

AIR PRODUCTS & CHEMICALS INC /DE/  
Form 10-Q  
April 28, 2016  
Table of Contents

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

FORM 10-Q

(Mark One)

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the quarterly period ended 31 March 2016

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 1-4534

**AIR PRODUCTS AND CHEMICALS, INC.**

(Exact Name of Registrant as Specified in Its Charter)

Delaware  
(State or Other Jurisdiction of Incorporation or Organization)

23-1274455  
(I.R.S. Employer Identification No.)

7201 Hamilton Boulevard, Allentown, Pennsylvania  
(Address of Principal Executive Offices)

18195-1501  
(Zip Code)

610-481-4911

(Registrant's Telephone Number, Including Area Code)

Not Applicable

(Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report)

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

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

Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller reporting company   
(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES  NO

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

| Class                       | Outstanding at 31 March 2016 |
|-----------------------------|------------------------------|
| Common Stock, \$1 par value | 216,081,188                  |

**Table of Contents**

**AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries**

**INDEX**

|   | Page No. |
|---|----------|
| <b>PART I. <u>FINANCIAL INFORMATION</u></b>   |          |
| Item 1. <u>Financial Statements</u>   |          |
| <u>Consolidated Income Statements Three and Six Months Ended 31 March 2016 and 2015</u>               | 3        |
| <u>Consolidated Comprehensive Income Statements Three and Six Months Ended 31 March 2016 and 2015</u> | 4        |
| <u>Consolidated Balance Sheets 31 March 2016 and 30 September 2015</u>                                | 5        |
| <u>Consolidated Statements of Cash Flows Six Months Ended 31 March 2016 and 2015</u>                  | 6        |
| <u>Notes to Consolidated Financial Statements</u>   | 7        |
| Item 2. <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>  | 28       |
| Item 3. <u>Quantitative and Qualitative Disclosures About Market Risk</u>                             | 51       |
| Item 4. <u>Controls and Procedures</u>  | 51       |
| <b>PART II. <u>OTHER INFORMATION</u></b>  |          |
| Item 6. <u>Exhibits</u>   | 52       |
| <u>Signatures</u>   | 53       |
| <u>Exhibit Index</u>  | 54       |

**Table of Contents****PART I. FINANCIAL INFORMATION****Item 1. Financial Statements****AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries****CONSOLIDATED INCOME STATEMENTS****(Unaudited)**

|   | Three Months Ended |                 | Six Months Ended  |                 |
|---|--------------------|-----------------|-------------------|-----------------|
|   | 31 March           |                 | 31 March          |                 |
| (Millions of dollars, except for share data)                          | 2016               | 2015            | 2016              | 2015            |
| <b>Sales</b>  | \$ 2,271.2         | \$ 2,414.5      | \$ 4,627.0        | \$ 4,975.3      |
| Cost of sales   | 1,519.0            | 1,698.2         | 3,114.7           | 3,527.9         |
| Selling and administrative  | 207.1              | 240.3           | 418.5             | 497.9           |
| Research and development  | 32.7               | 35.8            | 64.7              | 70.8            |
| Business separation costs   | 7.4                |                 | 19.4              |                 |
| Business restructuring and cost reduction actions                     | 8.6                | 55.4            | 8.6               | 87.8            |
| Pension settlement loss   | 2.6                | 12.6            | 2.6               | 12.6            |
| Gain on previously held equity interest                               |                    |                 |                   | 17.9            |
| Other income (expense), net   | 19.5               | 4.7             | 25.4              | 13.0            |
| <b>Operating Income</b>   | <b>513.3</b>       | <b>376.9</b>    | <b>1,023.9</b>    | <b>809.2</b>    |
| Equity affiliates income  | 32.5               | 33.0            | 66.2              | 76.1            |
| Interest expense  | 25.7               | 23.4            | 47.9              | 52.5            |
| <b>Income From Continuing Operations Before Taxes</b>                 | <b>520.1</b>       | <b>386.5</b>    | <b>1,042.2</b>    | <b>832.8</b>    |
| Income tax provision  | 132.5              | 87.7            | 268.4             | 194.8           |
| <b>Income from Continuing Operations</b>                              | <b>387.6</b>       | <b>298.8</b>    | <b>773.8</b>      | <b>638.0</b>    |
| <b>Loss From Discontinued Operations, net of tax</b>                  | <b>(853.1)</b>     | <b>(1.9)</b>    | <b>(867.3)</b>    | <b>(3.6)</b>    |
| <b>Net Income (Loss)</b>  | <b>(465.5)</b>     | <b>296.9</b>    | <b>(93.5)</b>     | <b>634.4</b>    |
| <b>Less: Net Income Attributable to Noncontrolling Interests</b>      | <b>7.8</b>         | <b>6.9</b>      | <b>16.2</b>       | <b>19.8</b>     |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (473.3)</b>  | <b>\$ 290.0</b> | <b>\$ (109.7)</b> | <b>\$ 614.6</b> |
| <b>Net Income (Loss) Attributable to Air Products</b>                 |                    |                 |                   |                 |
| Income from continuing operations                                     | \$ 379.8           | \$ 291.9        | \$ 757.6          | \$ 618.2        |
| Loss from discontinued operations                                     | (853.1)            | (1.9)           | (867.3)           | (3.6)           |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (473.3)</b>  | <b>\$ 290.0</b> | <b>\$ (109.7)</b> | <b>\$ 614.6</b> |
| <b>Basic Earnings Per Common Share Attributable to Air Products</b>   |                    |                 |                   |                 |
| Income from continuing operations                                     | \$ 1.76            | \$ 1.36         | \$ 3.51           | \$ 2.89         |
| Loss from discontinued operations                                     | (3.95)             | (.01)           | (4.02)            | (.02)           |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (2.19)</b>   | <b>\$ 1.35</b>  | <b>\$ (.51)</b>   | <b>\$ 2.87</b>  |
| <b>Diluted Earnings Per Common Share Attributable to Air Products</b> |                    |                 |                   |                 |
| Income from continuing operations                                     | \$ 1.74            | \$ 1.34         | \$ 3.47           | \$ 2.85         |
| Loss from discontinued operations                                     | (3.91)             | (.01)           | (3.98)            | (.02)           |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (2.17)</b>   | <b>\$ 1.33</b>  | <b>\$ (.51)</b>   | <b>\$ 2.83</b>  |
| <b>Weighted Average Common Shares Basic</b> (in millions)             | <b>216.1</b>       | <b>214.9</b>    | <b>215.9</b>      | <b>214.5</b>    |
| <b>Weighted Average Common Shares Diluted</b> (in millions)           | <b>217.9</b>       | <b>217.4</b>    | <b>217.8</b>      | <b>217.0</b>    |
| <b>Dividends Declared Per Common Share Cash</b>                       | <b>\$ .86</b>      | <b>\$ .81</b>   | <b>\$ 1.67</b>    | <b>\$ 1.58</b>  |

The accompanying notes are an integral part of these statements.



**Table of Contents****AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries****CONSOLIDATED BALANCE SHEETS****(Unaudited)**

| (Millions of dollars, except for share data)                                    | 31 March<br>2016   | 30 September<br>2015 |
|---|--------------------|----------------------|
| <b>Assets</b>   |                    |                      |
| <b>Current Assets</b>   |                    |                      |
| Cash and cash items   | \$ 313.1           | \$ 206.4             |
| Trade receivables, net  | 1,373.3            | 1,406.2              |
| Inventories   | 649.8              | 657.8                |
| Contracts in progress, less progress billings                                   | 144.6              | 110.8                |
| Prepaid expenses  | 85.1               | 67.0                 |
| Other receivables and current assets  | 444.9              | 343.5                |
| Current assets of discontinued operations                                       | 20.4               | 1.8                  |
| <b>Total Current Assets</b>   | <b>3,031.2</b>     | <b>2,793.5</b>       |
| Investment in net assets of and advances to equity affiliates                   | 1,264.3            | 1,265.7              |
| Plant and equipment, at cost  | 19,961.8           | 19,462.8             |
| Less: accumulated depreciation  | 11,107.7           | 10,717.7             |
| Plant and equipment, net  | 8,854.1            | 8,745.1              |
| Goodwill, net   | 1,150.6            | 1,131.3              |
| Intangible assets, net  | 499.9              | 508.3                |
| Noncurrent capital lease receivables  | 1,291.5            | 1,350.2              |
| Other noncurrent assets   | 719.2              | 648.6                |
| Noncurrent assets of discontinued operations                                    |                    | 891.8                |
| <b>Total Noncurrent Assets</b>  | <b>13,779.6</b>    | <b>14,541.0</b>      |
| <b>Total Assets</b>   | <b>\$ 16,810.8</b> | <b>\$ 17,334.5</b>   |
| <b>Liabilities and Equity</b>   |                    |                      |
| <b>Current Liabilities</b>  |                    |                      |
| Payables and accrued liabilities  | \$ 1,470.6         | \$ 1,641.7           |
| Accrued income taxes  | 77.2               | 55.8                 |
| Short-term borrowings   | 1,480.9            | 1,494.3              |
| Current portion of long-term debt   | 763.9              | 435.6                |
| Current liabilities of discontinued operations                                  | 46.5               | 17.0                 |
| <b>Total Current Liabilities</b>  | <b>3,839.1</b>     | <b>3,644.4</b>       |
| Long-term debt  | 3,573.2            | 3,949.1              |
| Other noncurrent liabilities  | 1,462.8            | 1,554.0              |
| Deferred income taxes   | 882.6              | 803.4                |
| Noncurrent liabilities of discontinued operations                               |                    | 2.5                  |
| <b>Total Noncurrent Liabilities</b>   | <b>5,918.6</b>     | <b>6,309.0</b>       |
| <b>Total Liabilities</b>  | <b>9,757.7</b>     | <b>9,953.4</b>       |
| <b>Commitments and Contingencies</b> See Note 13                                |                    |                      |
| <b>Air Products Shareholders' Equity</b>  |                    |                      |
| Common stock (par value \$1 per share; issued 2016 and 2015 249,455,584 shares) | 249.4              | 249.4                |
| Capital in excess of par value  | 919.6              | 904.7                |
| Retained earnings   | 10,108.8           | 10,580.4             |
| Accumulated other comprehensive loss  | (2,046.7)          | (2,125.9)            |
| Treasury stock, at cost (2016 33,374,396 shares; 2015 34,096,471 shares)        | (2,314.5)          | (2,359.6)            |
| <b>Total Air Products Shareholders' Equity</b>                                  | <b>6,916.6</b>     | <b>7,249.0</b>       |
| <b>Noncontrolling Interests</b>   | <b>136.5</b>       | <b>132.1</b>         |
| <b>Total Equity</b>   | <b>7,053.1</b>     | <b>7,381.1</b>       |
| <b>Total Liabilities and Equity</b>   | <b>\$ 16,810.8</b> | <b>\$ 17,334.5</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****(Unaudited)**

| (Millions of dollars)  | Six Months Ended<br>31 March |                 |
|--|------------------------------|-----------------|
|  | 2016                         | 2015            |
| <b>Operating Activities</b>  |                              |                 |
| Net income (loss)  | \$ (93.5)                    | \$ 634.4        |
| Less: Net income attributable to noncontrolling interests  | 16.2                         | 19.8            |
| Net income (loss) attributable to Air Products   | (109.7)                      | 614.6           |
| Loss from discontinued operations  | 867.3                        | 3.6             |
| Income from continuing operations attributable to Air Products   | 757.6                        | 618.2           |
| Adjustments to reconcile income to cash provided by operating activities:                              |                              |                 |
| Depreciation and amortization  | 464.8                        | 468.8           |
| Deferred income taxes  | 87.0                         | 53.5            |
| Gain on previously held equity interest  |                              | (17.9)          |
| Undistributed earnings of unconsolidated affiliates  | (7.7)                        | (58.0)          |
| Share-based compensation   | 19.5                         | 24.8            |
| Noncurrent capital lease receivables   | 40.2                         | (8.7)           |
| Other adjustments  | 15.0                         | (58.8)          |
| Working capital changes that provided (used) cash, excluding effects of acquisitions and divestitures: |                              |                 |
| Trade receivables  | 33.2                         | 23.6            |
| Inventories  | 10.5                         | (14.0)          |
| Contracts in progress, less progress billings  | (35.3)                       | (17.2)          |
| Other receivables  | (57.4)                       | (75.2)          |
| Payables and accrued liabilities   | (226.5)                      | 89.1            |
| Other working capital  | (13.4)                       | (41.1)          |
| <b>Cash Provided by Operating Activities</b>   | <b>1,087.5</b>               | <b>987.1</b>    |
| <b>Investing Activities</b>  |                              |                 |
| Additions to plant and equipment   | (534.8)                      | (628.5)         |
| Acquisitions, less cash acquired   |                              | (34.5)          |
| Proceeds from sale of assets and investments   | 70.6                         | 10.8            |
| Other investing activities   | (2.5)                        | 1.5             |
| <b>Cash Used for Investing Activities</b>  | <b>(466.7)</b>               | <b>(650.7)</b>  |
| <b>Financing Activities</b>  |                              |                 |
| Long-term debt proceeds  |                              | 337.3           |
| Payments on long-term debt   | (70.2)                       | (384.6)         |
| Net increase in commercial paper and short-term borrowings   | .2                           | 54.3            |
| Dividends paid to shareholders   | (349.1)                      | (329.4)         |
| Proceeds from stock option exercises   | 35.5                         | 77.2            |
| Excess tax benefit from share-based compensation   | 9.7                          | 22.7            |
| Other financing activities   | (25.0)                       | (34.1)          |
| <b>Cash Used for Financing Activities</b>  | <b>(398.9)</b>               | <b>(256.6)</b>  |
| <b>Discontinued Operations</b>   |                              |                 |
| Cash used for operating activities   | (25.1)                       | (19.9)          |
| Cash used for investing activities   | (97.0)                       | (189.1)         |
| Cash provided by financing activities  |                              |                 |
| <b>Cash Used for Discontinued Operations</b>   | <b>(122.1)</b>               | <b>(209.0)</b>  |
| <b>Effect of Exchange Rate Changes on Cash</b>   | <b>6.9</b>                   | <b>(11.7)</b>   |
| Increase (Decrease) in Cash and Cash Items   | 106.7                        | (140.9)         |
| Cash and Cash Items Beginning of Year  | 206.4                        | 336.6           |
| <b>Cash and Cash Items End of Period</b>   | <b>\$ 313.1</b>              | <b>\$ 195.7</b> |

The accompanying notes are an integral part of these statements.

**Table of Contents****AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

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

**1. BASIS OF PRESENTATION AND MAJOR ACCOUNTING POLICIES**

Refer to our 2015 Form 10-K for a description of major accounting policies. There have been no significant changes to these accounting policies during the first six months of fiscal year 2016 other than those detailed in Note 2, New Accounting Guidance. Certain prior year information has been reclassified to conform to the fiscal year 2016 presentation.

The consolidated financial statements of Air Products and Chemicals, Inc. and its subsidiaries ( we, our, us, the Company, Air Products, or registrant ) included herein have been prepared by us, without audit, pursuant to the rules and regulations of the Securities and Exchange Commission (SEC). Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) have been condensed or omitted pursuant to such rules and regulations. In our opinion, the accompanying statements reflect adjustments necessary to present fairly the financial position, results of operations, and cash flows for those periods indicated, and contain adequate disclosure to make the information presented not misleading. Adjustments included herein are of a normal, recurring nature unless otherwise disclosed in the Notes. The interim results for the periods indicated herein, however, do not reflect certain adjustments, such as the valuation of inventories on the last-in, first-out (LIFO) cost basis, which are only finally determined on an annual basis. The consolidated financial statements and related Notes included herein should be read in conjunction with the financial statements and Notes thereto included in our latest Form 10-K in order to fully understand the basis of presentation. Results of operations for interim periods are not necessarily indicative of the results of operations for a full year.

**2. DISCONTINUED OPERATIONS**

On 29 March 2016, the Board of Directors approved the Company's exit of its Energy-from-Waste (EfW) business. As a result, efforts to start up and operate the two EfW projects located in Tees Valley, United Kingdom, have been discontinued. The decision to exit the business and stop development of the projects was based on continued difficulties encountered; and the Company's conclusion, based on testing and analysis completed during the second fiscal quarter of 2016, that significant additional time and resources would be required to make the projects operational. As a result, the EfW segment has been presented as a discontinued operation. Prior year EfW business segment information has been reclassified to conform to current year presentation. During the three months ended 31 March 2016, we recorded a loss of \$945.7 (\$846.6 after-tax) for the disposal of the business. Income tax benefits related only to one of the projects, as the other did not qualify for a local tax deduction. This loss includes \$913.5 to write down plant assets, previously recorded as construction in progress, to their estimated net realizable value of \$20.0 and \$32.2 to record a liability for plant disposition and other costs. We estimated the net realizable value of the projects assuming an orderly liquidation of assets capable of being marketed on a secondary equipment market based on market quotes and our experience with selling similar equipment. An asset's orderly liquidation value is the amount that could be realized from a liquidation sale, given a reasonable period of time to find a buyer, selling the asset in the existing condition where it is located and assuming the highest and best use of the asset by market participants. We recorded a valuation allowance of \$58.0 and unrecognized tax benefits of \$7.9 related to deferred tax assets on capital assets generated from the loss.

