. These forward-looking statements are based on management's reasonable expectations and assumptions as of the date of this release. Actual performance and financial results may differ materially from projections and estimates expressed in the forward-looking statements because of many factors not anticipated by management, including, without limitation, global or regional economic conditions and supply and demand dynamics in market segments into which the Company sells; significant fluctuations in interest rates and foreign currencies from that currently anticipated; with regard to the intended spin-off of Materials Technologies, general economic and business conditions that may affect the proposed spin-off and the execution thereof, changes in capital market conditions, and Air Products' decision not to consummate the spin-off due to market, economic or other events; future financial and operating performance of major customers; unanticipated contract terminations or customer cancellations or postponement of projects and sales; asset impairments due to economic conditions or specific events; the impact of competitive products and pricing; challenges of implementing new technologies; ability to protect and enforce the Company's intellectual property rights; unexpected changes in raw material supply and markets; the impact of price fluctuations in natural gas and disruptions in markets and the economy due to oil price volatility; the ability to recover increased energy and raw material costs from customers; costs and outcomes of litigation or regulatory investigations; the success of productivity and cost reduction programs; the timing, impact, and other uncertainties of future acquisitions or divestitures; political risks, including the risks of unanticipated government actions; acts of war or terrorism; the impact of changes in environmental, tax or other legislation and regulatory activities in jurisdictions in which the Company and its affiliates operate; and other risk factors described in Section 1A, Risk Factors. The Company disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements contained in this document to reflect any change in the Company's assumptions, beliefs or expectations or any change in events, conditions, or circumstances upon which any such forward-looking statements are based.

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

Our earnings, cash flows, and financial position are exposed to market risks relating to fluctuations in interest rates and foreign currency exchange rates. It is our policy to minimize our cash flow exposure to adverse changes in currency exchange rates and to manage the financial risks inherent in funding with debt capital.

We address these financial exposures through a controlled program of risk management that includes the use of derivative financial instruments. Counterparties to all derivative contracts are major financial institutions, thereby minimizing the risk of credit loss. All instruments are entered into for other than trading purposes. For details on the types and use of these derivative instruments and the major accounting policies, see Note 1, Major Accounting Policies, and Note 13, Financial Instruments, to the consolidated financial statements, for additional information. Additionally, we mitigate adverse energy price impacts through our cost pass-through contracts with customers and price increases.

Our derivative and other financial instruments consist of long-term debt (including current portion), interest rate swaps, cross currency interest rate swaps, and foreign exchange-forward contracts. The net market value of these financial instruments combined is referred to below as the net financial instrument position and is disclosed in Note 14, Fair Value Measurements, to the consolidated financial statements.

At 30 September 2015 and 2014, the net financial instrument position was a liability of \$4,452.0 and \$5,044.9, respectively. The decrease in the net financial instrument position was due primarily to repayment of long-term debt and a stronger U.S. dollar which reduced the translated value of foreign currency debt and increased the fair value of our outstanding derivatives.

The analysis below presents the sensitivity of the market value of our financial instruments to selected changes in market rates and prices. Market values are the present value of projected future cash flows based on the market rates and prices chosen. The market values for interest rate risk and foreign currency risk are calculated by us using a third-party software model that utilizes standard pricing models to determine the present value of the instruments based on market conditions (interest rates, spot and forward exchange rates, and implied volatilities) as of the valuation date.

### **Interest Rate Risk**

Our debt portfolio as of 30 September 2015, including the effect of currency swap agreements, primarily comprised debt denominated in U.S. dollars (46%) and Euros (23%). This debt portfolio is composed of 48% fixed-rate debt and 52% variable-rate debt. Changes in interest rates have different impacts on the fixed- and variable-rate portions of our debt portfolio. A change in interest rates on the fixed portion of the debt portfolio impacts the net financial instrument position but has no impact on interest incurred or cash flows. A change in interest rates on the variable portion of the debt portfolio impacts the interest incurred and cash flows but does not impact the net financial instrument position.

The sensitivity analysis related to the interest rate risk on the fixed portion of our debt portfolio assumes an instantaneous 100 bp move in interest rates from the level at 30 September 2015, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of \$139 and \$173 in the net liability position of financial instruments at 30 September 2015 and 2014, respectively. A 100 bp decrease in market interest rates would result in an increase of \$151 and \$188 in the net liability position of financial instruments at 30 September 2015 and 2014, respectively.

Based on the variable-rate debt included in our debt portfolio, including the interest rate swap agreements, a 100 bp increase in interest rates would result in an additional \$30 and \$31 of interest incurred per year at the end of 30 September 2015 and 2014, respectively. A 100 bp decline in interest rates would lower interest incurred by \$30 and \$31 per year at 30 September 2015 and 2014, respectively.

### **Foreign Currency Exchange Rate Risk**

The sensitivity analysis related to foreign currency exchange rates assumes an instantaneous 10% change in the foreign currency exchange rates from their levels at 30 September 2015 and 2014, with all other variables held constant. A 10% strengthening or weakening of the functional currency of an entity versus all other currencies would result in a decrease or increase, respectively, of \$421 and \$419 in the net liability position of financial instruments at 30 September 2015 and 2014, respectively.

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[Table of Contents](#)

The primary currency pairs for which we have exchange rate exposure are Euros and U.S. dollars, Euros and British Pound Sterling, and British Pound Sterling and U.S. dollars. Foreign currency debt, cross currency interest rate swaps, and foreign exchange-forward contracts are used in countries where we do business, thereby reducing our net asset exposure. Foreign exchange-forward contracts and cross currency interest rate swaps are also used to hedge our firm and highly anticipated foreign currency cash flows. Thus, there is either an asset/liability or cash flow exposure related to all of the financial instruments in the above sensitivity analysis for which the impact of a movement in exchange rates would be in the opposite direction and materially equal to the impact on the instruments in the analysis.

The majority of the Company's sales are derived from outside of the United States and denominated in foreign currencies. Financial results therefore will be affected by changes in foreign currency rates. The Euro represents the largest exposure in terms of our foreign earnings. We estimate that a 10% reduction in the Euro versus the U.S. dollar would lower our annual operating income by approximately \$20.

**ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

**MANAGEMENT’S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING**

Air Products’ management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting, which is defined in the following sentences, is a process designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles and includes those policies and procedures that:

- (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- (ii) provide reasonable assurance that the transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. 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
- (iii) 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 inherent limitations, internal control over financial reporting can only provide reasonable assurance and may not prevent or detect misstatements. Further, because of changes in conditions, the effectiveness of our internal control over financial reporting may vary over time. Our processes contain self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

Management has evaluated the effectiveness of its internal control over financial reporting based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, management concluded that, as of 30 September 2015, the Company’s internal control over financial reporting was effective.

KPMG LLP, an independent registered public accounting firm, has issued their opinion on the Company’s internal control over financial reporting as of 30 September 2015 as stated in their report which appears herein.

*/s/ Seifi Ghasemi*

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Seifi Ghasemi  
Chairman, President, and  
Chief Executive Officer  
24 November 2015

*/s/ M. Scott Crocco*

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M. Scott Crocco  
Senior Vice President and  
Chief Financial Officer  
24 November 2015



## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Shareholders of Air Products and Chemicals, Inc.:

We have audited the accompanying consolidated balance sheets of Air Products and Chemicals, Inc. and Subsidiaries (the Company) as of 30 September 2015 and 2014, and the related consolidated income statements, consolidated comprehensive income statements, consolidated statements of cash flows, and equity for each of the years in the three-year period ended 30 September 2015. In connection with our audits of the consolidated financial statements, we also have audited the financial statement schedule referred to in Item 15(a)(2) in this Form 10-K. We have audited the Company's internal control over financial reporting as of 30 September 2015, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. The Company's management is responsible for these consolidated financial statements and financial statement schedule, 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 these consolidated financial statements and financial statement schedule and an opinion on the Company's internal control over financial reporting 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 audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the consolidated financial statements included 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. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Air Products and Chemicals, Inc. and Subsidiaries as of 30 September 2015 and 2014, and the results of their operations and their cash flows for each of the years in the three-year period ended 30 September 2015, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the related financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein. Also in our opinion, Air Products and Chemicals, Inc. and Subsidiaries maintained, in all material respects, effective internal control over financial reporting as of 30 September 2015, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

/s/ KPMG LLP

Philadelphia, Pennsylvania

24 November 2015



[Table of Contents](#)
**The Consolidated Financial Statements**

Air Products and Chemicals, Inc. and Subsidiaries

**CONSOLIDATED INCOME STATEMENTS**

Year ended 30 September (Millions of dollars, except for share data)	2015	2014	2013
<b>Sales</b>	<b>\$9,894.9</b>	<b>\$10,439.0</b>	<b>\$10,180.4</b>
Cost of sales	6,944.1	7,634.6	7,472.1
Selling and administrative	941.7	1,059.3	1,066.3
Research and development	138.8	141.4	133.7
Business restructuring and cost reduction actions	207.7	12.7	231.6
Pension settlement loss	21.2	5.5	12.4
Goodwill and intangible asset impairment charge	—	310.1	—
Business separation costs	7.5	—	—
Gain on previously held equity interest	17.9	—	—
Advisory costs	—	—	10.1
Other income (expense), net	47.3	52.8	70.2
<b>Operating Income</b>	<b>1,699.1</b>	<b>1,328.2</b>	<b>1,324.4</b>
Equity affiliates' income	154.5	151.4	167.8
Interest expense	103.5	125.1	141.8
Loss on early retirement of debt	16.6	—	—
<b>Income from Continuing Operations before Taxes</b>	<b>1,733.5</b>	<b>1,354.5</b>	<b>1,350.4</b>
Income tax provision	415.9	366.0	307.9
<b>Income from Continuing Operations</b>	<b>1,317.6</b>	<b>988.5</b>	<b>1,042.5</b>
<b>Income (Loss) from Discontinued Operations, net of tax</b>	<b>—</b>	<b>4.6</b>	<b>(10.0)</b>
<b>Net Income</b>	<b>1,317.6</b>	<b>993.1</b>	<b>1,032.5</b>
<b>Less: Net Income Attributable to Noncontrolling Interests</b>	<b>39.7</b>	<b>1.4</b>	<b>38.3</b>
<b>Net Income Attributable to Air Products</b>	<b>\$1,277.9</b>	<b>\$991.7</b>	<b>\$994.2</b>
<b>Net Income Attributable to Air Products</b>			
Income from continuing operations	\$1,277.9	\$987.1	\$1,004.2
Income (loss) from discontinued operations	—	4.6	(10.0)
<b>Net Income Attributable to Air Products</b>	<b>\$1,277.9</b>	<b>\$991.7</b>	<b>\$994.2</b>
<b>Basic Earnings Per Common Share Attributable to Air Products</b>			
Income from continuing operations	\$5.95	\$4.64	\$4.79
Income (loss) from discontinued operations	—	.02	(.05)
<b>Net Income Attributable to Air Products</b>	<b>\$5.95</b>	<b>\$4.66</b>	<b>\$4.74</b>
<b>Diluted Earnings Per Common Share Attributable to Air Products</b>			
Income from continuing operations	\$5.88	\$4.59	\$4.73
Income (loss) from discontinued operations	—	.02	(.05)
<b>Net Income Attributable to Air Products</b>	<b>\$5.88</b>	<b>\$4.61</b>	<b>\$4.68</b>
<b>Weighted Average Common Shares — Basic</b> (in millions)	<b>214.9</b>	<b>212.7</b>	<b>209.7</b>
<b>Weighted Average Common Shares — Diluted</b> (in millions)	<b>217.3</b>	<b>215.2</b>	<b>212.3</b>

The accompanying notes are an integral part of these statements.

[Table of Contents](#)

Air Products and Chemicals, Inc. and Subsidiaries

**CONSOLIDATED COMPREHENSIVE INCOME STATEMENTS**

Year ended 30 September (Millions of dollars)	2015	2014	2013
<b>Net Income</b>	<b>\$1,317.6</b>	<b>\$993.1</b>	<b>\$1,032.5</b>
<b>Other Comprehensive Income (Loss), net of tax:</b>			
Translation adjustments, net of tax of \$45.2, \$36.5, and (\$44.8)	(699.3)	(213.1)	(25.0)
Net gain (loss) on derivatives, net of tax of (\$16.0), (\$13.6), and \$14.5	(35.0)	(15.2)	35.0
Pension and postretirement benefits, net of tax of (\$148.5), (\$28.0), and \$154.8	(278.5)	(74.2)	231.9
Reclassification adjustments:			
Currency translation adjustment	—	—	.6
Derivatives, net of tax of \$7.0, (\$1.9), and (\$5.5)	20.8	(9.1)	(20.2)
Pension and postretirement benefits, net of tax of \$47.7, \$40.0, and \$55.9	97.0	84.7	104.9
<b>Total Other Comprehensive Income (Loss)</b>	<b>(895.0)</b>	<b>(226.9)</b>	<b>327.2</b>
<b>Comprehensive Income</b>	<b>422.6</b>	<b>766.2</b>	<b>1,359.7</b>
<b>Net Income Attributable to Noncontrolling Interests</b>	<b>39.7</b>	<b>1.4</b>	<b>38.3</b>
<b>Other Comprehensive Loss Attributable to Noncontrolling Interests</b>	<b>(11.0)</b>	<b>(5.6)</b>	<b>(1.0)</b>
<b>Comprehensive Income Attributable to Air Products</b>	<b>\$393.9</b>	<b>\$770.4</b>	<b>\$1,322.4</b>

The accompanying notes are an integral part of these statements.

[Table of Contents](#)

Air Products and Chemicals, Inc. and Subsidiaries

**CONSOLIDATED BALANCE SHEETS**

30 September (Millions of dollars, except for share data)

2015 2014

<b>Assets</b>		
<b>Current Assets</b>		
Cash and cash items	\$206.4	\$336.6
Trade receivables, net	1,406.2	1,486.0
Inventories	657.8	706.0
Contracts in progress, less progress billings	110.8	155.4
Prepaid expenses	67.3	87.8
Other receivables and current assets	462.3	523.0
<b>Total Current Assets</b>	<b>2,910.8</b>	<b>3,294.8</b>
Investment in net assets of and advances to equity affiliates	1,265.7	1,257.9
Plant and equipment, net	9,636.9	9,532.1
Goodwill, net	1,131.3	1,237.3
Intangible assets, net	508.3	615.8
Noncurrent capital lease receivables	1,350.2	1,414.9
Other noncurrent assets	634.9	426.3
<b>Total Noncurrent Assets</b>	<b>14,527.3</b>	<b>14,484.3</b>
<b>Total Assets</b>	<b>\$17,438.1</b>	<b>\$17,779.1</b>
<b>Liabilities and Equity</b>		
<b>Current Liabilities</b>		
Payables and accrued liabilities	\$1,662.4	\$1,591.0
Accrued income taxes	55.8	78.0
Short-term borrowings	1,494.3	1,228.7
Current portion of long-term debt	435.6	65.3
<b>Total Current Liabilities</b>	<b>3,648.1</b>	<b>2,963.0</b>
Long-term debt	3,949.1	4,824.5
Other noncurrent liabilities	1,556.5	1,187.5
Deferred income taxes	903.3	995.5
<b>Total Noncurrent Liabilities</b>	<b>6,408.9</b>	<b>7,007.5</b>
<b>Total Liabilities</b>	<b>10,057.0</b>	<b>9,970.5</b>
<b>Commitments and Contingencies</b> – See Note 17		
<b>Redeemable Noncontrolling Interest</b>	—	287.2
<b>Air Products Shareholders' Equity</b>		
Common stock (par value \$1 per share; issued 2015 and 2014–249,455,584 shares)	249.4	249.4
Capital in excess of par value	904.7	842.0
Retained earnings	10,580.4	9,993.2
Accumulated other comprehensive loss	(2,125.9)	(1,241.9)
Treasury stock, at cost (2015–34,096,471 shares; 2014–35,917,440 shares)	(2,359.6)	(2,476.9)
<b>Total Air Products Shareholders' Equity</b>	<b>7,249.0</b>	<b>7,365.8</b>
<b>Noncontrolling Interests</b>	<b>132.1</b>	<b>155.6</b>
<b>Total Equity</b>	<b>7,381.1</b>	<b>7,521.4</b>
<b>Total Liabilities and Equity</b>	<b>\$17,438.1</b>	<b>\$17,779.1</b>

The accompanying notes are an integral part of these statements.

[Table of Contents](#)

Air Products and Chemicals, Inc. and Subsidiaries  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**

Year ended 30 September (Millions of dollars)	2015	2014	2013
<b>Operating Activities</b>			
Net Income	\$1,317.6	\$993.1	\$1,032.5
Less: Net income attributable to noncontrolling interests	39.7	1.4	38.3
Net income attributable to Air Products	1,277.9	991.7	994.2
(Income) Loss from discontinued operations	—	(4.6)	10.0
Income from continuing operations attributable to Air Products	1,277.9	987.1	1,004.2
Adjustments to reconcile income to cash provided by operating activities:			
Depreciation and amortization	936.4	956.9	907.0
Deferred income taxes	2.9	125.5	12.8
Loss on early retirement of debt	16.6	—	—
Gain on previously held equity interest	(17.9)	—	—
Undistributed earnings of unconsolidated affiliates	(102.6)	(76.0)	(59.2)
(Gain) Loss on sale of assets and investments	(30.1)	4.3	(20.0)
Share-based compensation	45.7	44.0	43.5
Noncurrent capital lease receivables	(9.5)	20.0	(151.4)
Goodwill and intangible asset impairment charge	—	310.1	—
Write-down of long-lived assets associated with restructuring	47.4	—	100.4
Other adjustments	52.2	61.0	(76.4)
Working capital changes that provided (used) cash, excluding effects of acquisitions and divestitures:			
Trade receivables	(29.7)	(2.7)	4.8
Inventories	8.3	(23.5)	75.0
Contracts in progress, less progress billings	37.4	(5.4)	(16.2)
Other receivables	49.3	(33.0)	(77.0)
Payables and accrued liabilities	157.8	(234.8)	(130.3)
Other working capital	(4.3)	52.9	(64.1)
<b>Cash Provided by Operating Activities</b>	<b>2,437.8</b>	<b>2,186.4</b>	<b>1,553.1</b>
<b>Investing Activities</b>			
Additions to plant and equipment	(1,614.8)	(1,684.2)	(1,524.2)
Acquisitions, less cash acquired	(34.5)	—	(224.9)
Investment in and advances to unconsolidated affiliates	(4.3)	2.0	1.3
Proceeds from sale of assets and investments	55.3	45.6	52.8
Other investing activities	(1.4)	(1.4)	(2.0)
<b>Cash Used for Investing Activities</b>	<b>(1,599.7)</b>	<b>(1,638.0)</b>	<b>(1,697.0)</b>
<b>Financing Activities</b>			
Long-term debt proceeds	338.8	461.0	927.2
Payments on long-term debt	(708.7)	(608.6)	(437.5)
Net increase in commercial paper and short-term borrowings	284.0	148.7	437.7
Dividends paid to shareholders	(677.5)	(627.7)	(565.6)
Purchase of treasury shares	—	—	(461.6)
Proceeds from stock option exercises	121.3	141.6	226.4
Excess tax benefit from share-based compensation	31.9	28.3	37.9
Payment for subsidiary shares from noncontrolling interests	(278.4)	(.5)	(14.0)
Other financing activities	(56.8)	(47.1)	(35.1)
<b>Cash (Used for) Provided by Financing Activities</b>	<b>(945.4)</b>	<b>(504.3)</b>	<b>115.4</b>
<b>Discontinued Operations</b>			
Cash provided by operating activities	—	.7	14.3
Cash provided by (used for) investing activities	—	9.8	(1.2)
Cash used for financing activities	—	(157.1)	—
<b>Cash (Used for) Provided by Discontinued Operations</b>	<b>—</b>	<b>(146.6)</b>	<b>13.1</b>
<b>Effect of Exchange Rate Changes on Cash</b>	<b>(22.9)</b>	<b>(11.3)</b>	<b>11.4</b>
Decrease in Cash and Cash Items	(130.2)	(113.8)	(4.0)
Cash and Cash Items – Beginning of Year	336.6	450.4	454.4
<b>Cash and Cash Items – End of Period</b>	<b>\$206.4</b>	<b>\$336.6</b>	<b>\$450.4</b>

The accompanying notes are an integral part of these statements.

[Table of Contents](#)
**Air Products and Chemicals, Inc. and Subsidiaries**  
**CONSOLIDATED STATEMENTS OF EQUITY**

Year ended 30 September (Millions of dollars)	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Air Products Shareholders' Equity	Non- controlling Interests	Total Equity
<b>Balance 30 September 2012</b>	<b>\$249.4</b>	<b>\$810.5</b>	<b>\$9,234.5</b>	<b>\$(1,348.8)</b>	<b>\$(2,468.4)</b>	<b>\$6,477.2</b>	<b>\$146.1</b>	<b>\$6,623.3</b>
Net income			994.2			994.2	30.2	1,024.4
Other comprehensive income (loss)				328.2		328.2	(1.0)	327.2
Cash dividends (\$2.77 per share)			(579.6)			(579.6)		(579.6)
Share-based compensation expense		43.5				43.5		43.5
Purchase of treasury shares					(461.6)	(461.6)		(461.6)
Issuance of treasury shares for stock option and award plans		(87.4)			297.7	210.3		210.3
Tax benefit of stock option and award plans		35.5				35.5		35.5
Dividends to noncontrolling interests							(18.4)	(18.4)
Purchase of noncontrolling interests		(2.9)				(2.9)		(2.9)
Other			(2.7)			(2.7)	(.1)	(2.8)
<b>Balance 30 September 2013</b>	<b>\$249.4</b>	<b>\$799.2</b>	<b>\$9,646.4</b>	<b>\$(1,020.6)</b>	<b>\$(2,632.3)</b>	<b>\$7,042.1</b>	<b>\$156.8</b>	<b>\$7,198.9</b>
Net income			991.7			991.7	28.8	1,020.5
Other comprehensive income (loss)				(221.3)		(221.3)	(5.6)	(226.9)
Cash dividends (\$3.02 per share)			(641.8)			(641.8)		(641.8)
Share-based compensation expense		44.0				44.0		44.0
Issuance of treasury shares for stock option and award plans		(30.0)			155.4	125.4		125.4
Tax benefit of stock option and award plans		29.3				29.3		29.3
Dividends to noncontrolling interests							(24.4)	(24.4)
Purchase of noncontrolling interests		(.5)				(.5)		(.5)
Other			(3.1)			(3.1)		(3.1)
<b>Balance 30 September 2014</b>	<b>\$249.4</b>	<b>\$842.0</b>	<b>\$9,993.2</b>	<b>\$(1,241.9)</b>	<b>\$(2,476.9)</b>	<b>\$7,365.8</b>	<b>\$155.6</b>	<b>\$7,521.4</b>
Net income			1,277.9			1,277.9	28.2	1,306.1
Other comprehensive income (loss)				(884.0)		(884.0)	(11.0)	(895.0)
Cash dividends (\$3.20 per share)			(687.9)			(687.9)		(687.9)
Share-based compensation expense		43.7				43.7		43.7
Issuance of treasury shares for stock option and award plans		(15.1)			117.3	102.2		102.2
Tax benefit of stock option and award plans		32.0				32.0		32.0
Dividends to noncontrolling interests							(38.0)	(38.0)
Purchase of noncontrolling interests		(.3)				(.3)	(.2)	(.5)
Other		2.4	(2.8)			(.4)	(2.5)	(2.9)
<b>Balance 30 September 2015</b>	<b>\$249.4</b>	<b>\$904.7</b>	<b>\$10,580.4</b>	<b>\$(2,125.9)</b>	<b>\$(2,359.6)</b>	<b>\$7,249.0</b>	<b>\$132.1</b>	<b>\$7,381.1</b>

The accompanying notes are an integral part of these statements.

## NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

(Millions of dollars, except for share data)

1.	<a href="#">Major Accounting Policies</a>	62
2.	<a href="#">New Accounting Guidance</a>	68
3.	<a href="#">Materials Technologies Separation</a>	69
4.	<a href="#">Discontinued Operations</a>	69
5.	<a href="#">Business Restructuring and Cost Reduction Actions</a>	70
6.	<a href="#">Business Combinations</a>	71
7.	<a href="#">Inventories</a>	72
8.	<a href="#">Summarized Financial Information of Equity Affiliates</a>	72
9.	<a href="#">Plant and Equipment, net</a>	73
10.	<a href="#">Goodwill</a>	74
11.	<a href="#">Intangible Assets</a>	75
12.	<a href="#">Leases</a>	76
13.	<a href="#">Financial Instruments</a>	77
14.	<a href="#">Fair Value Measurements</a>	81
15.	<a href="#">Debt</a>	82
16.	<a href="#">Retirement Benefits</a>	84
17.	<a href="#">Commitments and Contingencies</a>	91
18.	<a href="#">Capital Stock</a>	95
19.	<a href="#">Share-Based Compensation</a>	95
20.	<a href="#">Accumulated Other Comprehensive Loss</a>	98
21.	<a href="#">Noncontrolling Interests</a>	99
22.	<a href="#">Earnings per Share</a>	100
23.	<a href="#">Income Taxes</a>	100
24.	<a href="#">Supplemental Information</a>	104
25.	<a href="#">Summary by Quarter (Unaudited)</a>	106
26.	<a href="#">Business Segment and Geographic Information</a>	108

### 1. MAJOR ACCOUNTING POLICIES

#### Basis of Presentation and Consolidation Principles

The accompanying consolidated financial statements of Air Products and Chemicals, Inc. were prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and include the accounts of Air Products and Chemicals, Inc. and those of its controlled subsidiaries ("we," "our," "us," the "Company," "Air Products," or "registrant"), which are generally majority owned. Intercompany transactions and balances are eliminated in consolidation.

We consolidate all entities that we control. The general condition for control is ownership of a majority of the voting interests of an entity. Control may also exist in arrangements where we are the primary beneficiary of a variable interest entity (VIE). An entity that has both the power to direct the activities that most significantly impact the economic performance of a VIE and the obligation to absorb the losses or receive the benefits significant to the VIE is considered the primary beneficiary of that entity. We have determined that we are not a primary beneficiary in any material VIE.

The Company realigned its businesses in new reporting segments and began operating under the new structure effective 1 October 2014. See Note 26, Business Segment and Geographic Information, for further details.

Certain prior year information has been reclassified to conform to the 2015 presentation.

#### Estimates and Assumptions

The preparation of the financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

### **Revenue Recognition**

Revenue from product sales is recognized as risk and title to the product transfer to the customer (which generally occurs at the time shipment is made), the sales price is fixed or determinable, and collectability is reasonably assured. Sales returns and allowances are not a business practice in the industry.

Revenue from equipment sale contracts is recorded primarily using the percentage-of-completion method. Under this method, revenue from the sale of major equipment, such as liquefied natural gas (LNG) heat exchangers and large air separation units, is recognized based on labor hours or costs incurred to date compared with total estimated labor hours or costs to be incurred. Changes to total estimated labor hours or costs and anticipated losses, if any, are recognized in the period determined.

Certain contracts associated with facilities that are built to provide product to a specific customer are required to be accounted for as leases. In cases where operating lease treatment is necessary, there is no difference in revenue recognition over the life of the contract as compared to accounting for the contract as product sales. In cases where capital lease treatment is necessary, the timing of revenue and expense recognition is impacted. Revenue and expense are recognized up front for the sale of equipment component of the contract as compared to revenue recognition over the life of the arrangement under contracts not qualifying as capital leases. Additionally, a portion of the revenue representing interest income from the financing component of the lease receivable is reflected as sales over the life of the contract. Allowances for credit losses associated with capital lease receivables are recorded using the specific identification method. As of 30 September 2015, the credit quality of capital lease receivables did not require an allowance for credit losses.

If an arrangement involves multiple deliverables, the delivered items are considered separate units of accounting if the items have value on a stand-alone basis. Revenues are allocated to each deliverable based upon relative selling prices derived from company specific evidence.

Amounts billed for shipping and handling fees are classified as sales in the consolidated income statements.

