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

FORM 10-Q

(Mark One)

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

For the quarterly period ended 31 December 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	23-1274455
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
7201 Hamilton Boulevard, Allentown, Pennsylvania	18195-1501
(Address of Principal Executive Offices)	(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 x No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x 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 x 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 x

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 December 2016
Common Stock, $1 par value	217,589,952

AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries
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PART I. FINANCIAL INFORMATION
Item 1. Financial Statements

AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries
CONSOLIDATED INCOME STATEMENTS
(Unaudited)

	Three Months Ended 31 December	
(Millions of dollars, except for share data)	2016	2015
Sales	$ 1,882.5	$ 1,866.3
Cost of sales	1,318.1	1,295.9
Selling and administrative	165.7	173.9
Research and development	15.1	16.9
Business separation costs	30.2	12.0
Cost reduction and asset actions	50.0	—
Other income (expense), net	24.7	4.9
Operating Income	328.1	372.5
Equity affiliates' income	38.0	33.3
Interest expense	29.5	22.2
Income From Continuing Operations Before Taxes	336.6	383.6
Income tax provision	78.4	96.4
Income from Continuing Operations	258.2	287.2
Income From Discontinued Operations, net of tax	48.2	84.8
Net Income	306.4	372.0
Net Income Attributable to Noncontrolling Interests of Continuing Operations	6.6	6.3
Net Income Attributable to Noncontrolling Interests of Discontinued Operations	—	2.1
Net Income Attributable to Air Products	$ 299.8	$ 363.6
Net Income Attributable to Air Products		
Income from continuing operations	$ 251.6	$ 280.9
Income from discontinued operations	48.2	82.7
Net Income Attributable to Air Products	$ 299.8	$ 363.6
Basic Earnings Per Common Share Attributable to Air Products		
Income from continuing operations	$ 1.16	$ 1.30
Income from discontinued operations	.22	.38
Net Income Attributable to Air Products	$ 1.38	$ 1.68
Diluted Earnings Per Common Share Attributable to Air Products		
Income from continuing operations	$ 1.15	$ 1.29
Income from discontinued operations	.22	.38
Net Income Attributable to Air Products	$ 1.37	$ 1.67
Weighted Average Common Shares – Basic (in millions)	217.7	215.8
Weighted Average Common Shares – Diluted (in millions)	219.7	217.6
Dividends Declared Per Common Share – Cash	$ .86	$ .81

The accompanying notes are an integral part of these statements.

AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries
CONSOLIDATED COMPREHENSIVE INCOME STATEMENTS
(Unaudited)

	Three Months Ended 31 December	
(Millions of dollars)	2016	2015
Net Income	$ 306.4	$ 372.0
Other Comprehensive Loss, net of tax:		
Translation adjustments, net of tax of $32.3 and ($6.7)	(281.2)	(102.9)
Net gain (loss) on derivatives, net of tax of ($10.7) and $4.8	(9.8)	16.0
Reclassification adjustments:		
Currency translation adjustment	—	2.4
Derivatives, net of tax of $10.6 and ($8.0)	25.6	(19.3)
Pension and postretirement benefits, net of tax of $12.9 and $10.1	27.4	21.1
Total Other Comprehensive Loss	(238.0)	(82.7)
Comprehensive Income	68.4	289.3
Net Income Attributable to Noncontrolling Interests	6.6	8.4
Other Comprehensive Loss Attributable to Noncontrolling Interests	(3.1)	—
Comprehensive Income Attributable to Air Products	$ 64.9	$ 280.9

The accompanying notes are an integral part of these statements.

AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries
CONSOLIDATED BALANCE SHEETS
(Unaudited)

(Millions of dollars, except for share data)	31 December 2016	30 September 2016
Assets		
Current Assets		
Cash and cash items	$ 655.5	$ 1,293.2
Trade receivables, net	1,063.3	1,146.2
Inventories	330.7	255.0
Contracts in progress, less progress billings	84.6	64.6
Prepaid expenses	68.6	93.9
Other receivables and current assets	485.9	538.2
Current assets of discontinued operations	860.2	926.2
Total Current Assets	3,548.8	4,317.3
Investment in net assets of and advances to equity affiliates	1,254.7	1,283.6
Plant and equipment, at cost	18,273.8	18,660.2
Less: accumulated depreciation	10,243.5	10,400.5
Plant and equipment, net	8,030.3	8,259.7
Goodwill, net	811.1	845.1
Intangible assets, net	376.7	387.9
Noncurrent capital lease receivables	1,162.6	1,221.7
Other noncurrent assets	772.0	671.0
Noncurrent assets of discontinued operations	—	1,042.3
Total Noncurrent Assets	12,407.4	13,711.3
Total Assets	$ 15,956.2	$ 18,028.6
Liabilities and Equity		
Current Liabilities		
Payables and accrued liabilities	$ 1,677.5	$ 1,652.2
Accrued income taxes	133.7	117.9
Short-term borrowings	156.1	935.8
Current portion of long-term debt	873.3	365.4
Current liabilities of discontinued operations	89.2	211.8
Total Current Liabilities	2,929.8	3,283.1
Long-term debt	3,289.0	3,909.7
Other noncurrent liabilities	1,797.3	1,816.5
Deferred income taxes	679.0	710.4
Noncurrent liabilities of discontinued operations	—	1,095.5
Total Noncurrent Liabilities	5,765.3	7,532.1
Total Liabilities	8,695.1	10,815.2
Commitments and Contingencies – See Note 11		
Air Products Shareholders' Equity		
Common stock (par value $1 per share; issued 2017 and 2016 - 249,455,584 shares)	249.4	249.4
Capital in excess of par value	967.5	970.0
Retained earnings	10,771.7	10,475.5
Accumulated other comprehensive loss	(2,611.7)	(2,388.3)
Treasury stock, at cost (2017 - 31,865,632 shares; 2016 - 32,104,759 shares)	(2,215.4)	(2,227.0)
Total Air Products Shareholders' Equity	7,161.5	7,079.6
Noncontrolling Interests	99.6	133.8
Total Equity	7,261.1	7,213.4
Total Liabilities and Equity	$ 15,956.2	$ 18,028.6

The accompanying notes are an integral part of these statements.

AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

(Millions of dollars)	Three Months Ended 31 December 2016	2015
Operating Activities		
Net income	$ 306.4	$ 372.0
Less: Net income attributable to noncontrolling interests of continuing operations	6.6	6.3
Less: Net income attributable to noncontrolling interests of discontinued operations	—	2.1
Net income attributable to Air Products	299.8	363.6
Income from discontinued operations	(48.2)	(82.7)
Income from continuing operations attributable to Air Products	251.6	280.9
Adjustments to reconcile income to cash provided by operating activities:		
Depreciation and amortization	206.1	214.7
Deferred income taxes	(23.6)	31.7
Undistributed earnings of unconsolidated affiliates	(6.9)	7.0
Gain on sale of assets and investments	(5.0)	(.9)
Share-based compensation	9.0	8.3
Noncurrent capital lease receivables	22.3	12.2
Write-down of long-lived assets associated with restructuring	45.7	—
Other adjustments	10.7	(66.2)
Working capital changes that provided (used) cash, excluding effects of acquisitions and divestitures:		
Trade receivables	42.3	83.7
Inventories	9.9	(19.0)
Contracts in progress, less progress billings	(22.6)	(20.3)
Other receivables	(7.2)	(25.3)
Payables and accrued liabilities	10.4	(100.7)
Other working capital	31.6	(8.9)
Cash Provided by Operating Activities	574.3	397.2
Investing Activities		
Additions to plant and equipment	(239.2)	(248.4)
Investment in and advances to unconsolidated affiliates	(8.8)	1.3
Proceeds from sale of assets and investments	11.4	30.8
Other investing activities	(1.5)	.6
Cash Used for Investing Activities	(238.1)	(215.7)
Financing Activities		
Long-term debt proceeds	1.2	—
Payments on long-term debt	(14.4)	(65.5)
Net (decrease) increase in commercial paper and short-term borrowings	(772.2)	46.0
Dividends paid to shareholders	(186.9)	(174.4)
Proceeds from stock option exercises	10.7	10.3
Other financing activities	(12.9)	(16.6)
Cash Used for Financing Activities	(974.5)	(200.2)
Discontinued Operations		
Cash (used for) provided by operating activities	(59.6)	176.9
Cash used for investing activities	(19.4)	(86.3)
Cash provided by financing activities	69.5	2.1
Cash (Used for) Provided by Discontinued Operations	(9.5)	92.7
Effect of Exchange Rate Changes on Cash	(16.2)	(1.3)
(Decrease) Increase in Cash and Cash Items	(664.0)	72.7
Cash and Cash Items – Beginning of Year	1,330.8	206.4
Cash and Cash Items – End of Period	$ 666.8	$ 279.1
Less: Cash and Cash Items – Discontinued Operations	11.3	46.7
Cash and Cash Items – Continuing Operations	$ 655.5	$ 232.4