The following table summarizes the carrying amount of the accrual for our actions to dispose of the EfW business at 31 March 2016:

|                              | Asset<br>Actions | Contract<br>Actions/Other | Total    |
|------------------------------|------------------|---------------------------|----------|
| Loss on disposal of business | \$ 913.5         | \$ 32.2                   | \$ 945.7 |
| Noncash expenses             | (913.5)          |                           | (913.5)  |
| 31 March 2016                | \$               | \$ 32.2                   | \$ 32.2  |

**Table of Contents**

The results of discontinued operations are summarized below:

|  | Three Months Ended<br>31 March |                 | Six Months Ended<br>31 March |                 |
|--|--------------------------------|-----------------|------------------------------|-----------------|
|  | 2016                           | 2015            | 2016                         | 2015            |
| Loss before taxes                                      | \$ (3.8)                       | \$ (2.5)        | \$ (21.3)                    | \$ (4.8)        |
| Income tax provision                                   | (2.7)                          | .6              | .6                           | 1.2             |
| <b>Loss from operations of discontinued operations</b> | <b>(6.5)</b>                   | <b>(1.9)</b>    | <b>(20.7)</b>                | <b>(3.6)</b>    |
| Loss on disposal, net of tax                           | (846.6)                        |                 | (846.6)                      |                 |
| <b>Loss from Discontinued Operations, net of tax</b>   | <b>\$ (853.1)</b>              | <b>\$ (1.9)</b> | <b>\$ (867.3)</b>            | <b>\$ (3.6)</b> |

The loss from operations of discontinued operations primarily relates to land leases, commercial and administrative costs, and costs incurred related to project suspension activities.

Assets and liabilities of discontinued operations consist of the following:

|                                     | 31 March<br>2016 | 30 September<br>2015 |
|-------------------------------------|------------------|----------------------|
| Plant and equipment                 | \$ 20.0          | \$                   |
| Other current assets                | .4               | 1.8                  |
| <b>Total Current Assets</b>         | <b>\$ 20.4</b>   | <b>\$ 1.8</b>        |
| Plant and equipment                 | \$               | \$ 891.8             |
| <b>Total Noncurrent Assets</b>      | <b>\$</b>        | <b>\$ 891.8</b>      |
| Payables and accrued liabilities    | \$ 43.7          | \$ 17.0              |
| Other current liabilities           | 2.8              |                      |
| <b>Total Current Liabilities</b>    | <b>\$ 46.5</b>   | <b>\$ 17.0</b>       |
| Other noncurrent liabilities        | \$               | \$ 2.5               |
| <b>Total Noncurrent Liabilities</b> | <b>\$</b>        | <b>\$ 2.5</b>        |

**3. NEW ACCOUNTING GUIDANCE***Accounting Guidance Implemented in 2016***Balance Sheet Classification of Deferred Taxes**

In November 2015, the Financial Accounting Standards Board (FASB) issued guidance to simplify the presentation of deferred income taxes by requiring that all deferred tax liabilities and assets be classified as noncurrent on the balance sheet. As of the first quarter of fiscal year 2016, we adopted this guidance on a retrospective basis. Accordingly, prior year amounts have been reclassified to conform to the current year presentation. The guidance, which did not change the existing requirement to net deferred tax assets and liabilities within a jurisdiction, resulted in a reclassification adjustment that increased noncurrent deferred tax assets by \$13.7 and decreased noncurrent deferred tax liabilities by \$99.9 as of 30 September 2015.

**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. We adopted this guidance prospectively for new disposals and new disposal groups classified as held for sale beginning in the first quarter of fiscal year 2016. This guidance had no impact on our consolidated financial statements upon adoption. As a result of actions taken during the second quarter of 2016, our Energy-from-Waste segment has been reported as a discontinued operation. Refer to Note 2, Discontinued Operations, for additional information.



## **Table of Contents**

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

#### **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.

#### **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 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.

#### **Leases**

In February 2016, the FASB issued guidance which requires lessees to recognize a right of use asset and lease liability on the balance sheet for all leases, including operating leases, with a term in excess of 12 months. The guidance also expands the quantitative and qualitative disclosure requirements. The guidance is effective in fiscal year 2020, with early adoption permitted, and must be applied using a modified retrospective approach. We are currently evaluating the impact of adopting this new guidance on the consolidated financial statements.

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

In March 2016, the FASB issued an update to simplify the accounting for employee share-based payments, including the income tax impacts, the classification on the statement of cash flows, and forfeitures. The amendments are effective for fiscal year 2018, with early adoption permitted. We are currently evaluating the impact this guidance will have on our consolidated financial statements.

#### **Derivative Contract Novations**

In March 2016, the FASB issued guidance to clarify that a change in the counterparty to a derivative instrument that has been designated as a hedging instrument does not, in and of itself, require dedesignation of that hedging relationship provided that all other hedge accounting criteria continue to be met. This guidance is effective in fiscal year 2018, with early adoption permitted. We do not expect adoption of this guidance to have a significant impact on our consolidated financial statements.

**Table of Contents****4. MATERIALS TECHNOLOGIES SEPARATION**

On 16 September 2015, the Company announced plans to separate its Materials Technologies business into an independent publicly traded company and distribute to Air Products shareholders all of the shares of the new public company in a tax free distribution (a spin-off). Versum Materials, LLC, or Versum, was formed as the new company to hold the Materials Technologies business in November 2015 and is currently a wholly owned subsidiary of the Company. The Company expects to complete the work to prepare Versum to be a separate and independent company during fiscal year 2016 and is assessing market conditions to determine favorability for a spin-off. Versum will be converted from a limited liability company to a Delaware corporation (Versum Materials, Inc.) prior to spin-off.

For the three and six months ended 31 March 2016, we incurred separation costs of \$7.4 and \$19.4, respectively, primarily related to legal and other advisory fees. 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 continue to be presented within our consolidated financial statements as continuing operations. If the Board of Directors approves the final spin-off and the spin-off occurs, we expect the financial presentation of the historical results of the spun-off business will be reflected as a discontinued operation.

**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.

**Cost Reduction Actions**

In the second quarter of fiscal year 2016, we recognized an expense of \$8.6 (\$7.1 after-tax, or \$.03 per share) for severance and other benefits related to the elimination of approximately 170 positions as part of cost reduction actions. The expenses related primarily to the Industrial Gases Americas and the Industrial Gases EMEA segments.

The following table summarizes the carrying amount of the accrual for cost reduction actions at 31 March 2016:

|                                       | Severance and<br>Other Benefits |
|---------------------------------------|---------------------------------|
| 2016 Charge                           | \$ 8.6                          |
| Amount reflected in pension liability | (.6)                            |
| Cash expenditures                     | (3.0)                           |
| Currency translation adjustment       | .3                              |
| 31 March 2016                         | \$ 5.3                          |

**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. As a result of this reorganization, we incurred an expense of \$207.7 throughout fiscal year 2015 for severance and other benefits and asset and associated contract actions. Of this charge, an expense of \$55.4 (\$38.2 after-tax, or \$.18 per share) and \$87.8 (\$59.9 after-tax, or \$.27 per share) was recognized during the three and six months ended 31 March 2015, respectively.

**Table of Contents**

The following table summarizes the carrying amount of the accrual for the business realignment and reorganization at 31 March 2016:

|                                       | Severance and<br>Other Benefits | Asset<br>Actions/Other | Total   |
|---------------------------------------|---------------------------------|------------------------|---------|
| 30 September 2014                     | \$ 10.5                         | \$                     | \$ 10.5 |
| 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)    |
| 30 September 2015                     | \$ 34.5                         | \$ 7.2                 | \$ 41.7 |
| Cash expenditures                     | (24.0)                          | (3.8)                  | (27.8)  |
| Currency translation adjustment       | (.3)                            |                        | (.3)    |
| 31 March 2016                         | \$ 10.2                         | \$ 3.4                 | \$ 13.6 |

**6. 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 six months ended 31 March 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.

**7. INVENTORIES**

The components of inventories are as follows:

|  | 31 March<br>2016 | 30 September<br>2015 |
|--|------------------|----------------------|
| Finished goods                           | \$ 474.7         | \$ 494.9             |
| Work in process                          | 38.1             | 34.4                 |
| Raw materials, supplies and other        | 229.6            | 229.3                |
|  | \$ 742.4         | \$ 758.6             |
| Less: Excess of FIFO cost over LIFO cost | (92.6)           | (100.8)              |
| Inventories                              | \$ 649.8         | \$ 657.8             |

First-in, first-out (FIFO) cost approximates replacement cost.

**Table of Contents****8. EQUITY AFFILIATES**

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 31 March 2016, we have a noncurrent liability of \$94.4 for our obligation to make future equity contributions based on our proportionate share of the advances received by the joint venture under the loan. In the first six months of fiscal 2016, we recorded a noncash transaction which resulted in an increase of \$26.9 to our investment in net assets of and advances to equity affiliates, which has been 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 long-term 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.

In December 2015, we sold our investment in Daido Air Products Electronics, Inc. for \$15.9, which resulted in a gain of \$.7. The carrying value at time of sale included a \$12.8 investment in net assets of and advances to equity affiliates and a \$2.4 foreign currency translation loss that had been deferred in accumulated other comprehensive loss.

In January 2016, we sold our investment in SembCorp Air Products (HyCo) Pte. Ltd. The transaction did not have a material impact on the financial statements.

**9. GOODWILL**

Changes to the carrying amount of consolidated goodwill by segment for the six months ended 31 March 2016 are as follows:

|                                    | Industrial<br>Gases<br>Americas | Industrial<br>Gases<br>EMEA | Industrial<br>Gases<br>Asia | Industrial<br>Gases<br>Global | Materials<br>Technologies | Total      |
|------------------------------------|---------------------------------|-----------------------------|-----------------------------|-------------------------------|---------------------------|------------|
| Goodwill, net at 30 September 2015 | \$ 297.6                        | \$ 386.5                    | \$ 133.1                    | \$ 19.9                       | \$ 294.2                  | \$ 1,131.3 |
| Currency translation               | 8.3                             | 4.4                         | 1.1                         | .2                            | 5.3                       | 19.3       |
| Goodwill, net at 31 March 2016     | \$ 305.9                        | \$ 390.9                    | \$ 134.2                    | \$ 20.1                       | \$ 299.5                  | \$ 1,150.6 |

|  | 31 March<br>2016 | 30 September<br>2015 |
|--|------------------|----------------------|
| Goodwill, gross                              | \$ 1,405.1       | \$ 1,375.0           |
| Accumulated impairment losses <sup>(A)</sup> | (254.5)          | (243.7)              |
| Goodwill, net                                | \$ 1,150.6       | \$ 1,131.3           |

<sup>(A)</sup> Amount is attributable to the Industrial Gases - Americas segment and includes currency translation of \$50.7 and \$61.5 as of 31 March 2016 and 30 September 2015, respectively.

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.

**Table of Contents****10. 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 as well as Euros and British Pound Sterling. The maximum remaining term of any forward exchange contract currently outstanding and designated as a cash flow hedge at 31 March 2016 is 2.7 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:

|   | 31 March 2016     |                              | 30 September 2015 |                              |
|---|-------------------|------------------------------|-------------------|------------------------------|
|   | US\$<br>Notional  | Years<br>Average<br>Maturity | US\$<br>Notional  | Years<br>Average<br>Maturity |
| <b>Forward Exchange Contracts:</b>      |                   |                              |                   |                              |
| Cash flow hedges                        | \$ 5,051.6        | .5                           | \$ 4,543.8        | .5                           |
| Net investment hedges                   | 442.0             | 3.8                          | 491.3             | 4.0                          |
| Not designated                          | 1,006.6           | .5                           | 863.3             | .7                           |
| <b>Total Forward Exchange Contracts</b> | <b>\$ 6,500.2</b> | <b>.7</b>                    | <b>\$ 5,898.4</b> | <b>.9</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 543.8 million (\$618.9) at 31 March 2016 and 687.7 million (\$768.4) at 30 September 2015. The designated foreign currency-denominated debt is located on the balance sheet in the long-term debt and current portion of long-term debt 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.



**Table of Contents****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 31 March 2016, 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:

|  | 31 March 2016    |                  |                         |                              | 30 September 2015 |                  |                         |                              |
|--|------------------|------------------|-------------------------|------------------------------|-------------------|------------------|-------------------------|------------------------------|
|  | US\$<br>Notional | Average<br>Pay % | Average<br>Receive<br>% | Years<br>Average<br>Maturity | US\$<br>Notional  | Average<br>Pay % | Average<br>Receive<br>% | Years<br>Average<br>Maturity |
| Interest rate swaps<br>(fair value hedge)                    | \$ 600.0         | LIBOR            | 2.77%                   | 2.8                          | \$ 600.0          | LIBOR            | 2.77%                   | 3.3                          |
| Cross currency interest rate swaps<br>(net investment hedge) | \$ 613.4         | 3.34%            | 2.11%                   | 2.8                          | \$ 609.9          | 4.06%            | 2.61%                   | 3.2                          |
| Cross currency interest rate swaps<br>(cash flow hedge)      | \$ 1,105.8       | 4.60%            | 2.70%                   | 3.7                          | \$ 1,055.2        | 4.29%            | 2.63%                   | 3.9                          |
| Cross currency interest rate swaps<br>(not designated)       | \$ 9.4           | 3.62%            | .81%                    | 2.3                          | \$ 12.9           | 3.12%            | 3.08%                   | 4.1                          |

**Table of Contents**

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

|  | Balance Sheet<br>Location  | 31 March<br>2016 | 30 September<br>2015 | Balance Sheet<br>Location       | 31 March<br>2016 | 30 September<br>2015 |
|--|----------------------------|------------------|----------------------|---------------------------------|------------------|----------------------|
| <b>Derivatives Designated as Hedging Instruments:</b>          |                            |                  |                      |                                 |                  |                      |
| Forward exchange contracts                                     | Other receivables          | \$107.0          | \$52.1               | Accrued liabilities             | \$54.9           | \$110.7              |
| Interest rate management contracts                             | Other receivables          | 15.2             | 17.6                 | Accrued liabilities             |                  |                      |
| Forward exchange contracts                                     | Other noncurrent<br>assets | 39.5             | 68.5                 | Other noncurrent<br>liabilities | 10.9             | 9.2                  |
| Interest rate management contracts                             | Other noncurrent<br>assets | 170.2            | 153.4                | Other noncurrent<br>liabilities | 2.3              | .8                   |
| <b>Total Derivatives Designated as Hedging Instruments</b>     |                            | \$331.9          | \$291.6              |                                 | \$68.1           | \$120.7              |
| <b>Derivatives Not Designated as Hedging Instruments:</b>      |                            |                  |                      |                                 |                  |                      |
| Forward exchange contracts                                     | Other receivables          | \$39.5           | \$3.2                | Accrued liabilities             | \$7.6            | \$3.9                |
| Forward exchange contracts                                     | Other noncurrent<br>assets |                  | 23.3                 | Other noncurrent<br>liabilities |                  | .6                   |
| Interest rate management contracts                             | Other noncurrent<br>assets |                  | .8                   | Other noncurrent<br>liabilities |                  |                      |
| <b>Total Derivatives Not Designated as Hedging Instruments</b> |                            | \$39.5           | \$27.3               |                                 | \$7.6            | \$4.5                |
| <b>Total Derivatives</b>                                       |                            | \$371.4          | \$318.9              |                                 | \$75.7           | \$125.2              |