Amounts billed for sales and use taxes, value-added taxes, and certain excise and other specific transactional taxes imposed on revenue-producing transactions are presented on a net basis and excluded from sales in the consolidated income statements. We record a liability until remitted to the respective taxing authority.

### **Cost of Sales**

Cost of sales predominantly represents the cost of tangible products sold. These costs include labor, raw materials, plant engineering, power, depreciation, production supplies and materials packaging costs, and maintenance costs. Costs incurred for shipping and handling are also included in cost of sales.

### **Depreciation**

Depreciation is recorded using the straight-line method, which deducts equal amounts of the cost of each asset from earnings every year over its expected economic useful life. The principal lives for major classes of plant and equipment are summarized in Note 9, Plant and Equipment, net.

### **Selling and Administrative**

The principal components of selling and administrative expenses are compensation, advertising, and promotional costs.

### **Postemployment Benefits**

We provide termination benefits to employees as part of ongoing benefit arrangements and record a liability for termination benefits when probable and estimable. These criteria are met when management, with the appropriate level of authority, approves and commits to its plan of action for termination; the plan identifies the employees to be terminated and their related benefits; and the plan is to be completed within one year. We do not provide one-time benefit arrangements of significance.

### **Fair Value Measurements**

We are required to measure certain assets and liabilities at fair value, either upon initial measurement or for subsequent accounting or reporting. For example, fair value is used in the initial measurement of net assets acquired in a business combination; on a recurring basis in the measurement of derivative financial instruments; and on a nonrecurring basis when long-lived assets are written down to fair value when held for sale or determined to be impaired. Refer to Note 14, Fair Value Measurements, for information on the methods and assumptions used in our fair value measurements.

## **Financial Instruments**

We address certain financial exposures through a controlled program of risk management that includes the use of derivative financial instruments. The types of derivative financial instruments permitted for such risk management programs are specified in policies set by management. Refer to Note 13, Financial Instruments, for further detail on the types and use of derivative instruments into which we enter.

Major financial institutions are counterparties to all of these derivative contracts. We have established counterparty credit guidelines and only enter into transactions with financial institutions of investment grade or better. Management believes the risk of incurring losses related to credit risk is remote, and any losses would be immaterial to the consolidated financial results, financial condition, or liquidity.

We recognize derivatives on the balance sheet at fair value. On the date the derivative instrument is entered into, we generally designate the derivative as either (1) a hedge of a forecasted transaction or of the variability of cash flows to be received or paid related to a recognized asset or liability (cash flow hedge), (2) a hedge of a net investment in a foreign operation (net investment hedge), or (3) a hedge of the fair value of a recognized asset or liability (fair value hedge).

The following details the accounting treatment of our cash flow, fair value, net investment, and non-designated hedges:

- Changes in the fair value of a derivative that is designated as and meets the cash flow hedge criteria are recorded in Accumulated Other Comprehensive Income (AOCI) to the extent effective and then recognized in earnings when the hedged items affect earnings.
- Changes in the fair value of a derivative that is designated as and meets all the required criteria for a fair value hedge, along with the gain or loss on the hedged asset or liability that is attributable to the hedged risk, are recorded in current period earnings.
- Changes in the fair value of a derivative and foreign currency debt that are designated as and meet all the required criteria for a hedge of a net investment are recorded as translation adjustments in AOCI.
- Changes in the fair value of a derivative that is not designated as a hedge are recorded immediately in earnings.

We formally document the relationships between hedging instruments and hedged items, as well as our risk management objective and strategy for undertaking various hedge transactions. This process includes relating derivatives that are designated as fair value or cash flow hedges to specific assets and liabilities on the balance sheet or to specific firm commitments or forecasted transactions. We also formally assess, at the inception of the hedge and on an ongoing basis, whether derivatives are highly effective in offsetting changes in fair values or cash flows of the hedged item. If it is determined that a derivative is not highly effective as a hedge, or if a derivative ceases to be a highly effective hedge, we will discontinue hedge accounting with respect to that derivative prospectively.

## **Foreign Currency**

Since we do business in many foreign countries, fluctuations in currency exchange rates affect our financial position and results of operations.

In most of our foreign operations, local currency is considered the functional currency. Foreign subsidiaries translate their assets and liabilities into U.S. dollars at current exchange rates in effect at the end of the fiscal period. The gains or losses that result from this process are shown as translation adjustments in AOCI in the equity section of the balance sheet.

The revenue and expense accounts of foreign subsidiaries are translated into U.S. dollars at the average exchange rates that prevail during the period. Therefore, the U.S. dollar value of these items on the income statement fluctuates from period to period, depending on the value of the dollar against foreign currencies. Some transactions are made in currencies different from an entity's functional currency. Gains and losses from these foreign currency transactions are generally included in other income (expense), net on our consolidated income statements as they occur.

## **Environmental Expenditures**

Accruals for environmental loss contingencies are recorded when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Remediation costs are capitalized if the costs improve the



## [Table of Contents](#)

Company's property as compared with the condition of the property when originally constructed or acquired, or if the costs prevent environmental contamination from future operations. We expense environmental costs related to existing conditions resulting from past or current operations and from which no current or future benefit is discernible. The amounts charged to income from continuing operations related to environmental matters totaled \$28.3 in fiscal 2015, \$35.1 in 2014, and \$37.1 in 2013.

The measurement of environmental liabilities is based on an evaluation of currently available information with respect to each individual site and considers factors such as existing technology, presently enacted laws and regulations, and prior experience in remediation of contaminated sites. An environmental liability related to cleanup of a contaminated site might include, for example, a provision for one or more of the following types of costs: site investigation and testing costs, cleanup costs, costs related to soil and water contamination resulting from tank ruptures, post-remediation monitoring costs, and outside legal fees. These liabilities include costs related to other potentially responsible parties to the extent that we have reason to believe such parties will not fully pay their proportionate share. They do not take into account any claims for recoveries from insurance or other parties and are not discounted.

As assessments and remediation progress at individual sites, the amount of projected cost is reviewed, and the liability is adjusted to reflect additional technical and legal information that becomes available. Management has an established process in place to identify and monitor the Company's environmental exposures. An environmental accrual analysis is prepared and maintained that lists all environmental loss contingencies, even where an accrual has not been established. This analysis assists in monitoring the Company's overall environmental exposure and serves as a tool to facilitate ongoing communication among the Company's technical experts, environmental managers, environmental lawyers, and financial management to ensure that required accruals are recorded and potential exposures disclosed.

Given inherent uncertainties in evaluating environmental exposures, actual costs to be incurred at identified sites in future periods may vary from the estimates. Refer to Note 17, Commitments and Contingencies, for additional information on the Company's environmental loss contingencies.

The accruals for environmental liabilities are reflected in the consolidated balance sheets, primarily as part of other noncurrent liabilities.

### **Litigation**

In the normal course of business, we are involved in legal proceedings. We accrue a liability for such matters when it is probable that a liability has been incurred and the amount can be reasonably estimated. When only a range of possible loss can be established, the most probable amount in the range is accrued. If no amount within this range is a better estimate than any other amount within the range, the minimum amount in the range is accrued. The accrual for a litigation loss contingency includes estimates of potential damages and other directly related costs expected to be incurred. Refer to Note 17, Commitments and Contingencies, for additional information on our current legal proceedings.

### **Share-Based Compensation**

We have various share-based compensation programs, which include deferred stock units, stock options, and restricted stock. We expense the grant-date fair value of these awards over the vesting period during which employees perform related services. Expense recognition is accelerated for retirement-eligible individuals who would meet the requirements for vesting of awards upon their retirement. We utilize a Black Scholes model to value stock option awards. The grant-date fair value of the deferred stock units tied to a market condition is estimated using a Monte Carlo simulation model.

### **Income Taxes**

We account for income taxes under the liability method. Under this method, deferred tax assets and liabilities are recognized for the tax effects of temporary differences between the financial reporting and tax bases of assets and liabilities using enacted tax rates. A principal temporary difference results from the excess of tax depreciation over book depreciation because accelerated methods of depreciation and shorter useful lives are used for income tax purposes. The cumulative impact of a change in tax rates or regulations is included in income tax expense in the period that includes the enactment date.

A tax benefit for an uncertain tax position is recognized when it is more likely than not that the position will be sustained upon examination based on its technical merits. This position is measured as the largest amount of tax

## [Table of Contents](#)

benefit that is greater than 50% likely of being realized. Interest and penalties related to unrecognized tax benefits are recognized as a component of income tax expense. For additional information regarding our income taxes, refer to Note 23, Income Taxes.

### **Cash and Cash Items**

Cash and cash items include cash, time deposits, and certificates of deposit acquired with an original maturity of three months or less.

### **Trade Receivables, net**

Trade receivables comprise amounts owed to us through our operating activities and are presented net of allowances for doubtful accounts. The allowances for doubtful accounts represent estimated uncollectible receivables associated with potential customer defaults on contractual obligations. A provision for customer defaults is made on a general formula basis when it is determined that the risk of some default is probable and estimable but cannot yet be associated with specific customers. The assessment of the likelihood of customer defaults is based on various factors, including the length of time the receivables are past due, historical experience, and existing economic conditions. The allowance also includes amounts for certain customers where a risk of default has been specifically identified, considering factors such as the financial condition of the customer and customer disputes over contractual terms and conditions. Allowance for doubtful accounts were \$48.5 and \$60.1 as of fiscal year end 30 September 2015 and 2014, respectively. Provisions to the allowance for doubtful accounts charged against income were \$26.3, \$16.4 and \$27.6 in 2015, 2014, and 2013, respectively.

### **Inventories**

Inventories are stated at the lower of cost or market. We write down our inventories for estimated obsolescence or unmarketable inventory based upon assumptions about future demand and market conditions.

We utilize the last-in, first-out (LIFO) method for determining the cost of inventories in the United States for the Industrial Gases and the Materials Technologies segments. Inventories for these segments outside of the United States are accounted for on the first-in, first-out (FIFO) method, as the LIFO method is not generally permitted in the foreign jurisdictions where these segments operate. The inventories of the Industrial Gases – Global and the Corporate and other segments on a worldwide basis, as well as all other inventories, are accounted for on the FIFO basis.

At the business segment level, inventories are recorded at FIFO and the LIFO pool adjustments are not allocated to the business segments.

### **Equity Investments**

The equity method of accounting is used when we exercise significant influence but do not have operating control, generally assumed to be 20% – 50% ownership. Under the equity method, original investments are recorded at cost and adjusted by our share of undistributed earnings or losses of these companies. Equity investments are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be recoverable.

### **Plant and Equipment**

Plant and equipment is stated at cost less accumulated depreciation. Construction costs, labor, and applicable overhead related to installations are capitalized. Expenditures for additions and improvements that extend the lives or increase the capacity of plant assets are capitalized. The costs of maintenance and repairs of plant and equipment are charged to expense as incurred.

Fully depreciated assets are retained in the gross plant and equipment and accumulated depreciation accounts until they are removed from service. In the case of disposals, assets and related depreciation are removed from the accounts, and the net amounts, less proceeds from disposal, are included in income. Refer to Note 9, Plant and Equipment, net, for further detail.

### **Computer Software**

We capitalize costs incurred to purchase or develop software for internal use. Capitalized costs include purchased computer software packages, payments to vendors/consultants for development and implementation or modification to a purchased package to meet our requirements, payroll and related costs for employees directly involved in development, and interest incurred while software is being developed. Capitalized computer software costs are included in the balance sheet classification plant and equipment, net and depreciated over the estimated useful life of the software, generally a period of three to ten years.

### **Capitalized Interest**

As we build new plant and equipment, we include in the cost of these assets a portion of the interest payments we make during the year. The amount of capitalized interest was \$49.1, \$33.0, and \$25.8 in 2015, 2014, and 2013, respectively.

### **Impairment of Long-Lived Assets**

Long-lived assets are grouped for impairment testing at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other assets and liabilities and are evaluated for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. We assess recoverability by comparing the carrying amount of the asset group to estimated undiscounted future cash flows expected to be generated by the asset group. If an asset group is considered impaired, the impairment loss to be recognized is measured as the amount by which the asset group's carrying amount exceeds its fair value. Long-lived assets to be sold are reported at the lower of carrying amount or fair value less cost to sell.

### **Government Grants**

We receive government grants that primarily relate to research and development projects. Government grants are recognized when there is reasonable assurance that the grant will be received and that we have complied with the conditions of the grant. Government grants related to assets are included in the balance sheet as a reduction of the cost of the asset and result in reduced depreciation expense over the useful life of the asset. Government grants that relate to expenses are recognized in the income statement as a reduction of the related expense or as a component of other income (expense), net.

### **Asset Retirement Obligations**

The fair value of a liability for an asset retirement obligation is recognized in the period in which it is incurred. The fair value of the liability is measured using discounted estimated cash flows and is adjusted to its present value in subsequent periods as accretion expense is recorded. The corresponding asset retirement costs are capitalized as part of the carrying amount of the related long-lived asset and depreciated over the asset's useful life. Our asset retirement obligations are primarily associated with Industrial Gases on-site long-term supply contracts, under which we have built a facility on land owned by the customer and are obligated to remove the facility at the end of the contract term. Our asset retirement obligations totaled \$109.4 and \$94.0 at 30 September 2015 and 2014, respectively.

### **Goodwill**

Business combinations are accounted for using the acquisition method. The purchase price is allocated to the assets acquired and liabilities assumed based on their estimated fair market values. Any excess purchase price over the fair market value of the net assets acquired, including identified intangibles, is recorded as goodwill. Preliminary purchase price allocations are made at the date of acquisition and finalized when information needed to affirm underlying estimates is obtained, within a maximum allocation period of one year.

Goodwill is subject to impairment testing at least annually. In addition, goodwill is tested more frequently if a change in circumstances or the occurrence of events indicates that potential impairment exists. Refer to Note 10, Goodwill, for further detail.

### **Intangible Assets**

Intangible assets with determinable lives primarily consist of customer relationships, purchased patents and technology, and land use rights. The cost of intangible assets with determinable lives is amortized on a straight-line basis over the estimated period of economic benefit. No residual value is estimated for these intangible assets. Indefinite-lived intangible assets consist of trade names and trademarks. Indefinite-lived intangibles are subject to impairment testing at least annually. In addition, intangible assets are tested more frequently if a change in circumstances or the occurrence of events indicates that potential impairment exists.

Customer relationships are generally amortized over periods of five to twenty-five years. Purchased patents and technology and other are generally amortized over periods of five to twenty years. Land use rights, which are included in other intangibles, are generally amortized over a period of fifty years. Amortizable lives are adjusted whenever there is a change in the estimated period of economic benefit. Refer to Note 11, Intangible Assets, for further detail.

## **Retirement Benefits**

The cost of pension benefits is recognized over the employees' service period. We are required to use actuarial methods and assumptions in the valuation of defined benefit obligations and the determination of expense. Differences between actual and expected results or changes in the value of obligations and plan assets are not recognized in earnings as they occur but, rather, systematically and gradually over subsequent periods. Refer to Note 16, Retirement Benefits, for disclosures related to our pension and other postretirement benefits.

## **2. NEW ACCOUNTING GUIDANCE**

### ***Accounting Guidance Implemented in 2015***

#### **Unrecognized Tax Benefits**

In July 2013, the Financial Accounting Standards Board (FASB) issued guidance to require standard presentation of an unrecognized tax benefit when a carryforward related to net operating losses or tax credits exists. We adopted this guidance prospectively beginning in the first quarter of fiscal year 2015. This guidance did not have a significant impact on our consolidated financial statements.

#### ***New Accounting Guidance to be Implemented***

#### **Discontinued Operations**

In April 2014, the FASB issued an update to change the criteria for determining which disposals qualify as a discontinued operation and to expand related disclosure requirements. Under the new guidance, a disposal is required to be reported in discontinued operations if the disposal represents a strategic shift that has or will have a major effect on operations and financial results. This guidance will be effective prospectively for new disposals and new disposal groups classified as held for sale beginning in fiscal year 2016, with early adoption permitted. Separation of the Materials Technologies business via a spin-off is considered a strategic shift that will require presentation of the historical results as a discontinued operation when the spin-off occurs.

#### **Revenue Recognition**

In May 2014, the FASB issued guidance based on the principle that revenue is recognized in an amount expected to be collected and to which the entity expects to be entitled in exchange for the transfer of goods or services. As originally issued, this guidance was effective for us beginning in fiscal year 2018. In August 2015, the FASB deferred the effective date by one year, while providing the option to early adopt the standard on the original effective date. Accordingly, we will have the option to adopt the standard in either fiscal year 2018 or 2019. The guidance can be adopted either retrospectively or as a cumulative-effect adjustment as of the date of adoption. We are currently evaluating the adoption alternatives and impact that this update will have on our consolidated financial statements.

#### **Share-Based Compensation**

In June 2014, the FASB issued guidance clarifying that share-based compensation performance targets that could be achieved after the requisite service period should be treated as a performance condition that affects vesting, rather than a condition that affects the grant-date fair value of the award. This guidance is effective for us beginning in fiscal year 2017, with early adoption permitted. We do not expect this guidance to have a significant impact on our consolidated financial statements.

#### **Consolidation Analysis**

In February 2015, the FASB issued an update to amend current consolidation guidance. The guidance impacts the analysis an entity must perform in determining if it should consolidate certain legal entities such as limited partnerships, limited liability corporations, and securitization structures. The guidance is effective beginning fiscal year 2017, with early adoption permitted. The guidance may be applied retrospectively or using a modified retrospective approach, by recording a cumulative-effect adjustment to equity as of the beginning of the fiscal year of adoption. We are currently evaluating the impact this update will have on our consolidated financial statements.

#### **Debt Issuance Costs**

In April 2015, the FASB issued guidance 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 the debt instead of as a separate deferred asset. In August 2015, the FASB issued an update to incorporate the U.S. Securities and

## [Table of Contents](#)

Exchange Commission (SEC) Staff guidance which allows debt issuance costs associated with a line-of-credit arrangement to be presented as a deferred asset that is subsequently amortized over the term of the arrangement, regardless of whether there are any outstanding borrowings. This change in accounting principle will be effective beginning in fiscal year 2017 with early adoption permitted and must be applied retrospectively. This guidance will not have a significant impact on our consolidated financial statements.

### **Defined Benefit Measurement Date**

In April 2015, the FASB issued an update to provide a practical expedient on the measurement date of defined benefit plan assets and obligations including interim remeasurements related to significant events. The guidance is effective prospectively beginning in fiscal year 2017, with early adoption permitted. The guidance will not have a significant impact on our consolidated financial statements.

### **Measurement of Inventory**

In July 2015, the FASB issued guidance to simplify the measurement of inventory recorded using either the FIFO or average cost basis by changing the subsequent measurement guidance from lower of cost or market to the lower of cost or net realizable value. Inventory measured using LIFO is not impacted. The guidance is effective for us beginning in fiscal year 2018 and should be applied prospectively, with early adoption permitted. We do not expect this guidance to have a significant impact on our consolidated financial statements.

### **Business Combination Adjustments**

In September 2015, the FASB issued guidance to simplify the accounting for adjustments made to provisional amounts initially recognized in a business combination. Instead of reflecting the adjustment retrospectively, the guidance now requires changes to provisional amounts be recognized in the reporting period in which the adjustments are determined. This guidance will be effective prospectively beginning in fiscal year 2017, with earlier application permitted.

## **3. MATERIALS TECHNOLOGIES SEPARATION**

On 16 September 2015, the Company announced that it intends to separate its Materials Technologies business via a spin-off. During the fourth quarter of 2015, we incurred legal and other advisory fees of \$7.5 (\$.03 per share). These fees are reflected on the consolidated income statements as "Business separation costs." The results of operations, financial condition, and cash flows of the Materials Technologies business will continue to be presented within our consolidated financial statements as continuing operations until the Board of Directors approves the final separation and the spin-off occurs, at which point in time the financial presentation of the historical results of this business will be reflected as a discontinued operation.

## **4. DISCONTINUED OPERATIONS**

During the second quarter of 2012, the Board of Directors authorized the sale of our Homecare business, which has been accounted for as a discontinued operation.

In the third quarter of 2012, we sold the majority of our Homecare business to The Linde Group for sale proceeds of €590 million (\$777) and recognized a gain of \$207.4 (\$150.3 after-tax, or \$.70 per share). Additionally, during the third quarter of 2012, an impairment charge of \$33.5 (\$29.5 after-tax, or \$.14 per share) was recorded to write down the remaining business, which was primarily in the United Kingdom and Ireland, to its estimated net realizable value. In the fourth quarter of 2013, an additional charge of \$18.7 (\$13.6 after-tax, or \$.06 per share) was recorded to update our estimate of the net realizable value. In the first quarter of 2014, we sold the remaining portion of the Homecare business for £6.1 million (\$9.8) and recorded a gain on sale of \$2.4. We entered into an operations guarantee related to the obligations under certain homecare contracts assigned in connection with the transaction. Refer to Note 17, Commitments and Contingencies, for additional information.

## [Table of Contents](#)

The results of discontinued operations are summarized below:

	2015	2014	2013
Sales	\$—	\$8.5	\$52.3
Income before taxes	\$—	\$ .7	\$3.8
Income tax provision	—	—	.2
Income from operations of discontinued operations	—	.7	3.6
Gain (Loss) on sale of business and impairment/write-down, net of tax	—	3.9	(13.6)
<b>Income (Loss) from Discontinued Operations, net of tax</b>	<b>\$—</b>	<b>\$4.6</b>	<b>\$(10.0)</b>

As of 30 September 2015 and 2014, no assets or liabilities were classified as discontinued operations.

## 5. BUSINESS RESTRUCTURING AND COST REDUCTION ACTIONS

The charges we record for business restructuring and cost reduction actions have been excluded from segment operating income.

### Business Realignment and Reorganization

On 18 September 2014, we announced plans to reorganize the Company, including realignment of our businesses in new reporting segments and other organizational changes, effective as of 1 October 2014. Refer to Note 26, Business Segment and Geographic Information, for additional details. As a result of this reorganization, we have incurred ongoing severance and other charges.

In fiscal year 2015, we recognized an expense of \$207.7 (\$153.2 after-tax, or \$.71 per share). Severance and other benefits totaled \$151.9 and related to the elimination of approximately 2,000 positions. Asset and associated contract actions totaled \$55.8 and related primarily to a plant shutdown in the Corporate and other segment and the exit of product lines within the Industrial Gases – Global and Materials Technologies segments. The 2015 charges related to the segments as follows: \$31.7 in Industrial Gases – Americas, \$52.2 in Industrial Gases – EMEA, \$10.3 in Industrial Gases – Asia, \$37.0 in Industrial Gases – Global, \$27.6 in Materials Technologies, and \$48.9 in Corporate and other.

During the fourth quarter of 2014, an expense of \$12.7 (\$8.2 after-tax, or \$.04 per share) was incurred relating to the elimination of approximately 50 positions. The 2014 charge related to the segments as follows: \$2.9 in Industrial Gases – Americas, \$3.1 in Industrial Gases – EMEA, \$1.5 in Industrial Gases – Asia, \$1.5 in Industrial Gases – Global, \$1.6 in Materials Technologies, and \$2.1 in Corporate and other.

The following table summarizes the carrying amount of the accrual for the business realignment and reorganization at 30 September 2015:

	Severance and Other Benefits	Asset Actions/Other	Total
2014 Charge	\$12.7	\$—	\$12.7
Cash expenditures	(2.2)	—	(2.2)
<b>30 September 2014</b>	<b>\$10.5</b>	<b>\$—</b>	<b>\$10.5</b>
2015 Charge	151.9	55.8	207.7
Amount reflected in pension liability	(14.0)	—	(14.0)
Noncash expenses	—	(47.4)	(47.4)
Cash expenditures	(113.5)	(1.2)	(114.7)
Currency translation adjustment	(.4)	—	(.4)
<b>30 September 2015</b>	<b>\$34.5</b>	<b>\$7.2</b>	<b>\$41.7</b>

**2013 Plan**

During the fourth quarter of 2013, we recorded an expense of \$231.6 (\$157.9 after-tax, or \$.74 per share) reflecting actions to better align our cost structure with current market conditions. The asset and contract actions primarily impacted the Electronics Materials business due to continued weakness in the photovoltaic (PV) and light-emitting diode (LED) markets. The severance and other contractual benefits primarily impacted our Industrial Gases businesses and corporate functions in response to weaker than expected business conditions in Europe and Asia, reorganization of our operations and functional areas, and senior executive changes.

The 2013 charges related to the segments as follows: \$26.6 in Industrial Gases – Americas, \$26.2 in Industrial Gases – EMEA, \$24.1 in Industrial Gases – Asia, \$.7 in Industrial Gases – Global, \$133.3 in Materials Technologies, and \$20.7 in Corporate and other.

The following table summarizes the carrying amount of the accrual for the 2013 plan at 30 September 2015:

	Severance and Other Benefits	Asset Actions	Contract Actions/Other	Total
2013 Charge	\$71.9	\$100.4	\$59.3	\$231.6
Amount reflected in pension liability	(6.9)	—	—	(6.9)
Noncash expenses	—	(100.4)	—	(100.4)
Cash expenditures	(3.0)	—	(58.5)	(61.5)
Currency translation adjustment	.4	—	—	.4
30 September 2013	\$62.4	\$—	\$ .8	\$63.2
Cash expenditures	(51.7)	—	(.8)	(52.5)
Currency translation adjustment	(.6)	—	—	(.6)
30 September 2014	\$10.1	\$—	\$—	\$10.1
Cash expenditures	(9.8)	—	—	(9.8)
Currency translation adjustment	(.3)	—	—	(.3)
30 September 2015	\$—	\$—	\$—	\$—

**6. BUSINESS COMBINATIONS****2015 Business Combination**

On 30 December 2014, we acquired our partner's equity ownership interest in a liquefied atmospheric industrial gases production joint venture in North America for \$22.6, which increased our ownership from 50% to 100%. The transaction was accounted for as a business combination, and subsequent to the acquisition, the results are consolidated within our Industrial Gases – Americas segment. The assets acquired, primarily plant and equipment, were recorded at their fair market values as of the acquisition date.

The acquisition date fair value of the previously held equity interest was determined using a discounted cash flow analysis under the income approach. The twelve months ended 30 September 2015 include a gain of \$17.9 (\$11.2 after-tax, or \$.05 per share) as a result of revaluing our previously held equity interest to fair value as of the acquisition date. This gain is reflected on the consolidated income statements as "Gain on previously held equity interest."

**2013 Business Combinations**

We completed three acquisitions in 2013. The acquisitions were accounted for as business combinations, and their results of operations were consolidated within their respective segments after the acquisition dates. The aggregate purchase price, net of cash acquired, for these acquisitions was \$233.

On 30 August 2013, we acquired an air separation unit and integrated gases liquefier in Guiyang, China. This acquisition, within our Industrial Gases – Asia segment, included a long-term sale of gas contract and provided additional liquid capacity in the region. On 31 May 2013, we acquired EPCO Carbon dioxide Products, Inc., the largest independent U.S. producer of liquid carbon dioxide. This acquisition expanded our offerings of bulk industrial process gases in the Industrial Gases – Americas segment. On 1 April 2013, we acquired Wuxi Chem-Gas Company, Ltd. This acquisition provided our Industrial Gases – Asia segment with additional gases presence in the Jiangsu Province of China.



## 7. INVENTORIES

The components of inventories are as follows:

<b>30 September</b>	<b>2015</b>	<b>2014</b>
Inventories at FIFO cost		
Finished goods	<b>\$494.9</b>	\$493.9
Work in process	<b>34.4</b>	34.1
Raw materials, supplies and other	<b>229.3</b>	283.4
	<b>758.6</b>	811.4
Less: Excess of FIFO cost over LIFO cost	<b>(100.8)</b>	(105.4)
<b>Inventories</b>	<b>\$657.8</b>	\$706.0

Inventories valued using the LIFO method comprised 35.8% and 38.1% of consolidated inventories before LIFO adjustment at 30 September 2015 and 2014, respectively. Liquidation of LIFO inventory layers in 2015, 2014, and 2013 did not materially affect the results of operations.

FIFO cost approximates replacement cost.