The accompanying notes are an integral part of these statements.

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

1. BASIS OF PRESENTATION AND MAJOR ACCOUNTING POLICIES

Refer to our 2016 Form 10-K for a description of major accounting policies. There have been no significant changes to these accounting policies during the first three months of fiscal year 2017 other than those detailed in Note 2, New Accounting Guidance. Certain prior year information has been reclassified to conform to the fiscal year 2017 presentation.

The results of our previous Material Technologies segment, which contained the Electronic Materials Division (EMD) and Performance Materials Division (PMD), and the former Energy-from-Waste segment have been presented as discontinued operations. Refer to Note 3, Discontinued Operations, for additional details. The results of operations and cash flows of these businesses have been removed from the results of continuing operations and segment results for all periods presented. The assets and liabilities of the discontinued operations have been reclassified and are segregated in the consolidated balance sheets. The comprehensive income related to these businesses has not been segregated and is included in the Consolidated Comprehensive Income Statement for all periods presented. The Notes to the interim Consolidated Financial Statements, unless otherwise indicated, are on a continuing operations basis.

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 (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. NEW ACCOUNTING GUIDANCE

Accounting Guidance Implemented in 2017

Consolidation Analysis

In February 2015, the Financial Accounting Standards Board (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. We adopted this guidance in the first quarter of fiscal year 2017. This guidance did not have a significant impact on our consolidated financial statements upon adoption.

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 addition, guidance was issued to allow for a policy election on the presentation of debt issuance costs associated with a line-of-credit arrangement, regardless of whether there are any outstanding borrowings. We adopted the guidance during the first quarter of fiscal year 2017 on a retrospective basis. The guidance resulted in a reclassification adjustment that decreased other noncurrent assets by $17.0 with a corresponding decrease to long-term debt as of 30 September 2016. We will continue to present debt issuance costs associated with a line-of-credit arrangement as a deferred asset, regardless of whether there are any outstanding borrowings.

Adoption of this guidance also impacted the presentation of debt issuance costs related to our discontinued operations. As of 30 September 2016, other noncurrent assets and long-term debt balances of discontinued operations were both reduced by $9.6.

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. We elected to early adopt this guidance in the first quarter of fiscal year 2017. The new guidance requires excess tax benefits and deficiencies to be recognized in the income statement rather than in additional paid-in capital on the balance sheet. As a result of applying this change prospectively, we recognized $7.0 of excess tax benefits in our provision for income taxes during the first quarter of fiscal year 2017. In addition, adoption of the new guidance resulted in a $8.8 cumulative-effect adjustment to retained earnings as of 1 October 2016 to recognize deferred taxes for U.S. state net operating loss and other carryforwards attributable to excess tax benefits. We retroactively applied the guidance which requires presentation of excess tax benefits as an operating activity on the statement of cash flows rather than as a financing activity. Cash paid on employees’ behalf related to shares withheld for tax purposes continues to be classified as a financing activity. Forfeitures have not been significant historically. We have elected to account for forfeitures as they occur, rather than to estimate them.