Refer to Note 11, 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:

|  | Three Months Ended 31 March |           |                       |          |                      |         |           |           |
|--|-----------------------------|-----------|-----------------------|----------|----------------------|---------|-----------|-----------|
|  | Forward Exchange Contracts  |           | Foreign Currency Debt |          | Other <sup>(A)</sup> |         | Total     |           |
|  | 2016                        | 2015      | 2016                  | 2015     | 2016                 | 2015    | 2016      | 2015      |
| <b>Cash Flow Hedges, net of tax:</b>   |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in OCI (effective portion)                                      | \$ 32.5                     | \$ (22.0) | \$                    | \$       | \$ (19.7)            | \$ 21.6 | \$ 12.8   | \$ (4)    |
| Net (gain) loss reclassified from OCI to sales/cost of sales (effective portion)           | .5                          | .9        |                       |          |                      |         | .5        | .9        |
| Net (gain) loss reclassified from OCI to other income (expense), net (effective portion)   | (30.2)                      | 23.9      |                       |          | 16.5                 | (8.0)   | (13.7)    | 15.9      |
| Net (gain) loss reclassified from OCI to interest expense (effective portion)              | 1.2                         | .1        |                       |          | .8                   | .6      | 2.0       | .7        |
| Net (gain) loss reclassified from OCI to other income (expense), net (ineffective portion) | .1                          | .1        |                       |          |                      |         | .1        | .1        |
| <b>Fair Value Hedges:</b>  |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in interest expense <sup>(B)</sup>                              | \$                          | \$        | \$                    | \$       | \$ 7.2               | \$ 4.5  | \$ 7.2    | \$ 4.5    |
| <b>Net Investment Hedges, net of tax:</b>  |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in OCI  | \$ (9.4)                    | \$ 50.0   | \$ (17.9)             | \$ 76.7  | \$ 1.9               | \$ 27.3 | \$ (25.4) | \$ 154.0  |
| <b>Derivatives Not Designated as Hedging Instruments:</b>                                  |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in other income (expense), net <sup>(C)</sup>                   | \$ .7                       | \$ (7.4)  | \$                    | \$       | \$ (.6)              | \$      | \$ .1     | \$ (7.4)  |
|  | Six Months Ended 31 March   |           |                       |          |                      |         |           |           |
|  | Forward Exchange Contracts  |           | Foreign Currency Debt |          | Other <sup>(A)</sup> |         | Total     |           |
|  | 2016                        | 2015      | 2016                  | 2015     | 2016                 | 2015    | 2016      | 2015      |
| <b>Cash Flow Hedges, net of tax:</b>   |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in OCI (effective portion)                                      | \$ 27.8                     | \$ (46.0) | \$                    | \$       | \$ 1.0               | \$ 21.8 | \$ 28.8   | \$ (24.2) |
| Net (gain) loss reclassified from OCI to sales/cost of sales (effective portion)           | 1.4                         | .3        |                       |          |                      |         | 1.4       | .3        |
| Net (gain) loss reclassified from OCI to other income (expense), net (effective portion)   | (32.0)                      | 42.7      |                       |          | (3.7)                | (13.2)  | (35.7)    | 29.5      |
| Net (gain) loss reclassified from OCI to interest expense (effective portion)              | 2.6                         | (.2)      |                       |          | 1.6                  | .9      | 4.2       | .7        |
| Net (gain) loss reclassified from OCI to other income (expense), net (ineffective portion) | (.3)                        | .6        |                       |          |                      |         | (.3)      | .6        |
| <b>Fair Value Hedges:</b>  |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in interest expense <sup>(B)</sup>                              | \$                          | \$        | \$                    | \$       | \$ (1.8)             | \$ 8.0  | \$ (1.8)  | \$ 8.0    |
| <b>Net Investment Hedges, net of tax:</b>  |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in OCI  | \$ (6.4)                    | \$ 70.1   | \$ (10.3)             | \$ 107.8 | \$ 8.4               | \$ 37.4 | \$ (8.3)  | \$ 215.3  |
| <b>Derivatives Not Designated as Hedging Instruments:</b>                                  |                             |           |                       |          |                      |         |           |           |
| Net gain (loss) recognized in other income (expense), net <sup>(C)</sup>                   | \$ 2.4                      | \$ (7.2)  | \$                    | \$       | \$ (.6)              | \$      | \$ 1.8    | \$ (7.2)  |

## **Table of Contents**

- (A) Other includes the impact on other comprehensive income (OCI) and earnings primarily related to interest rate and cross currency interest 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 31 March 2016 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 \$7.9 as of 31 March 2016 and \$.2 as of 30 September 2015. 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 \$267.0 as of 31 March 2016 and \$226.9 as of 30 September 2015. No financial institution is required to post collateral at this time, as all have credit ratings at or above threshold.

## **11. 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.

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Refer to Note 10, Financial Instruments, for a description of derivative instruments, including details on the balance sheet line classifications.

**Table of Contents****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:

|   | 31 March 2016  |            | 30 September 2015 |            |
|---|----------------|------------|-------------------|------------|
|   | Carrying Value | Fair Value | Carrying Value    | Fair Value |
| <b>Assets</b>                             |                |            |                   |            |
| Derivatives                               |                |            |                   |            |
| Forward exchange contracts                | \$ 186.0       | \$ 186.0   | \$ 147.1          | \$ 147.1   |
| Interest rate management contracts        | 185.4          | 185.4      | 171.8             | 171.8      |
| <b>Liabilities</b>                        |                |            |                   |            |
| Derivatives                               |                |            |                   |            |
| Forward exchange contracts                | \$ 73.4        | \$ 73.4    | \$ 124.4          | \$ 124.4   |
| Interest rate management contracts        | 2.3            | 2.3        | .8                | .8         |
| Long-term debt, including current portion | 4,337.1        | 4,616.3    | 4,384.7           | 4,645.7    |

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.

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

|                                    | 31 March 2016 |         |          |         | 30 September 2015 |         |          |         |
|------------------------------------|---------------|---------|----------|---------|-------------------|---------|----------|---------|
|                                    | Total         | Level 1 | Level 2  | Level 3 | Total             | Level 1 | Level 2  | Level 3 |
| <b>Assets at Fair Value</b>        |               |         |          |         |                   |         |          |         |
| Derivatives                        |               |         |          |         |                   |         |          |         |
| Forward exchange contracts         | \$ 186.0      | \$      | \$ 186.0 | \$      | \$ 147.1          | \$      | \$ 147.1 | \$      |
| Interest rate management contracts | 185.4         |         | 185.4    |         | 171.8             |         | 171.8    |         |
| Total Assets at Fair Value         | \$ 371.4      | \$      | \$ 371.4 | \$      | \$ 318.9          | \$      | \$ 318.9 | \$      |
| <b>Liabilities at Fair Value</b>   |               |         |          |         |                   |         |          |         |
| Derivatives                        |               |         |          |         |                   |         |          |         |
| Forward exchange contracts         | \$ 73.4       | \$      | \$ 73.4  | \$      | \$ 124.4          | \$      | \$ 124.4 | \$      |
| Interest rate management contracts | 2.3           |         | 2.3      |         | .8                |         | .8       |         |
| Total Liabilities at Fair Value    | \$ 75.7       | \$      | \$ 75.7  | \$      | \$ 125.2          | \$      | \$ 125.2 | \$      |

The following is a tabular presentation of nonrecurring fair value measurements along with the level within the fair value hierarchy in which the fair value measurement in its entirety falls:

|  | 31 March 2016 |         |         |         | 2016     |
|--|---------------|---------|---------|---------|----------|
|  | Total         | Level 1 | Level 2 | Level 3 | Loss     |
| Plant and Equipment Discontinued operations <sup>(A)</sup> | \$ 20.0       | \$      | \$      | \$ 20.0 | \$ 913.5 |

<sup>(A)</sup> As a result of our exit from the Energy-from-Waste business, we assessed the recoverability of assets capable of being marketed on a secondary equipment market using an orderly liquidation valuation resulting in an impairment loss for the difference between the orderly

liquidation value and net book value of the assets. For additional information, see Note 2, Discontinued Operations.

**Table of Contents****12. RETIREMENT BENEFITS**

The components of net periodic benefit cost for the defined benefit pension and other postretirement benefit plans for the three and six months ended 31 March 2016 and 2015 were as follows:

|                                 | Pension Benefits |               |         |               | Other Benefits |        |
|---------------------------------|------------------|---------------|---------|---------------|----------------|--------|
|                                 | 2016             |               | 2015    |               | 2016           | 2015   |
| Three Months Ended 31 March     | U.S.             | International | U.S.    | International |                |        |
| Service cost                    | \$ 9.3           | \$ 6.1        | \$ 10.6 | \$ 7.9        | \$ .6          | \$ .7  |
| Interest cost                   | 27.7             | 11.1          | 31.3    | 14.2          | .5             | .5     |
| Expected return on plan assets  | (50.5)           | (19.6)        | (50.5)  | (19.1)        |                |        |
| Prior service cost amortization | .8               | (.1)          | .7      | .1            |                |        |
| Actuarial loss amortization     | 21.5             | 9.1           | 19.6    | 10.1          | .1             | .2     |
| Settlements                     | 2.6              |               | 12.6    |               |                |        |
| Curtailments                    |                  |               | 3.1     |               |                |        |
| Special termination benefits    | .6               |               | 2.1     | .9            |                |        |
| Other                           |                  | .5            |         | .5            |                |        |
| Net periodic benefit cost       | \$ 12.0          | \$ 7.1        | \$ 29.5 | \$ 14.6       | \$ 1.2         | \$ 1.4 |

|                                 | Pension Benefits |               |         |               | Other Benefits |        |
|---------------------------------|------------------|---------------|---------|---------------|----------------|--------|
|                                 | 2016             |               | 2015    |               | 2016           | 2015   |
| Six Months Ended 31 March       | U.S.             | International | U.S.    | International |                |        |
| Service cost                    | \$ 18.3          | \$ 12.3       | \$ 21.2 | \$ 16.1       | \$ 1.1         | \$ 1.4 |
| Interest cost                   | 55.4             | 22.7          | 62.5    | 29.2          | 1.0            | 1.1    |
| Expected return on plan assets  | (101.0)          | (40.3)        | (101.0) | (40.2)        |                |        |
| Prior service cost amortization | 1.5              | (.1)          | 1.4     | .1            |                |        |
| Actuarial loss amortization     | 42.6             | 18.3          | 39.4    | 20.6          | .3             | .4     |
| Settlements                     | 2.6              |               | 12.5    | (.1)          |                |        |
| Curtailments                    |                  |               | 3.1     |               |                |        |
| Special termination benefits    | .6               |               | 4.8     | .9            |                |        |
| Other                           |                  | 1.0           | 1.1     | 1.0           |                |        |
| Net periodic benefit cost       | \$ 20.0          | \$ 13.9       | \$ 45.0 | \$ 27.6       | \$ 2.4         | \$ 2.9 |

Net periodic benefit cost is primarily included in cost of sales and selling and administrative expense on our consolidated income statements. The amount of net periodic benefit cost capitalized in 2016 and 2015 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. For the six months ended 31 March 2016 and 2015, we recognized \$2.6 and \$12.6 of settlement losses, respectively, related to our U.S. supplemental pension plan. These settlement losses accelerated the recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss. Special termination benefits for 2016 and 2015 are primarily related to the business restructuring and cost reduction actions initiated.

In fiscal 2016, we changed our method 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 have elected to use a spot rate approach 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 change in rate assumption to be a change in estimate and, accordingly, are accounting for it prospectively starting in 2016. We expect that adoption of the spot rate approach will reduce our fiscal 2016 net periodic benefit cost by approximately \$30. This change does not affect the measurement of our total benefit obligation.

The decrease in pension expense primarily resulted from the adoption of the spot rate approach to estimate service cost and interest cost and reduced plan participation due to severance actions, partially offset by the adoption of new mortality tables for our major plans.



## **Table of Contents**

For the six months ended 31 March 2016 and 2015, our cash contributions to funded pension plans and benefit payments under unfunded pension plans were \$60.2 and \$95.4, respectively. Total contributions for fiscal 2016 are expected to be approximately \$100 to \$120. During fiscal 2015, total contributions were \$137.5.

## **13. 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 \$50 at 31 March 2016) 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 \$50 at 31 March 2016) plus interest accrued thereon until final disposition of the proceedings.

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 31 March 2016 and 30 September 2015 included an accrual of \$77.0 and \$80.6, 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 \$77 to a reasonably possible upper exposure of \$91 as of 31 March 2016.

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 31 March 2016, \$30.5 of the environmental accrual was related to the Pace facility.

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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.

**Table of Contents**

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 31 March 2016, \$18.0 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 2019 to complete source area remediation with groundwater recovery and treatment, continuing through 2029. Thereafter, we are expecting this site to go into a state of monitored natural attenuation through 2047. 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 have been no significant changes to the estimated exposure.

**PASADENA**

At 31 March 2016, \$10.6 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.

**14. SHARE-BASED COMPENSATION**

We have various share-based compensation programs, which include deferred stock units, stock options, and restricted stock. During the six months ended 31 March 2016, we granted deferred stock units 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 31 March 2016, there were 4,774,072 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:

|  | Three Months Ended<br>31 March |         | Six Months Ended<br>31 March |         |
|--|--------------------------------|---------|------------------------------|---------|
|  | 2016                           | 2015    | 2016                         | 2015    |
| Before-Tax Share-Based Compensation Cost | \$ 9.3                         | \$ 12.9 | \$ 19.5                      | \$ 24.8 |
| Income Tax Benefit                       | (3.3)                          | (4.7)   | (6.8)                        | (8.7)   |

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|   |        |        |         |         |
|---|--------|--------|---------|---------|
| After-Tax Share-Based Compensation Cost | \$ 6.0 | \$ 8.2 | \$ 12.7 | \$ 16.1 |
|---|--------|--------|---------|---------|

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 2016 and 2015 was not material.

**Table of Contents**

**Deferred Stock Units**

During the six months ended 31 March 2016, we granted 127,262 market-based deferred stock units. The market-based deferred stock units are earned out at the end of a performance period beginning 1 October 2015 and ending 30 September 2018, conditioned on the level of the Company's total shareholder return in relation to a defined peer group over the three year performance period.

The market-based deferred stock units had an estimated grant-date fair value of \$134.58 per unit, which was estimated using a Monte Carlo simulation model. The model utilizes multiple input variables that determine the probability of satisfying the market condition stipulated in the grant and calculates the fair value of the awards. 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     | 20.5% |
| Risk-free interest rate | 1.2%  |
| Expected dividend yield | 2.2%  |

In addition, during the six months ended 31 March 2016, we granted 148,073 time-based deferred stock units at a weighted-average grant-date fair value of \$136.96.

**Restricted Stock**

During the six months ended 31 March 2016, we issued 32,920 restricted stock units at a grant-date fair value of \$138.00.

**Table of Contents****15. EQUITY**

The following is a summary of the changes in total equity:

|  | Three Months Ended 31 March |  |                 |                 |  |                 |
|--|-----------------------------|--|-----------------|-----------------|--|-----------------|
|  | Air<br>Products             | 2016<br>Non-<br>controlling<br>Interests | Total<br>Equity | Air<br>Products | 2015<br>Non-<br>controlling<br>Interests | Total<br>Equity |
| Balance at 31 December                             | \$ 7,367.1                  | \$ 131.9                                 | \$ 7,499.0      | \$ 7,351.5      | \$ 151.8                                 | \$ 7,503.3      |
| Net income (loss) <sup>(A)</sup>                   | (473.3)                     | 7.8                                      | (465.5)         | 290.0           | 6.9                                      | 296.9           |
| Other comprehensive income (loss)                  | 161.9                       | 2.8                                      | 164.7           | (191.5)         | .6                                       | (190.9)         |
| Dividends on common stock (per share \$.86, \$.81) | (185.8)                     |  | (185.8)         | (173.9)         |  | (173.9)         |
| Dividends to noncontrolling interests              |                             | (6.3)                                    | (6.3)           |                 | (13.1)                                   | (13.1)          |
| Share-based compensation                           | 9.3                         |  | 9.3             | 12.9            |  | 12.9            |
| Treasury shares for stock option and award plans   | 32.8                        |  | 32.8            | 32.8            |  | 32.8            |
| Tax benefit of stock option and award plans        | 4.8                         |  | 4.8             | 9.4             |  | 9.4             |
| Other equity transactions                          | (.2)                        | .3                                       | .1              | 1.3             | (2.4)                                    | (1.1)           |
| Balance at 31 March                                | \$ 6,916.6                  | \$ 136.5                                 | \$ 7,053.1      | \$ 7,332.5      | \$ 143.8                                 | \$ 7,476.3      |

  

|  | Six Months Ended 31 March |  |                 |                 |  |                 |
|--|---------------------------|--|-----------------|-----------------|--|-----------------|
|  | Air<br>Products           | 2016<br>Non-<br>controlling<br>Interests | Total<br>Equity | Air<br>Products | 2015<br>Non-<br>controlling<br>Interests | Total<br>Equity |
| Balance at 30 September                              | \$ 7,249.0                | \$ 132.1                                 | \$ 7,381.1      | \$ 7,365.8      | \$ 155.6                                 | \$ 7,521.4      |
| Net income (loss) <sup>(A)</sup>                     | (109.7)                   | 16.2                                     | (93.5)          | 614.6           | 14.4                                     | 629.0           |
| Other comprehensive income (loss)                    | 79.2                      | 2.8                                      | 82.0            | (420.2)         | (4.5)                                    | (424.7)         |
| Dividends on common stock (per share \$1.67, \$1.58) | (360.5)                   |  | (360.5)         | (339.3)         |  | (339.3)         |
| Dividends to noncontrolling interests                |                           | (14.8)                                   | (14.8)          |                 | (19.3)                                   | (19.3)          |
| Share-based compensation                             | 19.5                      |  | 19.5            | 24.8            |  | 24.8            |
| Treasury shares for stock option and award plans     | 30.8                      |  | 30.8            | 62.9            |  | 62.9            |
| Tax benefit of stock option and award plans          | 9.7                       |  | 9.7             | 22.9            |  | 22.9            |
| Other equity transactions                            | (1.4)                     | .2                                       | (1.2)           | 1.0             | (2.4)                                    | (1.4)           |
| Balance at 31 March                                  | \$ 6,916.6                | \$ 136.5                                 | \$ 7,053.1      | \$ 7,332.5      | \$ 143.8                                 | \$ 7,476.3      |

<sup>(A)</sup> Net income attributable to noncontrolling interests for the three and six months ended 31 March 2015 excludes net income of \$0.0 and \$5.4, respectively, related to redeemable noncontrolling interests, which were not part of total equity. There was no net income related to redeemable noncontrolling interests for the three and six months ended 31 March 2016.