## 8. SUMMARIZED FINANCIAL INFORMATION OF EQUITY AFFILIATES

The summarized financial information below is on a combined 100% basis and has been compiled based on financial statements of the companies accounted for by the equity method. The amounts presented include the accounts of the following equity affiliates:

Abdullah Hashim Industrial Gases & Equipment Co., Ltd. (25%);  
 Air Products South Africa (Proprietary) Limited (50%);  
 Bangkok Cogeneration Company Limited (49%);  
 Bangkok Industrial Gases Co., Ltd. (49%);  
 Chengdu Air & Gas Products Ltd. (50%);  
 Daido Air Products Electronics, Inc. (20%);  
 Helap S.A. (50%);  
 High-Tech Gases (Beijing) Co., Ltd. (50%);  
 INFRA Group (40%);

INOX Air Products Limited (50%);  
 Jazan Gas Projects Company (25%);  
 Kulim Industrial Gases Sdn. Bhd. (50%);  
 Sapio Produzione Idrogeno Ossigeno S.r.l. (49%);  
 SembCorp Air Products (HyCo) Pte. Ltd. (40%);  
 Tecnologia en Nitrogeno S. de R.L. de C.V. (50%);  
 Tyczka Industrie-Gases GmbH (50%);  
 WuXi Hi-Tech Gas Co., Ltd. (50%);  
 and principally, other industrial gas producers.

<b>30 September</b>	<b>2015</b>	<b>2014</b>
Current assets	<b>\$1,296.4</b>	\$1,440.0
Noncurrent assets	<b>2,607.4</b>	2,464.6
Current liabilities	<b>654.0</b>	745.2
Noncurrent liabilities	<b>988.0</b>	743.0

<b>Year Ended 30 September</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
Net sales	<b>\$2,604.3</b>	\$2,808.7	\$2,845.9
Sales less cost of sales	<b>949.2</b>	984.7	1,003.3
Operating income	<b>524.0</b>	542.9	547.3
Net income	<b>351.0</b>	359.5	360.5

On 19 April 2015, a joint venture between Air Products and ACWA Holding entered into a 20-year oxygen and nitrogen supply agreement to supply Saudi Aramco's oil refinery and power plant being built in Jazan, Saudi Arabia. Air Products owns 25% of the joint venture and guarantees the repayment of its share of an equity bridge loan. ACWA also guarantees their share of the loan. As of 30 September 2015, we recorded a noncurrent liability of \$67.5 for our obligation to make future equity contributions based on our proportionate share of the advances received by the joint venture under the loan. This represented a noncash transaction which resulted in a \$67.5



## [Table of Contents](#)

increase to our investment in net assets of and advances to equity affiliates and is excluded from the consolidated statements of cash flows. In total, we expect to invest approximately \$100 in this joint venture. We determined that the joint venture is a variable interest entity, for which we are not the primary beneficiary.

Air Products has also entered into a sale of equipment contract with the joint venture to engineer, procure, and construct the industrial gas facilities that will supply the gases to Saudi Aramco. We provided bank guarantees to the joint venture to support our performance under the contract. For further details on the guarantees, see Note 17, Commitments and Contingencies.

There have been no other significant changes to our investments in equity affiliates during fiscal year 2015.

Dividends received from equity affiliates were \$51.9, \$75.4, and \$108.6 in 2015, 2014, and 2013, respectively.

The investment in net assets of and advances to equity affiliates as of 30 September 2015 and 2014 included investment in foreign affiliates of \$1,262.8 and \$1,254.7, respectively.

As of 30 September 2015 and 2014, the amount of investment in companies accounted for by the equity method included goodwill in the amount of \$112.0 and \$120.2, respectively.

## 9. PLANT AND EQUIPMENT, NET

The major classes of plant and equipment are as follows:

<b>30 September</b>	Useful Life in years	<b>2015</b>	<b>2014</b>
Land		<b>\$226.2</b>	\$236.6
Buildings	30	<b>1,080.2</b>	1,105.0
Production facilities			
Industrial Gases – Regional(A)	10 to 20	<b>11,873.8</b>	12,002.4
Materials Technologies	10 to 15	<b>902.7</b>	849.1
Other	5 to 20	<b>43.0</b>	92.2
Total production facilities		<b>12,819.5</b>	12,943.7
Distribution and other machinery and equipment(B)	5 to 25	<b>3,963.1</b>	4,175.3
Construction in progress		<b>2,265.6</b>	1,762.9
Plant and equipment, at cost		<b>20,354.6</b>	20,223.5
Less: accumulated depreciation		<b>10,717.7</b>	10,691.4
Plant and equipment, net		<b>\$9,636.9</b>	\$9,532.1

(A) Depreciable lives of production facilities related to long-term customer supply contracts are matched to the contract lives.

(B) The depreciable lives for various types of distribution equipment are 10 to 25 years for cylinders, depending on the nature and properties of the product; 20 years for tanks; 7.5 years for customer stations; and 5 to 15 years for tractors and trailers.

Depreciation expense was \$900.4, \$914.8, and \$864.7 in 2015, 2014, and 2013, respectively.

## 10. GOODWILL

Changes to the carrying amount of consolidated goodwill by segment are as follows:

	Industrial Gases—Americas	Industrial Gases—EMEA	Industrial Gases—Asia	Industrial Gases—Global	Materials Technologies	Total
Goodwill, net at 30 September 2013	\$714.2	\$459.0	\$140.5	\$20.9	\$319.2	\$1,653.8
Impairment loss	(305.2)	—	—	—	—	(305.2)
Currency translation and other	(81.8)	(25.7)	(.5)	.5	(3.8)	(111.3)
Goodwill, net at 30 September 2014	\$327.2	\$433.3	\$140.0	\$21.4	\$315.4	\$1,237.3
Acquisitions and adjustments	2.2	3.2	—	—	—	5.4
Currency translation and other	(31.8)	(50.0)	(6.9)	(1.5)	(21.2)	(111.4)
<b>Goodwill, net at 30 September 2015</b>	<b>\$297.6</b>	<b>\$386.5</b>	<b>\$133.1</b>	<b>\$19.9</b>	<b>\$294.2</b>	<b>\$1,131.3</b>

<b>30 September</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
Goodwill, gross	\$1,375.0	\$1,522.1	\$1,653.8
Accumulated impairment losses (A)	(243.7)	(284.8)	—
<b>Goodwill, net</b>	<b>\$1,131.3</b>	<b>\$1,237.3</b>	<b>\$1,653.8</b>

(A) Amount is attributable to the Industrial Gases – Americas segment and includes currency translation of \$61.5 and \$20.4 as of 30 September 2015 and 30 September 2014, respectively.

Industrial Gases – Americas goodwill decreased during 2014, primarily due to the impairment charge taken during the fourth quarter in the Latin American reporting unit as discussed further below.

We conduct goodwill impairment testing in the fourth quarter of each fiscal year and whenever events and changes in circumstances indicate that the carrying value of goodwill might not be recoverable. Our goodwill impairment test involves a two-step process. In the first step, we estimate the fair value of each reporting unit and compare it to its carrying value. If the fair value of the reporting unit exceeds its carrying value, goodwill is not impaired and no further testing is required. If the fair value of the reporting unit is less than its carrying value, we perform a second step to determine the amount of goodwill impairment loss, if any. In the second step, the reporting unit's fair value is allocated to the assets and liabilities of the reporting unit, including any unrecognized intangible assets, in an analysis that calculates the implied fair value of goodwill in the same manner as if the reporting unit were being acquired in a business combination. If the implied fair value of the reporting unit's goodwill is less than its carrying value, the difference is recorded as a goodwill impairment charge.

In the fourth quarter of 2014, we determined that the fair value of each reporting unit exceeded its carrying value, with the exception of the Latin America reporting unit within the Industrial Gases – Americas segment. The Latin America reporting unit is composed predominately of our Indura business with assets and goodwill associated with operations in Chile and other Latin American countries. In 2014, economic conditions in Latin America, including the impact of tax legislation in Chile, became less favorable due to increasing inflation, a decline in Chilean manufacturing growth, and weaker export demand for many commodities. As a result, our growth projections for this reporting unit were lowered and we determined that the associated goodwill was impaired. A noncash goodwill impairment charge of \$305.2 was recorded to write down goodwill to its implied fair value as of 1 July 2014. This impairment is reflected on our consolidated income statements within "Goodwill and intangible assets impairment charge." As of 30 September 2015, accumulated impairment losses were \$243.7, due to the currency impacts since the loss was recorded on 1 July 2014.

Due to the reorganization of our business effective as of 1 October 2014, we conducted a goodwill impairment test in the first quarter of 2015 on our thirteen reporting units. We determined that the fair value of all our reporting units exceeded their carrying value. There were no indications of impairment.

During the fourth quarter of 2015, we conducted our annual goodwill impairment test. We determined that the fair value of all our reporting units exceeded their carrying value. There were no indications of impairment.

## 11. INTANGIBLE ASSETS

The table below provides details of acquired intangible assets:

	30 September 2015			30 September 2014		
	Gross	Accumulated Amortization/ Impairment	Net	Gross	Accumulated Amortization/ Impairment	Net
Customer relationships	\$507.4	\$(129.6)	\$377.8	\$577.8	\$(119.0)	\$458.8
Patents and technology	76.9	(53.3)	23.6	82.4	(52.2)	30.2
Other	81.8	(35.0)	46.8	84.7	(32.5)	52.2
Total finite-lived intangibles	666.1	(217.9)	448.2	744.9	(203.7)	541.2
Trade names and trademarks, indefinite-lived	63.4	(3.3)	60.1	79.3	(4.7)	74.6
Total Intangible Assets	\$729.5	\$(221.2)	\$508.3	\$824.2	\$(208.4)	\$615.8

The decrease in intangible assets from 2014 to 2015 is primarily due to currency translation. Amortization expense for intangible assets was \$36.0, \$42.1, and \$42.3 in 2015, 2014, and 2013, respectively. Refer to Note 1, Major Accounting Policies, for amortization periods associated with our intangible assets.

In the fourth quarter of 2015, we conducted our annual impairment test of indefinite-lived intangibles and found no indications of impairment.

In the fourth quarter of 2014, we conducted our annual impairment test of indefinite-lived intangibles utilizing the royalty savings method, a form of the income approach. We determined that the carrying value of trade names and trademarks were in excess of their fair value, and as a result, we recorded an impairment charge of \$4.9 to reduce these assets to their fair value. This impairment is reflected within "Goodwill and intangible asset impairment charge" on our consolidated income statements. These trade names and trademarks are included in our Industrial Gases – Americas segment.

Projected annual amortization expense for intangible assets as of 30 September 2015 is as follows:

2016	\$33.7
2017	33.0
2018	31.1
2019	29.6
2020	29.2
Thereafter	291.6
Total	\$448.2

## 12. LEASES

### Lessee Accounting

Capital leases, primarily for the right to use machinery and equipment, are included with owned plant and equipment on the consolidated balance sheet in the amount of \$12.8 and \$17.0 at 30 September 2015 and 2014, respectively. Related amounts of accumulated depreciation are \$4.3 and \$7.2, respectively.

Operating leases principally relate to real estate and also include aircraft, distribution equipment, and vehicles. Certain leases include escalation clauses, renewal, and/or purchase options. Rent expense is recognized on a straight-line basis over the minimum lease term. Rent expense under operating leases, including month-to-month agreements, was \$95.5 in 2015, \$100.7 in 2014, and \$98.6 in 2013.

At 30 September 2015, minimum payments due under leases are as follows:

	Capital Leases	Operating Leases
2016	\$ .5	\$65.9
2017	.5	54.4
2018	.2	45.7
2019	.1	36.4
2020	.1	26.4
Thereafter	1.1	137.9
<b>Total</b>	<b>\$2.5</b>	<b>\$366.7</b>

### Lessor Accounting

As discussed under Revenue Recognition in Note 1, Major Accounting Policies, certain contracts associated with facilities that are built to provide product to a specific customer are required to be accounted for as leases. Lease receivables, net, are primarily included in noncurrent capital lease receivables on our consolidated balance sheets, with the remaining balance in other receivables and current assets.

The components of lease receivables were as follows:

<b>30 September</b>	<b>2015</b>	<b>2014</b>
Gross minimum lease payments receivable	<b>\$2,322.5</b>	\$2,423.3
Unearned interest income	<b>(888.1)</b>	(940.6)
<b>Lease Receivables, net</b>	<b>\$1,434.4</b>	\$1,482.7

Lease payments collected in 2015, 2014, and 2013 were \$148.1, \$134.4, and \$120.0, respectively. These payments reduced the lease receivable balance by \$69.3, \$72.7, and \$61.1 in 2015, 2014, and 2013, respectively.

At 30 September 2015, minimum lease payments expected to be collected are as follows:

2016	\$188.2
2017	187.8
2018	186.5
2019	181.0
2020	176.2
Thereafter	1,402.8
<b>Total</b>	<b>\$2,322.5</b>

## 13. FINANCIAL INSTRUMENTS

### Currency Price Risk Management

Our earnings, cash flows, and financial position are exposed to foreign currency risk from foreign currency denominated transactions and net investments in foreign operations. It is our policy to minimize our cash flow volatility from changes in currency exchange rates. This is accomplished by identifying and evaluating the risk that our cash flows will change in value due to changes in exchange rates and by executing the appropriate strategies necessary to manage such exposures. Our objective is to maintain economically balanced currency risk management strategies that provide adequate downside protection.

### Forward Exchange Contracts

We enter into forward exchange contracts to reduce the cash flow exposure to foreign currency fluctuations associated with highly anticipated cash flows and certain firm commitments, such as the purchase of plant and equipment. We also enter into forward exchange contracts to hedge the cash flow exposure on intercompany loans. This portfolio of forward exchange contracts consists primarily of Euros and U.S. dollars, Euros and British Pound Sterling, as well as British Pound Sterling and U.S. dollars. The maximum remaining term of any forward exchange contract currently outstanding and designated as a cash flow hedge at 30 September 2015 is 3.2 years.

Forward exchange contracts are also used to hedge the value of investments in certain foreign subsidiaries and affiliates by creating a liability in a currency in which we have a net equity position. The primary currency pair in this portfolio of forward exchange contracts is Euros and U.S. dollars.

In addition to the forward exchange contracts that are designated as hedges, we utilize forward exchange contracts that are not designated as hedges. These contracts are used to economically hedge foreign currency-denominated monetary assets and liabilities, primarily working capital. The primary objective of these forward exchange contracts is to protect the value of foreign currency-denominated monetary assets and liabilities from the effects of volatility in foreign exchange rates that might occur prior to their receipt or settlement. This portfolio of forward exchange contracts comprises many different foreign currency pairs, with a profile that changes from time to time depending on business activity and sourcing decisions.

The table below summarizes our outstanding currency price risk management instruments:

	30 September 2015		30 September 2014	
	US\$ Notional	Years Average Maturity	US\$ Notional	Years Average Maturity
<b>Forward Exchange Contracts</b>				
Cash flow hedges	\$4,543.8	.5	\$2,965.5	.7
Net investment hedges	491.3	4.0	685.9	2.9
Not designated	863.3	.7	381.5	.1
<b>Total Forward Exchange Contracts</b>	<b>\$5,898.4</b>	<b>.9</b>	<b>\$4,032.9</b>	<b>1.0</b>

In addition to the above, we use foreign currency-denominated debt to hedge the foreign currency exposures of our net investment in certain foreign subsidiaries. The designated foreign currency denominated debt and related accrued interest included €687.7 million (\$768.4) at 30 September 2015 and €879.3 million (\$1,110.6) and Chinese Renminbi 900.9 million (\$146.8) at 30 September 2014. The designated foreign currency-denominated debt is located on the balance sheet in the long-term debt and short-term borrowings line items.

### Debt Portfolio Management

It is our policy to identify on a continuing basis the need for debt capital and evaluate the financial risks inherent in funding the Company with debt capital. Reflecting the result of this ongoing review, the debt portfolio and hedging program are managed with the objectives and intent to (1) reduce funding risk with respect to borrowings made by us to preserve our access to debt capital and provide debt capital as required for funding and liquidity purposes, and (2) manage the aggregate interest rate risk and the debt portfolio in accordance with certain debt management parameters.

## Interest Rate Management Contracts

We enter into interest rate swaps to change the fixed/variable interest rate mix of our debt portfolio in order to maintain the percentage of fixed- and variable-rate debt within the parameters set by management. In accordance with these parameters, the agreements are used to manage interest rate risks and costs inherent in our debt portfolio. Our interest rate management portfolio generally consists of fixed-to-floating interest rate swaps (which are designated as fair value hedges), pre-issuance interest rate swaps and treasury locks (which hedge the interest rate risk associated with anticipated fixed-rate debt issuances and are designated as cash flow hedges), and floating-to-fixed interest rate swaps (which are designated as cash flow hedges). At 30 September 2015, the outstanding interest rate swaps were denominated in U.S. dollars. The notional amount of the interest rate swap agreements is equal to or less than the designated debt being hedged. When interest rate swaps are used to hedge variable-rate debt, the indices of the swaps and the debt to which they are designated are the same. It is our policy not to enter into any interest rate management contracts which lever a move in interest rates on a greater than one-to-one basis.

## Cross Currency Interest Rate Swap Contracts

We enter into cross currency interest rate swap contracts when our risk management function deems necessary. These contracts may entail both the exchange of fixed- and floating-rate interest payments periodically over the life of the agreement and the exchange of one currency for another currency at inception and at a specified future date. These contracts effectively convert the currency denomination of a debt instrument into another currency in which we have a net equity position while changing the interest rate characteristics of the instrument. The contracts are used to hedge either certain net investments in foreign operations or nonfunctional currency cash flows related to intercompany loans. The current cross currency interest rate swap portfolio consists of fixed-to-fixed swaps primarily between U.S. dollars and offshore Chinese Renminbi, U.S. dollars and Chilean Pesos, and U.S. dollars and British Pound Sterling.

The following table summarizes our outstanding interest rate management contracts and cross currency interest rate swaps:

	30 September 2015				30 September 2014			
	US\$ Notional	Pay %	Average Receive %	Years Average Maturity	US\$ Notional	Pay %	Average Receive %	Years Average Maturity
Interest rate swaps (fair value hedge)	\$600.0	LIBOR	2.77%	3.3	\$600.0	LIBOR	2.77%	4.3
Cross currency interest rate swaps (net investment hedge)	\$609.9	4.06%	2.61%	3.2	\$404.5	3.70%	1.15%	2.7
Interest rate swaps (cash flow hedge)	\$—	—%	—%	—	\$431.7	2.36%	.71%	.4
Cross currency interest rate swaps (cash flow hedge)	\$1,055.2	4.29%	2.63%	3.9	\$446.3	3.39%	2.86%	4.2
Cross currency interest rate swaps (not designated)	\$12.9	3.12%	3.08%	4.1	\$15.4	3.62%	.05%	.8

[Table of Contents](#)

The table below summarizes the fair value and balance sheet location of our outstanding derivatives:

	Balance Sheet Location	30 September 2015	2014	Balance Sheet Location	30 September 2015	2014
<b>Derivatives Designated as Hedging Instruments:</b>						
Forward exchange contracts	Other receivables	\$52.1	\$78.9	Accrued liabilities	\$110.7	\$61.8
Interest rate management contracts	Other receivables	17.6	21.1	Accrued liabilities	—	18.8
	Other noncurrent			Other noncurrent		
Forward exchange contracts	assets	68.5	10.5	liabilities	9.2	3.1
Interest rate management contracts	Other noncurrent			Other noncurrent		
	assets	153.4	54.6	liabilities	.8	.3
<b>Total Derivatives Designated as Hedging Instruments</b>		<b>\$291.6</b>	<b>\$165.1</b>		<b>\$120.7</b>	<b>\$84.0</b>
<b>Derivatives Not Designated as Hedging Instruments:</b>						
Forward exchange contracts	Other receivables	\$3.2	\$4.0	Accrued liabilities	\$3.9	\$1.9
Interest rate management contracts	Other receivables	—	2.6	Accrued liabilities	—	—
	Other noncurrent			Other noncurrent		
Forward exchange contracts	assets	23.3	—	liabilities	.6	—
Interest rate management contracts	Other noncurrent			Other noncurrent		
	assets	.8	—	liabilities	—	—
<b>Total Derivatives Not Designated as Hedging Instruments</b>		<b>\$27.3</b>	<b>\$6.6</b>		<b>\$4.5</b>	<b>\$1.9</b>
<b>Total Derivatives</b>		<b>\$318.9</b>	<b>\$171.7</b>		<b>\$125.2</b>	<b>\$85.9</b>

Refer to Note 14, Fair Value Measurements, which defines fair value, describes the method for measuring fair value, and provides additional disclosures regarding fair value measurements.

## Table of Contents

The table below summarizes the gain or loss related to our cash flow hedges, fair value hedges, net investment hedges, and derivatives not designated as hedging instruments:

	Year Ended 30 September							
	Forward Exchange Contracts		Foreign Currency Debt		Other (A)		Total	
	2015	2014	2015	2014	2015	2014	2015	2014
<b>Cash Flow Hedges, net of tax:</b>								
Net gain (loss) recognized in OCI (effective portion)	<b>\$(44.9)</b>	\$(4.5)	\$—	\$—	<b>\$9.9</b>	\$(10.7)	<b>\$(35.0)</b>	\$(15.2)
Net (gain) loss reclassified from OCI to sales/cost of sales (effective portion)	.6	.7	—	—	—	—	.6	.7
Net (gain) loss reclassified from OCI to other income (expense), net (effective portion)	<b>35.6</b>	1.7	—	—	<b>(20.2)</b>	(9.5)	<b>15.4</b>	(7.8)
Net (gain) loss reclassified from OCI to interest expense (effective portion)	.7	(1.4)	—	—	<b>2.6</b>	.3	<b>3.3</b>	(1.1)
Net (gain) loss reclassified from OCI to other income (expense), net (ineffective portion)	<b>1.5</b>	(.9)	—	—	—	—	<b>1.5</b>	(.9)
<b>Fair Value Hedges:</b>								
Net gain (loss) recognized in interest expense(B)	\$—	\$—	\$—	\$—	<b>\$9.9</b>	\$(5.0)	<b>\$9.9</b>	\$(5.0)
<b>Net Investment Hedges, net of tax:</b>								
Net gain (loss) recognized in OCI	<b>\$60.1</b>	\$17.1	<b>\$91.4</b>	\$51.5	<b>\$49.5</b>	\$17.0	<b>\$201.0</b>	\$85.6
<b>Derivatives Not Designated as Hedging Instruments:</b>								
Net gain (loss) recognized in other income (expense), net(C)	<b>\$(7.3)</b>	\$(7.2)	\$—	\$—	<b>\$6.6</b>	\$1.5	<b>\$(6.7)</b>	\$(5.7)

(A) Other includes the impact on other comprehensive income (OCI) and earnings primarily related to interest rate and cross currency rate swaps.

(B) The impact of fair value hedges noted above was largely offset by gains and losses resulting from the impact of changes in related interest rates on recognized outstanding debt.

(C) The impact of the non-designated hedges noted above was largely offset by gains and losses resulting from the impact of changes in exchange rates on recognized assets and liabilities denominated in nonfunctional currencies.

The amount of cash flow hedges' unrealized gains and losses at 30 September 2015 that are expected to be reclassified to earnings in the next twelve months is not material.

The cash flows related to all derivative contracts are reported in the operating activities section of the consolidated statements of cash flows.

### Credit Risk-Related Contingent Features

Certain derivative instruments are executed under agreements that require us to maintain a minimum credit rating with both Standard & Poor's and Moody's. If our credit rating falls below this threshold, the counterparty to the derivative instruments has the right to request full collateralization on the derivatives' net liability position. The net liability position of derivatives with credit risk-related contingent features was \$2 as of 30 September 2015 and \$2.1 as of 30 September 2014. Because our current credit rating is above the various pre-established thresholds, no collateral has been posted on these liability positions.

### Counterparty Credit Risk Management

We execute financial derivative transactions with counterparties that are highly rated financial institutions, all of which are investment grade at this time. Some of our underlying derivative agreements give us the right to require the institution to post collateral if its credit rating falls below the pre-established thresholds with Standard & Poor's or Moody's. The collateral that the counterparties would be required to post was \$226.9 as of 30 September 2015 and \$107.8 as of 30 September 2014. No financial institution is required to post collateral at this time, as all have credit ratings at or above the threshold.



## 14. FAIR VALUE MEASUREMENTS

Fair value is defined as an exit price, i.e., the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as follows:

- Level 1— Quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2— Inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability.
- Level 3— Inputs that are unobservable for the asset or liability based on our own assumptions (about the assumptions market participants would use in pricing the asset or liability).

The methods and assumptions used to measure the fair value of financial instruments are as follows:

### Derivatives

The fair value of our interest rate management contracts and forward exchange contracts are quantified using the income approach and are based on estimates using standard pricing models. These models take into account the value of future cash flows as of the balance sheet date, discounted to a present value using discount factors that match both the time to maturity and currency of the underlying instruments. The computation of the fair values of these instruments is generally performed by the Company. These standard pricing models utilize inputs which are derived from or corroborated by observable market data such as interest rate yield curves and currency spot and forward rates. Therefore, the fair value of our derivatives is classified as a level 2 measurement. On an ongoing basis, we randomly test a subset of our valuations against valuations received from the transaction's counterparty to validate the accuracy of our standard pricing models. Counterparties to these derivative contracts are highly rated financial institutions.

Refer to Note 13, Financial Instruments, for a description of derivative instruments, including details on the balance sheet line classifications.

### Long-term Debt

The fair value of our debt is based on estimates using standard pricing models that take into account the value of future cash flows as of the balance sheet date, discounted to a present value using discount factors that match both the time to maturity and currency of the underlying instruments. These standard valuation models utilize observable market data such as interest rate yield curves and currency spot rates. Therefore, the fair value of our debt is classified as a level 2 measurement. We generally perform the computation of the fair value of these instruments.

The carrying values and fair values of financial instruments were as follows:

	30 September 2015		30 September 2014	
	Carrying Value	Fair Value	Carrying Value	Fair Value
<b>Assets</b>				
Derivatives				
Forward exchange contracts	\$147.1	\$147.1	\$93.4	\$93.4
Interest rate management contracts	171.8	171.8	78.3	78.3
<b>Liabilities</b>				
Derivatives				
Forward exchange contracts	\$124.4	\$124.4	\$66.8	\$66.8
Interest rate management contracts	.8	.8	19.1	19.1
Long-term debt, including current portion	4,384.7	4,645.7	4,889.8	5,130.7

The carrying amounts reported in the balance sheet for cash and cash items, trade receivables, payables and accrued liabilities, accrued income taxes, and short-term borrowings approximate fair value due to the short-term nature of these instruments. Accordingly, these items have been excluded from the above table.

[Table of Contents](#)

The following table summarizes assets and liabilities measured at fair value on a recurring basis in the consolidated balance sheets:

	30 September 2015				30 September 2014			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
<b>Assets at Fair Value</b>								
Derivatives								
Forward exchange contracts	\$147.1	\$—	\$147.1	\$—	\$93.4	\$—	\$93.4	\$—
Interest rate management contracts	171.8	—	171.8	—	78.3	—	78.3	—
<b>Total Assets at Fair Value</b>	<b>\$318.9</b>	<b>\$—</b>	<b>\$318.9</b>	<b>\$—</b>	<b>\$171.7</b>	<b>\$—</b>	<b>\$171.7</b>	<b>\$—</b>
<b>Liabilities at Fair Value</b>								
Derivatives								
Forward exchange contracts	\$124.4	\$—	\$124.4	\$—	\$66.8	\$—	\$66.8	\$—
Interest rate management contracts	.8	—	.8	—	19.1	—	19.1	—
<b>Total Liabilities at Fair Value</b>	<b>\$125.2</b>	<b>\$—</b>	<b>\$125.2</b>	<b>\$—</b>	<b>\$85.9</b>	<b>\$—</b>	<b>\$85.9</b>	<b>\$—</b>

In conjunction with the business realignment and reorganization in 2015, long-lived assets held for sale were written down to fair value, and the loss was included in the respective charges. For additional information, see Note 5, Business Restructuring and Cost Reduction Actions. We quantified the fair value of the assets held for sale using a market approach, based on prices for other market transactions involving comparable assets and our assessment of value considering out knowledge of the markets.