Definition of a Business

In January 2017, the FASB issued guidance that clarifies the definition of a business in order to assist in determining whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. Under the new guidance, fewer transactions are expected to be accounted for as business combinations. We elected to early adopt this guidance prospectively beginning in the first quarter of fiscal year 2017. This guidance did not have a significant impact on our consolidated financial statements upon adoption.

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. We have the option to adopt the standard in either fiscal year 2018 or 2019 either retrospectively or as a cumulative-effect adjustment as of the date of adoption. We intend to adopt this guidance in fiscal year 2019. We are currently evaluating the adoption alternatives allowed by the new standard and the impact the standard is expected to have on our consolidated financial statements. As the new standard will supersede substantially all existing revenue guidance affecting us under GAAP, it could impact the timing of revenue and cost recognition across all of our business segments, in addition to our business processes and information technology systems. As a result, our evaluation of the effect of the new standard will extend over future periods.

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, and we have started the assessment process by evaluating the population of leases under the revised definition of what qualifies as a leased asset. The Company is the lessee under various agreements for real estate, distribution equipment, aircraft, and vehicles that are currently accounted for as operating leases. The new guidance will require the Company to record operating leases on the balance sheet with a right-of-use asset and corresponding liability for future payment obligations.

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 re-designation 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.

Credit Losses on Financial Instruments

In June 2016, the FASB issued an update on the measurement of credit losses, which requires measurement and recognition of expected credit losses for financial assets, including trade receivables and capital lease receivables, held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. The method to determine a loss is different from the existing guidance, which requires a credit loss to be recognized when it is probable. The guidance is effective beginning fiscal year 2021, with early adoption permitted beginning fiscal year 2020. We are currently evaluating the impact this update will have on our consolidated financial statements.

Cash Flow Statement Classification

In August 2016, the FASB issued guidance to reduce diversity in practice on how certain cash receipts and cash payments are classified in the statement of cash flows. The guidance is effective beginning fiscal year 2019, with early adoption permitted, and should be applied retrospectively. We are currently evaluating the impact of adopting this new guidance on the consolidated financial statements.

Intra-Entity Asset Transfers

In October 2016, the FASB issued guidance on the accounting for the income tax effects of intra-entity transfers of assets other than inventory. Current GAAP prohibits the recognition of current and deferred income taxes for an intra-entity asset transfer until the asset has been sold to an outside party. Under the new guidance, the income tax consequences of an intra-entity asset transfer are recognized when the transfer occurs. The guidance is effective beginning in fiscal year 2019, with early adoption permitted as of the beginning of an annual reporting period. The guidance must be applied on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings as of the date of adoption. We are currently evaluating the impact this guidance will have on our consolidated financial statements and plan to adopt the guidance in fiscal year 2019.

3. DISCONTINUED OPERATIONS

Materials Technologies

On 16 September 2015, we announced plans to separate our Materials Technologies business, which contained two divisions, Electronic Materials Division (EMD) and Performance Materials Division (PMD). As further discussed below, we completed the separation of EMD through the spin-off of Versum on 1 October 2016. In addition, we completed the sale of PMD to Evonik Industries AG on 3 January 2017. As a result, these divisions are reflected in our consolidated financial statements as discontinued operations for all periods presented.

Spin-off of Electronic Materials

On 1 October 2016 (the distribution date), Air Products completed the spin-off of Versum into a separate and independent public company by way of a distribution to the Air Products' stockholders of all of the then issued and outstanding shares of common stock of Versum on the basis of one share of Versum common stock for every two shares of Air Products' common stock held as of the close of business on 21 September 2016 (the record date for the distribution). Fractional shares of Versum common stock were not distributed to Air Products common stockholders. Air Products' stockholders received cash in lieu of fractional shares. As a result of the distribution, Versum Materials, Inc. is now an independent public company and its common stock is listed under the symbol "VSM" on the New York Stock Exchange.

In connection with the spin-off, we entered into various agreements necessary to effect the spin-off and to govern the ongoing relationships between Air Products and Versum after the separation, including a transition services agreement by which we provide certain transition services to Versum, generally for no longer than 12 to 24 months. Balances due to/from Versum as of 31 December 2016 primarily related to the transition services agreement and were immaterial. In addition, Seifi Ghasemi, chairman, president and chief executive officer of Air Products, is serving as non-executive chairman of the Versum Board of Directors.