**Table of Contents****16. ACCUMULATED OTHER COMPREHENSIVE LOSS**

The table below summarizes changes in accumulated other comprehensive loss (AOCL), net of tax, attributable to Air Products for the three and six months ended 31 March 2016:

|   | Net loss on<br>derivatives<br>qualifying as<br>hedges | Foreign<br>currency<br>translation<br>adjustments | Pension and<br>postretirement<br>benefits | Total        |
|---|---|---|---|--------------|
| Balance at 31 December 2015                         | \$ (46.2)   | \$ (1,057.0)                                      | \$ (1,105.4)                              | \$ (2,208.6) |
| Other comprehensive income before reclassifications | 12.8  | 139.9   |   | 152.7        |
| Amounts reclassified from AOCL                      | (11.1)  | .4  | 22.7                                      | 12.0         |
| Net current period other comprehensive income       | \$ 1.7  | \$ 140.3  | \$ 22.7                                   | \$ 164.7     |
| Amount attributable to noncontrolling interests     | (.1)  | 2.9   |   | 2.8          |
| Balance at 31 March 2016                            | \$ (44.4)   | \$ (919.6)  | \$ (1,082.7)                              | \$ (2,046.7) |

|  | Net loss on<br>derivatives<br>qualifying<br>as<br>hedges | Foreign<br>currency<br>translation<br>adjustments | Pension and<br>postretirement<br>benefits | Total        |
|--|--|---|---|--------------|
| Balance at 30 September 2015                         | \$ (42.9)  | \$ (956.5)  | \$ (1,126.5)                              | \$ (2,125.9) |
| Other comprehensive income before reclassifications  | 28.8   | 37.0  |   | 65.8         |
| Amounts reclassified from AOCL                       | (30.4)   | 2.8   | 43.8                                      | 16.2         |
| Net current period other comprehensive income (loss) | \$ (1.6)   | \$ 39.8   | \$ 43.8                                   | \$ 82.0      |
| Amount attributable to noncontrolling interests      | (.1)   | 2.9   |   | 2.8          |
| Balance at 31 March 2016                             | \$ (44.4)  | \$ (919.6)  | \$ (1,082.7)                              | \$ (2,046.7) |

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

|  | Three Months Ended<br>31 March |         | Six Months Ended<br>31 March |         |
|--|--------------------------------|---------|------------------------------|---------|
|  | 2016                           | 2015    | 2016                         | 2015    |
| (Gain) Loss on Cash Flow Hedges, net of tax                    |                                |         |                              |         |
| Sales/Cost of sales  | \$ .5                          | \$ .9   | \$ 1.4                       | \$ .3   |
| Other income (expense), net                                    | (13.6)                         | 16.0    | (36.0)                       | 30.1    |
| Interest expense   | 2.0                            | .7      | 4.2                          | .7      |
| Total (Gain) Loss on Cash Flow Hedges, net of tax              | \$ (11.1)                      | \$ 17.6 | \$ (30.4)                    | \$ 31.1 |
| Currency Translation Adjustment <sup>(A)</sup>                 | \$ .4                          | \$      | \$ 2.8                       | \$      |
| Pension and Postretirement Benefits, net of tax <sup>(B)</sup> | \$ 22.7                        | \$ 28.6 | \$ 43.8                      | \$ 49.5 |

<sup>(A)</sup> The impact is reflected in Other income (expense), net and primarily relates to the sale of an equity affiliate in the first quarter of 2016. Refer to Note 8, Equity Affiliates.

<sup>(B)</sup> 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 12, Retirement Benefits.

**Table of Contents****17. EARNINGS PER SHARE**

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

|   | Three Months Ended<br>31 March |                 | Six Months Ended<br>31 March |                 |
|---|--------------------------------|-----------------|------------------------------|-----------------|
|   | 2016                           | 2015            | 2016                         | 2015            |
| <b>Numerator</b>  |                                |                 |                              |                 |
| Income from continuing operations                                     | \$ 379.8                       | \$ 291.9        | \$ 757.6                     | \$ 618.2        |
| Loss from discontinued operations                                     | (853.1)                        | (1.9)           | (867.3)                      | (3.6)           |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (473.3)</b>              | <b>\$ 290.0</b> | <b>\$ (109.7)</b>            | <b>\$ 614.6</b> |
| <b>Denominator (in millions)</b>                                      |                                |                 |                              |                 |
| Weighted average number of common shares Basic                        | 216.1                          | 214.9           | 215.9                        | 214.5           |
| Effect of dilutive securities   |                                |                 |                              |                 |
| Employee stock option and other award plans                           | 1.8                            | 2.5             | 1.9                          | 2.5             |
| Weighted average number of common shares Diluted                      | 217.9                          | 217.4           | 217.8                        | 217.0           |
| <b>Basic Earnings Per Common Share Attributable to Air Products</b>   |                                |                 |                              |                 |
| Income from continuing operations                                     | \$ 1.76                        | \$ 1.36         | \$ 3.51                      | \$ 2.89         |
| Loss from discontinued operations                                     | (3.95)                         | (.01)           | (4.02)                       | (.02)           |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (2.19)</b>               | <b>\$ 1.35</b>  | <b>\$ (.51)</b>              | <b>\$ 2.87</b>  |
| <b>Diluted Earnings Per Common Share Attributable to Air Products</b> |                                |                 |                              |                 |
| Income from continuing operations                                     | \$ 1.74                        | \$ 1.34         | \$ 3.47                      | \$ 2.85         |
| Loss from discontinued operations                                     | (3.91)                         | (.01)           | (3.98)                       | (.02)           |
| <b>Net Income (Loss) Attributable to Air Products</b>                 | <b>\$ (2.17)</b>               | <b>\$ 1.33</b>  | <b>\$ (.51)</b>              | <b>\$ 2.83</b>  |

Outstanding share-based awards of .2 million shares were antidilutive and therefore excluded from the computation of diluted earnings per share for the three and six months ended 31 March 2016. Outstanding share-based awards of .2 and .3 million shares were antidilutive and therefore excluded from the computation of diluted earnings per share for the three and six months ended 31 March 2015, respectively.

**18. SUPPLEMENTAL INFORMATION****Cash Paid for Taxes (Net of Cash Refunds)**

Income tax payments, net of refunds, were \$177.9 and \$155.8 for the six months ended 31 March 2016 and 31 March 2015, respectively.

**Table of Contents****19. BUSINESS SEGMENT INFORMATION**

Our 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.

Our reporting segments are:

Industrial Gases Americas

Industrial Gases EMEA (Europe, Middle East, and Africa)

Industrial Gases Asia

Industrial Gases Global

Materials Technologies

Corporate and other

**Business Segment**

|                                  | Industrial<br>Gases<br>Americas | Industrial<br>Gases<br>EMEA | Industrial<br>Gases<br>Asia | Industrial<br>Gases<br>Global | Materials<br>Technologies | Corporate<br>and other | Segment<br>Total |
|----------------------------------|---------------------------------|-----------------------------|-----------------------------|-------------------------------|---------------------------|------------------------|------------------|
| <b>Three Months Ended</b>        |                                 |                             |                             |                               |                           |                        |                  |
| <b>31 March 2016</b>             |                                 |                             |                             |                               |                           |                        |                  |
| Sales                            | \$ 797.9                        | \$ 420.3                    | \$ 406.4                    | \$ 86.6                       | \$ 494.3                  | \$ 65.7                | \$ 2,271.2       |
| Operating income (loss)          | 224.2                           | 89.4                        | 104.4                       | (10.9)                        | 129.3                     | (4.5)                  | 531.9            |
| Depreciation and amortization    | 109.4                           | 48.3                        | 48.5                        | 1.8                           | 20.0                      | 4.1                    | 232.1            |
| Equity affiliates income         | 7.7                             | 7.2                         | 17.4                        |                               | .2                        |                        | 32.5             |
| <b>Three Months Ended</b>        |                                 |                             |                             |                               |                           |                        |                  |
| <b>31 March 2015</b>             |                                 |                             |                             |                               |                           |                        |                  |
| Sales                            | \$ 890.4                        | \$ 448.8                    | \$ 393.0                    | \$ 67.1                       | \$ 533.3                  | \$ 81.9                | \$ 2,414.5       |
| Operating income (loss)          | 182.0                           | 71.0                        | 84.7                        | (7.9)                         | 124.2                     | (9.1)                  | 444.9            |
| Depreciation and amortization    | 103.3                           | 47.6                        | 50.3                        | 5.5                           | 23.3                      | 3.3                    | 233.3            |
| Equity affiliates income (loss)  | 15.1                            | 8.0                         | 9.4                         | (.2)                          | .7                        |                        | 33.0             |
| <b>Six Months Ended 31 March</b> |                                 |                             |                             |                               |                           |                        |                  |
| <b>2016</b>                      |                                 |                             |                             |                               |                           |                        |                  |
| Sales                            | \$ 1,634.0                      | \$ 858.6                    | \$ 819.6                    | \$ 190.9                      | \$ 984.3                  | \$ 139.6               | \$ 4,627.0       |
| Operating income (loss)          | 436.0                           | 181.1                       | 221.1                       | (30.2)                        | 256.5                     | (10.0)                 | 1,054.5          |
| Depreciation and amortization    | 218.2                           | 95.0                        | 100.2                       | 3.9                           | 39.6                      | 7.9                    | 464.8            |
| Equity affiliates income (loss)  | 22.2                            | 14.8                        | 29.1                        | (.5)                          | .6                        |                        | 66.2             |
| <b>Six Months Ended 31 March</b> |                                 |                             |                             |                               |                           |                        |                  |
| <b>2015</b>                      |                                 |                             |                             |                               |                           |                        |                  |
| Sales                            | \$ 1,893.4                      | \$ 949.6                    | \$ 791.7                    | \$ 126.1                      | \$ 1,057.3                | \$ 157.2               | \$ 4,975.3       |

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|                               |            |            |            |          |            |            |             |
|-------------------------------|------------|------------|------------|----------|------------|------------|-------------|
| Operating income (loss)       | 393.2      | 152.3      | 175.2      | (25.8)   | 228.8      | (32.0)     | 891.7       |
| Depreciation and amortization | 206.9      | 98.7       | 99.9       | 9.8      | 47.3       | 6.2        | 468.8       |
| Equity affiliates income      | 32.3       | 18.3       | 24.0       | .2       | 1.3        |            | 76.1        |
| <b>Total Assets</b>           |            |            |            |          |            |            |             |
| 31 March 2016                 | \$ 5,899.2 | \$ 3,314.4 | \$ 4,215.5 | \$ 278.6 | \$ 1,735.1 | \$ 1,347.6 | \$ 16,790.4 |
| 30 September 2015             | 5,774.9    | 3,323.9    | 4,154.0    | 370.5    | 1,741.9    | 1,075.7    | 16,440.9    |

The sales information noted above relates to external customers only. All intersegment sales are eliminated in consolidation. For the three and six months ended 31 March 2016, the Industrial Gases Global segment had intersegment sales of \$56.6 and \$111.2, respectively. For the three and six months ended 31 March 2015, the Industrial Gases Global segment had intersegment sales of \$54.1 and \$113.7, respectively. 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 industrial gases segments is generally transferred at cost and not reflected as an intersegment sale.

**Table of Contents**

Below is a reconciliation of segment total operating income to consolidated operating income:

|   | Three Months Ended |          | Six Months Ended |          |
|---|--------------------|----------|------------------|----------|
|   | 31 March           |          | 31 March         |          |
| Operating Income                                  | 2016               | 2015     | 2016             | 2015     |
| Segment total                                     | \$ 531.9           | \$ 444.9 | \$ 1,054.5       | \$ 891.7 |
| Business separation costs                         | (7.4)              |          | (19.4)           |          |
| Business restructuring and cost reduction actions | (8.6)              | (55.4)   | (8.6)            | (87.8)   |
| Pension settlement loss                           | (2.6)              | (12.6)   | (2.6)            | (12.6)   |
| Gain on previously held equity interest           |                    |          |                  | 17.9     |
| <b>Consolidated Total</b>                         | \$ 513.3           | \$ 376.9 | \$ 1,023.9       | \$ 809.2 |

Below is a reconciliation of segment total assets to consolidated total assets:

|                           | 31 March    | 30 September |
|---------------------------|-------------|--------------|
|                           | 2016        | 2015         |
| Total Assets              |             |              |
| Segment total             | \$ 16,790.4 | \$ 16,440.9  |
| Discontinued operations   | 20.4        | 893.6        |
| <b>Consolidated Total</b> | \$ 16,810.8 | \$ 17,334.5  |

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**Table of Contents**

**Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations**

**(Millions of dollars, except for share data)**

The disclosures in this quarterly report are complementary to those made in our 2015 Form 10-K. An analysis of results for the second quarter and first six months of 2016 is provided in the Management's Discussion and Analysis to follow.

On 29 March 2016, the Board of Directors approved the Company's exit of its Energy-from-Waste (EfW) business and efforts to start up and operate the two EfW projects located in Tees Valley, United Kingdom, have been discontinued. As a result, the EfW segment has been presented as a discontinued operation. Prior year EfW business segment information has been reclassified to conform to current year presentation.

The discussion that follows, unless otherwise indicated, is on a continuing operations basis. 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.

Captions 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 of non-GAAP financial measures. Included in these non-GAAP measures is Adjusted EBITDA, which we believe to be a useful metric to assess operating performance. 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 44-47. Descriptions of the excluded items appear on pages 31 and 39.

**SECOND QUARTER 2016 VS. SECOND QUARTER 2015**

**SECOND QUARTER 2016 IN SUMMARY**

Sales of \$2,271.2 decreased 6%, or \$143.3, due to an unfavorable currency impact of 3% and lower energy contractual pass-through to customers of 3%.

Operating income of \$513.3 increased 36%, or \$136.4, and operating margin of 22.6% increased 700 basis points (bp). On a non-GAAP basis, operating income of \$531.9 increased 20%, or \$87.0, and operating margin of 23.4% increased 500 bp. The increase in operating margin is primarily due to favorable cost performance from business restructuring and cost reduction actions.

Adjusted EBITDA of \$796.5 increased 12%, or \$85.3, primarily due to favorable cost performance. Adjusted EBITDA margin of 35.1% increased 560 bp.

Income from continuing operations of \$379.8 increased 30%, or \$87.9, and diluted earnings per share of \$1.74 increased 30%, or \$.40. On a non-GAAP basis, income from continuing operations of \$397.4 increased 18%, or \$59.4, and diluted earnings per share of \$1.82 increased 17%, or \$.26. A summary table of changes in diluted earnings per share is presented below.

We increased our quarterly dividend by 6% from \$.81 to \$.86 per share. This represents the 34<sup>th</sup> consecutive year that we increased our dividend payment.

We committed to exit the Energy-from-Waste business.