During the fourth quarter ended 30 September 2014, we recognized a goodwill impairment charge of \$305.2 and an intangible asset impairment charge of \$4.9. Refer to Note 10, Goodwill, and Note 11, Intangible Assets, for more information related to these charges and the associated fair value measurements, which were classified as Level 3 since unobservable inputs were used in the valuation.

## 15. DEBT

The tables below summarize our outstanding debt at 30 September 2015 and 2014:

Total Debt	2015	2014
<b>30 September</b>		
Short-term borrowings	\$1,494.3	\$1,228.7
Current portion of long-term debt	435.6	65.3
Long-term debt	3,949.1	4,824.5
<b>Total Debt</b>	<b>\$5,879.0</b>	<b>\$6,118.5</b>

Short-term Borrowings	2015	2014
<b>30 September</b>		
Bank obligations	\$234.3	\$320.7
Commercial paper	1,260.0	908.0
<b>Total Short-term Borrowings</b>	<b>\$1,494.3</b>	<b>\$1,228.7</b>

The weighted average interest rate of short-term borrowings outstanding at 30 September 2015 and 2014 was .8% and 1.5%, respectively.

Cash paid for interest, net of amounts capitalized, was \$97.5 in 2015, \$132.4 in 2014, and \$136.1 in 2013.

**Long-term Debt**

30 September	Fiscal Year Maturities	2015	2014
<b>Payable in U.S. Dollars</b>			
<b>Debentures</b>			
8.75%	2021	<b>\$18.4</b>	\$18.4
<b>Medium-term Notes</b> (weighted average rate)			
Series D 7.3%	2016	<b>32.1</b>	32.1
Series E 7.6%	2026	<b>17.2</b>	17.2
<b>Senior Notes</b>			
Note 2.0%	2016	<b>350.0</b>	350.0
Note 1.2%	2018	<b>400.0</b>	400.0
Note 4.375%	2019	<b>400.0</b>	400.0
Note 3.0%	2022	<b>400.0</b>	400.0
Note 2.75%	2023	<b>400.0</b>	400.0
Note 3.35%	2024	<b>400.0</b>	400.0
<b>Other</b> (weighted average rate)			
Variable-rate industrial revenue bonds .01%	2035 to 2050	<b>769.9</b>	917.1
Other 2.4%	2015 to 2020	<b>35.0</b>	25.3
<b>Payable in Other Currencies</b>			
Eurobonds 3.875%	2015	—	378.9
Eurobonds 4.625%	2017	<b>335.2</b>	378.9
Eurobonds 2.0%	2020	<b>335.2</b>	378.9
Eurobonds 1.0%	2025	<b>335.2</b>	—
CLP Series E bonds 6.3%	2030	—	143.1
Other 6.6%	2016 to 2022	<b>161.0</b>	253.1
<b>Capital Lease Obligations</b>			
United States 5.0%	2018	<b>.7</b>	1.0
Foreign 7.7%	2017 to 2021	<b>1.1</b>	1.5
<b>Less: Unamortized Discount</b>		<b>(6.3)</b>	<b>(5.7)</b>
Total Long-term Debt		<b>4,384.7</b>	4,889.8
Less: Current portion of long-term debt		<b>(435.6)</b>	<b>(65.3)</b>
<b>Long-term Debt</b>		<b>\$3,949.1</b>	<b>\$4,824.5</b>

Maturities of long-term debt in each of the next five years and beyond are as follows:

2016	\$435.6
2017	373.2
2018	427.8
2019	415.5
2020	360.7
Thereafter	2,371.9
<b>Total</b>	<b>\$4,384.7</b>

Various debt agreements to which we are a party also include financial covenants and other restrictions, including restrictions pertaining to the ability to create property liens and enter into certain sale and leaseback transactions. As of 30 September 2015, we are in compliance with all the financial and other covenants under our debt agreements.

We have entered into a five-year revolving credit agreement maturing 30 April 2018 with a syndicate of banks (the "2013 Credit Agreement"), under which senior unsecured debt is available to both the Company and certain of its subsidiaries. There have been subsequent amendments to the 2013 Credit Agreement, and as of 30 September 2015, the maximum borrowing capacity was \$2,690.0. The 2013 Credit Agreement provides a source of liquidity for the Company and supports its commercial paper program. The Company's only financial covenant is a maximum ratio of total debt to total capitalization no greater than 70%. No borrowings were outstanding under the 2013 Credit Agreement as of 30 September 2015.

## [Table of Contents](#)

In September 2015, we made a payment of \$146.6 to redeem 3,000,000 Unidades de Fomento (“UF”) Series E 6.30% Bonds due 22 January 2030 that had a carrying value of \$130.0 and resulted in a net loss of \$16.6 (\$14.2 after-tax, or \$.07 per share). The loss is reflected on the consolidated income statements as “Loss on early retirement of debt.”

On 12 February 2015, we issued a 1.0% Eurobond for €300 million (\$335.3) that matures on 12 February 2025. The proceeds were used to repay a 3.875% Eurobond of €300 million (\$335.9) that matured on 10 March 2015.

Additional commitments totaling \$119.4 are maintained by our foreign subsidiaries, of which \$110.6 was borrowed and outstanding at 30 September 2015.

## 16. RETIREMENT BENEFITS

The Company and certain of its subsidiaries sponsor defined benefit pension plans and defined contribution plans that cover a substantial portion of its worldwide employees. The principal defined benefit pension plans are the U.S. salaried pension plan and the U.K. pension plan. These plans were closed to new participants in 2005 and were replaced with defined contribution plans. The principal defined contribution plan is the Retirement Savings Plan, in which a substantial portion of the U.S. employees participate; a similar plan is offered to U.K. employees. We also provide other postretirement benefits consisting primarily of healthcare benefits to U.S. retirees who meet age and service requirements.

### Defined Benefit Pension Plans

Pension benefits earned are generally based on years of service and compensation during active employment. The cost of our defined benefit pension plans included the following components:

	2015		2014		2013	
	U.S.	International	U.S.	International	U.S.	International
Service cost	\$42.2	\$31.3	\$42.6	\$36.0	\$51.8	\$31.5
Interest cost	124.7	57.8	130.7	67.2	117.1	57.3
Expected return on plan assets	(202.0)	(79.8)	(187.8)	(78.1)	(185.4)	(71.2)
Amortization						
Net actuarial loss	78.9	41.4	78.3	36.1	116.0	27.0
Prior service cost	2.8	—	2.9	.2	2.9	.2
Settlements	18.9	2.3	4.8	.7	11.5	.9
Curtailments	5.3	—	—	—	—	—
Special termination benefits	7.2	1.5	.2	.1	1.2	6.2
Other	1.0	2.1	—	2.0	—	2.7
<b>Net Periodic Pension Cost</b>	<b>\$79.0</b>	<b>\$56.6</b>	<b>\$71.7</b>	<b>\$64.2</b>	<b>\$115.1</b>	<b>\$54.6</b>

Net periodic pension cost is primarily included in cost of sales, selling and administrative expense, and pension settlement loss on our consolidated income statements. The amount of net periodic pension cost capitalized in 2015, 2014, and 2013 was not material.

Certain of our pension plans provide for a lump sum benefit payment option at the time of retirement, or for corporate officers, six months after their retirement date. A participant’s vested benefit is considered settled upon cash payment of the lump sum. We recognize pension settlement losses when cash payments exceed the sum of the service and interest cost components of net periodic pension cost of the plan for the fiscal year. We recognized \$21.2, \$5.5 and \$12.4 of settlement losses in 2015, 2014, and 2013, respectively. These settlements accelerated the recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss primarily associated with our U.S. Supplementary Pension Plan. Special termination benefits for 2015, 2014, and 2013 are primarily related to the business restructuring and cost reduction actions initiated in their respective years. In addition, curtailment losses of \$5.3 are also reflected in the 2015 business restructuring and cost reduction actions charge.

## [Table of Contents](#)

We calculate net periodic pension cost for a given fiscal year based on assumptions developed at the end of the previous fiscal year. The following table sets forth the weighted average assumptions used in the calculation of net periodic pension cost:

	2015		2014		2013	
	U.S.	International	U.S.	International	U.S.	International
Discount rate	4.3%	3.6%	4.8%	4.3%	3.9%	4.3%
Expected return on plan assets	8.3%	6.1%	8.3%	6.5%	8.3%	6.5%
Rate of compensation increase	3.5%	3.6%	4.0%	3.7%	4.0%	3.4%

The projected benefit obligation (PBO) is the actuarial present value of benefits attributable to employee service rendered to date, including the effects of estimated future salary increases. The following table sets forth the weighted average assumptions used in the calculation of the PBO:

	2015		2014	
	U.S.	International	U.S.	International
Discount rate	4.4%	3.4%	4.3%	3.6%
Rate of compensation increase	3.5%	3.5%	3.5%	3.6%

The following table reflects the change in the PBO and the change in the fair value of plan assets based on the plan year measurement date, as well as the amounts recognized in the consolidated balance sheets:

	2015		2014	
	U.S.	International	U.S.	International
<b>Change in Projected Benefit Obligation</b>				
Obligation at beginning of year	\$3,002.9	\$1,735.7	\$2,809.0	\$1,585.0
Service cost	42.2	31.3	42.6	36.0
Interest cost	124.7	57.8	130.7	67.2
Amendments	1.2	(3.1)	1.0	(.1)
Actuarial loss	130.4	30.0	135.4	130.3
Curtailments	5.3	(5.1)	—	—
Settlement (gain) loss	6.7	(8.6)	5.9	(1.9)
Special termination benefits	7.2	1.5	.2	.1
Participant contributions	—	2.1	—	2.4
Benefits paid	(181.8)	(50.3)	(123.1)	(50.1)
Currency translation/other	1.1	(143.4)	1.2	(33.2)
<b>Obligation at End of Year</b>	<b>\$3,139.9</b>	<b>\$1,647.9</b>	<b>\$3,002.9</b>	<b>\$1,735.7</b>
<b>Change in Plan Assets</b>				
Fair value at beginning of year	\$2,746.2	\$1,368.4	\$2,534.2	\$1,266.6
Actual return on plan assets	(14.0)	25.9	317.6	116.3
Company contributions	63.1	74.4	17.5	60.7
Participant contributions	—	2.1	—	2.4
Benefits paid	(181.8)	(50.3)	(123.1)	(50.1)
Settlements	—	(8.6)	—	(1.9)
Currency translation/other	.1	(109.1)	—	(25.6)
<b>Fair Value at End of Year</b>	<b>\$2,613.6</b>	<b>\$1,302.8</b>	<b>\$2,746.2</b>	<b>\$1,368.4</b>
<b>Funded Status at End of Year</b>	<b>\$(526.3)</b>	<b>\$(345.1)</b>	<b>\$(256.7)</b>	<b>\$(367.3)</b>
<b>Amounts Recognized</b>				
Noncurrent assets	\$4.0	\$.3	\$22.7	\$.2
Accrued liabilities	(15.7)	—	(37.7)	—
Noncurrent liabilities	(514.6)	(345.4)	(241.7)	(367.5)
<b>Net Amount Recognized</b>	<b>\$(526.3)</b>	<b>\$(345.1)</b>	<b>\$(256.7)</b>	<b>\$(367.3)</b>

## [Table of Contents](#)

The changes in plan assets and benefit obligation that have been recognized in other comprehensive income on a pretax basis during 2015 and 2014 consist of the following:

	2015		2014	
	U.S.	International	U.S.	International
Net actuarial loss arising during the period	\$351.8	\$79.4	\$11.5	\$92.9
Amortization of net actuarial loss	(97.8)	(43.3)	(83.1)	(36.8)
Prior service cost (credit) arising during the period	1.2	(3.1)	.9	(.1)
Amortization of prior service cost	(2.8)	—	(2.9)	(.2)
<b>Total</b>	<b>\$252.4</b>	<b>\$33.0</b>	<b>\$(73.6)</b>	<b>\$55.8</b>

The net actuarial loss represents the actual changes in the estimated obligation and plan assets that have not yet been recognized in the consolidated income statement and are included in accumulated other comprehensive loss. Actuarial losses arising during 2015 are primarily attributable to lower actual returns on plan assets, improved mortality projections and lower discount rates. Actuarial gains and losses are not recognized immediately, but instead are accumulated as a part of the unrecognized net loss balance and amortized into net periodic pension cost over the average remaining service period of participating employees as certain thresholds are met.

The components recognized in accumulated other comprehensive loss on a pretax basis at 30 September consisted of:

	2015		2014	
	U.S.	International	U.S.	International
Net actuarial loss	\$1,052.2	\$634.0	\$798.2	\$597.9
Prior service cost	10.1	(2.0)	11.7	1.1
Net transition liability	—	.4	—	.4
<b>Total</b>	<b>\$1,062.3</b>	<b>\$632.4</b>	<b>\$809.9</b>	<b>\$599.4</b>

The amount of accumulated other comprehensive loss at 30 September 2015 that is expected to be recognized as a component of net periodic pension cost during fiscal year 2016, excluding amounts that may be recognized through settlement losses, is as follows:

	U.S.	International
Net actuarial loss	\$84.4	\$40.5
Prior service cost	2.7	(.1)

The accumulated benefit obligation (ABO) is the actuarial present value of benefits attributed to employee service rendered to a particular date, based on current salaries. The ABO for all defined benefit pension plans was \$4,444.8 and \$4,360.0 at the end of 2015 and 2014, respectively.

The following table provides information on pension plans where the benefit liability exceeds the value of plan assets:

	30 September 2015		30 September 2014	
	U.S.	International	U.S.	International
<b>Pension Plans with PBO in Excess of Plan Assets:</b>				
PBO	\$2,917.1	\$1,644.5	\$2,786.6	\$1,723.9
Fair value of plan assets	2,386.7	1,299.1	2,507.3	1,356.6
<b>Pension Plans with ABO in Excess of Plan Assets:</b>				
ABO	\$2,689.2	\$1,498.0	\$131.4	\$1,553.9
Fair value of plan assets	2,386.7	1,263.2	—	1,318.4

Included in the tables above are several pension arrangements that are not funded because of jurisdictional practice. The ABO and PBO related to these plans for 2015 were \$97.7 and \$101.5, respectively.

**Pension Plan Assets**

Our pension plan investment strategy is to invest in diversified portfolios to earn a long-term return consistent with acceptable risk in order to pay retirement benefits and meet regulatory funding requirements while minimizing company cash contributions over time. The plans invest primarily in passive and actively managed equity and debt securities. Equity investments are diversified geographically and by investment style and market capitalization. Fixed income investments include sovereign, corporate and asset-backed securities generally denominated in the currency of the plan.

Asset allocation targets are established based on the long-term return, volatility and correlation characteristics of the asset classes, the profiles of the plans' liabilities, and acceptable levels of risk. Actual allocations vary from target due to market changes and are reviewed regularly. Assets are routinely rebalanced through contributions, benefit payments, and otherwise as deemed appropriate. The actual and target allocations at the measurement date are as follows:

Asset Category	2015 Target Allocation		2015 Actual Allocation		2014 Actual Allocation	
	U.S.	International	U.S.	International	U.S.	International
Equity securities	60–80%	56–67%	68%	59%	70%	61%
Debt securities	20–30%	32–43%	25%	40%	25%	37%
Real estate/other	0–10%	0–2%	7%	0%	5%	1%
Cash	—	—	0%	1%	0%	1%
<b>Total</b>			<b>100%</b>	<b>100%</b>	100%	100%

The 8.3% expected return for U.S. plan assets is based on a weighted average of estimated long-term returns of major asset classes and the historical performance of plan assets. The estimated long-term return for equity, debt securities, and real estate is 8.9%, 5.6%, and 7.4%, respectively. In determining asset class returns, we take into account historical long-term returns and the value of active management, as well as other economic and market factors.

The 6.1% expected rate of return for international plan assets is based on a weighted average return for plans outside the U.S., which vary significantly in size, asset structure and expected returns. The expected asset return for the U.K. plan, which represents over 80% of the assets of our International plans, is 6.8% and can be derived from expected equity and debt security returns of 7.5% and 3.8%, respectively.

[Table of Contents](#)

The following table summarizes pension plan assets measured at fair value by asset class (see Note 14, Fair Value Measurements, for definition of the levels):

	30 September 2015				30 September 2014			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
<b>U.S. Qualified Pension Plans</b>								
Cash and cash equivalents	\$11.1	\$11.1	\$—	\$—	\$9.9	\$9.9	\$—	\$—
Equity securities	681.7	681.7	—	—	724.5	724.5	—	—
Equity mutual funds	480.1	480.1	—	—	535.0	535.0	—	—
Equity pooled funds	615.1	—	615.1	—	651.6	—	651.6	—
Fixed income:								
Bonds (government and corporate)	651.4	—	651.4	—	636.8	—	636.8	—
Mortgage and asset-backed securities	—	—	—	—	12.8	—	12.8	—
Mutual funds	—	—	—	—	25.4	25.4	—	—
Real estate pooled funds	174.2	—	—	174.2	150.2	—	—	150.2
<b>Total U.S. Qualified Pension Plans</b>	<b>\$2,613.6</b>	<b>\$1,172.9</b>	<b>\$1,266.5</b>	<b>\$174.2</b>	<b>\$2,746.2</b>	<b>\$1,294.8</b>	<b>\$1,301.1</b>	<b>\$150.2</b>
<b>International Pension Plans</b>								
Cash and cash equivalents	\$10.1	\$10.1	\$—	\$—	\$11.0	\$11.0	\$—	\$—
Equity pooled funds	766.9	—	766.9	—	837.2	—	837.2	—
Fixed income pooled funds	465.6	—	465.6	—	440.9	—	440.9	—
Other pooled funds	14.9	—	8.3	6.6	19.6	—	10.3	9.3
Insurance contracts	45.3	—	—	45.3	59.7	—	—	59.7
<b>Total International Pension Plans</b>	<b>\$1,302.8</b>	<b>\$10.1</b>	<b>\$1,240.8</b>	<b>\$51.9</b>	<b>\$1,368.4</b>	<b>\$11.0</b>	<b>\$1,288.4</b>	<b>\$69.0</b>

The following table summarizes changes in fair value of the pension plan assets classified as Level 3, by asset class:

	Real Estate Pooled Funds	Other Pooled Funds	Insurance Contracts	Total
<b>30 September 2013</b>	\$132.8	\$9.4	\$68.3	\$210.5
Actual return on plan assets:				
Assets held at end of year	17.4	(.9)	—	16.5
Assets sold during the period	—	1.2	—	1.2
Purchases, sales, and settlements, net	—	(.4)	(8.6)	(9.0)
<b>30 September 2014</b>	\$150.2	\$9.3	\$59.7	\$219.2
Actual return on plan assets:				
Assets held at end of year	24.0	(.2)	(11.1)	12.7
Assets sold during the period	—	.5	—	.5
Purchases, sales, and settlements, net	—	(3.0)	(3.3)	(6.3)
<b>30 September 2015</b>	<b>\$174.2</b>	<b>\$6.6</b>	<b>\$45.3</b>	<b>\$226.1</b>

The descriptions and fair value methodologies for the U.S. and International pension plan assets are as follows:

*Cash and Cash Equivalents*

The carrying amounts of cash and cash equivalents approximate fair value due to the short-term maturity.

*Equity Securities*

Equity securities are valued at the closing market price reported on a U.S. or international exchange where the security is actively traded and are therefore classified as Level 1 assets.



## [Table of Contents](#)

### *Mutual and Pooled Funds*

Shares of mutual funds are valued at the net asset value (NAV) quoted on the exchange where the fund is traded and are classified as Level 1 assets. Units of pooled funds are valued at the per unit NAV determined by the fund manager and are classified as Level 2 assets. The investments are utilizing NAV as a practical expedient for fair value.

### *Corporate and Government Bonds*

Corporate and government bonds are classified as Level 2 assets, as they are either valued at quoted market prices from observable pricing sources at the reporting date or valued based upon comparable securities with similar yields and credit ratings.

### *Mortgage and Asset-Backed Securities*

Mortgage and asset-backed securities are classified as Level 2 assets, as they are either valued at quoted market prices from observable pricing sources at the reporting date or valued based upon comparable securities with similar yields, credit ratings, and purpose of the underlying loan.

### *Real Estate Pooled Funds*

Real estate pooled funds are classified as Level 3 assets, as they are carried at the estimated fair value of the underlying properties. Estimated fair value is calculated utilizing a combination of key inputs, such as revenue and expense growth rates, terminal capitalization rates, and discount rates. These key inputs are consistent with practices prevailing within the real estate investment management industry.

### *Other Pooled Funds*

Other pooled funds classified as Level 2 assets are valued at the NAV of the shares held at year end, which is based on the fair value of the underlying investments. Securities and interests classified as Level 3 are carried at the estimated fair value of the underlying investments. The underlying investments are valued based on bids from brokers or other third-party vendor sources that utilize expected cash flow streams and other uncorroborated data, including counterparty credit quality, default risk, discount rates, and the overall capital market liquidity.

### *Insurance Contracts*

Insurance contracts are classified as Level 3 assets, as they are carried at contract value, which approximates the estimated fair value. The estimated fair value is based on the fair value of the underlying investment of the insurance company.

## **Contributions and Projected Benefit Payments**

Pension contributions to funded plans and benefit payments for unfunded plans for fiscal year 2015 were \$137.5. Contributions resulted primarily from an assessment of long-term funding requirements of the plans and tax planning. Benefit payments to unfunded plans were due primarily to the timing of retirements and cost reduction actions. We anticipate contributing \$100 to \$120 to the defined benefit pension plans in 2016. These contributions are driven primarily by benefit payments for unfunded plans, which are dependent upon timing of retirements and actions to reorganize the business.

Projected benefit payments, which reflect expected future service, are as follows:

	U.S.	International
2016	\$129.0	\$52.0
2017	135.8	53.5
2018	142.2	55.3
2019	149.6	57.5
2020	157.4	57.8
2021–2025	917.9	332.3

These estimated benefit payments are based on assumptions about future events. Actual benefit payments may vary significantly from these estimates.

## Defined Contribution Plans

We maintain a nonleveraged employee stock ownership plan (ESOP) which forms part of the Air Products and Chemicals, Inc. Retirement Savings Plan (RSP). The ESOP was established in May of 2002. The balance of the RSP is a qualified defined contribution plan including a 401(k) elective deferral component. A substantial portion of U.S. employees are eligible and participate.

We treat dividends paid on ESOP shares as ordinary dividends. Under existing tax law, we may deduct dividends which are paid with respect to shares held by the plan. Shares of the Company's common stock in the ESOP totaled 3,402,625 as of 30 September 2015.

We match a portion of the participants' contributions to the RSP and other various worldwide defined contribution plans. Our contributions to the RSP include a Company core contribution for certain eligible employees who do not receive their primary retirement benefit from the defined benefit pension plans, with the core contribution based on a percentage of pay that is dependent on years of service. For the RSP, we also make matching contributions on overall employee contributions as a percentage of the employee contribution and include an enhanced contribution for certain eligible employees that do not participate in the defined benefit pension plans. Worldwide contributions expensed to income in 2015, 2014, and 2013 were \$44.2, \$45.2, and \$40.6, respectively.

## Other Postretirement Benefits

We provide other postretirement benefits consisting primarily of healthcare benefits to certain U.S. retirees who meet age and service requirements. The healthcare benefit is a continued medical benefit until the retiree reaches age 65. Healthcare benefits are contributory, with contributions adjusted periodically. The retiree medical costs are capped at a specified dollar amount, with the retiree contributing the remainder.

The cost of our other postretirement benefit plans includes the following components:

	2015	2014	2013
Service cost	\$2.8	\$3.3	\$4.3
Interest cost	2.2	2.3	1.9
Amortization of net actuarial loss	.8	1.7	2.3
<b>Net Periodic Postretirement Cost</b>	<b>\$5.8</b>	<b>\$7.3</b>	<b>\$8.5</b>

We calculate net periodic postretirement cost for a given fiscal year based on assumptions developed at the end of the previous fiscal year. The discount rate assumption used in the calculation of net periodic postretirement cost for 2015, 2014, and 2013 was 2.6%, 2.4%, and 1.9%, respectively.

We measure the other postretirement benefits as of 30 September. The discount rate assumption used in the calculation of the accumulated postretirement benefit obligation was 2.4% and 2.6% for 2015 and 2014, respectively.

The following table reflects the change in the accumulated postretirement benefit obligation and the amounts recognized in the consolidated balance sheets:

	2015	2014
<b>Obligation at beginning of year</b>	<b>\$93.5</b>	<b>\$99.9</b>
Service cost	2.8	3.3
Interest cost	2.2	2.3
Actuarial gain	(2.3)	(3.0)
Benefits paid	(9.3)	(9.0)
<b>Obligation at End of Year</b>	<b>\$86.9</b>	<b>\$93.5</b>
<b>Amounts Recognized</b>		
Accrued liabilities	\$10.4	\$10.7
Noncurrent liabilities	76.5	82.8

## [Table of Contents](#)

The changes in benefit obligation that have been recognized in other comprehensive income on a pretax basis during 2015 and 2014 for our other postretirement benefit plans consist of the following:

	2015	2014
Net actuarial gain arising during the period	<b>\$(2.3)</b>	<b>\$(3.0)</b>
Amortization of net actuarial loss	<b>(.8)</b>	<b>(1.7)</b>
<b>Total</b>	<b>\$(3.1)</b>	<b>\$(4.7)</b>

The net actuarial loss recognized in accumulated other comprehensive loss on a pretax basis was \$11.9 at 30 September 2015 and \$15.0 at 30 September 2014. Of the 30 September 2015 net actuarial loss, it is estimated that \$.7 will be amortized into net periodic postretirement cost during fiscal year 2016.

The assumed healthcare trend rates are as follows:

	2015	2014
Healthcare trend rate	<b>7%</b>	<b>7%</b>
Ultimate trend rate	<b>5%</b>	<b>5%</b>
Year the ultimate trend rate is reached	<b>2019</b>	<b>2019</b>

The effect of a change in the healthcare trend rate is tempered by a cap on the average retiree medical cost. The impact of a one percentage point change in the assumed healthcare cost trend rate on net periodic postretirement cost and the obligation is not significant.

Projected benefit payments are as follows:

2016	\$10.5
2017	10.4
2018	10.1
2019	9.9
2020	9.6
2021–2025	39.0

These estimated benefit payments are based on assumptions about future events. Actual benefit payments may vary significantly from these estimates.

## 17. COMMITMENTS AND CONTINGENCIES

### LITIGATION

We are involved in various legal proceedings, including commercial, competition, environmental, health, safety, product liability, and insurance matters. In September 2010, the Brazilian Administrative Council for Economic Defense (CADE) issued a decision against our Brazilian subsidiary, Air Products Brasil Ltda., and several other Brazilian industrial gas companies for alleged anticompetitive activities. CADE imposed a civil fine of R\$179.2 million (approximately \$45 at 30 September 2015) on Air Products Brasil Ltda. This fine was based on a recommendation by a unit of the Brazilian Ministry of Justice, whose investigation began in 2003, alleging violation of competition laws with respect to the sale of industrial and medical gases. The fines are based on a percentage of our total revenue in Brazil in 2003.

We have denied the allegations made by the authorities and filed an appeal in October 2010 with the Brazilian courts. On 6 May 2014, our appeal was granted and the fine against Air Products Brasil Ltda. was dismissed. CADE has appealed that ruling and the matter remains pending. We, with advice of our outside legal counsel, have assessed the status of this matter and have concluded that, although an adverse final judgment after exhausting all appeals is possible, such a judgment is not probable. As a result, no provision has been made in the consolidated financial statements. We estimate the maximum possible loss to be the full amount of the fine of R\$179.2 million (approximately \$45 at 30 September 2015) plus interest accrued thereon until final disposition of the proceedings.

## [Table of Contents](#)

While we do not expect that any sums we may have to pay in connection with this or any other legal proceeding would have a material adverse effect on our consolidated financial position or net cash flows, a future charge for regulatory fines or damage awards could have a significant impact on our net income in the period in which it is recorded.