Sale of Performance Materials (Subsequent Event)

On 3 January 2017, we completed the sale of PMD to Evonik Industries AG for $3.8 billion in cash subject to customary post-closing adjustments, including working capital.

Energy-from-Waste

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, were 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 quarter of fiscal year 2016, that significant additional time and resources would be required to make the projects operational. Since that time, the EfW segment has been presented as a discontinued operation. During the second quarter of fiscal year 2016, a loss of $945.7 ($846.6 after-tax) was recorded to write down plant assets to their estimated net realizable value and record a liability for plant disposition and other costs. Income tax benefits related only to one of the projects, as the other did not qualify for a local tax deduction.

During the first quarter of fiscal year 2017, we determined that it is unlikely for a buyer to assume the remaining assets and contract obligations, including the related land lease. As a result, we recorded an additional loss of $59.3 ($47.1 after-tax), of which $53.0 was recorded primarily for land lease obligations and $6.3 was recorded to update our estimate of the net realizable value of the plant assets as of 31 December 2016. We may incur additional exit costs in future periods related to other outstanding commitments.

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

	Asset Actions	Contract Actions/Other	Total
Loss on disposal of business	$ 913.5	$ 32.2	$ 945.7
Noncash expenses	(913.5)	—	(913.5)
Cash expenditures	—	(18.6)	(18.6)
Currency translation adjustment	—	(1.4)	(1.4)
30 September 2016	$ —	$ 12.2	$ 12.2
Loss on disposal of business	6.3	53.0	59.3
Noncash expenses	(6.3)	—	(6.3)
31 December 2016	$ —	$ 65.2	$ 65.2

The loss on disposal was recorded as a component of discontinued operations. Of the remaining accrual, approximately $60 is included in other noncurrent liabilities of continuing operations and primarily relates to land leases and $5 is included in current liabilities of discontinued operations.

The following table details the businesses and major line items that comprise income from discontinued operations, net of tax, on the consolidated income statements for the three months ended 31 December 2016:

	Three Months Ended 31 December 2016		
	Performance Materials	Energy-from-Waste(A)	Total Discontinued Operations
Sales	$ 254.8	$ —	$ 254.8
Cost of sales	179.0	—	179.0
Selling and administrative	20.4	—	20.4
Research and development	5.1	—	5.1
Other income (expense), net	(.4)	(6.5)	(6.9)
Operating Income (Loss)	49.9	(6.5)	43.4
Equity affiliates' income	.3	—	.3
Income (Loss) Before Taxes	50.2	(6.5)	43.7
Income tax provision(B)	(50.5)	(1.1)	(51.6)
Income (Loss) From Operations of Discontinued Operations, net of tax	100.7	(5.4)	95.3
Loss on Disposal, net of tax	—	(47.1)	(47.1)
Income (Loss) from Discontinued Operations, net of tax	$ 100.7	$ (52.5)	$ 48.2

(A) The loss from operations of discontinued operations for EfW primarily relates to land leases, administrative costs, and costs incurred for ongoing project exit activities.

(B) As a result of the expected gain on sale of PMD that closed in the second quarter of 2017, we released valuation allowances related to capital loss and net operating loss carryforwards that favorably impacted our income tax provision within discontinued operations by approximately $66 during the first quarter of 2017.

The following table details the businesses and major line items that comprise income from discontinued operations, net of tax on the consolidated income statements for the three months ended 31 December 2015:

	Three Months Ended 31 December 2015			
	Electronic Materials	Performance Materials	Energy-from-Waste(A)	Total Discontinued Operations
Sales	$ 242.6	$ 246.9	$ —	$ 489.5
Cost of sales	127.3	172.6	—	299.9
Selling and administrative	18.4	19.0	—	37.4
Research and development	10.1	5.0	—	15.1
Other income (expense), net	2.2	(1.2)	(17.6)	(16.6)
Operating Income (Loss)	89.0	49.1	(17.6)	120.5
Equity affiliates' income	.2	.2	—	.4
Income (Loss) Before Taxes(B)	89.2	49.3	(17.6)	120.9
Income tax provision	24.9	14.5	(3.3)	36.1
Income (Loss) from Operations of Discontinued Operations, net of tax	64.3	34.8	(14.3)	84.8
Net Income Attributable to Noncontrolling Interests of Discontinued Operations	2.1	—	—	2.1
Net Income (Loss) From Discontinued Operations, net of tax	$ 62.2	$ 34.8	$ (14.3)	$ 82.7

(A) The loss from operations of discontinued operations for EfW primarily relates to project suspension costs, land leases, and administrative costs.