**Table of Contents****Changes in Diluted Earnings per Share Attributable to Air Products Non-GAAP Basis**

|   | Three Months Ended<br>31 March |                | Increase<br>(Decrease) |
|---|--------------------------------|----------------|------------------------|
|   | 2016                           | 2015           |                        |
| <b>Diluted Earnings per Share</b>   |                                |                |                        |
| Net Income (Loss)   | \$ (2.17)                      | \$ 1.33        | \$ (3.50)              |
| Loss from Discontinued Operations   | (3.91)                         | (.01)          | (3.90)                 |
| <b>Income from Continuing Operations GAAP Basis</b>   | <b>\$ 1.74</b>                 | <b>\$ 1.34</b> | <b>\$ .40</b>          |
| Business separation costs   | .04                            |                | .04                    |
| Business restructuring and cost reduction actions   | .03                            | .18            | (.15)                  |
| Pension settlement loss   | .01                            | .04            | (.03)                  |
| <b>Income from Continuing Operations Non-GAAP Basis</b>                                     | <b>\$ 1.82</b>                 | <b>\$ 1.56</b> | <b>\$ .26</b>          |
| <b>Operating Income (after-tax)</b>   |                                |                |                        |
| Underlying business   |                                |                |                        |
| Volume  |                                |                | \$ (.10)               |
| Price/raw materials   |                                |                | .08                    |
| Costs   |                                |                | .36                    |
| Currency  |                                |                | (.05)                  |
| <b>Operating Income</b>   |                                |                | <b>\$ .29</b>          |
| <b>Other (after-tax)</b>  |                                |                |                        |
| Interest expense  |                                |                | (.01)                  |
| Income tax  |                                |                | (.02)                  |
| <b>Other</b>  |                                |                | <b>\$ (.03)</b>        |
| <b>Total Change in Diluted Earnings per Share from Continuing Operations Non-GAAP Basis</b> |                                |                | <b>\$ .26</b>          |
| <b>RESULTS OF OPERATIONS</b>  |                                |                |                        |

**Discussion of Consolidated Results**

|                          | Three Months Ended<br>31 March |            |            |        |
|--------------------------|--------------------------------|------------|------------|--------|
|                          | 2016                           | 2015       | \$ Change  | Change |
| Sales                    | \$ 2,271.2                     | \$ 2,414.5 | \$ (143.3) | (6)%   |
| Operating income         | 513.3                          | 376.9      | 136.4      | 36%    |
| Operating margin         | 22.6%                          | 15.6%      |            | 700bp  |
| Equity affiliates income | 32.5                           | 33.0       | (.5)       | (2)%   |
| <b>Non-GAAP Basis</b>    |                                |            |            |        |
| Adjusted EBITDA          | \$ 796.5                       | \$ 711.2   | \$ 85.3    | 12%    |
| Adjusted EBITDA margin   | 35.1%                          | 29.5%      |            | 560bp  |
| Operating income         | 531.9                          | 444.9      | 87.0       | 20%    |
| Operating margin         | 23.4%                          | 18.4%      |            | 500bp  |

**Table of Contents****Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                       |                             |
| Volume                                    | %                           |
| Price                                     | %                           |
| Currency                                  | (3)%                        |
| Energy and raw material cost pass-through | (3)%                        |
| <b>Total Consolidated Change</b>          | <b>(6)%</b>                 |

Underlying sales were flat. Volumes related to our Jazan sale of equipment project increased sales by 1%. All other volumes decreased sales by 1%. Price was also flat as increases in the Industrial Gases Americas and Industrial Gases EMEA segments were mostly offset by lower prices in Industrial Gases Asia. Currency and energy contractual cost pass-through to customers each lowered sales by 3%.

**Operating Income and Margin**

Operating income of \$513.3 increased 36%, or \$136.4, as favorable operating costs of \$106 and favorable pricing net of raw material costs of \$24, were partially offset by lower volumes of \$30 and unfavorable currency impacts of \$13. Additionally, current year operating income included cost reduction actions of \$9, business separation costs of \$7, and pension settlement loss of \$3. The prior year also included a charge of \$55 for business restructuring and cost reduction actions and a pension settlement loss of \$13. Operating costs were lower primarily due to benefits from our cost reduction actions, lower incentive compensation, and pension expense. Operating margin of 22.6% increased 700 bp.

On a non-GAAP basis, operating income of \$531.9 increased 20%, or \$87.0, and operating margin of 23.4% increased 500 bp primarily due to lower operating and raw material costs, partially offset by lower volumes.

**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.

Adjusted EBITDA of \$796.5 increased 12%, or \$85.3, primarily due to favorable costs partially offset by lower volumes. Adjusted EBITDA margin of 35.1% increased 560 bp.

**Equity Affiliates Income**

Income from equity affiliates of \$32.5 decreased \$.5 as higher income from Industrial Gases Asia affiliates was offset by lower income from Industrial Gases Americas affiliates.

**Cost of Sales and Gross Margin**

Cost of sales of \$1,519.0 decreased \$179.2, due to lower operating costs of \$81, lower energy costs of \$64, and favorable currency impact of \$48, partially offset by higher costs attributable to sales volumes of \$14. Operating costs included favorable impacts from cost reduction actions of \$18, lower maintenance of \$13, and lower incentive compensation of \$12. Costs associated with volumes were higher primarily due to the Jazan sale of equipment activity for which we did not record profit in the second quarter of 2016.

Gross margin of 33.1% increased 340 bp, primarily due to favorable costs, including lower energy pass-through, of 440 bp, partially offset by unfavorable volume mix of 110 bp.

**Selling and Administrative Expense**

Selling and administrative expense of \$207.1 decreased \$33.2, primarily due to the benefits of our cost reduction actions of \$23 and lower incentive compensation of \$9. Selling and administrative expense, as a percent of sales, decreased from 10.0% to 9.1%.

**Research and Development**

Research and development expense of \$32.7 decreased \$3.1. Research and development expense, as a percent of sales, decreased from 1.5% in 2015 to 1.4% in 2016.

**Table of Contents****Business Separation Costs**

On 16 September 2015, the Company announced plans to separate its Materials Technologies business into an independent publicly traded company and distribute to Air Products shareholders all of the shares of the new public company in a tax free distribution (a spin-off). Versum Materials, LLC, or Versum, was formed as the new company to hold the Materials Technologies business in November 2015 and is currently a wholly owned subsidiary of the Company. The Company expects to complete the work to prepare Versum to be a separate and independent company during fiscal year 2016 and is assessing market conditions to determine favorability for a spin-off. Versum will be converted from a limited liability company to a Delaware corporation (Versum Materials, Inc.) prior to spin-off. During the three months ended 31 March 2016, we incurred separation costs of \$7.4 (\$8.9 including tax impact, or \$.04 per share), primarily related to legal and other advisory fees.

**Business Restructuring and Cost Reduction Actions**

During the three months ended 31 March 2016, we recognized an expense of \$8.6 (\$7.1 after-tax, or \$.03 per share) for severance and other benefits related to the elimination of approximately 170 positions as part of cost reduction actions. We expect to incur costs associated with other cost savings initiatives in future periods.

Through fiscal year 2015, we incurred severance and other charges related to the reorganization of the Company, including realignment of our businesses in new reporting segments. During the three months ended 31 March 2015, we recognized an expense of \$55.4 (\$38.2 after-tax, or \$.18 per share). Refer to Note 5, Business Restructuring and Cost Reduction Actions, for additional details.

**Pension Settlement**

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 settlement losses are 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. During the three months ended 31 March 2016 and 2015, we recognized a pension settlement charge of \$2.6 (\$1.6 after-tax, or \$.01 per share) and \$12.6 (\$7.9 after-tax, or \$.04 per share), respectively, associated with our U.S. supplemental pension plan. This settlement accelerated the recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss. We expect that additional settlement losses will be recognized during the second half of the fiscal year.

**Other Income (Expense), Net**

Other income (expense), net of \$19.5 increased \$14.8 primarily due to contract settlement gains and a favorable foreign exchange impact.

**Interest Expense**

|                            | Three Months<br>Ended 31 March |         |
|----------------------------|--------------------------------|---------|
|                            | 2016                           | 2015    |
| Interest incurred          | \$ 36.2                        | \$ 35.5 |
| Less: capitalized interest | 10.5                           | 12.1    |
| Interest expense           | \$ 25.7                        | \$ 23.4 |

Interest incurred increased \$.7. The increase resulted primarily from a higher average interest rate on the debt portfolio and a higher average debt balance, partially offset by the impact of a stronger U.S. dollar on the translation of foreign currency interest. The change in capitalized interest was driven by a decrease in the carrying value of projects under construction. We expect less capitalized interest and, as a result, higher interest expense in future periods due to the exit of the Energy-from-Waste business.

**Effective Tax Rate**

The effective tax rate equals the income tax provision divided by income from continuing operations before taxes. The effective tax rate was 25.5% and 22.7% in the second quarter of 2016 and 2015, respectively. The 280 bp increase was primarily due to the increase in and mix of income in jurisdictions with a higher effective tax rate and business separation costs for which a tax benefit was not available. On a non-GAAP basis, the effective tax rate increased 70 bp from 24.1% in 2015 to 24.8% in 2016, primarily due to the increase in and mix of income in jurisdictions with a higher effective tax rate.



**Table of Contents****Discontinued Operations**

On 29 March 2016, the Board of Directors approved the Company's exit of its Energy-from-Waste (EfW) business. As a result, efforts to start up and operate its two EfW projects located in Tees Valley, United Kingdom have been discontinued. The decision to exit the business and stop development of the projects was based on continued difficulties encountered; and the Company's conclusion, based on testing and analysis completed during the second fiscal quarter of 2016, that significant additional time and resources would be required to make the projects operational. In addition, the decision allows the Company to execute its strategy of focusing resources on its core Industrial Gases business. As a result, the EfW business segment has been presented as a discontinued operation. Prior year EfW business segment information has been reclassified to conform to current year presentation. During the three months ended 31 March 2016, a loss on disposal, net of tax, of \$846.6 was recorded, primarily to write-down assets to their estimated net realizable value and record a liability for plant disposition and other costs. We expect additional exit costs of \$50 to \$100 to be recorded in future periods.

The loss from operations of discontinued operations, net of tax, of \$6.5 and \$1.9 for the three months ended 31 March 2016 and 2015, respectively, includes costs for the land lease and commercial and administrative expenses.

Refer to Note 2, Discontinued Operations, for additional details.

**Segment Analysis****Industrial Gases Americas**

|                           | Three Months<br>Ended 31 March |          | \$ Change | % Change |
|---------------------------|--------------------------------|----------|-----------|----------|
|                           | 2016                           | 2015     |           |          |
| Sales                     | \$ 797.9                       | \$ 890.4 | \$ (92.5) | (10)%    |
| Operating income          | 224.2                          | 182.0    | 42.2      | 23%      |
| Operating margin          | 28.1%                          | 20.4%    |           | 770bp    |
| Equity affiliates' income | 7.7                            | 15.1     | (7.4)     | (49)%    |
| Adjusted EBITDA           | 341.3                          | 300.4    | 40.9      | 14%      |
| Adjusted EBITDA margin    | 42.8%                          | 33.7%    |           | 910bp    |

**Industrial Gases Americas Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                                 |                             |
| Volume  | (2)%                        |
| Price   | 1%                          |
| Currency  | (3)%                        |
| Energy and raw material cost pass-through           | (6)%                        |
| <b>Total Industrial Gases Americas Sales Change</b> | <b>(10)%</b>                |

Underlying sales decreased 1% as lower volumes of 2% were partially offset by higher pricing of 1%. Volumes were down due to weakness in Latin America and in the North America steel and oil field services markets. Pricing was higher due to the benefit of pricing actions, including recovery of inflationary and power cost increases in Latin America. Lower energy contractual cost pass-through to customers, primarily related to natural gas, decreased sales by 6%. In addition, currency reduced sales by 3% primarily due to the weakening of the Chilean Peso, Brazilian Real, and Canadian Dollar.

**Industrial Gases Americas Operating Income and Margin**

Operating income of \$224.2 increased \$42.2, as favorable operating costs of \$51 and higher pricing net of energy and fuel costs of \$4 were partially offset by lower volumes of \$8 and unfavorable currency impacts of \$5. Operating costs were lower due to benefits from cost reduction actions and lower maintenance. Operating margin of 28.1% increased 770 bp from the prior year primarily due to favorable cost performance.

**Industrial Gases Americas Equity Affiliates Income**

Equity affiliates income of \$7.7 decreased \$7.4, primarily due to currency and higher maintenance expense.

**Table of Contents****Industrial Gases Europe, Middle East, and Africa (EMEA)**

|                          | Three Months<br>Ended 31 March |          | \$ Change | % Change |
|--------------------------|--------------------------------|----------|-----------|----------|
|                          | 2016                           | 2015     |           |          |
| Sales                    | \$ 420.3                       | \$ 448.8 | \$ (28.5) | (6)%     |
| Operating income         | 89.4                           | 71.0     | 18.4      | 26%      |
| Operating margin         | 21.3%                          | 15.8%    |           | 550bp    |
| Equity affiliates income | 7.2                            | 8.0      | (.8)      | (10)%    |
| Adjusted EBITDA          | 144.9                          | 126.6    | 18.3      | 14%      |
| Adjusted EBITDA margin   | 34.5%                          | 28.2%    |           | 630bp    |

**Industrial Gases EMEA Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                             |                             |
| Volume  | (1)%                        |
| Price   | 2%                          |
| Currency  | (3)%                        |
| Energy and raw material cost pass-through       | (4)%                        |
| <b>Total Industrial Gases EMEA Sales Change</b> | <b>(6)%</b>                 |

Underlying sales increased 1% as higher pricing of 2% was partially offset by lower volume of 1%. Sales improved from ongoing pricing actions. Volumes decreased from continued weakness in the region. Unfavorable currency impacts, primarily from the Euro, the British Pound Sterling, and the Polish Zloty, reduced sales by 3%. Lower energy and natural gas contractual cost pass-through to customers decreased sales by 4%.

**Industrial Gases EMEA Operating Income and Margin**

Operating income of \$89.4 increased by 26%, or \$18.4, primarily due to favorable costs, driven by cost reduction actions, of \$19 and higher pricing net of energy and fuel costs of \$7, partially offset by unfavorable volumes of \$5 and unfavorable currency impacts of \$3. Operating margin of 21.3% increased 550 bp from the prior year, primarily due to favorable cost performance and higher pricing, partially offset by lower volumes.

**Industrial Gases EMEA Equity Affiliates Income**

Equity affiliates income of \$7.2 decreased \$.8.

**Table of Contents****Industrial Gases Asia**

|                          | Three Months<br>Ended 31 March |          | \$ Change | % Change |
|--------------------------|--------------------------------|----------|-----------|----------|
|                          | 2016                           | 2015     |           |          |
| Sales                    | \$ 406.4                       | \$ 393.0 | \$ 13.4   | 3%       |
| Operating income         | 104.4                          | 84.7     | 19.7      | 23%      |
| Operating margin         | 25.7%                          | 21.6%    |           | 410bp    |
| Equity affiliates income | 17.4                           | 9.4      | 8.0       | 85%      |
| Adjusted EBITDA          | 170.3                          | 144.4    | 25.9      | 18%      |
| Adjusted EBITDA margin   | 41.9%                          | 36.7%    |           | 520bp    |

**Industrial Gases Asia Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                             |                             |
| Volume  | 10%                         |
| Price   | (1)%                        |
| Currency  | (6)%                        |
| Energy and raw material cost pass-through       | %                           |
| <b>Total Industrial Gases Asia Sales Change</b> | <b>3%</b>                   |

Underlying sales increased by 9% from higher volumes of 10%, partially offset by lower pricing of 1%. Volumes increased primarily due to new plants in China and higher merchant volumes. Pricing was down due to continued pricing pressure on the merchant market in China due to overcapacity. Unfavorable currency impacts, primarily from the Chinese Renminbi, Korean Won, and Taiwanese Dollar decreased sales by 6%.

**Industrial Gases Asia Operating Income and Margin**

Operating income of \$104.4 increased 23%, or \$19.7, primarily due to lower operating costs of \$17 and higher volumes of \$8, partially offset by an unfavorable currency impact of \$5. The lower operating costs include the benefit of our cost reduction actions. Operating margin increased 410 bp from the prior year, primarily due to favorable cost performance.

**Industrial Gases Asia Equity Affiliates Income**

Equity affiliates income of \$17.4 increased \$8.0, primarily due to a favorable contract termination, higher volumes, and improved cost performance.

**Table of Contents****Industrial Gases Global**

|                 | Three Months<br>Ended 31 March |         |           |          |
|-----------------|--------------------------------|---------|-----------|----------|
|                 | 2016                           | 2015    | \$ Change | % Change |
| Sales           | \$ 86.6                        | \$ 67.1 | \$ 19.5   | 29%      |
| Operating loss  | (10.9)                         | (7.9)   | (3.0)     | (38)%    |
| Adjusted EBITDA | (9.1)                          | (2.6)   | (6.5)     | (250)%   |

**Industrial Gases Global Sales and Operating Loss**

The Industrial Gases Global segment includes sales of cryogenic and gas processing equipment for air separation and centralized global costs associated with management of all the regional Industrial Gases segments.

Sales of \$86.6 increased \$19.5, or 29%. The increase in sales was driven by a sale of equipment contract for multiple air separation units that will serve Saudi Aramco's Jazan oil refinery and power plant in Saudi Arabia which more than offset the decrease in small equipment and other air separation unit sales. During the second quarter of 2016, we recognized \$30 of sales related to the Jazan project. Due to uncertainty over costs to complete the project, no profit has been recognized.

Operating loss of \$10.9 increased \$3.0, as a gain associated with the cancellation of a sale of equipment contract in the prior year was partially offset by the benefit of our cost reduction actions.