### **ENVIRONMENTAL**

In the normal course of business, we are involved in legal proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA: the federal Superfund law); Resource Conservation and Recovery Act (RCRA); and similar state and foreign environmental laws relating to the designation of certain sites for investigation or remediation. Presently, there are approximately 37 sites on which a final settlement has not been reached where we, along with others, have been designated a potentially responsible party by the Environmental Protection Agency or are otherwise engaged in investigation or remediation, including cleanup activity at certain of our current and former manufacturing sites. We continually monitor these sites for which we have environmental exposure.

Accruals for environmental loss contingencies are recorded when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The consolidated balance sheets at 30 September 2015 and 2014 included an accrual of \$80.6 and \$86.2, respectively, primarily as part of other noncurrent liabilities. The environmental liabilities will be paid over a period of up to 30 years. We estimate the exposure for environmental loss contingencies to range from \$80 to a reasonably possible upper exposure of \$93 as of 30 September 2015.

Actual costs to be incurred at identified sites in future periods may vary from the estimates, given inherent uncertainties in evaluating environmental exposures. Using reasonably possible alternative assumptions of the exposure level could result in an increase to the environmental accrual. Due to the inherent uncertainties related to environmental exposures, a significant increase to the reasonably possible upper exposure level could occur if a new site is designated, the scope of remediation is increased, a different remediation alternative is identified, or a significant increase in our proportionate share occurs. We do not expect that any sum we may have to pay in connection with environmental matters in excess of the amounts recorded or disclosed above would have a material adverse impact on our financial position or results of operations in any one year.

### **Pace**

At 30 September 2015, \$30.9 of the environmental accrual was related to the Pace facility.

In 2006, we sold our Amines business, which included operations at Pace, Florida, and recognized a liability for retained environmental obligations associated with remediation activities at Pace. We are required by the Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA) to continue our remediation efforts. We estimated that it would take 20 years to complete the groundwater remediation, and the costs through completion were estimated to range from \$42 to \$52. As no amount within the range was a better estimate than another, we recognized a pretax expense in fiscal 2006 of \$42 as a component of income from discontinued operations and recorded an environmental accrual of \$42 in continuing operations on the consolidated balance sheets. There has been no change to the estimated exposure range related to the Pace facility.

We have implemented many of the remedial corrective measures at the Pace facility required under 1995 Consent Orders issued by the FDEP and the USEPA. Contaminated soils have been bioremediated, and the treated soils have been secured in a lined on-site disposal cell. Several groundwater recovery systems have been installed to contain and remove contamination from groundwater. We completed an extensive assessment of the site to determine how well existing measures are working, what additional corrective measures may be needed, and whether newer remediation technologies that were not available in the 1990s might be suitable to more quickly and effectively remove groundwater contaminants. Based on assessment results, we completed a focused feasibility study that has identified alternative approaches that may more effectively remove contaminants. We continue to review alternative remedial approaches with the FDEP. In the first quarter of 2015, we entered into a new Consent Order with the FDEP requiring us to continue our remediation efforts at the Pace facility. We expect the costs we will incur under the new Consent Order to be consistent with our previous estimates.

## Piedmont

At 30 September 2015, \$18.1 of the environmental accrual was related to the Piedmont site.

On 30 June 2008, we sold our Elkton, Maryland, and Piedmont, South Carolina, production facilities and the related North American atmospheric emulsions and global pressure sensitive adhesives businesses. In connection with the sale, we recognized a liability for retained environmental obligations associated with remediation activities at the Piedmont site. This site is under active remediation for contamination caused by an insolvent prior owner. We are required by the South Carolina Department of Health and Environmental Control to address both contaminated soil and groundwater. Numerous areas of soil contamination have been addressed, and contaminated groundwater is being recovered and treated. We estimate that it will take until 2017 to complete source area remediation and another 15 years thereafter to complete groundwater recovery, with costs through completion estimated to be \$24. We recognized a pretax expense in 2008 of \$24 as a component of income from discontinued operations and recorded an environmental liability of \$24 in continuing operations on the consolidated balance sheets. There has been no change to the estimated exposure.

## Pasadena

At 30 September 2015, \$11.5 of the environmental accrual was related to the Pasadena site.

During the fourth quarter of 2012, management committed to permanently shutting down our polyurethane intermediates (PUI) production facility in Pasadena, Texas. In shutting down and dismantling the facility, we have undertaken certain obligations related to soil and groundwater contaminants. We have been pumping and treating groundwater to control off-site contaminant migration in compliance with regulatory requirements and under the approval of the Texas Commission on Environmental Quality (TCEQ). We estimate that the pump and treat system will continue to operate until 2042. We plan to perform additional work to address other environmental obligations at the site. This additional work includes remediating as required impacted soils, investigating groundwater west of the former PUI facility, performing post closure care for two closed RCRA surface impoundment units and establishing engineering controls. In 2012, we estimated the total exposure at this site to be \$13. There has been no change to the estimated exposure.

## ASSET RETIREMENT OBLIGATIONS

Our asset retirement obligations are primarily associated with on-site long-term supply contracts, under which we have built a facility on land owned by the customer and are obligated to remove the facility at the end of the contract term. The retirement of assets includes the contractually required removal of a long-lived asset from service, and encompasses the sale, removal, abandonment, recycling, or disposal of the assets as required at the end of the contract terms. The timing and/or method of settlement of these obligations are conditional on a future event that may or may not be within our control.

Changes to the carrying amount of our asset retirement obligations are as follows:

Balance at 30 September 2013	\$89.8
Additional accruals	5.6
Liabilities settled	(4.9)
Accretion expense	5.2
Currency translation adjustment	(1.7)
Balance at 30 September 2014	\$94.0
Additional accruals	17.6
Liabilities settled	(3.6)
Accretion expense	4.7
Currency translation adjustment	(3.3)
<b>Balance at 30 September 2015</b>	<b>\$109.4</b>

These obligations are primarily reflected in other noncurrent liabilities on the consolidated balance sheets.

## GUARANTEES AND WARRANTIES

In April 2015, we entered into joint venture arrangements in Saudi Arabia. An equity bridge loan has been provided to the joint venture until 2020 to fund equity commitments, and we guaranteed the repayment of our 25% share of this loan. Our venture partner guaranteed repayment of their share. Our maximum exposure under the guarantee is approximately \$100. As of 30 September 2015, we recorded a noncurrent liability of \$67.5 for our obligation to make future equity contributions based on the equity bridge loan.

Air Products has also entered into a sale of equipment contract with the joint venture to engineer, procure, and construct the industrial gas facilities that will supply gases to Saudi Aramco. We will provide bank guarantees to the joint venture of up to \$326 to support our performance under the contract.

We are party to an equity support agreement and operations guarantee related to an air separation facility constructed in Trinidad for a venture in which we own 50%. At 30 September 2015, maximum potential payments under joint and several guarantees were \$30.0. Exposures under the guarantee decline over time and will be completely extinguished by 2024.

During the first quarter of 2014, we sold the remaining portion of our Homecare business and entered into an operations guarantee related to obligations under certain homecare contracts assigned in connection with the transaction. Our maximum potential payment under the guarantee is £20 million (approximately \$30 at 30 September 2015), and our exposure will be extinguished by 2020.

To date, no equity contributions or payments have been made since the inception of these guarantees. The fair value of the above guarantees is not material.

We, in the normal course of business operations, have issued product warranties related to equipment sales. Also, contracts often contain standard terms and conditions which typically include a warranty and indemnification to the buyer that the goods and services purchased do not infringe on third-party intellectual property rights. The provision for estimated future costs relating to warranties is not material to the consolidated financial statements.

We do not expect that any sum we may have to pay in connection with guarantees and warranties will have a material adverse effect on our consolidated financial condition, liquidity, or results of operations.

## UNCONDITIONAL PURCHASE OBLIGATIONS

We are obligated to make future payments under unconditional purchase obligations as summarized below:

2016	\$917
2017	117
2018	63
2019	55
2020	54
Thereafter	164
<b>Total</b>	<b>\$1,370</b>

Approximately \$390 of our long-term unconditional purchase obligations relate to feedstock supply for numerous HyCO (hydrogen, carbon monoxide, and syngas) facilities. The price of feedstock supply is principally related to the price of natural gas. However, long-term take-or-pay sales contracts to HyCO customers are generally matched to the term of the feedstock supply obligations and provide recovery of price increases in the feedstock supply. Due to the matching of most long-term feedstock supply obligations to customer sales contracts, we do not believe these purchase obligations would have a material effect on our financial condition or results of operations.

The unconditional purchase obligations also include other product supply and purchase commitments and electric power and natural gas supply purchase obligations, which are primarily pass-through contracts with our customers. Purchase commitments to spend approximately \$540 for additional plant and equipment are included in the unconditional purchase obligations in 2016.

## 18. CAPITAL STOCK

### Common Stock

Authorized common stock consists of 300 million shares with a par value of \$1 per share. As of 30 September 2015, 249 million shares were issued, with 215 million outstanding.

On 15 September 2011, the Board of Directors authorized the repurchase of up to \$1,000 of our outstanding common stock. We repurchase shares pursuant to Rules 10b5-1 and 10b-18 under the Securities Exchange Act of 1934, as amended, through repurchase agreements established with several brokers. We did not purchase any of our outstanding shares during fiscal year 2015. At 30 September 2015, \$485.3 in share repurchase authorization remains.

The following table reflects the changes in common shares:

Year ended 30 September	2015	2014	2013
<b>Number of Common Shares Outstanding</b>			
Balance, beginning of year	213,538,144	211,179,257	212,475,880
Purchase of treasury shares	—	—	(5,721,017)
Issuance of treasury shares for stock option and award plans	1,820,969	2,358,887	4,424,394
Balance, end of year	215,359,113	213,538,144	211,179,257

### Preferred Stock

Authorized preferred stock consists of 25 million shares with a par value of \$1 per share, of which 2.5 million were designated as Series A Junior Participating Preferred Stock. There were no shares issued or outstanding as of 30 September 2015 and 2014.

## 19. SHARE-BASED COMPENSATION

We have various share-based compensation programs, which include deferred stock units, stock options, and restricted stock. Under all programs, the terms of the awards are fixed at the grant date. We issue shares from treasury stock upon the payout of deferred stock units, the exercise of stock options, and the issuance of restricted stock awards. As of 30 September 2015, there were 5,202,927 shares available for future grant under our Long-Term Incentive Plan, which is shareholder approved.

Share-based compensation cost recognized in the consolidated income statements is summarized below:

	2015	2014	2013
Before-Tax Share-Based Compensation Cost	\$45.7	\$44.0	\$43.5
Income tax benefit	(16.0)	(15.6)	(15.7)
After-Tax Share-Based Compensation Cost	\$29.7	\$28.4	\$27.8

Before-tax share-based compensation cost is primarily included in selling and administrative expense on our consolidated income statements. The amount of share-based compensation cost capitalized in 2015, 2014, and 2013 was not material.

Total before-tax share-based compensation cost by type of program was as follows:

	2015	2014	2013
Deferred stock units	\$28.8	\$20.2	\$19.6
Stock options	12.6	21.6	21.5
Restricted stock	4.3	2.2	2.4
<b>Before-Tax Share-Based Compensation Cost</b>	<b>\$45.7</b>	<b>\$44.0</b>	<b>\$43.5</b>

**Deferred Stock Units**

We have granted deferred stock units to executives, selected employees, and outside directors. These deferred stock units entitle the recipient to one share of common stock upon vesting, which is conditioned, for employee recipients, on continued employment during the deferral period and may be conditioned on achieving certain performance targets. We grant deferred stock unit awards with a two to five year deferral period that is subject to payout upon death, disability, or retirement. Deferred stock units issued to outside directors are paid after service on the Board of Directors ends at the time elected by the director (not to exceed 10 years after service ends). We generally expense the grant-date fair value of these awards on a straight-line basis over the vesting period; however, expense recognition is accelerated for retirement eligible individuals who meet the requirements for vesting upon retirement.

During the twelve months ended 30 September 2015, we granted 119,272 market-based deferred stock units. The market-based deferred stock units vest as long as the employee continues to be employed by the Company and upon the achievement of the performance target. The performance target, which is approved by the Compensation Committee, is the Company's total shareholder return (share price appreciation and dividends paid) in relation to a defined peer group over the three-year performance period beginning 1 October 2014 and ending 30 September 2017.

The market-based deferred stock units had an estimated grant-date fair value of \$194.51 per unit. The grant-date fair value was estimated using a Monte Carlo simulation model as these equity awards were tied to a market condition. We generally expense the grant-date fair value of these awards on a straight line basis over the vesting period. The calculation of the fair value of market-based deferred stock units used the following assumptions:

Expected volatility	19.6 %
Risk-free interest rate	.9 %
Expected dividend yield	2.5 %

In addition, during the twelve months ended 30 September 2015, we granted 147,699 time-based deferred stock units at a weighted average grant-date fair value of \$143.81.

<b>Deferred Stock Units</b>	<b>Shares (000)</b>	<b>Weighted Average Grant-Date Fair Value</b>
Outstanding at 30 September 2014	1,136	\$81.03
Granted	267	166.46
Paid out	(292)	77.07
Forfeited/adjustments	(55)	113.91
<b>Outstanding at 30 September 2015</b>	<b>1,056</b>	<b>\$102.01</b>

Cash payments made for deferred stock units were \$9.6, \$2.1, and \$1.9 in 2015, 2014, and 2013, respectively. As of 30 September 2015, there was \$37.6 of unrecognized compensation cost related to deferred stock units. The cost is expected to be recognized over a weighted average period of 2.3 years. The total fair value of deferred stock units paid out during 2015, 2014, and 2013, including shares vested in prior periods, was \$35.5, \$31.8, and \$32.3, respectively.

**Stock Options**

We have granted awards of options to purchase common stock to executives and selected employees. The exercise price of stock options equals the market price of our stock on the date of the grant. Options generally vest incrementally over three years, and remain exercisable for ten years from the date of grant.



## [Table of Contents](#)

Fair values of stock options were estimated using a Black Scholes model that used the assumptions noted in the table below. Expected volatility and expected dividend yield are based on actual historical experience of our stock and dividends over the historical period equal to the expected life. The expected life represents the period of time that options granted are expected to be outstanding based on an analysis of Company-specific historical exercise data. Ranges are used when certain groups of employees exhibit different behavior, such as timing of exercise. The risk-free rate is based on the U.S. Treasury Strips with terms equal to the expected time of exercise as of the grant date.

	2015	2014	2013
Expected volatility	30.3%	29.8%–31.1%	28.6%–30.4%
Expected dividend yield	2.6%	2.4%–2.9%	2.4%
Expected life (in years)	7.5	6.5–8.4	7.3–9.1
Risk-free interest rate	2.2%	2.0%–2.7%	1.2%–1.5%

The weighted average grant-date fair value of options granted during 2015, 2014, and 2013 was \$37.19, \$29.10, and \$19.85, per option, respectively.

A summary of stock option activity is presented below:

Stock Options	Shares (000)	Weighted Average Exercise Price
Outstanding at 30 September 2014	7,284	\$83.14
Granted	181	144.09
Exercised	(1,671)	74.35
Forfeited	(69)	107.70
<b>Outstanding at 30 September 2015</b>	<b>5,725</b>	<b>\$87.35</b>
<b>Exercisable at 30 September 2015</b>	<b>4,657</b>	<b>\$82.81</b>

Stock Options	Weighted Average Remaining Contractual Terms (in years)	Aggregate Intrinsic Value
<b>Outstanding at 30 September 2015</b>	<b>5.3</b>	<b>\$233</b>
<b>Exercisable at 30 September 2015</b>	<b>4.6</b>	<b>\$209</b>

The aggregate intrinsic value represents the amount by which our closing stock price of \$127.58 as of 30 September 2015 exceeds the exercise price multiplied by the number of in-the-money options outstanding or exercisable.

The total intrinsic value of stock options exercised during 2015, 2014, and 2013 was \$115.5, \$125.3, and \$170.4, respectively.

Compensation cost is generally recognized over the stated vesting period consistent with the terms of the arrangement (i.e., either on a straight-line or graded-vesting basis). Expense recognition is accelerated for retirement-eligible individuals who would meet the requirements for vesting of awards upon their retirement. As of 30 September 2015, there was \$5.8 of unrecognized compensation cost related to nonvested stock options, which is expected to be recognized over a weighted average period of 1.7 years.

Cash received from option exercises during 2015 was \$121.3. The total tax benefit realized from stock option exercises in 2015 was \$40.1, of which \$27.4 was the excess tax benefit.

### Restricted Stock

The grant-date fair value of restricted stock is estimated on the date of grant based on the market price of the stock, and compensation cost is generally amortized to expense on a straight-line basis over the vesting period during which employees perform related services. Expense recognition is accelerated for retirement-eligible individuals who would meet the requirements for vesting of awards upon their retirement.

[Table of Contents](#)

We have issued shares of restricted stock to certain officers. Participants are entitled to cash dividends and to vote their respective shares. Restrictions on shares lift in one to four years or upon earlier retirement, death, or disability. The shares are nontransferable while subject to forfeiture.

<b>Restricted Stock</b>	Shares (000)	Weighted Average Grant-Date Fair Value
Outstanding at 30 September 2014	73	\$110.75
Granted	20	144.09
Vested	(10)	90.67
<b>Outstanding at 30 September 2015</b>	<b>83</b>	<b>\$121.17</b>

As of 30 September 2015, there was \$4.5 of unrecognized compensation cost related to restricted stock awards. The cost is expected to be recognized over a weighted average period of 3.3 years. The total fair value of restricted stock vested during 2015, 2014, and 2013 was \$1.4, \$12.1, and \$4.4, respectively.

## 20. ACCUMULATED OTHER COMPREHENSIVE LOSS

The table below summarizes changes in accumulated other comprehensive loss (AOCL), net of tax, attributable to Air Products:

	Net loss on derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance at 30 September 2012	\$(18.9)	\$(38.8)	\$(1,291.1)	\$(1,348.8)
Other comprehensive income (loss) before reclassifications	35.0	(25.0)	231.9	241.9
Amounts reclassified from AOCL	(20.2)	.6	104.9	85.3
Net current period other comprehensive income (loss)	\$14.8	\$(24.4)	\$336.8	\$327.2
Amount attributable to noncontrolling interest	—	(1.7)	.7	(1.0)
Balance at 30 September 2013	\$(4.1)	\$(61.5)	\$(955.0)	\$(1,020.6)
Other comprehensive income (loss) before reclassifications	(15.2)	(213.1)	(74.2)	(302.5)
Amounts reclassified from AOCL	(9.1)	—	84.7	75.6
Net current period other comprehensive income (loss)	\$(24.3)	\$(213.1)	\$10.5	\$(226.9)
Amount attributable to noncontrolling interest	.1	(5.9)	.2	(5.6)
Balance at 30 September 2014	\$(28.5)	\$(268.7)	\$(944.7)	\$(1,241.9)
Other comprehensive income (loss) before reclassifications	(35.0)	(699.3)	(278.5)	(1,012.8)
Amounts reclassified from AOCL	20.8	—	97.0	117.8
Net current period other comprehensive income (loss)	\$(14.2)	\$(699.3)	\$(181.5)	\$(895.0)
Amount attributable to noncontrolling interest	.2	(11.5)	.3	(11.0)
<b>Balance at 30 September 2015</b>	<b>\$(42.9)</b>	<b>\$(956.5)</b>	<b>\$(1,126.5)</b>	<b>\$(2,125.9)</b>

[Table of Contents](#)

The table below summarizes the reclassifications out of accumulated other comprehensive loss and the affected line item on the consolidated income statements:

	2015	2014	2013
<b>(Gain) Loss on Cash Flow Hedges, net of tax</b>			
Sales/Cost of sales	\$ .6	\$ .7	\$ 1.0
Other income (expense), net	16.9	(8.7)	(21.5)
Interest expense	3.3	(1.1)	.3
<b>Total (Gain) Loss on Cash Flow Hedges, net of tax</b>	<b>\$20.8</b>	<b>\$ (9.1)</b>	<b>\$ (20.2)</b>
<b>Pension and Postretirement Benefits, net of tax(A)</b>	<b>\$97.0</b>	<b>\$84.7</b>	<b>\$104.9</b>
<b>Currency Translation Adjustment(B)</b>	<b>\$—</b>	<b>\$—</b>	<b>\$ .6</b>

(A) The components include items such as prior service cost amortization, actuarial loss amortization, and settlements and are reflected in net periodic benefit cost. Refer to Note 16, Retirement Benefits.

(B) The impact is reflected in Income from Discontinued Operations, net of tax.

## 21. NONCONTROLLING INTERESTS

### INDURA S.A.

#### Redeemable Noncontrolling Interest

In 2012, we purchased a controlling equity interest in the outstanding shares of Indura S.A. As part of the purchase agreement, the largest minority shareholder in Indura S.A. had the right to exercise a put option to require us to purchase up to a 30.5% equity interest during the two-year period beginning on 1 July 2015, at a redemption value equal to the greater of fair market value or the acquisition date value escalated by an inflation factor (the "floor value"). The put option was not accounted for separate from the minority interest shares that were subject to the put option. The redemption feature of the put option required classification of the minority shareholder's interest in the consolidated balance sheet outside of equity under the caption "Redeemable Noncontrolling Interest."

In July 2015, we completed the purchase of the 30.5% equity interest in our Indura S.A. subsidiary from the largest minority shareholder for \$277.9 based on terms substantially consistent with the original purchase agreement. The purchase was funded by the issuance of commercial paper. As of 30 September 2015, we have a 97.8% controlling equity interest in Indura S.A.

The following is a summary of the changes in redeemable noncontrolling interest for the year ended 30 September:

	2015	2014
Balance at beginning of year	\$287.2	\$375.8
Net income (loss)(A)	11.5	(27.4)
Dividends	(2.0)	(4.7)
Purchase of noncontrolling interest	(277.9)	—
Currency translation adjustment	(18.8)	(56.5)
<b>Balance at 30 September</b>	<b>\$—</b>	<b>\$287.2</b>

(A) The 2014 net loss includes \$32.5 for the goodwill and intangible asset impairment charge. Refer to Note 10, Goodwill, and Note 11, Intangible Assets, to the consolidated financial statements for additional details.

As redeemable noncontrolling interest is not part of total equity, the impacts above are excluded from our consolidated statements of equity.

## 22. EARNINGS PER SHARE

The following table sets forth the computation of basic and diluted earnings per share (EPS):

30 September	2015	2014	2013
<b>Numerator</b>			
Income from continuing operations	\$1,277.9	\$987.1	\$1,004.2
Income (Loss) from discontinued operations	—	4.6	(10.0)
<b>Net Income Attributable to Air Products</b>	<b>\$1,277.9</b>	<b>\$991.7</b>	<b>\$994.2</b>
<b>Denominator (in millions)</b>			
Weighted average common shares — Basic	214.9	212.7	209.7
Effect of dilutive securities			
Employee stock option and other award plans	2.4	2.5	2.6
Weighted average common shares — Diluted	217.3	215.2	212.3
<b>Basic EPS Attributable to Air Products</b>			
Income from continuing operations	\$5.95	\$4.64	\$4.79
Income (Loss) from discontinued operations	—	.02	(.05)
<b>Net Income Attributable to Air Products</b>	<b>\$5.95</b>	<b>\$4.66</b>	<b>\$4.74</b>
<b>Diluted EPS Attributable to Air Products</b>			
Income from continuing operations	\$5.88	\$4.59	\$4.73
Income (Loss) from discontinued operations	—	.02	(.05)
<b>Net Income Attributable to Air Products</b>	<b>\$5.88</b>	<b>\$4.61</b>	<b>\$4.68</b>

Diluted EPS attributable to Air Products reflects the potential dilution that could occur if stock options or other share-based awards were exercised or converted into common stock. The dilutive effect is computed using the treasury stock method, which assumes all share-based awards are exercised and the hypothetical proceeds from exercise are used by the Company to purchase common stock at the average market price during the period. The incremental shares (difference between shares assumed to be issued versus purchased), to the extent they would have been dilutive, are included in the denominator of the diluted EPS calculation. Outstanding share-based awards of .2 million shares, .6 million shares, and 2.1 million shares were antidilutive and therefore excluded from the computation of diluted EPS for 2015, 2014, and 2013, respectively.

## 23. INCOME TAXES

The following table summarizes the income of U.S. and foreign operations before taxes:

	2015	2014	2013
<b>Income from Continuing Operations before Taxes</b>			
United States	\$739.0	\$555.9	\$428.5
Foreign	840.0	647.2	754.1
Income from equity affiliates	154.5	151.4	167.8
<b>Total</b>	<b>\$1,733.5</b>	<b>\$1,354.5</b>	<b>\$1,350.4</b>

[Table of Contents](#)

The following table shows the components of the provision for income taxes:

	2015	2014	2013
<b>Current Tax Provision</b>			
Federal	\$176.1	\$17.2	\$97.6
State	16.8	12.8	6.5
Foreign	220.1	210.5	191.0
	<b>413.0</b>	<b>240.5</b>	<b>295.1</b>
<b>Deferred Tax Provision</b>			
Federal	(3.5)	98.2	27.7
State	19.1	(2.7)	(7.8)
Foreign	(12.7)	30.0	(7.1)
	<b>2.9</b>	<b>125.5</b>	<b>12.8</b>
<b>Income Tax Provision</b>	<b>\$415.9</b>	<b>\$366.0</b>	<b>\$307.9</b>

A reconciliation of the differences between the United States federal statutory tax rate and the effective tax rate is as follows:

(Percent of income before taxes)	2015	2014	2013
U.S. federal statutory tax rate	35.0%	35.0%	35.0%
State taxes, net of federal benefit	1.0	.5	.5
Income from equity affiliates	(3.0)	(3.9)	(4.3)
Foreign tax differentials	(6.6)	(8.3)	(5.4)
U.S. taxes on foreign earnings	(1.6)	(1.7)	(1.5)
Domestic production activities	(.9)	(.7)	(.6)
Non-deductible goodwill impairment charge	—	8.0	—
Non-U.S. subsidiary tax election	—	(3.8)	—
Other(A)	.1	1.9	(.9)
<b>Effective Tax Rate</b>	<b>24.0%</b>	<b>27.0%</b>	<b>22.8%</b>

(A) Other includes the impact of Chilean tax rate changes of 1.5% in 2014.

Income tax payments, net of refunds, were \$392.9 in 2015, \$160.6 in 2014, and \$325.5 in 2013.

Foreign tax differentials represent the differences between foreign earnings subject to foreign tax rates lower than the U.S. federal statutory tax rate of 35.0%. Foreign earnings are subject to local country tax rates that are generally below the 35.0% U.S. federal statutory rate and include tax holidays and incentives. As a result, our effective non-U.S. tax rate is typically lower than the U.S. statutory rate. If foreign pre-tax earnings increase relative to U.S. pre-tax earnings, this rate difference could increase. The jurisdictions in which we earn pre-tax earnings subject to lower foreign taxes than the U.S. statutory rate include Korea, Taiwan, the United Kingdom, China, Canada, Spain and Belgium. As more than 80% of the undistributed earnings are in countries with a statutory tax rate of 24% or higher, we do not generate a disproportionate amount of taxable income in countries with very low tax rates. U.S. taxes on foreign earnings is a tax benefit primarily due to foreign tax credits on the repatriation of foreign earnings to the U.S.

In 2014, the effective tax rate was impacted by losses from transactions and a tax election made with respect to a non-U.S. subsidiary resulting in an income tax benefit of \$51.6. This benefit was partially offset by income tax expense of \$20.6 related to the tax reform legislation enacted in Chile. The effective tax rate was also impacted by the goodwill impairment charge of \$305.2 that was not deductible for tax purposes. See Note 10, Goodwill, for additional information regarding the impairment charge.

[Table of Contents](#)

The significant components of deferred tax assets and liabilities are as follows:

<b>30 September</b>	<b>2015</b>	<b>2014</b>
<b>Gross Deferred Tax Assets</b>		
Retirement benefits and compensation accruals	<b>\$468.7</b>	\$348.9
Tax loss carryforwards	<b>116.7</b>	125.0
Tax credits and other tax carryforwards	<b>43.8</b>	78.1
Reserves and accruals	<b>71.9</b>	80.1
Other	<b>57.3</b>	46.1
Valuation allowance	<b>(103.6)</b>	(103.8)
<b>Deferred Tax Assets</b>	<b>654.8</b>	574.4
<b>Gross Deferred Tax Liabilities</b>		
Plant and equipment	<b>1,124.6</b>	1,089.5
Currency gains	<b>65.7</b>	18.2
Unremitted earnings of foreign entities	<b>34.3</b>	100.0
Intangible assets	<b>135.6</b>	150.0
Other	<b>15.3</b>	22.8
<b>Deferred Tax Liabilities</b>	<b>1,375.5</b>	1,380.5
<b>Net Deferred Income Tax Liability</b>	<b>\$720.7</b>	\$806.1

Deferred tax assets and liabilities are included within the consolidated financial statements as follows:

	<b>2015</b>	<b>2014</b>
<b>Deferred Tax Assets</b>		
Other receivables and current assets	<b>\$117.2</b>	\$136.0
Other noncurrent assets	<b>69.0</b>	56.6
<b>Total Deferred Tax Assets</b>	<b>186.2</b>	192.6
<b>Deferred Tax Liabilities</b>		
Payables and accrued liabilities	<b>3.6</b>	3.2
Deferred income taxes	<b>903.3</b>	995.5
<b>Total Deferred Tax Liabilities</b>	<b>906.9</b>	998.7
<b>Net Deferred Income Tax Liability</b>	<b>\$720.7</b>	\$806.1

Gross federal loss and tax credit carryforwards as of 30 September 2015 were \$146.5 and \$12.6, respectively. The federal loss carryforward is primarily a capital loss due to a 2014 tax election related to a non-U.S. subsidiary that expires in 2019. The federal tax credit carryforwards expire in 2025. Gross state loss and tax credit carryforwards as of 30 September 2015 were \$134.3 and \$4.0, respectively. The state tax carryforwards have expiration periods between 2016 and 2034. Gross foreign loss and tax credit carryforwards as of 30 September 2015 were \$239.8 and \$27.2, respectively. Foreign tax carryforwards of \$154.4 have expiration periods between 2016 and 2035; the remainder have unlimited carryforward periods.

The valuation allowance as of 30 September 2015 primarily related to the tax benefit on the federal capital loss carryforward of \$51.3 and the tax benefit of foreign loss carryforwards of \$52.8. If events warrant the reversal of the \$103.6 valuation allowance, it would result in a reduction of tax expense. We believe it is more likely than not that future earnings and reversal of deferred tax liabilities will be sufficient to utilize our deferred tax asset, net of existing valuation allowance, at 30 September 2015.

We record U.S. income taxes on the undistributed earnings of our foreign subsidiaries and corporate joint ventures unless those earnings are indefinitely reinvested outside of the U.S. These cumulative undistributed earnings that are considered to be indefinitely reinvested in foreign subsidiaries and corporate joint ventures are included in retained earnings on the consolidated balance sheets and amounted to \$6,361.1 as of 30 September 2015. An estimated \$1,593.0 in U.S. income and foreign withholding taxes would be due if these earnings were remitted as dividends after payment of all deferred taxes.

[Table of Contents](#)

A reconciliation of the beginning and ending amount of the unrecognized tax benefits is as follows:

<b>Unrecognized Tax Benefits</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
Balance at beginning of year	<b>\$108.7</b>	\$124.3	\$110.8
Additions for tax positions of the current year	<b>6.9</b>	8.1	12.7
Additions for tax positions of prior years	<b>7.5</b>	4.9	9.0
Reductions for tax positions of prior years	<b>(7.9)</b>	(14.6)	(.5)
Settlements	<b>(.6)</b>	—	(1.4)
Statute of limitations expiration	<b>(11.2)</b>	(14.0)	(8.0)
Foreign currency translation	<b>(5.9)</b>	—	1.7
<b>Balance at End of Year</b>	<b>\$97.5</b>	\$108.7	\$124.3

At 30 September 2015 and 2014, we had \$97.5 and \$108.7 of unrecognized tax benefits, excluding interest and penalties, of which \$62.5 and \$66.5, respectively, would impact the effective tax rate if recognized.

Interest and penalties related to unrecognized tax benefits are recorded as a component of income tax expense and totaled \$(1.8) in 2015, \$1.2 in 2014, and \$2.4 in 2013. Our accrued balance for interest and penalties was \$7.5 and \$9.3 in 2015 and 2014, respectively.

We are currently under examination in a number of tax jurisdictions, some of which may be resolved in the next twelve months. As a result, it is reasonably possible that a change in the unrecognized tax benefits may occur during the next twelve months. However, quantification of an estimated range cannot be made at this time.

We generally remain subject to examination in the following major tax jurisdictions for the years indicated below:

<b>Major Tax Jurisdiction</b>	<b>Open Tax Years</b>
<b>North America</b>	
United States	2011–2015
Canada	2012–2015
<b>Europe</b>	
France	2012–2015
Germany	2009–2015
Netherlands	2010–2015
Poland	2010–2015
Spain	2011–2015
United Kingdom	2012–2015
<b>Asia</b>	
China	2010–2015
Singapore	2010–2015
South Korea	2010–2015
Taiwan	2010–2015
<b>Latin America</b>	
Brazil	2010–2015
Chile	2012–2015

## 24. SUPPLEMENTAL INFORMATION

### Other Receivables and Current Assets

30 September	2015	2014
Deferred tax assets	\$117.2	\$136.0
Derivative instruments	72.9	106.6
Other receivables	169.2	200.0
Current capital lease receivables	84.2	67.8
Other	18.8	12.6
	<b>\$462.3</b>	<b>\$523.0</b>

### Other Noncurrent Assets

30 September	2015	2014
Derivative instruments	\$246.0	\$65.1
Other long-term receivables	21.4	35.1
Deferred financing cost, net	21.5	25.5
Prepaid tax	31.3	31.3
Deferred tax assets	69.0	56.6
Pension benefits	4.3	22.9
Deposits	40.1	51.0
Other	201.3	138.8
	<b>\$634.9</b>	<b>\$426.3</b>

### Payables and Accrued Liabilities

30 September	2015	2014
Trade creditors	\$638.9	\$740.6
Customer advances	195.3	172.1
Accrued payroll and employee benefits	247.8	155.0
Pension and postretirement benefits	26.1	48.4
Dividends payable	174.4	164.1
Outstanding payments in excess of certain cash balances	27.5	28.0
Accrued interest expense	52.9	46.9
Derivative instruments	114.6	82.5
Severance and other costs associated with business restructuring and cost reduction actions	41.7	20.6
Other	143.2	132.8
	<b>\$1,662.4</b>	<b>\$1,591.0</b>

### Other Noncurrent Liabilities

30 September	2015	2014
Pension benefits	\$860.0	\$609.2
Postretirement benefits	76.5	82.8
Other employee benefits	106.7	107.6
Contingencies related to uncertain tax positions	91.1	111.6
Advance payments	135.1	57.6
Environmental liabilities	71.6	78.4
Derivative instruments	10.6	3.4
Asset retirement obligations	106.5	94.0
Obligation for future contribution to an equity affiliate	67.5	—
Other	30.9	42.9
	<b>\$1,556.5</b>	<b>\$1,187.5</b>



[Table of Contents](#)**Other Income (Expense), Net  
30 September**

	2015	2014	2013
Technology and royalty income	\$25.0	\$26.8	\$23.4
Interest income	4.6	9.4	6.4
Foreign exchange	(22.3)	(7.7)	(3.2)
Sale of assets and investments	37.1	9.7	20.0
Government grants	1.0	1.1	6.8
Other	1.9	13.5	16.8
	\$47.3	\$52.8	\$70.2

**Gain on Land Sales**

During the fourth quarter of 2015, we sold two parcels of land resulting in a gain of \$33.6 (\$28.3 after-tax, or \$.13 per share). The gain is reflected in sale of assets and investments in the table above.

**Advisory Costs**

During the fourth quarter of 2013, we incurred legal and other advisory fees of \$10.1 (\$6.4 after-tax, or \$.03 per share) in connection with our response to the rapid acquisition of a large position in shares of our common stock by Pershing Square Capital Management LLC and its affiliates (Pershing Square). These fees, which are reflected on the consolidated income statements as "Advisory Costs," include costs incurred before and after Pershing Square's disclosure of its holdings and cover advisory services related to the adoption of the Shareholders Rights Plan, preparation for a potential proxy solicitation campaign, and entering into an agreement with Pershing Square. The Shareholders Rights Plan expired in 2014.

**25. SUMMARY BY QUARTER (UNAUDITED)**

These tables summarize the unaudited results of operations for each quarter of 2015 and 2014:

<b>2015</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Total</b>
Sales	\$2,560.8	\$2,414.5	\$2,470.2	\$2,449.4	\$9,894.9
Gross profit	729.8	714.9	753.8	752.3	2,950.8
Business restructuring and cost reduction actions(A)	32.4	55.4	58.2	61.7	207.7
Pension settlement loss(B)	—	12.6	1.6	7.0	21.2
Business separation costs(C)	—	—	—	7.5	7.5
Gain on previously held equity interest(D)	17.9	—	—	—	17.9
Gain on land sales(E)	—	—	—	33.6	33.6
Operating income	430.0	374.4	422.5	472.2	1,699.1
Loss on early retirement of debt(F)	—	—	—	16.6	16.6
Net income	337.5	296.9	333.2	350.0	1,317.6
Net Income attributable to Air Products					
Income from continuing operations	324.6	290.0	318.8	344.5	1,277.9
Income from discontinued operations	—	—	—	—	—
Net income attributable to Air Products	324.6	290.0	318.8	344.5	1,277.9
Basic Earnings Per Common Share Attributable to Air Products					
Income from continuing operations	1.52	1.35	1.48	1.60	5.95
Income from discontinued operations	—	—	—	—	—
Net income attributable to Air Products	1.52	1.35	1.48	1.60	5.95
Diluted Earnings Per Common Share Attributable to Air Products					
Income from continuing operations	1.50	1.33	1.47	1.58	5.88
Income from discontinued operations	—	—	—	—	—
Net income attributable to Air Products	1.50	1.33	1.47	1.58	5.88
Dividends declared per common share	.77	.81	.81	.81	3.20
Market price per common share:					
High	149.61	158.20	153.93	148.56	
Low	118.20	137.07	136.69	123.66	

## Table of Contents

2014	Q1	Q2	Q3	Q4	Total
Sales	\$2,545.5	\$2,581.9	\$2,634.6	\$2,677.0	\$10,439.0
Gross profit	679.6	664.3	715.9	744.6	2,804.4
Business restructuring and cost reduction actions(A)	—	—	—	12.7	12.7
Pension settlement loss(B)	—	—	—	5.5	5.5
Goodwill and intangible asset impairment charge(G)	—	—	—	310.1	310.1
Operating income	385.6	384.7	413.8	144.1	1,328.2
Net income	299.1	291.5	323.5	79.0	993.1
Net income attributable to Air Products					
Income from continuing operations	287.1	283.5	314.0	102.5	987.1
Income from discontinued operations	3.1	—	—	1.5	4.6
Net income attributable to Air Products	290.2	283.5	314.0	104.0	991.7
Basic Earnings Per Common Share Attributable to Air Products					
Income from continuing operations	1.36	1.33	1.47	.48	4.64
Income from discontinued operations	.01	—	—	.01	.02
Net income attributable to Air Products	1.37	1.33	1.47	.49	4.66
Diluted Earnings Per Common Share Attributable to Air Products					
Income from continuing operations	1.34	1.32	1.46	.47	4.59
Income from discontinued operations	.01	—	—	.01	.02
Net income attributable to Air Products	1.35	1.32	1.46	.48	4.61
Dividends declared per common share	.71	.77	.77	.77	3.02
Market price per common share:					
High	113.99	124.40	131.48	137.45	
Low	102.23	102.73	114.28	126.82	

(A) For additional information, see Note 5, Business Restructuring and Cost Reduction Actions.

(B) For additional information, see Note 16, Retirement Benefits.

(C) For additional information, see Note 3, Materials Technologies Separation.

(D) For additional information, see Note 6, Business Combinations.

(E) The gain is reflected on the consolidated income statements in "Other income (expense), net." For additional information, see Note 24, Supplemental Information.

(F) For additional information, see Note 15, Debt.

(G) For additional information, see Note 10, Goodwill, and Note 11, Intangible Assets.

## 26. BUSINESS SEGMENT AND GEOGRAPHIC INFORMATION

The Company began operating under a new structure effective 1 October 2014. Our new reporting segments reflect the manner in which our chief operating decision maker reviews results and allocates resources. Except in the Corporate and other segment, each reporting segment meets the definition of an operating segment and does not include the aggregation of multiple operating segments. Our liquefied natural gas (LNG) and helium storage and distribution sale of equipment businesses are aggregated within the Corporate and other segment. The prior year information presented has been restated to conform with the fiscal year 2015 presentation.

The new reporting segments are:

- Industrial Gases – Americas
- Industrial Gases – EMEA (Europe, Middle East, and Africa)
- Industrial Gases – Asia
- Industrial Gases – Global
- Materials Technologies
- Energy-from-Waste
- Corporate and other

### Industrial Gases – Regional

The regional Industrial Gases (Americas, EMEA, Asia) segments include the results of our regional industrial gas businesses, which produce and sell atmospheric gases such as oxygen, nitrogen, and argon (primarily recovered by the cryogenic distillation of air) and process gases such as hydrogen, carbon monoxide, helium, syngas, and specialty gases. We supply gases to customers in many industries, including those in metals, glass, chemical processing, energy production and refining, food processing, metallurgical industries, medical, and general manufacturing. We distribute gases to our customers through a variety of supply modes including liquid or gaseous bulk supply delivered by tanker or tube trailer and, for smaller customers, packaged gases delivered in cylinders and dewars or small on-sites (cryogenic or non-cryogenic generators). For large-volume customers, we construct an on-site plant adjacent to or near the customer's facility or deliver product from one of our pipelines. We are the world's largest provider of hydrogen, which is used by refiners to facilitate the conversion of heavy crude feedstock and lower the sulfur content of gasoline and diesel fuels.

Electricity is the largest cost component in the production of atmospheric gases, and natural gas is the principal raw material for hydrogen, carbon monoxide, and syngas production. We mitigate energy and natural gas prices contractually through pricing formulas, surcharges, and cost pass-through arrangements. The regional Industrial Gases segments also include our share of the results of several joint ventures accounted for by the equity method. The largest of these joint ventures operate in Mexico, Italy, South Africa, India, Saudi Arabia, and Thailand. Each of the regional Industrial Gases segments competes against global industrial gas companies as well as regional competitors. Competition is based primarily on price, reliability of supply, and the development of industrial gas applications. We derive a competitive advantage in locations where we have pipeline networks, which enable us to provide reliable and economic supply of products to larger customers.

### Industrial Gases – Global

The Industrial Gases – Global segment includes cryogenic and gas processing equipment sales for air separation. The equipment is sold worldwide to customers in a variety of industries, including chemical and petrochemical manufacturing, oil and gas recovery and processing, and steel and primary metals processing. The Industrial Gases – Global segment also includes centralized global costs associated with management of all the Industrial Gases segments. These costs include Industrial Gases global administrative costs, product development costs, and research and development costs. We compete with a large number of firms for all the offerings included in the Industrial Gases – Global segment. Competition in the equipment businesses is based primarily on technological performance, service, technical know-how, price, and performance guarantees.

### Materials Technologies

The Materials Technologies segment employs applications technology to provide solutions to a broad range of global industries through chemical synthesis, analytical technology, process engineering, and surface science. This segment provides specialty gases, specialty chemicals, services, and equipment to the electronics industry

## [Table of Contents](#)

primarily for the manufacture of silicon and compound semiconductors and thin film transistor liquid crystal (LCD) displays. The Materials Technologies segment also provides performance chemical solutions for the coatings, inks, adhesives, construction and civil engineering, personal care, institutional and industrial cleaning, mining, oil refining, and polyurethanes industries. We compete in the businesses included in the Materials Technologies segment on a product-by-product basis against competitors ranging from niche suppliers with a single product to larger and more vertically integrated companies. Competition is principally conducted on the basis of price, quality, product performance, reliability of product supply, technical innovation, service, and global infrastructure.

On 16 September 2015, the Company announced that it intends to separate this segment via a spin-off. Refer to Note 3, Materials Technologies Separation, for additional information.

### **Energy-from-Waste**

The Energy-from-Waste segment consists of two projects that are under construction in Tees Valley, United Kingdom. These projects are designed to process municipal solid waste to generate renewable power for customers under long-term contracts.

In 2015, due to continued technical challenges, on-stream delays, and additional capital commitments for these projects, we performed an evaluation to determine whether impairment for this asset group exists. Factors specific to this asset group include estimating long term efficiency, output and on-stream reliability of the projects. The evaluation indicated that the probability weighted undiscounted cash flows of the asset group exceed the carrying value; therefore, no impairment was indicated. In November 2015, the Company suspended construction of the second project until certain design issues of the first project are understood, remediated, and can be efficiently integrated into the design of the second project. It is reasonably possible that key assumptions or actual conditions may change and result in a future impairment charge.

### **Corporate and other**

The Corporate and other segment includes two ongoing global businesses (our LNG sale of equipment business and our liquid helium and liquid hydrogen transport and storage container businesses), the polyurethane intermediates (PUI) business that was exited in early fiscal year 2014, and corporate support functions that benefit all the segments. Competition for the two sale of equipment businesses is based primarily on technological performance, service, technical know-how, price, and performance guarantees. Corporate and other also includes income and expense that cannot be directly associated with the business segments, including foreign exchange gains and losses and stranded costs resulting from discontinued operations. Also included are LIFO inventory adjustments, as the business segments use FIFO, and the LIFO pool adjustments are not allocated to the business segments.

In addition to assets of the global businesses included in this segment, other assets include cash, deferred tax assets, and financial instruments.

### **Customers**

We do not have a homogeneous customer base or end market, and no single customer accounts for more than 10% of our consolidated revenues.

### **Accounting Policies**

The accounting policies of the segments are the same as those described in Note 1, Major Accounting Policies. We evaluate the performance of segments based upon reported segment operating income.

**Business Segment**

	Industrial Gases—Americas	Industrial Gases—EMEA	Industrial Gases—Asia	Industrial Gases—Global	Materials Technologies	Energy-from-Waste	Corporate and other	Segment Total
<b>2015</b>								
Sales to external customers	\$3,693.9	\$1,864.9	\$1,637.5	\$286.8	\$2,087.1	\$—	\$324.7	\$9,894.9
Operating income (loss)	808.4	330.7	380.5	(51.6)	476.7	(10.1)	(50.6)	1,884.0
Depreciation and amortization	416.9	194.3	202.9	16.5	92.8	—	13.0	936.4
Equity affiliates' income (loss)	64.6	42.4	46.1	(.8)	2.2	—	—	154.5
Expenditures for long-lived assets	414.5	215.6	402.5	94.8	102.5	349.2	35.7	1,614.8
Investments in net assets of and advances to equity affiliates	249.7	564.1	421.7	14.3	15.9	—	—	1,265.7
Total assets	5,774.9	3,323.9	4,154.0	370.5	1,741.9	894.4	1,178.5	17,438.1
<b>2014</b>								
Sales to external customers	\$4,078.5	\$2,150.7	\$1,527.0	\$296.0	\$2,064.6	\$—	\$322.2	\$10,439.0
Operating income (loss)	762.6	351.2	310.4	(57.3)	379.0	(12.4)	(77.0)	1,656.5
Depreciation and amortization	414.4	220.2	205.3	7.1	99.1	—	10.8	956.9
Equity affiliates' income	60.9	44.1	38.0	5.8	2.6	—	—	151.4
Expenditures for long-lived assets	484.2	239.1	430.3	77.7	64.2	321.5	67.2	1,684.2
Investments in net assets of and advances to equity affiliates	234.3	552.9	434.1	18.8	17.8	—	—	1,257.9
Total assets	6,240.7	3,521.0	4,045.6	389.4	1,835.7	591.9	1,154.8	17,779.1
<b>2013</b>								
Sales to external customers	\$3,866.1	\$2,102.8	\$1,613.9	\$309.0	\$1,870.3	\$—	\$418.3	\$10,180.4
Operating income (loss)	776.7	331.2	329.3	(56.5)	279.5	(9.8)	(84.3)	1,566.1
Depreciation and amortization	409.8	202.6	174.9	5.5	107.7	—	6.5	907.0
Equity affiliates' income	70.9	47.7	45.0	1.4	2.8	—	—	167.8
Expenditures for long-lived assets	438.2	216.4	389.5	70.3	58.1	290.9	60.8	1,524.2
Investments in net assets of and advances to equity affiliates	195.9	545.8	418.7	17.5	17.6	—	—	1,195.5
Total assets	6,666.5	3,694.7	3,766.6	365.5	1,864.6	297.5	1,192.2	17,847.6

Below is a reconciliation of segment total operating income to consolidated operating income:

<b>Operating Income</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
Segment total	\$1,884.0	\$1,656.5	\$1,566.1
Business restructuring and cost reduction actions	(207.7)	(12.7)	(231.6)
Pension settlement loss	(21.2)	(5.5)	—
Goodwill and intangible asset impairment charge	—	(310.1)	—
Business separation costs	(7.5)	—	—
Gain on previously held equity interest	17.9	—	—
Advisory costs	—	—	(10.1)
Gain on land sales(A)	33.6	—	—
<b>Consolidated Total</b>	<b>\$1,699.1</b>	<b>\$1,328.2</b>	<b>\$1,324.4</b>

(A) Reflected on the consolidated income statements in "Other income (expense), net."

The sales information noted above relates to external customers only. All intersegment sales are eliminated in consolidation. The Industrial Gases – Global segment had intersegment sales of \$242.8 in 2015, \$192.4 in 2014, and \$183.9 in 2013. These sales are generally transacted at market pricing. For all other segments, intersegment sales are not material for all periods presented. Equipment manufactured for our regional industrial gases segments are generally transferred at cost and not reflected as an intersegment sale.

**Geographic Information**

<b>Sales to External Customers</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
United States	\$4,280.1	\$4,507.6	\$4,258.4
Canada	247.1	311.4	275.5
Europe	2,315.4	2,628.0	2,602.1
Asia, excluding China	1,395.2	1,389.4	1,320.1
China	1,129.1	981.0	1,008.3
Latin America	528.0	621.6	716.0
	<b>\$9,894.9</b>	<b>\$10,439.0</b>	<b>\$10,180.4</b>

<b>Long-Lived Assets <sup>(A)</sup></b>	<b>2015</b>	<b>2014</b>	<b>2013</b>
United States	\$3,776.7	\$3,756.0	\$3,632.1
Canada	577.4	518.0	522.3
Europe, excluding United Kingdom	1,102.3	1,319.3	1,456.2
United Kingdom	1,196.3	926.1	612.6
Asia, excluding China	914.2	989.9	962.3
China	1,732.7	1,582.7	1,281.7
Latin America	337.3	440.1	506.8
	<b>\$9,636.9</b>	<b>\$9,532.1</b>	<b>\$8,974.0</b>

<sup>(A)</sup> Long-lived assets include plant and equipment, net.

Geographic information is based on country of origin. Included in United States revenues are export sales to third-party customers of \$398.8 in 2015, \$378.7 in 2014, and \$410.3 in 2013. The Europe region operates principally in France, Germany, the Netherlands, Poland, Spain, and the United Kingdom. The Asia region operates principally in China, Singapore, South Korea, and Taiwan. The Latin America region operates principally in Brazil and Chile.

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

Not applicable

**ITEM 9A. CONTROLS AND PROCEDURES**

Under the supervision of the Chief Executive Officer and Chief Financial Officer, the Company's management conducted an evaluation of the effectiveness of the Company's disclosure controls and procedures as of 30 September 2015. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of the end of the annual period covered by this report, the disclosure controls and procedures have been effective. There has been no change in the Company's internal control over financial reporting (as that term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) as of 30 September 2015 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting is provided under Item 8 appearing above. The report of KPMG LLP, the Company's independent registered public accounting firm, regarding the Company's internal control over financial reporting, is also provided under Item 8 appearing above.

**ITEM 9B. OTHER INFORMATION**

Not applicable

**PART III**

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

The information required by this item relating to the Company's directors and nominees is incorporated herein by reference to the section captioned "The Board of Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016. The information required by this item relating to the Company's executive officers is set forth in Item 1 of Part 1 of this report.

The information required by this item relating to the Company's Audit Committee and its Audit Committee Financial Expert is incorporated herein by reference to the sections captioned "Standing Committees Of The Board" and "Audit Committee" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.

The information required by this item relating to the Company's procedures regarding the consideration of candidates recommended by shareholders and a procedure for submission of such candidates is incorporated herein by reference to the section captioned "Selection of Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.

The information required by the item relating to Section 16(a) Beneficial Ownership Reporting Compliance is incorporated herein by reference to the section captioned "Section 16(a) Beneficial Ownership Reporting Compliance" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.

The Company has adopted a Code of Conduct that applies to all employees, including the Chief Executive Officer, the Chief Financial Officer, and the Principal Accounting Officer. The Code of Conduct can be found at our Internet website at [www.airproducts.com/codeofconduct](http://www.airproducts.com/codeofconduct).

**ITEM 11. EXECUTIVE COMPENSATION**

The information required by this item is incorporated herein by reference to the sections captioned "Compensation of Executive Officers" and "Compensation of Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.



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

**Securities Authorized for Issuance Under Equity Compensation Plans.**

**Equity Compensation Plan Information**

The following table provides information as of 30 September 2015 about Company stock that may be issued upon the exercise of options, warrants, and rights granted to employees or members of the Board under the Company's existing equity compensation plans, including plans approved by shareholders and plans that have not been approved by shareholders in reliance on the NYSE's former treasury stock exception or other applicable exception to the Exchange's listing requirements.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants, and rights	Weighted-average exercise price of outstanding options, warrants, and rights	Number of Securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	6,843,819 <sup>(1)</sup>	\$87.35	5,202,927 <sup>(2)</sup>
Equity compensation plans not approved by security holders	76,286 <sup>(3)</sup>	\$—	—
<b>Total</b>	<b>6,920,105</b>	<b>\$87.35</b>	<b>5,202,927</b>

- (1) Represents Long-Term Incentive Plan outstanding stock options and deferred stock units that have been granted. Deferred stock units entitle the recipient to one share of Company common stock upon vesting, which is conditioned on continued employment during a deferral period and may also be conditioned on earn-out against certain performance targets.
- (2) Represents authorized shares that were available for future grants as of 30 September 2015. These shares may be used for options, deferred stock units, restricted stock, and other stock-based awards to officers, directors, and key employees. Full value awards such as restricted stock are limited to 20% of cumulative awards after 1 October 2001.
- (3) This number represents deferred stock units issued under the Deferred Compensation Plan, which are purchased for the fair market value of the underlying shares of stock with eligible deferred compensation.

The Deferred Compensation Plan was not approved by shareholders. It does not require shareholder approval because participants forego compensation equal to the full market value of any share units credited under the plans.

*Deferred Compensation Plan*—The Company's Deferred Compensation Plan is an unfunded employee retirement benefit plan available to certain of the Company's U.S.-based management and other highly compensated employees (and those of its subsidiaries) who receive awards under the Company's Annual Incentive Plan, which is the annual cash bonus plan for executives and key salaried employees of the Company and its subsidiaries. Because participants forego current compensation to "purchase" deferred stock units for full value under the Plan, it is not required to be approved by shareholders under the NYSE listing standards. Under the Plan, participants may defer a portion of base salary (elective deferrals) which cannot be contributed to the Company's Retirement Savings Plan, a 401(k) and profit-sharing plan offered to all salaried employees (RSP), because of tax limitations and earn matching contributions from the Company that they would have received if their elective deferrals had been contributed to the RSP (matching credits). In addition, participants in the Plan may defer all or a portion of their bonus awards under the Annual Incentive Plan (bonus deferrals) under the Deferred Compensation Plan. Finally, certain participants under the Plan who participate in the profit-sharing component of the RSP rather than the Company's salaried pension plans receive contribution credits under the Plan which are a percentage ranging from 4%-6%, based on their years of service, of their salary in excess of tax limitations and their bonus awards under the Annual Incentive Plan (contribution credits). The dollar amount of elective deferrals, matching credits, bonus deferrals, and contribution credits is initially credited to an unfunded account, which earns interest credits. Participants are periodically permitted while employed by the Company to irrevocably convert all or a portion of

## [Table of Contents](#)

their interest-bearing account to deferred stock units in a Company stock account. Upon conversion, the Company stock account is credited with deferred stock units based on the fair market value of a share of Company stock on the date of crediting. Dividend equivalents corresponding to the number of units are credited quarterly to the interest-bearing account. Deferred stock units generally are paid after termination of employment in shares of Company stock.