**Materials Technologies**

|                        | Three Months<br>Ended 31 March |          |           |          |
|------------------------|--------------------------------|----------|-----------|----------|
|                        | 2016                           | 2015     | \$ Change | % Change |
| Sales                  | \$ 494.3                       | \$ 533.3 | \$ (39.0) | (7)%     |
| Operating income       | 129.3                          | 124.2    | 5.1       | 4%       |
| Operating margin       | 26.2%                          | 23.3%    |           | 290bp    |
| Adjusted EBITDA        | 149.5                          | 148.2    | 1.3       | 1%       |
| Adjusted EBITDA margin | 30.2%                          | 27.8%    |           | 240bp    |

**Materials Technologies Sales**

|  | % Change from<br>Prior Year |
|--|-----------------------------|
| Underlying business                              |                             |
| Volume   | (6)%                        |
| Price  | %                           |
| Currency   | (1)%                        |
| <b>Total Materials Technologies Sales Change</b> | <b>(7)%</b>                 |

Underlying sales decreased by 6% from lower volumes. Electronic Materials underlying sales decreased 8% as lower delivery system volumes were partially offset by higher pricing. Performance Materials underlying sales decreased 4% from lower volumes of 2% and lower pricing of 2%. Epoxy volumes were lower due to the weakness in oil and gas and marine coatings end markets. Additives volumes were lower due to the oil and gas and mining markets. Unfavorable currency impacts decreased sales by 1%.

**Materials Technologies Operating Income and Margin**

Operating income of \$129.3 increased 4%, or \$5.1, primarily from favorable pricing and mix, net of raw material costs, of \$13 and lower costs of \$3, partially offset by lower volumes of \$7 and unfavorable currency impacts of \$4. Operating margin of 26.2% increased 290 bp, primarily

from the favorable raw material cost and favorable cost performance.

**Table of Contents****Corporate and other**

|                 | Three Months<br>Ended 31 March |         |           |          |
|-----------------|--------------------------------|---------|-----------|----------|
|                 | 2016                           | 2015    | \$ Change | % Change |
| Sales           | \$ 65.7                        | \$ 81.9 | \$ (16.2) | (20)%    |
| Operating loss  | (4.5)                          | (9.1)   | 4.6       | 51%      |
| Adjusted EBITDA | (.4)                           | (5.8)   | 5.4       | 93%      |

**Corporate and other Sales and Operating Loss**

Sales of \$65.7 decreased \$16.2 primarily due to lower liquefied natural gas (LNG) project activity. We expect continued weakness in LNG project activity in future periods. Operating loss of \$4.5 decreased \$4.6 due to benefits from our cost reduction actions.

**FIRST SIX MONTHS 2016 VS. FIRST SIX MONTHS 2015****FIRST SIX MONTHS 2016 IN SUMMARY**

Sales of \$4,627.0 decreased 7%, or \$348.3, as underlying sales growth of 1% was more than offset by unfavorable currency impacts of 4% and lower energy contractual cost pass-through to customers of 4%. The underlying sales growth was primarily from higher price in the Industrial Gases Americas, Industrial Gases EMEA, and Materials Technologies segments.

Operating income of \$1,023.9 increased 27%, or \$214.7, and operating margin of 22.1% increased 580 bp, primarily due to lower costs. On a non-GAAP basis, operating income of \$1,054.5 increased 18%, or \$162.8, and operating margin of 22.8% increased 490 bp.

Adjusted EBITDA of \$1,585.5, increased 10%, or \$148.9, primarily due to favorable cost performance. Adjusted EBITDA margin of 34.3% increased 540 bp.

Income from continuing operations of \$757.6 increased 23%, or \$139.4, and diluted earnings per share of \$3.47 increased 22%, or \$.62. On a non-GAAP basis, income from continuing operations of \$787.2 increased 17%, or \$112.4, and diluted earnings per share of \$3.61 increased 16%, or \$.50. A summary table of changes in diluted earnings per share is presented below.

We increased our quarterly dividend by 6% from \$.81 to \$.86 per share. This represents the 34<sup>th</sup> consecutive year that we have increased our dividend payment.

We committed to exit the Energy-from-Waste business.

**Table of Contents****Changes in Diluted Earnings per Share Attributable to Air Products Non-GAAP Basis**

|   | Six Months Ended<br>31 March |                | Increase<br>(Decrease) |
|---|------------------------------|----------------|------------------------|
|   | 2016                         | 2015           |                        |
| <b>Diluted Earnings per Share</b>   |                              |                |                        |
| Net Income (Loss)   | \$ (.51)                     | \$ 2.83        | \$ (3.34)              |
| Loss from Discontinued Operations   | (3.98)                       | (.02)          | (3.96)                 |
| <b>Diluted Earnings per Share GAAP Basis</b>  | <b>\$ 3.47</b>               | <b>\$ 2.85</b> | <b>\$ .62</b>          |
| Business separation costs   | .10                          |                | .10                    |
| Business restructuring and cost reduction actions   | .03                          | .27            | (.24)                  |
| Pension settlement loss   | .01                          | .04            | (.03)                  |
| Gain on previously held equity interest   |                              | (.05)          | .05                    |
| <b>Diluted Earnings per Share Non-GAAP Basis</b>  | <b>\$ 3.61</b>               | <b>\$ 3.11</b> | <b>\$ .50</b>          |
| <b>Operating Income (after-tax)</b>   |                              |                |                        |
| Underlying business   |                              |                |                        |
| Volume  |                              |                | \$ (.08)               |
| Price/raw materials   |                              |                | .22                    |
| Costs   |                              |                | .55                    |
| Currency  |                              |                | (.13)                  |
| <b>Operating Income</b>   |                              |                | <b>\$ .56</b>          |
| <b>Other (after-tax)</b>  |                              |                |                        |
| Equity affiliates income  |                              |                | (.03)                  |
| Interest expense  |                              |                | .01                    |
| Income tax  |                              |                | (.05)                  |
| Noncontrolling interests  |                              |                | .02                    |
| Weighted average diluted shares   |                              |                | (.01)                  |
| <b>Other</b>  |                              |                | <b>\$ (.06)</b>        |
| <b>Total Change in Diluted Earnings per Share from Continuing Operations Non-GAAP Basis</b> |                              |                | <b>\$ .50</b>          |

**RESULTS OF OPERATIONS****Discussion of Consolidated Results**

|                          | Six Months<br>Ended 31 March |            |            |        |
|--------------------------|------------------------------|------------|------------|--------|
|                          | 2016                         | 2015       | \$ Change  | Change |
| Sales                    | \$ 4,627.0                   | \$ 4,975.3 | \$ (348.3) | (7)%   |
| Operating income         | 1,023.9                      | 809.2      | 214.7      | 27%    |
| Operating margin         | 22.1%                        | 16.3%      |            | 580bp  |
| Equity affiliates income | 66.2                         | 76.1       | (9.9)      | (13)%  |
| <b>Non-GAAP Basis</b>    |                              |            |            |        |
| Adjusted EBITDA          | 1,585.5                      | 1,436.6    | 148.9      | 10%    |
| Adjusted EBITDA margin   | 34.3%                        | 28.9%      |            | 540bp  |
| Operating income         | 1,054.5                      | 891.7      | 162.8      | 18%    |
| Operating margin         | 22.8%                        | 17.9%      |            | 490bp  |

**Table of Contents**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| <b>Sales</b>                              |                             |
| Underlying business                       |                             |
| Volume                                    | %                           |
| Price                                     | 1%                          |
| Currency                                  | (4)%                        |
| Energy and raw material cost pass-through | (4)%                        |
| <b>Total Consolidated Change</b>          | <b>(7)%</b>                 |

Underlying sales were up 1% from higher pricing. Volumes were flat as our Jazan sale of equipment project increased sales by 2% while all other volumes decreased sales by 2%. The favorable pricing was primarily in the Industrial Gases Americas, Industrial Gases EMEA and Materials Technologies segments. Currency unfavorably impacted sales by 4% and lower energy contractual cost pass-through to customers decreased sales by 4%.

**Operating Income and Margin**

Operating income of \$1,023.9 increased 27%, or \$214.7, as lower operating costs of \$158, favorable pricing net of energy and fuel costs of \$65, lower business restructuring and cost reduction actions of \$79, and lower pension settlement losses of \$10, were partially offset by unfavorable currency impacts of \$36, and lower volumes of \$24. In addition, the current year included business separation costs of \$19 and the prior year included a gain of \$18 on a previously held equity interest. Operating costs were lower due to benefits from our cost reduction actions of \$98, lower maintenance expense of \$28, lower incentive compensation of \$21, and lower other costs of \$11. Operating margin of 22.1% increased 580 bp, primarily due to favorable costs and higher pricing, net of raw materials costs. On a non-GAAP basis, operating income of \$1,054.5 increased 18%, or \$162.8, and operating margin of 22.8% increased 490 bp.

**Adjusted EBITDA**

Adjusted EBITDA of \$1,585.5 increased 10%, or \$148.9, primarily due to favorable cost and higher pricing. Adjusted EBITDA margin of 34.3% increased 540 bp.

**Equity Affiliates Income**

Income from equity affiliates of \$66.2 decreased \$9.9, primarily due to unfavorable currency impacts.

**Cost of Sales and Gross Margin**

Cost of sales of \$3,114.7 decreased \$413.2, primarily due to lower energy costs of \$183, a favorable currency impact of \$136, and lower operating costs of \$127, partially offset by unfavorable costs attributable to sales volumes of \$33. Operating costs included favorable impacts from cost reduction actions of \$40, lower maintenance costs of \$28, and lower other costs, including incentive compensation and pension, of \$60. Costs associated with volumes were higher primarily due to the Jazan sale of equipment activity for which we did not record profit in the current year.

Gross margin of 32.7% increased 360 bp, primarily due to lower costs.

**Selling and Administrative Expense**

Selling and administrative expense of \$418.5 decreased \$79.4, primarily due to the benefits of our recent cost reduction actions of \$53 favorable currency effects of \$23, and lower other costs of \$3. Selling and administrative expense, as a percent of sales, decreased from 10.0% to 9.0%.

**Research and Development**

Research and development expense of \$64.7 decreased \$6.1 due to lower operating costs. Research and development expense, as a percent of sales, was 1.4% in both 2015 and 2016.



**Table of Contents****Business Separation Costs**

On 16 September 2015, the Company announced plans to separate its Materials Technologies business into an independent publicly traded company and distribute to Air Products shareholders all of the shares of the new public company in a tax free distribution (a spin-off). Versum Materials, LLC, or Versum, was formed as the new company to hold the Materials Technologies business in November 2015 and is currently a wholly owned subsidiary of the Company. The Company expects to complete the work to prepare Versum to be a separate and independent company during fiscal year 2016 and is assessing market conditions to determine favorability for a spin-off. Versum will be converted from a limited liability company to a Delaware corporation (Versum Materials, Inc.) prior to spin-off. During the six months ended 31 March 2016, we incurred separation costs of \$19.4 (\$20.9 including tax impact, or \$.10 per share), primarily related to legal and other advisory fees.

**Business Restructuring and Cost Reduction Actions**

During the six months ended 31 March 2016, we recognized an expense of \$8.6 (\$7.1 after-tax, or \$.03 per share) for severance and other benefits related to the elimination of approximately 170 positions as part of cost reduction actions. We expect to incur costs associated with other cost saving initiatives in future periods.

Through fiscal year 2015, we incurred severance and other charges related to the reorganization of the Company, including realignment of our businesses in new reporting segments. During the six months ended 31 March 2015, we recognized an expense of \$87.8 (\$59.9 after-tax, or \$.27 per share). Refer to Note 5, Business Restructuring and Cost Reduction Actions, for additional details.

**Pension Settlement Losses**

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. For the six months ended 31 March 2016 and 2015, we recognized a pension settlement charge of \$2.6 (\$1.6 after-tax, or \$0.01 per share) and \$12.6 (\$7.9 after-tax, or \$.04 per share), respectively, related to our U.S. supplemental pension plan. This settlement accelerated the recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss. We expect that additional settlement losses will be recognized during the second half of the fiscal year.

**Gain on Previously Held Equity Interest**

In 2015, we acquired our partner's equity ownership interest in a liquefied atmospheric industrial gases production joint venture in North America, which increased our ownership from 50% to 100%. The assets acquired, primarily plant and equipment, were recorded at their fair value as of the acquisition date and resulted in a gain of \$17.9 (\$11.2 after-tax, or \$.05 per share) during the six months ended 31 March 2015 as a result of revaluing our previously held equity interest to fair value.

**Other Income (Expense), Net**

Other income (expense), net of \$25.4 increased \$12.4, primarily due to contract settlement gains and a favorable foreign exchange impact.

**Interest Expense**

|                            | Six Months<br>Ended 31 March |         |
|----------------------------|------------------------------|---------|
|                            | 2016                         | 2015    |
| Interest incurred          | \$ 72.0                      | \$ 75.7 |
| Less: capitalized interest | 24.1                         | 23.2    |
| Interest expense           | \$ 47.9                      | \$ 52.5 |

Interest incurred decreased \$3.7. The decrease was driven primarily by the impact of a stronger U.S. dollar on the translation of foreign currency interest and a lower average interest rate on the debt portfolio, partially offset by a higher average debt balance. The change in capitalized interest was driven by an increase in projects under construction. We expect less capitalized interest and, as a result, higher interest expense in future periods due to the exit of the Energy-from-Waste business.

**Effective Tax Rate**

The effective tax rate equals the income tax provision divided by income from continuing operations before taxes. The effective tax rate was 25.8% and 23.4% in 2016 and 2015, respectively, primarily due to the increase in mix of income in jurisdictions with a higher effective tax rate and business separation costs for which a tax benefit was not available. On a non-GAAP basis, the effective tax rate increased from 24.1% in 2015 to 25.1% in 2016, primarily due to the increase in and mix of income in jurisdictions with a higher effective tax rate.

**Table of Contents****Discontinued Operations**

On 29 March 2016, the Board of Directors approved the Company's exit of its Energy-from-Waste (EfW) business. As a result, efforts to start up and operate its two EfW projects located in Tees Valley, United Kingdom have been discontinued. The decision to exit the business and stop development of the projects was based on continued difficulties encountered; and the Company's conclusion, based on testing and analysis completed during the second fiscal quarter of 2016, that significant additional time and resources would be required to make the projects operational. In addition, the decision allows the Company to execute its strategy of focusing resources on its core Industrial Gases business. As a result, the EfW business segment has been presented as a discontinued operation. During the three months ended 31 March 2016, a loss on disposal, net of tax, of \$846.6 was recorded, primarily to write-down assets to their estimated net realizable value and record a liability for plant disposition and other costs. We expect additional exit costs of \$50 to \$100 to be recorded in future periods.

The loss from operations of discontinued operations, net of tax, of \$20.7 and \$3.6 for the six months ended 31 March 2016 and 2015, respectively, also includes costs for the land lease, commercial and administrative expenses, and costs incurred related to project suspension activities.

Refer to Note 2, Discontinued Operations, for additional details.

**Segment Analysis****Industrial Gases Americas**

|                          | Six Months<br>Ended 31 March |            | \$ Change  | % Change |
|--------------------------|------------------------------|------------|------------|----------|
|                          | 2016                         | 2015       |            |          |
| Sales                    | \$ 1,634.0                   | \$ 1,893.4 | \$ (259.4) | (14)%    |
| Operating income         | 436.0                        | 393.2      | 42.8       | 11%      |
| Operating margin         | 26.7%                        | 20.8%      |            | 590bp    |
| Equity affiliates income | 22.2                         | 32.3       | (10.1)     | (31)%    |
| Adjusted EBITDA          | 676.4                        | 632.4      | 44.0       | 7%       |
| Adjusted EBITDA margin   | 41.4%                        | 33.4%      |            | 800bp    |

**Industrial Gases Americas Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                                 |                             |
| Volume  | (3)%                        |
| Price   | 1%                          |
| Currency  | (3)%                        |
| Energy and raw material cost pass-through           | (9)%                        |
| <b>Total Industrial Gases Americas Sales Change</b> | <b>(14)%</b>                |

Underlying sales decreased 2% from lower volumes of 3%, partially offset by higher pricing of 1%. Volumes were down due to weakness in Latin America and in the North America steel and oil field services markets. Pricing was higher due to the benefit of pricing actions, including recovery of inflationary and power cost increases in Latin America, and higher helium pricing. 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 9%.

**Industrial Gases Americas Operating Income and Margin**

Operating income of \$436.0 increased 11%, or \$42.8, due to lower operating costs of \$52 and higher pricing net of energy and fuel costs of \$19, partially offset by lower volumes of \$17 and unfavorable currency impacts of \$11. Operating costs were lower due to benefits from cost reduction actions and lower maintenance. Operating margin increased 590 bp from the prior year due to the lower costs, lower energy

pass-through, and higher pricing.

**Industrial Gases Americas Equity Affiliates Income**

Equity affiliates income of \$22.2 decreased \$10.1 primarily due to unfavorable currency impacts and higher maintenance expense.

**Table of Contents****Industrial Gases EMEA**

|                          | Six Months<br>Ended 31 March |          | \$ Change | % Change |
|--------------------------|------------------------------|----------|-----------|----------|
|                          | 2016                         | 2015     |           |          |
| Sales                    | \$ 858.6                     | \$ 949.6 | \$ (91.0) | (10)%    |
| Operating income         | 181.1                        | 152.3    | 28.8      | 19%      |
| Operating margin         | 21.1%                        | 16.0%    |           | 510bp    |
| Equity affiliates income | 14.8                         | 18.3     | (3.5)     | (19)%    |
| Adjusted EBITDA          | 290.9                        | 269.3    | 21.6      | 8%       |
| Adjusted EBITDA margin   | 33.9%                        | 28.4%    |           | 550bp    |

**Industrial Gases EMEA Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                             |                             |
| Volume  | (1)%                        |
| Price   | 1%                          |
| Currency  | (7)%                        |
| Energy and raw material cost pass-through       | (3)%                        |
| <b>Total Industrial Gases EMEA Sales Change</b> | <b>(10)%</b>                |

Underlying sales were flat as higher pricing of 1% was offset by lower volumes of 1%. Volumes decreased primarily due to continued weakness in the region. Sales improved from ongoing pricing actions. Unfavorable currency effects from the Euro, the British Pound Sterling, and the Polish Zloty reduced sales by 7%. Lower energy and natural gas contractual cost pass-through to customers decreased sales by 3%.

**Industrial Gases EMEA Operating Income and Margin**

Operating income of \$181.1 increased by 19%, or \$28.8, primarily due to favorable operating costs of \$34 and higher pricing, net of energy and fuel costs, of \$11, partially offset by unfavorable currency impacts of \$10 and lower volumes of \$6. Operating margin increased 510 bp from the prior year, primarily due to favorable cost performance and higher pricing.

**Industrial Gases EMEA Equity Affiliates Income**

Equity affiliates income of \$14.8 decreased \$3.5 primarily due to unfavorable currency impacts.

**Table of Contents****Industrial Gases Asia**

|                          | Six Months<br>Ended 31 March |          | \$ Change | % Change |
|--------------------------|------------------------------|----------|-----------|----------|
|                          | 2016                         | 2015     |           |          |
| Sales                    | \$ 819.6                     | \$ 791.7 | \$ 27.9   | 4%       |
| Operating income         | 221.1                        | 175.2    | 45.9      | 26%      |
| Operating margin         | 27.0%                        | 22.1%    |           | 490bp    |
| Equity affiliates income | 29.1                         | 24.0     | 5.1       | 21%      |
| Adjusted EBITDA          | 350.4                        | 299.1    | 51.3      | 17%      |
| Adjusted EBITDA margin   | 42.8%                        | 37.8%    |           | 500bp    |

**Industrial Gases Asia Sales**

|   | % Change from<br>Prior Year |
|---|-----------------------------|
| Underlying business                             |                             |
| Volume  | 10%                         |
| Price   | (1)%                        |
| Currency  | (6)%                        |
| Energy and raw material cost pass-through       | 1%                          |
| <b>Total Industrial Gases Asia Sales Change</b> | <b>4%</b>                   |

Underlying sales increased by 9% from higher volumes of 10%, partially offset by lower pricing of 1%. Volumes were higher primarily from new plants in China and higher merchant volumes. Pricing was down due to continued pricing pressure on merchant products in China. Unfavorable currency impacts decreased sales by 6% and higher energy and raw material cost pass-through increased sales by 1%.

**Industrial Gases Asia Operating Income and Margin**

Operating income of \$221.1 increased 26%, or \$45.9, primarily due to higher volumes of \$37 and lower operating costs of \$25, partially offset by an unfavorable currency impact of \$11 and lower pricing net of energy and fuel costs of \$5. The lower operating costs include the benefit of our recent cost reduction actions. Operating margin increased 490 bp from the prior year, primarily due to favorable cost performance and higher volumes.

**Industrial Gases Asia Equity Affiliates Income**

Equity affiliates income of \$29.1 increased \$5.1, primarily due to a favorable contract termination, higher volumes, and improved cost performance.

**Table of Contents****Industrial Gases Global**

|                 | Six Months<br>Ended 31 March |          |           |          |
|-----------------|------------------------------|----------|-----------|----------|
|                 | 2016                         | 2015     | \$ Change | % Change |
| Sales           | \$ 190.9                     | \$ 126.1 | \$ 64.8   | 51%      |
| Operating loss  | (30.2)                       | (25.8)   | (4.4)     | (17)%    |
| Adjusted EBITDA | (26.8)                       | (15.8)   | (11.0)    | (70)%    |

**Industrial Gases Global Sales and Operating Loss**

Sales of \$190.9 increased \$64.8, or 51%. The increase in sales was driven by a sale of equipment contract for multiple air separation units that will serve Saudi Aramco's Jazan oil refinery and power plant in Saudi Arabia which more than offset the decrease in small equipment and other air separation unit sales. In 2016, we recognized \$90 of sales related to the Jazan project. Due to uncertainty over costs to complete the project, no profit has been recognized.

Operating loss of \$30.2 increased by \$4.4, as lower sale of equipment project activity was partially offset by the benefit of our cost reduction actions. In addition, the prior year included a gain associated with the cancellation of a sale of equipment contract.

**Materials Technologies**

|                        | Six Months<br>Ended 31 March |            |           |          |
|------------------------|------------------------------|------------|-----------|----------|
|                        | 2016                         | 2015       | \$ Change | % Change |
| Sales                  | \$ 984.3                     | \$ 1,057.3 | \$ (73.0) | (7)%     |
| Operating income       | 256.5                        | 228.8      | 27.7      | 12%      |
| Operating margin       | 26.1%                        | 21.6%      |           | 450bp    |
| Adjusted EBITDA        | 296.7                        | 277.4      | 19.3      | 7%       |
| Adjusted EBITDA margin | 30.1%                        | 26.2%      |           | 390bp    |

**Materials Technologies Sales**

|  | % Change from<br>Prior Year |
|--|-----------------------------|
| Underlying business                              |                             |
| Volume   | (6)%                        |
| Price  | 1%                          |
| Currency   | (2)%                        |
| <b>Total Materials Technologies Sales Change</b> | <b>(7)%</b>                 |

Underlying sales decreased by 5% from lower volumes of 6% partially offset by positive pricing of 1%. Electronics Materials underlying sales decreased 5% primarily from lower delivery systems volumes, partially offset by higher pricing. Performance Materials underlying sales decreased 5% primarily due to lower epoxy and additive volumes from weakness in the oil and gas end markets. Unfavorable currency impacts decreased sales by 2%.

**Materials Technologies Operating Income and Margin**

Operating income of \$256.5 increased 12%, or \$27.7, as higher price net of raw material costs of \$41 and lower costs of \$11 were partially offset by lower volumes of \$16 and unfavorable currency impacts of \$8. The lower costs include the benefits of our business restructuring and cost reduction actions. Operating margin increased 450 bp, primarily from higher pricing and improved cost performance.



**Table of Contents****Corporate and other**

|                 | Six Months<br>Ended 31 March |          |           |          |
|-----------------|------------------------------|----------|-----------|----------|
|                 | 2016                         | 2015     | \$ Change | % Change |
| Sales           | \$ 139.6                     | \$ 157.2 | \$ (17.6) | (11)%    |
| Operating loss  | (10.0)                       | (32.0)   | 22.0      | 69%      |
| Adjusted EBITDA | (2.1)                        | (25.8)   | 23.7      | 92%      |

**Corporate and other Sales and Operating Loss**

Sales of \$139.6 decreased \$17.6, primarily due to lower LNG project activity. We expect continued weakness in LNG project activity in future periods. Operating loss of \$10.0 decreased \$22.0 primarily due to benefits from our recent cost reduction actions.

**RECONCILIATION OF NON-GAAP FINANCIAL MEASURES**

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

The discussion of second quarter and year-to-date results includes comparisons to non-GAAP ( adjusted ) financial measures. 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 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.

**Table of Contents**

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

**CONSOLIDATED RESULTS**

|  | Continuing Operations       |                                 |            |             |                           |                                 |            |             |
|--|-----------------------------|---------------------------------|------------|-------------|---------------------------|---------------------------------|------------|-------------|
|  | Three Months Ended 31 March |                                 |            |             | Six Months Ended 31 March |                                 |            |             |
|  | Operating Income            | Operating Margin <sup>(A)</sup> | Net Income | Diluted EPS | Operating Income          | Operating Margin <sup>(A)</sup> | Net Income | Diluted EPS |
| 2016 GAAP  | \$ 513.3                    | 22.6%                           | \$ 379.8   | \$ 1.74     | \$ 1,023.9                | 22.1%                           | \$ 757.6   | \$ 3.47     |
| 2015 GAAP  | 376.9                       | 15.6%                           | 291.9      | 1.34        | 809.2                     | 16.3%                           | 618.2      | 2.85        |
| Change GAAP  | \$ 136.4                    | 700bp                           | \$ 87.9    | \$ .40      | \$ 214.7                  | 580bp                           | \$ 139.4   | \$ .62      |
| % Change GAAP  | 36%                         |                                 | 30%        | 30%         | 27%                       |                                 | 23%        | 22%         |
| 2016 GAAP  | \$ 513.3                    | 22.6%                           | \$ 379.8   | \$ 1.74     | \$ 1,023.9                | 22.1%                           | \$ 757.6   | \$ 3.47     |
| Business separation costs (tax impact \$1.5)                                     | 7.4                         | .3%                             | 8.9        | .04         | 19.4                      | .4%                             | 20.9       | .10         |
| Business restructuring and cost reduction actions (tax impact \$1.5)             | 8.6                         | .4%                             | 7.1        | .03         | 8.6                       | .2%                             | 7.1        | .03         |
| Pension settlement loss (tax impact \$1.0)                                       | 2.6                         | .1%                             | 1.6        | .01         | 2.6                       | .1%                             | 1.6        | .01         |
| 2016 Non-GAAP Measure  | \$ 531.9                    | 23.4%                           | \$ 397.4   | \$ 1.82     | \$ 1,054.5                | 22.8%                           | \$ 787.2   | \$ 3.61     |
| 2015 GAAP  | \$ 376.9                    | 15.6%                           | \$ 291.9   | \$ 1.34     | \$ 809.2                  | 16.3%                           | \$ 618.2   | \$ 2.85     |
| Business restructuring and cost reduction actions (tax impact \$17.2 and \$27.9) | 55.4                        | 2.3%                            | 38.2       | .18         | 87.8                      | 1.7%                            | 59.9       | .27         |
| Pension settlement loss (tax impact \$4.7)                                       | 12.6                        | .5%                             | 7.9        | .04         | 12.6                      | .3%                             | 7.9        | .04         |
| Gain on previously held equity interest (tax impact \$6.7)                       |                             |                                 |            |             | (17.9)                    | (.4)%                           | (11.2)     | (.05)       |
| 2015 Non-GAAP Measure  | \$ 444.9                    | 18.4%                           | \$ 338.0   | \$ 1.56     | \$ 891.7                  | 17.9%                           | \$ 674.8   | \$ 3.11     |
| Change Non-GAAP Measure  | \$ 87.0                     | 500bp                           | \$ 59.4    | \$ .26      | \$ 162.8                  | 490bp                           | \$ 112.4   | \$ .50      |
| % Change Non-GAAP Measure  | 20%                         |                                 | 18%        | 17%         | 18%                       |                                 | 17%        | 16%         |

<sup>(A)</sup> Operating margin is calculated by dividing operating income by sales.

**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:

|  | Three Months Ended 31 March                            |          | Six Months Ended 31 March |          |
|--|--|----------|---------------------------|----------|
|  | 2016   | 2015     | 2016                      | 2015     |
|  | <b>Income from Continuing Operations<sup>(A)</sup></b> | \$ 387.6 | \$ 298.8                  | \$ 773.8 |
| Add: Interest expense                                  | 25.7   | 23.4     | 47.9                      | 52.5     |
| Add: Income tax provision                              | 132.5  | 87.7     | 268.4                     | 194.8    |
| Add: Depreciation and amortization                     | 232.1  | 233.3    | 464.8                     | 468.8    |
| Add: Business separation costs                         | 7.4  |          | 19.4                      |          |
| Add: Business restructuring and cost reduction actions | 8.6  | 55.4     | 8.6                       | 87.8     |

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|   |                 |                 |                   |                   |
|---|-----------------|-----------------|-------------------|-------------------|
| Add: Pension settlement loss                  | 2.6             | 12.6            | 2.6               | 12.6              |
| Less: Gain on previously held equity interest |                 |                 |                   | 17.9              |
| <b>Adjusted EBITDA</b>                        | <b>\$ 796.5</b> | <b>\$ 711.2</b> | <b>\$ 1,585.5</b> | <b>\$ 1,436.6</b> |
| Change from prior year                        | \$ 85.3         |                 | \$ 148.9          |                   |
| % Change from prior year                      | 12%             |                 | 10%               |                   |

<sup>(A)</sup> Includes net income attributable to noncontrolling interests.

**Table of Contents**

Below is a reconciliation of segment operating income to Adjusted EBITDA:

|   | Industrial<br>Gases<br>Americas | Industrial<br>Gases<br>EMEA | Industrial<br>Gases<br>Asia | Industrial<br>Gases<br>Global | Materials<br>Technologies | Corporate<br>and other | Segment<br>Total  |
|---|---------------------------------|-----------------------------|-----------------------------|-------------------------------|---------------------------|------------------------|-------------------|
| <b>Three Months Ended 31 March 2016</b> |                                 |                             |                             |                               |                           |                        |                   |
| Operating income (loss)                 | \$ 224.2                        | \$ 89.4                     | \$ 104.4                    | \$ (10.9)                     | \$ 129.3                  | \$ (4.5)               | \$ 531.9          |
| Add: Depreciation and amortization      | 109.4                           | 48.3                        | 48.5                        | 1.8                           | 20.0                      | 4.1                    | 232.1             |
| Add: Equity affiliates income           | 7.7                             | 7.2                         | 17.4                        |                               | .2                        |                        | 32.5              |
| <b>Adjusted EBITDA</b>                  | <b>\$ 341.3</b>                 | <b>\$ 144.9</b>             | <b>\$ 170.3</b>             | <b>\$ (9.1)</b>               | <b>\$ 149.5</b>           | <b>\$ (4)</b>          | <b>\$ 796.5</b>   |
| <b>Adjusted EBITDA margin</b>           | <b>42.8%</b>                    | <b>34.5%</b>                | <b>41.9%</b>                |                               | <b>30.2%</b>              |                        | <b>35.1%</b>      |
| <b>Three Months Ended 31 March 2015</b> |                                 |                             |                             |                               |                           |                        |                   |
| Operating income (loss)                 | \$ 182.0                        | \$ 71.0                     | \$ 84.7                     | \$ (7.9)                      | \$ 124.2                  | \$ (9.1)               | \$ 444.9          |
| Add: Depreciation and amortization      | 103.3                           | 47.6                        | 50.3                        | 5.5                           | 23.3                      | 3.3                    | 233.3             |
| Add: Equity affiliates income (loss)    | 15.1                            | 8.0                         | 9.4                         | (.2)                          | .7                        |                        | 33.0              |
| <b>Adjusted EBITDA</b>                  | <b>\$ 300.4</b>                 | <b>\$ 126.6</b>             | <b>\$ 144.4</b>             | <b>\$ (2.6)</b>               | <b>\$ 148.2</b>           | <b>\$ (5.8)</b>        | <b>\$ 711.2</b>   |
| <b>Adjusted EBITDA margin</b>           | <b>33.7%</b>                    | <b>28.2%</b>                | <b>36.7%</b>                |                               | <b>27.8%</b>              |                        | <b>29.5%</b>      |
| Adjusted EBITDA change                  | \$ 40.9                         | \$ 18.3                     | \$ 25.9                     | \$ (6.5)                      | \$ 1.3                    | \$ 5.4                 | \$ 85.3           |
| Adjusted EBITDA % change                | 14%                             | 14%                         | 18%                         | (250)%                        | 1%                        | 93%                    | 12%               |
| Adjusted EBITDA margin change           | 910bp                           | 630bp                       | 520bp                       |                               | 240bp                     |                        | 560bp             |
| <b>Six Months Ended 31 March 2016</b>   |                                 |                             |                             |                               |                           |                        |                   |
| Operating income (loss)                 | \$ 436.0                        | \$ 181.1                    | \$ 221.1                    | \$ (30.2)                     | \$ 256.5                  | \$ (10.0)              | \$ 1,054.5        |
| Add: Depreciation and amortization      | 218.2                           | 95.0                        | 100.2                       | 3.9                           | 39.6                      | 7.9                    | 464.8             |
| Add: Equity affiliates income (loss)    | 22.2                            | 14.8                        | 29.1                        | (.5)                          | .6                        |                        | 66.2              |
| <b>Adjusted EBITDA</b>                  | <b>\$ 676.4</b>                 | <b>\$ 290.9</b>             | <b>\$ 350.4</b>             | <b>\$ (26.8)</b>              | <b>\$ 296.7</b>           | <b>\$ (2.1)</b>        | <b>\$ 1,585.5</b> |
| <b>Adjusted EBITDA margin</b>           | <b>41.4%</b>                    | <b>33.9%</b>                | <b>42.8%</b>                |                               | <b>30.1%</b>              |                        | <b>34.3%</b>      |
| <b>Six Months Ended 31 March 2015</b>   |                                 |                             |                             |                               |                           |                        |                   |
| Operating income (loss)                 | \$ 393.2                        | \$ 152.3                    | \$ 175.2                    | \$ (25.8)                     | \$ 228.8                  | \$ (32.0)              | \$ 891.7          |
| Add: Depreciation and amortization      | 206.9                           | 98.7                        | 99.9                        | 9.8                           | 47.3                      | 6.2                    | 468.8             |
| Add: Equity affiliates income           | 32.3                            | 18.3                        | 24.0                        | .2                            | 1.3                       |                        | 76.1              |
| <b>Adjusted EBITDA</b>                  | <b>\$ 632.4</b>                 | <b>\$ 269.3</b>             | <b>\$ 299.1</b>             | <b>\$ (15.8)</b>              | <b>\$ 277.4</b>           | <b>\$ (25.8)</b>       | <b>\$ 1,436.6</b> |
| <b>Adjusted EBITDA margin</b>           | <b>33.4%</b>                    | <b>28.4%</b>                | <b>37.8%</b>                | <b>(12.5)%</b>                | <b>26.2%</b>              | <b>(16.4)%</b>         | <b>28.9%</b>      |
| Adjusted EBITDA change                  | \$ 44.0                         | \$ 21.6                     | \$ 51.3                     | \$ (11.0)                     | \$ 19.3                   | \$ 23.7                | \$ 148.9          |
| Adjusted EBITDA % change                | 7%                              | 8%                          | 17%                         | (70)%                         | 7%                        | 92%                    | 10%               |
| Adjusted EBITDA margin change           | 800bp                           | 550bp                       | 500bp                       |                               | 390bp                     |                        | 540bp             |