The Deferred Compensation Plan was formerly known as the Supplementary Savings Plan. The name was changed in 2006 when the deferred bonus program, previously administered under the Annual Incentive Plan, was merged into this Plan.

Certain information required by this item regarding the beneficial ownership of the Company's common stock is incorporated herein by reference to the sections captioned "Persons Owning More than 5% of Air Products Stock as of September 30, 2015" and "Air Products Stock Beneficially Owned by Officers and Directors" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.

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

The information required by this item is incorporated herein by reference to the sections captioned "Director Independence" and "Transactions with Related Persons" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.

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

The information required by this item is incorporated herein by reference to the section captioned "Independent Registered Public Accountant" in the Proxy Statement for the Annual Meeting of Shareholders to be held on 28 January 2016.

## **PART IV**

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

(a) The following documents are filed as a part of this report:

- (1) The Company's 2015 consolidated financial statements and the Report of the Independent Registered Public Accounting Firm are included in Part II, Item 8.
- (2) Financial Statement Schedules—the following additional information should be read in conjunction with the consolidated financial statements in the Company's 2015 consolidated financial statements.

Schedule II Valuation and Qualifying Accounts for the three fiscal years ended 30 September 2015

117

All other schedules are omitted because the required matter or conditions are not present or because the information required by the Schedules is submitted as part of the consolidated financial statements and notes thereto.

- (3) Exhibits—The exhibits filed as a part of this Annual Report on Form 10-K are listed in the Index to Exhibits located on pages 118-122 of this Report.



[Table of Contents](#)

<b>Signature and Title</b>	<b>Date</b>
<hr/> * (Evert Henkes) Director	24 November 2015
<hr/> * (David H. Y. Ho) Director	24 November 2015
<hr/> * (Margaret G. McGlynn) Director	24 November 2015
<hr/> * (Edward L. Monser) Director	24 November 2015
<hr/> * (Matthew H. Paull) Director	24 November 2015

\* Mary T. Afflerbach, Corporate Secretary and Chief Governance Officer, by signing her name hereto, does sign this document on behalf of the above noted individuals, pursuant to a power of attorney duly executed by such individuals, which is filed with the Securities and Exchange Commission herewith.

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/s/ Mary T. Afflerbach  
Mary T. Afflerbach  
Attorney-in-Fact

Date: 24 November 2015

AIR PRODUCTS AND CHEMICALS, INC. AND SUBSIDIARIES  
**SCHEDULE II-VALUATION AND QUALIFYING ACCOUNTS**  
For the Years Ended 30 September 2015, 2014, and 2013

	Balance at Beginning of Period	Additions Charged to Expense	Additions Charged to Other Accounts	Other Changes(A)	Balance at End of Period
(in millions of dollars)					
<b>Year Ended 30 September 2015</b>					
Allowance for doubtful accounts	\$60	\$8	\$18	\$(37)	\$49
Allowance for deferred tax assets	104	—	2	(2)	104
<b>Year Ended 30 September 2014</b>					
Allowance for doubtful accounts	\$102	\$8	\$8	\$(58)	\$60
Allowance for deferred tax assets(B)	45	58	1	—	104
<b>Year Ended 30 September 2013</b>					
Allowance for doubtful accounts	\$104	\$9	\$19	\$(30)	\$102
Allowance for deferred tax assets	37	8	—	—	45

(A) Primarily includes write-offs of uncollectible trade receivable accounts that were fully reserved prior to 2013. Other Changes also includes the impact of foreign currency translation adjustments.

(B) The increase in the valuation allowance was primarily due to the capital loss generated from the tax election related to a non-U.S. subsidiary.

INDEX TO EXHIBITS

Exhibit No.	Description
(3)	Articles of Incorporation and By-Laws.
3.1	Amended and Restated By-Laws of the Company. (Filed as Exhibit 3.1 to the Company's Form 8-K Report dated 21 November 2014.)*
3.2	Restated Certificate of Incorporation of the Company. (Filed as Exhibit 3.2 to the Company's Form 10-K Report for the fiscal year ended 30 September 1987.)*
3.3	Amendment to the Restated Certificate of Incorporation of the Company dated 25 January 1996. (Filed as Exhibit 3.3 to the Company's Form 10-K Report for the fiscal year ended 30 September 1996.)*
3.4	Amendment to the Restated Certificate of Incorporation of the Company dated 28 January 2014. (Filed as Exhibit 10.2 to the Company's Form 10-Q Report for the quarter ended 30 June 2014.)*
(4)	Instruments defining the rights of security holders, including indentures. Upon request of the Securities and Exchange Commission, the Company hereby undertakes to furnish copies of the instruments with respect to its long-term debt.
4.1	Indenture, dated as of January 18, 1985, between the Company and The Chase Manhattan Bank (National Association), as Trustee. (Filed as Exhibit 4(a) to the Company's Registration Statement No. 33-36974.)*
4.2	Indenture, dated as of January 10, 1995, between the Company and The Bank of New York Trust Company, N.A. (formerly Wachovia Bank, National Association and initially First Fidelity Bank Company, National Association), as Trustee. (Filed as Exhibit 4(a) to the Company's Registration Statement No. 33-57357.)*
(10)	Material Contracts
10.1	1990 Deferred Stock Plan of the Company, as amended and restated effective 1 October 1989. (Filed as Exhibit 10.1 to the Company's Form 10-K Report for the fiscal year ended 30 September 1989.)*
10.2	Stock Option Program for Directors of the Company, formerly known as the Stock Option Plan for Directors. Effective 23 January 2003, this Plan was combined with the Long-Term Incentive Plan and offered as a program thereunder. (Filed as Exhibit 10.5 to the Company's Form 10-K Report for the fiscal year ended 30 September 2004.)*
10.3	Amended and Restated Trust Agreement by and between the Company and PNC Bank, N.A. relating to the Defined Benefit Pension Plans dated as of 1 August 1999. (Filed as Exhibit 10.13 to the Company's Form 10-K Report for the fiscal year ended 30 September 1999.)*
10.3(a)	Amendment No. 1 to the Amended and Restated Trust Agreement by and between the Company and PNC Bank, N.A. relating to the Defined Benefit Pension Plans, adopted 1 January 2000. (Filed as Exhibit 10.13(a) to the Company's Form 10-K Report for the fiscal year ended 30 September 2000.)*

[Table of Contents](#)

<b>Exhibit No.</b>	<b>Description</b>
10.3(b)	Amendment No. 2 to the Amended and Restated Trust Agreement by and between the Company and PNC Bank, N.A. relating to the Defined Benefit Pension Plans, adopted 11 April 2007. (Filed as Exhibit 10.7(b) to the Company's Form 10-K Report for the fiscal year ended 30 September 2007.)*
10.4	Amended and Restated Trust Agreement by and between the Company and PNC Bank, N.A. relating to the Supplementary Savings Plan dated as of 1 August 1999. (Filed as Exhibit 10.14 to the Company's Form 10-K Report for the fiscal year ended 30 September 1999.)*
10.4(a)	Amendment No. 1 to the Amended and Restated Trust Agreement by and between the Company and PNC Bank, N.A. relating to the Supplementary Savings Plan, adopted 1 January 2000. (Filed as Exhibit 10.14(a) to the Company's Form 10-K Report for the fiscal year ended 30 September 2000.)*
10.4(b)	Amendment No. 2 to the Amended and Restated Trust Agreement by and between the Company and PNC Bank, N.A. relating to the Defined Contribution Plans, adopted 11 April 2007. (Filed as Exhibit 10.8(b) to the Company's Form 10-K Report for the fiscal year ended 30 September 2007.)*
10.5	Annual Incentive Plan as Amended and Restated Effective 1 October 2008. (Filed as Exhibit 10.7 to the Company's Form 10-Q Report for the quarter ended 31 March 2009.)*
10.6	Stock Incentive Program of the Company effective 1 October 1996. (Filed as Exhibit 10.21 to the Company's Form 10-K Report for the fiscal year ended 30 September 2002.)*
10.7	Amended and Restated Deferred Compensation Program for Directors, effective 16 July 2015.
10.8	Amended and Restated Long-Term Incentive Plan of the Company effective 1 October 2014. (Filed as Exhibit 10.1 to the Company's Form 8-K filed on 23 September 2014.)*
10.8(a)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY 2006 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2005.)*
10.8(b)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY 2007 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2006.)*
10.8(c)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY 2008 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2007.)*
10.8(d)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY 2009 Awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2008.)*
10.8(e)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2010 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2009.)*
10.8(f)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2011 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2010.)*

[Table of Contents](#)

<b>Exhibit No.</b>	<b>Description</b>
10.8(g)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2012 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 March 2012.)*
10.8(h)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2013 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2012.)*
10.8(i)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2014 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2013.)*
10.8(j)	Form of Award Agreement under the Long-Term Incentive Plan of the Company, used for FY2015 awards. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 31 December 2014.)*
10.9	Air Products and Chemicals, Inc. Retirement Savings Plan as amended and restated effective 1 October 2013. (Filed as Exhibit 10.2 to the Company's Form 10-Q Report for the quarter ended 31 December 2013)*
10.9(a)	Amendment No. 1 dated as of 31 March 2015 to the Air Products and Chemicals, Inc. Retirement Savings Plan as Amended and Restated effective 1 October 2013.
10.10	Supplementary Pension Plan of Air Products and Chemicals, Inc. as Amended and Restated Effective August 1, 2014. (Filed as Exhibit 10.10 to the Company's Form 10-K Report for the fiscal year ended 30 September 2014.)*
10.10(a)	Amendment No. 1 dated as of 30 September 2015 to the Supplementary Pension Plan of Air Products and Chemicals, Inc. as Amended and Restated Effective 1 August 2014.
10.11	Deferred Compensation Plan as Amended and Restated effective August 1, 2014. (Filed as Exhibit 10.11 to the Company's Form 10-K Report for the fiscal year ended 30 September 2014.)*
10.12	Revolving Credit Facility dated as of 30 April 2013 for \$2,500,000,000. (Filed as Exhibit 10.1 to the Company's Form 10-Q Report for the quarter ended 30 June 2013.)*
10.12(a)	Amendment No.1 dated as of 22 July 2013, to the Revolving Credit Agreement dated as of 30 April 2013. (Filed as Exhibit 10.19(a) to the Company's Form 10-K Report for the fiscal year ended 30 September 2013.)*
10.12(b)	Amendment No. 2 dated as of 30 June 2014, to the Revolving Credit Agreement dated as of 30 April 2013. (Filed as Exhibit 10.1 to the Company's Form 10-Q for the quarter ended 30 June 2014)*
10.12(c)	Amendment No. 3 dated as of 30 April 2015, to the Revolving Credit Agreement dated as of 30 April 2013. (Filed as Exhibit 10.1 to the Company's Form 10-Q for the quarter ended 30 June 2015)*
10.12(d)	Amendment No. 4 dated as of 30 September 2015, to the Revolving Credit Agreement dated as of 30 April 2013.
10.13	Air Products and Chemicals, Inc. Executive Separation Program as amended effective as of 20 May 2015. (Filed as Exhibit 10.2 to the Company's Form 10-Q for the quarter ended 30 June 2015.)*



[Table of Contents](#)

<b>Exhibit No.</b>	<b>Description</b>
10.14	Form of Change in Control Severance Agreement for an Executive Officer. (Filed as Exhibit 10.21 to the Company's Form 10-K Report for the fiscal year ended 30 September 2011.)*
10.15	Compensation Program for Directors effective 1 October 2013. (Filed as Exhibit 10.19(a) to the Company's Form 10-K Report for the fiscal year ended 30 September 2013)*
10.16	Air Products and Chemicals, Inc. Corporate Executive Committee Retention Agreements effective as of 10 January 2014. (Filed as Exhibit 10.1 to the Company's Form 8-K Report dated 15 January 2014.)*
10.17	Employment Agreement for an Executive Officer. (Filed as Exhibit 10.1 to the Company's Form 8-K filed on 18 June 2014)*
12	Computation of Ratios of Earnings to Fixed Charges.
14	Code of Conduct revised on 17 May 2012. (Filed as Exhibit 14 to the Company's Form 8-K Report filed on 23 May 2012.)*
21	Subsidiaries of the registrant.
(23)	Consents of Experts and Counsel.
23.1	Consent of Independent Registered Public Accounting Firm.
24	Power of Attorney.
(31)	Rule 13a-14(a)/15d-14(a) Certifications.
31.1	Certification by the Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification by the Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
(32)	Section 1350 Certifications.
32.1	Certification by the Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.†
99.1	Description of Common Stock (Filed as Exhibit 99.1 to the Company's Form 10-K Report for the fiscal year ended 30 September 2014.)*
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase

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[Table of Contents](#)

- \* Previously filed as indicated and incorporated herein by reference. Exhibits incorporated by reference are located in SEC File No. 1-4534.
- † The certification attached as Exhibit 32.1 that accompanies this Annual Report on Form 10-K, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Air Products and Chemicals, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Form 10-K, irrespective of any general incorporation language contained in such filing.

*This document constitutes part of a prospectus covering securities  
that have been registered under the Securities Act of 1933.*

***Deferred Compensation Program  
for Directors***

**TABLE OF CONTENTS**

	<u>Page</u>
Deferred Compensation Program for Directors	1
General	1
Effective Dates	1
Participants	1
Mandatory Deferrals	1
Elective Deferrals	2
Earnings on Accounts	2
Time and Manner of Making Elective Deferrals	3
Payment of Deferred Compensation	3
Election of Time of Payment	3
Changes in Election of Timing of Payment	4
Payment Following Termination of Service	4
Accelerated Payment	5
Payment on Death	5
Change in Control	5
Other Events	6
Miscellaneous Provisions	6
Withholding of Taxes	6
Rights as to Common Stock	6
Adjustments to Avoid Dilution	6
Participant's Rights Unsecured	7
Nonassignability	7
Statement of Account	7
Administration	7
Business Days	7
Amendment and Termination	7
Notices	8
Construction; Governing Law	8
Election Form	9

***Deferred Compensation Program  
for Directors***

1. General

The Deferred Compensation Program for Directors (the "Program") is provided to:

- (a) Provide compensation for directors in the form of Company equity securities to align the interests of directors with those of the Company's shareholders; and
- (b) Provide directors the opportunity to defer compensation earned as a director.

The Program is provided under the Air Products and Chemicals, Inc. Long-Term Incentive Plan (the "Plan") and is subject to the terms thereof.

2. Effective Dates

The Air Products and Chemicals, Inc. Deferred Compensation Plan for Directors was adopted effective as of 1 January 1980 and was thereafter amended from time to time. Effective 23 January 2003, the Plan was combined with the Long-Term Incentive Plan and offered as a program thereunder. This amended and restated Program is effective as of 20 May 2010.

3. Participants

Any director of the Company who is not an employee of the Company or of a subsidiary of the Company is eligible to participate in the Program.

4. Mandatory Deferrals

There shall be established for each participant an Air Products Stock Account described under section 5(b) below to which shall be credited all compensation which is required to be paid by the Company in the form of deferred stock units in accordance with the Compensation Program for Nonemployee Directors("Mandatory Deferrals").

Dollar amounts to be so credited shall be converted into deferred stock units in the manner described under Section 5(b) below on the date specified in the Compensation Program for Non-Employee Directors.

5. Elective Deferrals

A participant may elect to defer receipt of all or a specified portion of the compensation (exclusive of expense reimbursements) otherwise currently payable to him or her for serving on the Board of Directors of the Company, attending meetings or committee meetings thereof or performing other services in connection with the business of the Company and its subsidiaries. Such electively deferred compensation ("Elective Deferrals") will be credited on the date the compensation is otherwise payable, to one or both of the following hypothetical investment accounts ("Accounts") as directed by the participant:

- (a) An account deemed to earn interest at rates established on the first business day of each calendar quarter based upon the published average long-term yields of corporate bonds of "A" rated Industrial Companies appearing in Moody's Bond Survey or an equivalent bond rating service on such day (the "Interest Account"); and
- (b) The participant's Air Products Stock Account deemed to be invested in Air Products and Chemicals, Inc. common stock, par value \$1.00 ("common stock"). The Company shall credit the Air Products Stock Account with that number of units (including fractions) obtained by dividing the amount of such deferred compensation by the Fair Market Value of a share of Company common stock on the second business day before the date the compensation is credited to the Air Products Stock Account. For purposes of the Program, the Fair Market Value of a share of Company common stock on any date (the "valuation date") shall be equal to the closing sale price on the New York Stock Exchange, as reported on the composite transaction tape, for such date, or, if no sales were quoted on such date, on the most recent preceding date on which sales were quoted. The units thus calculated are herein referred to as "deferred stock units."

6. Earnings on Accounts

Each participant's Accounts will be credited with interest on deferred compensation credited to the Interest Account, and with dividend equivalents on deferred compensation credited to the Air Products Stock Account, as provided below, from the date credited until the last day of the month preceding payment, unless payment is made because of death, in which event interest or dividend equivalents will be credited until the date of death.

- (a) Earnings on Interest Account. Interest shall be compounded quarterly.
- (b) Earnings on Air Products Stock Account. Earnings shall be credited quarterly in an amount equal to the dividends payable during the quarter just ended with respect to that number of shares of Company common

stock equal to the number of deferred stock units credited to the Air Products Stock Account as of the end of the prior quarter. The amount so credited shall then be converted into deferred stock units in the manner described under Section 5(b) above using the quarterly crediting date as the valuation date for determining Fair Market Value.

7. Time and Manner of Making Elective Deferrals

An election to defer compensation must be made by a director prior to the calendar year during which such compensation is earned; provided that an initial election by a new director to defer compensation for all future services may be up to 30 days after commencing service as a director to the Company. An election shall continue in effect until the end of the participant's service to the Company as a director or until the participant modifies or revokes the election as described below, whichever shall occur first.

A participant may elect, modify, or revoke a prior election to defer compensation by completing Sections I and II of the Election Form attached hereto as Exhibit A (the "Election Form") and returning it to the Corporate Secretary. Such Election Form shall specify:

- (a) The amount or percentage of compensation to be deferred beginning on a future date specified in the notice until such notice is revoked or modified as to future compensation; and
- (b) The percentage of the Elective Deferrals to be credited to the Interest Account and the percentage to be credited to the Air Products Stock Account.

Any modification or revocation of a prior election described in Section 7(a) or 7(b) above shall relate only to future compensation, and shall not apply to any amounts previously credited to the participant's account. A participant's election to defer described in 7(a) may not be revoked or modified during the calendar year. Revocation or modification of a prior election to defer for a calendar year must be made no later than the close of the preceding calendar year.

8. Payment of Deferred Compensation

No payment may be made from the participant's Accounts in respect of Elective Deferrals or Mandatory Deferrals (together, "Deferred Compensation Amount") except as provided below.

- (a) Election of Time of Payment. Within 30 days of commencing service as a director to the Company, a participant may make an election to receive

distribution of his or her Deferred Compensation Amount in either a lump sum or in a specified number of consecutive annual installments (not to exceed ten), and may elect the date of payment in the case of a lump sum or the date payments commence in the case of installments. All such elections may be made by completing Section III of the Election Form and returning it to the Corporate Secretary. If a participant does not complete an Election Form specifying the timing of payment of his or her Deferred Compensation Amount within the first 30 days of service, such Deferred Compensation Amount will be paid as a lump sum in the first year after the year in which the director's service as a director ends, and the director will be deemed, for purposes of the Program, to have so elected.

- (b) Changes in Election of Timing of Payment. A participant may change his or her election in regard to the timing of payment of his or her Deferred Compensation Amount by completing a new Election Form and returning it to the Corporate Secretary. Such a change in election of timing of payment will apply only to Deferred Compensation Amounts earned in future years, except a director may change the timing of payment for previously accrued Deferred Compensation Amounts only as follows:
- (i) A completed Election Form reflecting the desired change must be received by the Corporate Secretary's Office no later than one year prior to the first scheduled payment of such Deferred Compensation Amounts under his or her currently effective Election Form(s);
  - (ii) The change must delay the first payment by at least five years from the date the first scheduled payment otherwise would have been made; and
  - (iii) The change will become effective one year from the date the Election Form is received by the Company.
- (c) Payment Following Termination of Service. The value of each Deferred Compensation Amount credited to the Interest Account of a participant's Plan account is payable in cash, and the value of each Deferred Compensation Amount credited to the Air Products Stock Account is payable by delivery of a share of common stock for each deferred stock unit credited to the participant's Account, in either case in a lump sum or in annual installments, in accordance with the participant's election.

All payments from a participant's Accounts must be completed by the tenth year after the year in which service as a director terminates. All payments will be made in January of the applicable year or as soon thereafter as reasonably possible. If annual installments are to be paid, the amount of the first payment shall be a fraction of the value of the

participant's Accounts as of December 31 of the year preceding payment, the numerator of which is one and the denominator of which is the total number of such installments elected. The amount of each subsequent payment shall be a fraction of the value as of the December 31 preceding each subsequent payment, the numerator of which is one and the denominator of which is the total number of installments elected minus the number of installments previously paid. If a participant has more than one payment election in effect, separate calculations shall be made for the portions of the Account to which the different payment elections apply. The number of shares of common stock to be delivered in payment from the Air Products Stock Account shall be equal to the number of deferred stock units represented by the payment owed, calculated as aforesaid, rounded up to the next whole share of common stock.

- (d) Accelerated Payment. Notwithstanding the deferral period and timing of payment determined in accordance with Sections 8(a) and (b) above, the participant's Accounts shall be paid on an accelerated basis as follows under the circumstances described below:
- (i) *Payment on Death*. In the event of a participant's death, the value of his or her Interest Account shall be paid in cash and the value of his or her Air Products Stock Account shall be distributed in shares of Air Products stock. Amounts shall be determined as of the date of death and shall be paid in a single payment or distribution to the participant's estate or designated beneficiary as soon as practicable following the date of death. A participant may designate a beneficiary by completing Section IV of the Election Form and returning it to the Corporate Secretary's Office.
  - (ii) *Change in Control*.
    - (A) In the event of a "Change of Control" of the Company, as defined by the Plan, the value of a participant's Air Products Stock Account shall be paid to the participant in cash or Company Stock, at the discretion of the Board, as soon as practicable, but no later than 30 days after the Change in Control. If a cash payment is made, the amount shall be equal to the "Change in Control Price", as defined by the Plan, multiplied by the number of deferred stock units credited to the participant's Air Products Stock Account.
    - (B) In the event of a Change in Control of the Company followed by a participant's termination of service as a director of the Company, the value of the participant's Interest Account, determined as of the date of termination of service as a director following or in connection with the Change in Control, shall be immediately due and payable to the participant in a single cash lump sum.



- (iii) *Other Events.* Upon the occurrence of any other event or conditions which permit an acceleration of payments under regulations implementing Section 409A of the Internal Revenue Code, the Corporate Secretary's Office will distribute the value of the participants' accounts in accordance with such regulations.
  
- (e) Miscellaneous Provisions.
  - (i) *Withholding of Taxes.* The right of a participant to payments under this Program shall be subject to the Company's obligations at any time to withhold income or other taxes from such payments including, without limitation, by reducing the number of shares of common stock to be distributed in payment of deferred stock units by the number of shares equal in value to the amount of such taxes required to be withheld.
  
  - (ii) *Rights as to Common Stock.* No participant with deferred compensation credited to the Air Products Stock Account shall have rights as a Company shareholder with respect thereto unless and until the date as of which shares of common stock are issued in payment of such deferred compensation. No shares of common stock shall be issued and delivered hereunder unless and until all legal requirements applicable to the issuance, delivery or transfer of such shares have been complied with including, without limitation, compliance with the provisions of the Act and of the Securities Act of 1993, as amended, and the applicable requirements of the exchanges on which the Company's common stock is, at the time, listed. Distributions of shares of common stock in payment under this Program may be made either from shares of authorized but unissued common stock reserved for such purpose by the Board of Directors or from shares of authorized and issued common stock reacquired by the Company and held in its treasury, as from time to time determined by, or pursuant to delegations from, the Board of Directors.
  
  - (iii) *Adjustments to Avoid Dilution.* In the event of any change in the common stock of the Company by reason of any stock dividend or split, recapitalization, merger, consolidation, combination or exchange of shares, or a rights offering to purchase common stock at a price substantially below fair market value, or other similar corporate change, including without limitation in connection with a

Change in Control of the Company, the value and attributes of each deferred stock unit shall be appropriately adjusted consistent with such change to the same extent as if such deferred stock units were issued and outstanding shares of common stock of the Company, so as to preserve, without increasing, the value of deferred compensation credited to each participant's Air Products Stock Account. Such adjustments shall be made by the Board of Directors and shall be conclusive and binding for all purposes of the Program.

9. Participant's Rights Unsecured

The right of any participant to the payment of deferred compensation and earnings thereon under the Program shall be an unsecured and unfunded claim against the general assets of the Company.

10. Nonassignability

The right of a participant to the payment of deferred compensation and earnings thereon under the Program shall not be assigned, transferred, pledged, or encumbered or be subject in any manner to alienation or anticipation.

11. Statement of Account

Statements will be sent to participants quarterly as to the value of their Accounts as of the end of the previous quarter.

12. Administration

The administrator of this Program shall be the Corporate Secretary of the Company. The administrator shall have authority to adopt rules and regulations for carrying out the Program and to interpret, construe, and implement the provisions thereof.

13. Business Days

If any date specified herein falls on a Saturday, Sunday or legal holiday, such date shall be deemed to refer to the next business day thereafter.

14. Amendment and Termination

This Program may at any time be amended, modified or terminated by the Board of Directors of the Company. No amendment, modification, or termination shall, without the consent of a participant, adversely affect such participant's rights with respect to amounts theretofore accrued in his or her deferred compensation account, except as required by law.

15. Notices

All notices to the Company under this Program shall be in writing and shall be given as follows:

Corporate Secretary  
Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195-1501

16. Construction; Governing Law

This Program is intended to comply with Section 409A of the Internal Revenue Code and shall be construed, whenever possible, to be in conformity with such requirements and in accordance with the laws of the Commonwealth of Pennsylvania for all purposes without giving effect to principles of conflicts of laws.

**EXHIBIT A**  
**AIR PRODUCTS AND CHEMICALS, INC. (the "Company")**  
**DEFERRED COMPENSATION PROGRAM FOR DIRECTORS (the "Program")**  
**Election Form**  
*(For deferrals effective after 31 December 2005)*

To: Corporate Secretary  
Air Products and Chemicals, Inc.

**I. Elective Deferred Compensation Amount**

In accordance with the provisions of the Program, I hereby (check one):

- Elect (or modify my prior election) to defer receipt of compensation otherwise payable to me in cash for services as a Director of the Company in the manner described below (fill in one):

\$ \_\_\_\_\_ (amount per quarter)

or

\_\_\_\_\_ (percentage per quarter)

- Revoke my prior election to defer.

This election, modification, or revocation shall take effect beginning on \_\_\_\_\_ to affect only compensation earned on and after such date. (Must be a date after the date this Election Form is received by the Company.) Revocation or modification of a prior election may be made only for a future calendar year and must be made no later than the close of the calendar year proceeding the year for which it is effective.

**II. Investment Account for Elective Deferred Compensation Amount.**

The Elective Deferred Compensation Amount is to be deemed invested in the following account(s) (enter a whole percentage from 1% to 100% in each blank, with the two percentages totaling 100%):

\_\_\_\_% in the Interest Account to be paid out in the form of cash.

\_\_\_\_% in the Air Products Stock Account to be distributed in the form of Air Products and Chemicals, Inc. Common Stock.

Notes:

An election to change crediting of future elective deferrals to an Interest Account or your Air Products Stock Account will be effective for the next quarter.

Under current federal securities law, it is necessary to report to the Securities and Exchange Commission the number of units credited to the Air Products Stock Account at the end of each fiscal year.

**EXHIBIT A**  
**AIR PRODUCTS AND CHEMICALS, INC.**  
**DEFERRED COMPENSATION PROGRAM FOR DIRECTORS (the "Program")**  
**Election Form**

(continued)

**III. Timing of Payment of Deferred Compensation Amounts (Elective and Mandatory)**

COMPLETE A OR B, BUT NOT BOTH, AND C.

A. Lump Sum Election

Deferred Compensation Amounts (if any) are to be paid to me in a lump sum (check one):

- In the year my service as a Director ends.
- In the \_\_\_\_\_ year after the year in which my service as a Director ends (not to exceed tenth).

B. Installment Election

Deferred Compensation Amounts (if any) are to be paid to me in \_\_\_\_\_ (up to 10) consecutive annual installments, the first of which is to be paid in (check one):

- The year in which my service ends.
- \_\_\_\_\_ year after the year in which my service ends (the last installment must be paid no later than 10 years after the year in which service ends).

C. This election shall apply to:

\_\_\_\_\_ Future year Deferred Compensation Amounts only.

\_\_\_\_\_ All Deferred Compensation Amounts.\*

- \* Except for initial elections made within the first 30 days of eligibility, this election will become effective as to previous Deferred Compensation Amounts one year from the date received by the Corporate Secretary's Office. If payouts under a prior election are scheduled to commence before one year, this election is void and the prior election will control. Any modification or revocation of a prior payment election must delay commencement of the payment by five years from the date the payment otherwise would have been made.

**EXHIBIT A**  
**AIR PRODUCTS AND CHEMICALS, INC.**  
**DEFERRED COMPENSATION PROGRAM FOR DIRECTORS (the "Program")**  
**Election Form**

(continued)

**IV. Beneficiary Designation**

If I die before receiving all the deferred payments due me under the Program, I understand the value of my Deferred Compensation Amounts will be paid to my estate or designated beneficiary, in a single lump sum cash payment following the date of my death. I wish to designate \_\_\_\_\_ as my beneficiary. (A beneficiary may be designated by delivering this Election Form to the Corporate Secretary of the Company. Beneficiary designations that are not received by the Corporate Secretary's Office prior to the participant's death cannot be honored.)

This Election is subject to the terms of Air Products and Chemicals, Inc. Deferred Compensation Program for Directors, as amended from time to time.

Received on the \_\_\_\_\_ day of \_\_\_\_\_  
on behalf of the Company.

\_\_\_\_\_  
Signature of Director

By \_\_\_\_\_  
(Assistant) Corporate Secretary

Date: \_\_\_\_\_

**AMENDMENT NO. 1 TO THE  
SUPPLEMENTARY PENSION PLAN OF  
AIR PRODUCTS AND CHEMICALS, INC.**

**WHEREAS**, Air Products and Chemicals, Inc. (the “Company”) is the Plan Sponsor of the Supplementary Pension Plan of Air Products and Chemicals, Inc. (the “Plan”); and

**WHEREAS**, pursuant to Plan Section 6.1, the Company may amend the Plan at anytime; and

**WHEREAS**, the Company desires to amend the Plan to clarify eligibility for Plan benefits for employees who were participants in the Plan but were demoted to a position that is not eligible to participate in the Plan.

**NOW THEREFORE**, the Plan is hereby amended effective October 1, 2015 as follows:

1. Article II the definition of “Employee” shall be amended to read as follows:

“**Employee** shall mean any person who is employed by an Employer on a regular salaried basis on or after the Effective Date of the Plan applicable to such Employer, who participates or participated in the Salaried Pension Plan as on “Employee” as defined therein, and who before August 1, 2014 was classified as an Executive Officer for purposes of the U.S. Securities Laws or was in the salary grade 118 or above or the equivalent grade in any future grade structure of the Company. An Employee who on August 1, 2014 was classified as an Executive Officer for purposes of the U.S. Securities Laws or was in the salary grade 118 or above or the equivalent grade in any future grade structure of the Company and is later demoted to a salary grade 118 or below or the equivalent grade in any future grade structure of the Company shall cease being eligible to participate in the Plan, and in the event such Employee is later promoted to a salary grade 118 or above, shall continue to be ineligible to participate in the Plan. An Employee who terminates employment after August 1, 2014 and who is later rehired by the Company shall not be eligible to participate in the Plan upon his rehire.”

2. In all other respects the Plan shall remain in full force and effect.

**IN WITNESS WHEREOF**, the Company has caused its Vice President- Human Resources to execute this First Amendment to the Plan on this 31<sup>st</sup> day of March 2015.

**Air Products and Chemicals, Inc.**

By: /s/ Jennifer L. Grant

Jennifer L. Grant

Vice President and Chief Human Resources Officer

**AMENDMENT NO. 1 TO THE  
SUPPLEMENTARY PENSION PLAN OF  
AIR PRODUCTS AND CHEMICALS, INC.**

**WHEREAS**, Air Products and Chemicals, Inc. (the “Company”) is the Plan Sponsor of the Supplementary Pension Plan of Air Products and Chemicals, Inc. (the “Plan”); and

**WHEREAS**, pursuant to Plan Section 6.1, the Company may amend the Plan at anytime; and

**WHEREAS**, the Company desires to amend the Plan to clarify eligibility for Plan benefits for employees who were participants in the Plan but were demoted to a position that is not eligible to participate in the Plan.

**NOW THEREFORE**, the Plan is hereby amended effective October 1, 2015 as follows:

1. Article II the definition of “Employee” shall be amended to read as follows:

“**Employee** shall mean any person who is employed by an Employer on a regular salaried basis on or after the Effective Date of the Plan applicable to such Employer, who participates or participated in the Salaried Pension Plan as on “Employee” as defined therein, and who before August 1, 2014 was classified as an Executive Officer for purposes of the U.S. Securities Laws or was in the salary grade 118 or above or the equivalent grade in any future grade structure of the Company. An Employee who on August 1, 2014 was classified as an Executive Officer for purposes of the U.S. Securities Laws or was in the salary grade 118 or above or the equivalent grade in any future grade structure of the Company and is later demoted to a salary grade 118 or below or the equivalent grade in any future grade structure of the Company shall cease being eligible to participate in the Plan, and in the event such Employee is later promoted to a salary grade 118 or above, shall continue to be ineligible to participate in the Plan. An Employee who terminates employment after August 1, 2014 and who is later rehired by the Company shall not be eligible to participate in the Plan upon his rehire.”

2. In all other respects the Plan shall remain in full force and effect.

**IN WITNESS WHEREOF**, the Company has caused its Vice President- Human Resources to execute this First Amendment to the Plan on this 30<sup>th</sup> day of September 2015.

**AIR PRODUCTS AND CHEMICALS, INC.**

By: /s/ Jennifer L. Grant

Jennifer L. Grant

Vice President- Human Resources



This AMENDMENT NO. 4 is made as of the 30<sup>th</sup> day of September, 2015 to the Credit Agreement (defined below) by and among Air Products and Chemicals, Inc., the Other Borrowers parties from time to time, HSBC Bank USA, N.A., as Administrative Agent (the "Administrative Agent"), Citibank, N.A. and Lloyds Bank plc (the "Supplemental Lenders"). All capitalized terms used but not otherwise defined herein shall have the meanings given them in the Credit Agreement.

The Borrowers, the Administrative Agent and the Lenders are parties to the \$2,500,000,000 Revolving Credit Agreement dated as of April 30, 2013 (as amended, restated, modified or supplemented from time to time, the "Credit Agreement").

Pursuant to Section 2.09 of the Credit Agreement, the Borrowers may, at their option, seek to increase the Total Revolving Credit Commitment by obtaining additional Commitments upon satisfaction of certain conditions.

Each of the Supplemental Lenders is a new Lender that is a lending institution whose identity the Administrative Agent will approve by its signature below.

In consideration of the foregoing, Citibank, N.A. from and after the date hereof shall have a Revolving Credit Committed Amount of \$190,000,000 and Lloyds Bank plc from and after the date hereof shall have a Revolving Credit Committed Amount of \$95,000,000 as of the date hereof, each of the Supplemental Lenders hereby assumes all of the rights and obligations of a Lender under the Credit Agreement.

The Borrowers have executed and delivered to the Supplemental Lenders as of the date hereof, if they were requested by the Supplemental Lenders, Notes in the form attached to the Credit Agreement as Exhibit A to evidence the Commitment of the Supplemental Lenders.

[signature pages follow]

IN WITNESS WHEREOF, the Administrative Agent, the Borrowers and the Supplemental Lenders have executed this Amendment as of the date shown above.

AIR PRODUCTS AND CHEMICALS, INC.

By: /s/ Gregory E. Weigard  
Name: Gregory E. Weigard  
Title: Corporate Treasurer

CITIBANK, N.A.

By: /s/ David Jaffe  
Name: David Jaffe  
Title: Vice President

LLOYDS BANK PLC

By: /s/ Daven Popat  
Name: Daven Popat  
Title: Senior Vice President

By: /s/ Julia R. Franklin  
Name: Julia R. Franklin  
Title: Vice President

HSBC BANK USA, N.A., as Administrative Agent

By: /s/ Fernando Acebedo  
Name: Fernando Acebedo  
Title: Vice President

Consented to:

HSBC BANK USA, N.A., as Issuer

By: /s/ David A. Mandell  
Name: David A. Mandell  
Title: Managing Director

BNP PARIBAS, as Issuer

By: /s/ Michael Kowalozuk

Name: Michael Kowalozuk

Title: Managing Director

By: /s/ Melissa Dyki

Name: Melissa Dyki

Title: Director

MIZUHO BANK, LTD., as Issuer

By: /s/ Donna DeMagistris

Name: Donna DeMagistris

Title: Authorized Signatory

## AIR PRODUCTS AND CHEMICALS, INC., AND SUBSIDIARIES

## COMPUTATION OF RATIOS OF EARNINGS TO FIXED CHARGES

(Unaudited)

(Millions of dollars, except ratios)	Year Ended 30 September				
	2015	2014	2013	2012	2011
<b>Earnings:</b>					
Income from continuing operations <sup>(1)</sup>	\$1,317.6	\$988.5	\$1,042.5	\$1,025.2	\$1,171.6
Add (deduct):					
Provision for income taxes	415.9	366.0	322.5	305.1	390.8
Fixed charges, excluding capitalized interest	123.6	146.2	166.9	146.7	139.4
Capitalized interest amortized during the period	10.0	9.4	10.3	9.5	9.0
Undistributed earnings of less-than-fifty percent-owned affiliates	(102.6)	(76.1)	(46.4)	(54.5)	(38.9)
Noncontrolling interest in pre-tax income of subsidiaries that have not incurred fixed charges	(3.0)	(2.8)	—	—	—
Earnings, as adjusted	<u>\$1,761.5</u>	<u>\$1,431.2</u>	<u>\$1,495.8</u>	<u>\$1,432.0</u>	<u>\$1,671.9</u>
<b>Fixed Charges:</b>					
Interest on indebtedness, including capital lease obligations	\$95.3	\$121.2	\$143.1	\$116.0	\$113.6
Capitalized interest	49.1	33.0	28.3	31.4	23.4
Amortization of debt discount/ premium and expense	8.2	3.9	2.1	10.6	5.6
Portion of rents under operating leases representative of the interest factor	20.1	21.1	21.7	20.1	20.2
Fixed charges <sup>(2)</sup>	<u>\$172.7</u>	<u>\$179.2</u>	<u>\$195.2</u>	<u>\$178.1</u>	<u>\$162.8</u>
<b>Ratio of Earnings to Fixed Charges<sup>(3)</sup>:</b>	<u>10.2</u>	<u>8.0</u>	<u>7.7</u>	<u>8.0</u>	<u>10.3</u>

- (1) Income from continuing operations includes business restructuring and cost reduction actions of \$207.7 (\$153.2 after-tax) in 2015, a goodwill and intangible asset impairment charge of \$310.1 (\$308.8 after-tax) in 2014, and business and restructuring and cost reduction plans of \$231.6 (\$157.9 after-tax) and \$327.4 (\$222.4 after-tax) in 2013 and 2012, respectively.
- (2) We are party to certain debt guarantees of equity affiliates. Since we have not been required to satisfy the guarantees, nor is it probable that we will, interest expense related to the guaranteed debt is not included in fixed charges.
- (3) The ratio of earnings to fixed charges is determined by dividing earnings, as adjusted, by fixed charges. Fixed charges consist of interest on all indebtedness plus that portion of operating lease rentals representative of the interest factor (deemed to be 21% of operating lease rentals).

**Subsidiaries of Air Products and Chemicals, Inc.**

**UNITED STATES**

All companies are incorporated in the State of Delaware unless otherwise indicated.

Registrant – Air Products and Chemicals, Inc.  
 Air Products and Chemicals, Inc. of Utah  
 Air Products (Rozenburg), LLC  
 Air Products Advanced Materials LLC  
 Air Products Asia, Inc.  
 Air Products Caribbean Holdings, Inc.  
 Air Products China, Inc.  
 Air Products Electronics LLC  
 Air Products Energy Enterprises, L.P.  
 Air Products Energy Holdings, Inc.  
 Air Products Europe, Inc.  
 Air Products Helium, Inc.  
 Air Products Hydrogen Company, Inc.  
 Air Products International Corporation  
 Air Products LLC  
 Air Products Manufacturing Corporation  
 Air Products Performance Manufacturing, Inc.  
 Air Products Trinidad Services, Inc.  
 APCI (U.K.), Inc.  
 APCI Ref-Fuel Company  
 DA Nano Materials LLC  
 Electron Transfer Technologies, Inc. (New Jersey)  
 EPCO Carbon Dioxide Products, Inc. (Illinois)  
 Gardner Cryogenics  
 Harvest Energy Technologies  
 Indura Holdings Colombia, LLC  
 J. C. Schumacher Company  
 Olin DNT Limited Partnership  
 Permea Inc.  
 ProCal  
 Prodair Corporation  
 Pure Air Holdings Corp.  
 Pure Air on the Lake (I), Inc.  
 Pure Air on the Lake (IV), Inc.  
 Pure Air on the Lake, Limited Partnership  
 SCWC Corp.  
 Stockton CoGen (I), Inc.  
 The Former SR Manufacturers Inc.

**ARGENTINA**

Indura Argentina S.A.

**AUSTRIA**

Air Products Gesellschaft mbH

**BAHRAIN**

Air Products Bahrain W.L.L.

**BELGIUM**

Air Products Management S.A.  
 Air Products S.A.  
 Napro S.A.

## **BERMUDA**

Asia Industrial Gas Company Ltd.

## **BRAZIL**

Air Products Brasil Ltda.

## **CANADA**

Air Products Canada Ltd./Prodair Canada Ltee

## **CHILE**

Air Products Chile S. A.  
Asesoria, Ingenieria e Inspecciones, Ltda  
American Shoe S.A.  
Centro Técnico Indura Limitada  
Garmendia Macus S.A.  
Inacui Transportes S.A.  
Indura Inversiones Limitada  
Indura S.A.  
Indura Sociedad Comercial Limitada  
Indura Soldaduras Continuas Limitada  
Inversiones Air Products Chile Limitada  
Inversiones Air Products Holdings Limitada  
M y H Comercial e Industrial Limitada  
Oxigeno Medicinal Domiciliario Limitada  
Servicios Indura Limitada

## **CHINA**

Air Products (Cangzhou) Co., Ltd.  
Air Products (Changsha) Co., Ltd.  
Air Products (Dongguan) Gases Co., Ltd.  
Air Products (Hangjin Qi) Co., Ltd.  
Air Products (Hong Kong) Co., Ltd.  
Air Products (Jiangxi) Co., Ltd.  
Air Products (Kunshan) Gases Co., Ltd.  
Air Products (Ningbo) Hi-Tech Gases Co., Ltd.  
Air Products (Shenyang) Gases Co., Ltd.  
Air Products (Xia'men) Electronics Gases Co., Ltd.  
Air Products (Zhongshan) Gases Co., Ltd.  
Air Products and Chemicals (Beijing) Distribution Co., Ltd.  
Air Products and Chemicals (Changxing) Co., Ltd.  
Air Products and Chemicals (Changzhou) Co., Ltd.  
Air Products and Chemicals (Changzhi) Co., Ltd.  
Air Products and Chemicals (Chengdu) Co., Ltd.  
Air Products and Chemicals (China) Investment Co. Ltd.  
Air Products and Chemicals (Chongqing) Co., Ltd.  
Air Products and Chemicals (Dalian) Co., Ltd.  
Air Products and Chemicals (Fuzhou) Co., Ltd.  
Air Products and Chemicals (Guangzhou) Co., Ltd.  
Air Products & Chemicals (Jiyuan) Onsite Gases Co., Ltd.  
Air Products and Chemicals (Nanjing) Co., Ltd.  
Air Products and Chemicals (Nanjing) Gases Co., Ltd.  
Air Products and Chemicals (Nanjing) Specialty Amines Co., Ltd.  
Air Products and Chemicals (Panjin) Gases Co., Ltd.  
Air Products and Chemicals (Pengzhou) Co., Ltd.  
Air Products and Chemicals (Putian) Co., Ltd.  
Air Products and Chemicals (Qingdao) Co., Ltd.  
Air Products and Chemicals (Shaanxi) Co., Ltd.  
Air Products and Chemicals (Shaanxi Pucheng) Co., Ltd.  
Air Products and Chemicals (Shanghai) Co. Ltd.

Air Products and Chemicals (Shanghai) Electronics Gases Co., Ltd.  
Air Products and Chemicals (Shanghai) Gases Co., Ltd.  
Air Products and Chemicals (Shanghai) Gases Production Co., Ltd.  
Air Products and Chemicals (Shanghai) On-Site Gases Co., Ltd.  
Air Products and Chemicals (Shanghai) Systems Co. Ltd.  
Air Products and Chemicals (Shangluo) Co., Ltd.  
Air Products and Chemicals (Shenzhen) Co., Ltd.  
Air Products and Chemicals (Shenzhen) Gases Co., Ltd.  
Air Products and Chemicals (Tangshan) Co., Ltd.  
Air Products and Chemicals (Tianjin) Co., Ltd.  
Air Products and Chemicals (Tongxiang) Co., Ltd.  
Air Products and Chemicals (WuHu) Co., Ltd.  
Air Products and Chemicals (WuXi) Gases Co., Ltd.  
Air Products and Chemicals (WuXi) Co., Ltd.  
Air Products and Chemicals (Xi'an) Co., Ltd.  
Air Products and Chemicals (Xingtai) Co., Ltd.  
Air Products and Chemicals (Xinxiang) Co., Ltd.  
Air Products and Chemicals (Zhangjiagang) Co., Ltd.  
Air Products and Chemicals (Zhuhai) Co., Ltd.  
Air Products and Chemicals (Zibo) Co., Ltd.  
Air Products and Chemicals (Guiyang) Co., Ltd.  
Air Products (Yingkou) gases Co., Ltd.  
Air Products and Chemicals (Yulin) Co., Ltd.  
Air Products Huadong (Longkou) Co., Ltd.  
Beijing AP BAIF Gas Industry Co., Ltd.  
Chengdu Air and Gas Products Ltd.  
CNOOC Air Products and Chemicals (Fujian) Co., Ltd.  
Permea China, Ltd.  
Red Point International (Shanghai) Co., Ltd.  
Wuxi Hi-Tech Gas Co., Ltd.

#### **COLUMBIA**

Gases Industriales de Columbia S.A.  
Gasproject S.A.  
Ingemedicas, Ltda  
Gasline S.A.  
Lidergas Empresa de Servicios Tecnicos Ltda.

#### **CZECH REPUBLIC**

Air Products spol s.r.o.

#### **ECUADOR**

Indura Ecuador S.A.  
Oximed SA (per P Dias and org chart)  
Gasprodec SA (per P Dias and org chart)

#### **EGYPT**

Air Products Gases S.A.E.

#### **FRANCE**

Air Products SAS  
Helap S.A.  
Lida SAS  
Prodair et Cie S.C.S.  
Prodair S.A.S.

SAGA SAS  
Soprogaz SNC  
Union Mobiliere Industrielle S.A.R.L.

**GERMANY**

Air Products GmbH  
Air Products Holdings GmbH  
Air Products Performance Materials GmbH  
Air Products Schluchtern GmbH  
S. I. Q. Beteiligungs GmbH  
Tyczka Industrie-Gase GmbH

**INDIA**

Prodair Air Products India Private Limited

**INDONESIA**

PT Air Products Indonesia

**IRELAND**

Air Products Ireland Limited

**ISRAEL**

Air Products Israel Ltd.  
Gastel Limited

**ITALY**

Air Products Italia S.r.l.

**JAPAN**

Air Products Japan, Inc.  
San-Apro Ltd.

**KOREA**

Air Products ACT Korea Limited  
Air Products Electronics Materials Inc.  
Air Products HYT Inc.  
Air Products Korea Electronics, Inc.  
Air Products Korea Inc.  
Korea Industrial Gases, Ltd.

**MALAYSIA**

Air Products Malaysia Sdn Bhd  
Air Products Shared Services Sdn. Bhd  
Air Products Specialized Process Equipment SDN  
Kulim Industrial Gases Sdn. Bhd.

**MEXICO**

Air Products and Chemicals de Mexico, S.A. de C.V.  
Induramex S.A. de C.V.  
Promotora Mexcolom SA de C.V.



**NIGERIA**

Prodair Escravos Limited

**THE NETHERLANDS**

Air Products Chemicals Europe B.V.  
Air Products Holdings B.V.  
Air Products Investments B.V.  
Air Products Leasing B.V.  
Air Products Nederland B.V.

**NORWAY**

Air Products A/S

**PANAMA**

Indura Panama S.A.

**PERU**

Indura Peru S.A.

**POLAND**

Air Products Sp. z.o.o.

**PORTUGAL**

**PORTUGAL**

Gasin II Unipessoal LDA

**RUSSIA**

Air Products O.O.O.  
Air Products Gas O.O.O.

**SINGAPORE**

Air Products and Chemicals (S) Pte. Ltd.  
Air Products Singapore Pte. Ltd.

**SLOVAKIA**

Air Products Slovakia s.r.o.

**SPAIN**

Air Products Iberica, S.L.  
Air Products Investments Espana, S.L.  
Air Products Services Europe, S.A.  
Matgas 2000 A.I.E.  
Oxigenol, S.A.  
Sociedad Espanola de Carburos Metalicos S.A.

**SWITZERLAND**

Air Products Switzerland Sàrl

**TAIWAN**

Air Products San Fu Co., Ltd.  
Air Products Taiwan Holdings Co., Ltd.

**THAILAND**

Air Products Asia (Technology Center) Ltd.

**TRINIDAD AND TOBAGO**

Air Products Unlimited  
NMAP Services Unlimited

**TURKEY**

Air Products Gaz Sanayi vi Ticaret Limited

**MIDDLE EAST**

Air Products Emirates Gas LLC  
Air Products Gulf Gas LLC  
Air Products Middle East FZE

**URUGUAY**

Indura Uruguay S.A.

**UNITED KINGDOM**

Air Products (BR) Limited  
Air Products (Chemicals) Public Limited Company  
Air Products (Chemicals) Teesside Limited  
Air Products Electronics Advanced Materials Europe Limited  
Air Products Group Limited  
Air Products PLC  
Air Products Renewable Energy Limited  
Air Products Yanbu Limited  
Cryoservice Limited  
Gas Direct Limited  
Prodair Services Limited  
Protexeon Limited

**Consent of Independent Registered Public Accounting Firm**

The Board of Directors  
Air Products and Chemicals, Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-132599, 333-141336, 333-141337, 333-149813, 333-158101, 333-158102, 333-165563, 333-172889, 333-172890, 333-180122, 333-180123, 333-188643, 333-196000, 333-204387, and 333-204388) on Form S-8 and registration statement (No. 333-200537) on Form S-3 of Air Products and Chemicals, Inc. of our report dated 24 November 2015, with respect to the consolidated balance sheets of Air Products and Chemicals, Inc. and Subsidiaries as of 30 September 2015 and 2014, and the related consolidated income statements, consolidated comprehensive income statements, consolidated statements of equity, and cash flows for each of the years in the three-year period ended 30 September 2015, the effectiveness of internal control over financial reporting as of 30 September 2015, and the related financial statement schedule which report appears in the 30 September 2015 Annual Report on Form 10-K of Air Products and Chemicals, Inc.

/s/ KPMG LLP  
Philadelphia, Pennsylvania  
24 November 2015

## POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints SEIFI GHASEMI, M. SCOTT CROCCO and MARY T. AFFLERBACH, and each of them acting severally, his/her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him/her and in his/her name, place and stead, in any and all capacities, to sign the Form 10-K Annual Report for the fiscal year ended 30 September 2015 and all amendments thereto and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he/she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities and Exchange Act of 1934, this Power of Attorney has been signed below by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Susan K. Carter</u> Susan K. Carter	Director	18 November 2015
<u>/s/ Charles I. Cogut</u> Charles I. Cogut	Director	18 November 2015
<u>/s/ William L. Davis, III</u> William L. Davis, III	Director	18 November 2015
<u>/s/ Chad C. Deaton</u> Chad C. Deaton	Director	18 November 2015
<u>/s/ Seifi Ghasemi</u> Seifi Ghasemi	Director and Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer)	18 November 2015
<u>/s/ Evert Henkes</u> Evert Henkes	Director	18 November 2015

<b>Signature</b>	<b>Title</b>	<b>Date</b>
<hr/> <i>/s/</i> David H. Y. Ho David H. Y. Ho	Director	18 November 2015
<hr/> <i>/s/</i> Margaret G. McGlynn Margaret G. McGlynn	Director	18 November 2015
<hr/> <i>/s/</i> Edward L. Monser Edward L. Monser	Director	18 November 2015
<hr/> <i>/s/</i> Matthew H. Paull Matthew H. Paull	Director	18 November 2015
<hr/> <i>/s/</i> W. Douglas Ford W. Douglas Ford	Director	18 November 2015

**PRINCIPAL EXECUTIVE OFFICER'S CERTIFICATION**

I, Seifi Ghasemi, certify that:

1. I have reviewed this Annual Report on Form 10-K of Air Products and Chemicals, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: 24 November 2015

/s/ Seifi Ghasemi

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Seifi Ghasemi  
Chairman, President, and  
Chief Executive Officer

**PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION**

I, M. Scott Crocco, certify that:

1. I have reviewed this Annual Report on Form 10-K of Air Products and Chemicals, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: 24 November 2015

/s/ M. Scott Crocco  
\_\_\_\_\_  
M. Scott Crocco  
Senior Vice President  
and Chief Financial Officer

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,  
AS ADOPTED PURSUANT TO SECTION 906 OF THE  
SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Air Products and Chemicals, Inc. (the "Company") for the year ending 30 September 2015, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Seifi Ghasemi, Chairman, President, and Chief Executive Officer of the Company, and M. Scott Crocco, Senior Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: 24 November 2015

/s/ Seifi Ghasemi

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Seifi Ghasemi  
Chairman, President, and  
Chief Executive Officer

/s/ M. Scott Crocco

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M. Scott Crocco  
Senior Vice President  
and Chief Financial Officer



November 24, 2015

Securities and Exchange Commission  
100 F Street, NE  
Washington, DC 20549

RE: Air Products and Chemicals, Inc. (the "Company")  
Annual Report on Form 10-K – File No. 1-4534

Ladies and Gentlemen:

Filed herewith, on behalf of Air Products and Chemicals, Inc., is the Company's Annual Report on Form 10-K for the fiscal year ended September 30, 2015.

The Company adopted new authoritative accounting guidance during fiscal year 2015, the impacts of which are discussed in Note 2 of the financial statements. Other than this new authoritative accounting guidance, no material changes in accounting principles or practices or the methods of applying such principles or practices have been made from the preceding year.

Sincerely,

/s/ Mary T. Afflerbach

Mary T. Afflerbach  
Corporate Secretary and  
Chief Governance Officer

Enclosure