**Table of Contents****INCOME TAXES**

|   |                  | Effective Tax Rate |          |                |          |
|---|------------------|--------------------|----------|----------------|----------|
|   |                  | Three Months       |          | Six Months     |          |
|   |                  | Ended 31 March     |          | Ended 31 March |          |
|   |                  | 2016               | 2015     | 2016           | 2015     |
| Income Tax Provision                              | GAAP             | \$ 132.5           | \$ 87.7  | \$ 268.4       | \$ 194.8 |
| Income From Continuing Operations Before Taxes    | GAAP             | \$ 520.1           | \$ 386.5 | \$ 1,042.2     | \$ 832.8 |
| Effective Tax Rate                                | GAAP             | 25.5%              | 22.7%    | 25.8%          | 23.4%    |
| Income Tax Provision                              | GAAP             | \$ 132.5           | \$ 87.7  | \$ 268.4       | \$ 194.8 |
| Business separation costs                         |                  | (1.5)              |          | (1.5)          |          |
| Business restructuring and cost reduction actions |                  | 1.5                | 17.2     | 1.5            | 27.9     |
| Pension settlement loss                           |                  | 1.0                | 4.7      | 1.0            | 4.7      |
| Gain on previously held equity interest           |                  |                    |          |                | (6.7)    |
| Income Tax Provision                              | Non-GAAP Measure | \$ 133.5           | \$ 109.6 | \$ 269.4       | \$ 220.7 |
| Income From Continuing Operations Before Taxes    | GAAP             | \$ 520.1           | \$ 386.5 | \$ 1,042.2     | \$ 832.8 |
| Business separation costs                         |                  | 7.4                |          | 19.4           |          |
| Business restructuring and cost reduction actions |                  | 8.6                | 55.4     | 8.6            | 87.8     |
| Pension settlement loss                           |                  | 2.6                | 12.6     | 2.6            | 12.6     |
| Gain on previously held equity interest           |                  |                    |          |                | (17.9)   |
| Income From Continuing Operations Before Taxes    | Non-GAAP Measure | \$ 538.7           | \$ 454.5 | \$ 1,072.8     | \$ 915.3 |
| Effective Tax Rate                                | Non-GAAP Measure | 24.8%              | 24.1%    | 25.1%          | 24.1%    |

**PENSION BENEFITS**

For the six months ended 31 March 2016 and 2015, we recognized net periodic benefit cost of \$33.9 and \$72.6, respectively. The decrease in pension expense primarily resulted from the adoption of the spot rate approach to estimate service cost and interest cost and reduced plan participation due to severance actions, partially offset by the adoption of new mortality tables for our major plans. For additional discussion on our adoption of the spot rate approach, refer to the Critical Accounting Policies and Estimates section below of this Management's Discussion and Analysis.

Certain of our pension plans provide for a lump sum benefit payments 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. For the six months ended 31 March 2016 and 2015, we recognized \$2.6 and \$12.6 of settlement losses, respectively, related to our U.S. supplemental pension plan. These settlement losses accelerated the recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss. We expect that additional settlement losses will be recognized during the second half of the fiscal year.

Management considers various factors when making pension funding decisions, including tax, cash flow, and regulatory implications. For the six months ended 31 March 2016, required cash contributions to funded pension plans and benefit payments under unfunded pension plans were \$60.2. For the six months ended 31 March 2015, cash contributions were \$95.4. Total contributions for fiscal 2016 are expected to be approximately \$100 to \$120. During fiscal 2015, total contributions were \$137.5.

Refer to Note 12, Retirement Benefits, to the consolidated financial statements for details on pension cost and cash contributions.

**Table of Contents****LIQUIDITY AND CAPITAL RESOURCES**

We 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 31 March 2016, we had \$301.6 of foreign cash and cash items compared to total cash and cash items of \$313.1. 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.

**Operating Activities**

For the first six months of 2016, cash provided by operating activities was \$1,087.5. Income from continuing operations of \$757.6 is adjusted for reconciling items that include depreciation and amortization, deferred income taxes, share-based compensation, noncurrent capital lease receivables, and undistributed earnings of unconsolidated affiliates. Other adjustments included pension and postretirement expense of \$36.3 and contributions to our pension plans of \$60.2, primarily for a plan in the U.K. The change in payables and accrued liabilities of \$226.5 was primarily driven by a decrease in the accrual for incentive compensation due to payments on the 2015 plan.

For the first six months of 2015, cash provided by operating activities was \$987.1. Income from continuing operations of \$618.2 reflected the non-cash gain on the previously held equity interest of \$17.9 and undistributed earnings of unconsolidated affiliates of \$58.0. Other adjustments included pension and postretirement expense of \$75.5 and contributions to our pension plans of \$95.4, primarily for plans in the U.S. and U.K.

**Investing Activities**

For the first six months of 2016, cash used for investing activities was \$466.7, primarily driven by capital expenditures for plant and equipment of \$534.8. Proceeds from the sale of assets and investments of \$70.6 was primarily driven by the receipt of \$30.0 for our rights to a corporate aircraft that was under construction, \$15.9 for the sale of our 20% equity investment in Daido Air Products Electronics, Inc., and \$14.9 for the sale of a wholly owned subsidiary located in Wuhu, China.

For the first six months of 2015, cash used for investing activities was \$650.7, primarily driven by capital expenditures for plant and equipment of \$628.5. On 30 December 2014, we acquired our partner's equity ownership interest in a liquefied industrial gases production joint venture in North America for \$22.6 which increased our ownership from 50% to 100%. Refer to Note 6, Business Combination, to the consolidated financial statements for additional information.

Capital expenditures are detailed in the table below:

|  | Six Months Ended<br>31 March |          |
|--|------------------------------|----------|
|  | 2016                         | 2015     |
| Additions to plant and equipment         | \$ 534.8                     | \$ 628.5 |
| Acquisitions, less cash acquired         |                              | 34.5     |
| Capital expenditures on a GAAP basis     | \$ 534.8                     | \$ 663.0 |
| Capital lease expenditures               | 18.6                         | 47.2     |
| Capital expenditures on a Non-GAAP basis | \$ 553.4                     | \$ 710.2 |

(A) We utilize a non-GAAP measure in the computation of capital expenditures and include spending associated with facilities accounted for as capital leases. 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. 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.

We expect capital expenditures of approximately \$1,200 in 2016.

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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.

## **Table of Contents**

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 31 March 2016 was \$1,709, compared to \$1,931 at 30 September 2015.

### **Financing Activities**

For the first six months of 2016, cash used for financing activities was \$398.9. This consisted primarily of dividend payments of \$349.1 and \$70.2 of payments on long-term debt.

For the first six months of 2015, cash used for financing activities was \$256.6. This consisted primarily of dividend payments of \$329.4, partially offset by proceeds from stock option exercises of \$77.2. Our borrowings (short- and long-term proceeds net of repayments) were a net source of cash of \$7.0 and included the repayment of a 3.875% Eurobond of 300 million (\$335.9) and the issuance of a 1.0% Eurobond of 300 million (\$335.3).

### **Discontinued Operations**

For the first six months of 2016, as a result of the Company's decision to exit its Energy-from-Waste business, cash used by discontinued operations was \$122.1, primarily driven by capital expenditures for plant and equipment of \$97.0. Refer to Note 2, Discontinued Operations, to the consolidated financial statements for additional information.

For the first six months of 2015, cash used by discontinued operations was \$209.0, primarily driven by capital expenditures for plant and equipment of \$189.1.

### **Financing and Capital Structure**

Capital needs were satisfied primarily with cash from operations. Total debt at 31 March 2016 and 30 September 2015, expressed as a percentage of the sum of total debt and total capitalization (total debt plus total equity), was 45.2% and 44.3%, respectively. Total debt decreased from \$5,879.0 at 30 September 2015 to \$5,818.0 at 31 March 2016.

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 31 March 2016, 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) no greater than 70%. No borrowings were outstanding under the 2013 Credit Agreement as of 31 March 2016.

Commitments totaling \$84.8 are maintained by our foreign subsidiaries, all of which was borrowed and outstanding at 31 March 2016.

As of 31 March 2016, 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 the first six months of fiscal year 2016, we did not purchase any of our outstanding shares. At 31 March 2016, \$485.3 in share repurchase authorization remains.

At 31 March 2016, we had a negative working capital balance (current assets less current liabilities) of \$807.9, primarily due to \$2,244.8 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.

### **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. There have been no material changes to contractual obligations since 30 September 2015.

### **COMMITMENTS AND CONTINGENCIES**

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There have been no material changes to commitments and contingencies since 30 September 2015. For current updates on Litigation and Environmental matters, refer to Note 13, Commitments and Contingencies, in this quarterly filing.

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

There have been no material changes to off-balance sheet arrangements since 30 September 2015. 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, and results of operations or liquidity.

## **Table of Contents**

### **RELATED PARTY TRANSACTIONS**

Our principal related parties are equity affiliates operating in the industrial gas business. In 2015, we entered into a long-term sale of equipment contract to engineer, procure, and construct industrial gas facilities with a 25% owned joint venture for Saudi Aramco's Jazan oil refinery and power plant in Saudi Arabia. The agreement included terms that 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 approximately \$30 and \$90 during the three and six months ended 31 March 2016, respectively.

### **CRITICAL ACCOUNTING POLICIES AND ESTIMATES**

Management's Discussion and Analysis of our financial condition and results of operations is based on the consolidated financial statements and accompanying notes that have been prepared in accordance with U.S. generally accepted accounting principles. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

On 29 March 2016, the Board of Directors approved the Company's exit of its Energy-from-Waste segment. Accordingly, we assessed the recoverability of capital costs for the two projects associated with this segment and recorded an impairment charge of \$913.5 to reduce the carrying values of these assets to their estimated net realizable value of \$20. We estimated the net realizable value of the assets assuming an orderly liquidation of assets capable of being marketed on a secondary equipment market based on market quotes and our experience with selling similar equipment. An asset's orderly liquidation value is the amount that could be realized from a liquidation sale, given a reasonable period of time to find a buyer, selling the asset in the existing condition where it is located and assuming the highest and best use of the asset by market participants. The inputs used for the valuation include significant unobservable inputs, or Level 3 inputs, based on our assumptions about the assumptions market participants would use. The loss was measured as the difference between the orderly liquidation value of the assets and the net book value of the assets. Refer to Note 2, Discontinued Operations, for additional information.

As a result of our exit from the Energy-from-Waste segment, the Company is evaluating the disposition of an air separation unit in the Industrial Gases EMEA segment that was constructed primarily to provide oxygen to one of the Tees Valley plants. The current value of this asset is approximately \$60 million.

Information concerning our implementation and impact of new accounting standards issued by the FASB is included in Note 3, New Accounting Guidance, to the consolidated financial statements.

In fiscal 2016, we changed our method 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 have elected to use a spot rate approach 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 change in rate assumption to be a change in estimate and, accordingly, are accounting for it prospectively starting in 2016. We expect that adoption of the spot rate approach will reduce our fiscal 2016 net periodic benefit cost by approximately \$30. This change does not affect the measurement of our total benefit obligation.

Otherwise, there have been no changes in accounting policy or accounting estimate in the current period that had a significant impact on our financial condition, change in financial condition, liquidity, or results of operations.

### **NEW ACCOUNTING GUIDANCE**

During the first quarter of fiscal year 2016, we adopted guidance on the presentation of deferred income taxes that resulted in all deferred tax liabilities and assets being classified as noncurrent on the balance sheet. Accordingly, prior year amounts were reclassified to conform to the current year presentation. The guidance, which did not change the existing requirement to net deferred tax assets and liabilities within a jurisdiction, resulted in a reclassification adjustment that increased noncurrent deferred tax assets by \$13.7 and decreased noncurrent deferred tax liabilities by \$99.9 as of 30 September 2015.

See Note 3, New Accounting Guidance, to the consolidated financial statements for information concerning our implementation and impact of new accounting guidance.



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**Table of Contents****FORWARD-LOOKING STATEMENTS**

This report 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 this report is filed. 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 previously announced separation of Materials Technologies, general economic and business conditions that may affect the separation and the execution thereof, changes in capital market conditions, or the Company's decision not to consummate the separation 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 the Company's Form 10-K for its fiscal year ended September 30, 2015. The Company disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements contained in this report 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 3. Quantitative and Qualitative Disclosures About Market Risk**

Information on our utilization of financial instruments and an analysis of the sensitivity of these instruments to selected changes in market rates and prices is included in our 2015 Form 10-K.

The net financial instrument position decreased from a liability of \$4,452.0 at 30 September 2015 to a liability of \$4,320.6 at 31 March 2016. The decrease was due primarily to an increase in the fair value of the derivatives portfolio and the repayment of long-term debt.

The sensitivity analysis related to the interest rate on the fixed portion of our debt portfolio assumes an instantaneous 100 bp move in interest rates from the level of 31 March 2016, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of \$130 and \$139 in the net liability position of financial instruments at 31 March 2016 and 30 September 2015, respectively. A 100 bp decrease in market interest rates would result in an increase of \$141 and \$151 in the net liability position of financial instruments at 31 March 2016 and 30 September 2015, respectively.

There were no material changes to the sensitivity analysis related to the variable portion of our debt portfolio since 30 September 2015.

There were no material changes to the sensitivity analysis related to the foreign currency exchange rate risk on our financial instruments portfolio since 30 September 2015.

**Item 4. Controls and Procedures**

We maintain a comprehensive set of disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). As of 31 March 2016 (the Evaluation Date), an evaluation of the effectiveness of our disclosure controls and procedures was carried out under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer. Based upon that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of the end of the period covered by this report, these disclosure controls and procedures were effective.

During the quarter ended on the Evaluation Date, there was no change in internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.



**Table of Contents**

**PART II. OTHER INFORMATION**

**Item 6. Exhibits.**

Exhibits required by Item 601 of Regulation S-K

- 12. Computation of Ratios of Earnings to Fixed Charges.
- 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. 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.
- 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

The certification attached as Exhibit 32 that accompanies this Quarterly Report on Form 10-Q, 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-Q, irrespective of any general incorporation language contained in such filing.

**Table of Contents**

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: 28 April 2016

By:

Air Products and Chemicals, Inc.  
(Registrant)  
  
/s/ M. Scott Crocco  
M. Scott Crocco  
Senior Vice President and Chief Financial Officer

53

**Table of Contents**

**EXHIBIT INDEX**

|         |   |
|---------|---|
| 12.     | Computation of Ratios of Earnings to Fixed Charges.   |
| 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.     | 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.                  |
| 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   |

The certification attached as Exhibit 32 that accompanies this Quarterly Report on Form 10-Q, 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-Q, irrespective of any general incorporation language contained in such filing.