(B) For the three months ended 31 December 2015, income before taxes from operations of discontinued operations attributable to Air Products was $118.4.

The following table details the major line items that comprise total assets and total liabilities of discontinued operations on the consolidated balance sheets as of 31 December 2016:

	31 December 2016		
	Performance Materials	Energy-from-Waste	Total Discontinued Operations
Assets			
Current Assets			
Cash and cash items	$ 11.3	$ —	$ 11.3
Trade receivables, net	149.5	—	149.5
Inventories	222.2	—	222.2
Plant and equipment, net	306.8	11.0	317.8
Goodwill, net	122.4	—	122.4
Intangible assets, net	23.1	—	23.1
Other receivables and current assets	12.5	1.4	13.9
Total Current Assets	847.8	12.4	860.2
Total Assets	$ 847.8	$ 12.4	$ 860.2
Liabilities			
Current Liabilities			
Payables and accrued liabilities	$ 59.3	$ 10.9	$ 70.2
Accrued income taxes	11.2	—	11.2
Other current liabilities	7.8	—	7.8
Total Current Liabilities	78.3	10.9	89.2
Total Liabilities	$ 78.3	$ 10.9	$ 89.2

The following table details the major line items that comprise total assets and total liabilities of discontinued operations on the consolidated balance sheets as of 30 September 2016:

	30 September 2016			
	Electronic Materials	Performance Materials	Energy-from-Waste	Total Discontinued Operations
Assets				
Current Assets				
Cash and cash items	$ 170.6	$ 37.5	$ —	$ 208.1
Trade receivables, net	134.7	159.0	—	293.7
Inventories	138.1	226.8	—	364.9
Plant and equipment, net	—	—	18.2	18.2
Other receivables and current assets	34.5	5.6	1.2	41.3
Total Current Assets	477.9	428.9	19.4	926.2
Plant and equipment, net	296.5	296.5	—	593.0
Goodwill, net	180.0	125.0	—	305.0
Intangible assets, net	75.1	25.0	—	100.1
Other noncurrent assets	37.5	6.7	—	44.2
Total Noncurrent Assets	589.1	453.2	—	1,042.3
Total Assets	$ 1,067.0	$ 882.1	$ 19.4	$ 1,968.5
Liabilities				
Current Liabilities				
Payables and accrued liabilities	$ 85.8	$ 72.5	$ 19.0	$ 177.3
Accrued income taxes	22.7	6.0	—	28.7
Current portion of long-term debt	5.8	—	—	5.8
Total Current Liabilities	114.3	78.5	19.0	211.8
Long-term debt	981.8	—	—	981.8
Deferred income taxes	50.3	6.4	—	56.7
Other noncurrent liabilities	47.4	9.6	—	57.0
Total Noncurrent Liabilities	1,079.5	16.0	—	1,095.5
Total Liabilities	$ 1,193.8	$ 94.5	$ 19.0	$ 1,307.3

4. BUSINESS SEPARATION COSTS

In connection with the disposition of the two divisions comprising the former Materials Technologies segment, we incurred separation costs of $30.2 and $12.0 for the three months ended 31 December 2016 and 2015, respectively. These costs are reflected on the consolidated income statements as “Business separation costs” and include legal, advisory, and pension related costs. Refer to Note 3, Discontinued Operations, for additional information regarding the dispositions.

5. COST REDUCTION AND ASSET ACTIONS

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

In the first quarter of fiscal year 2017, we recognized a net expense of $50.0 ($41.2 after-tax, or $.19 per share). The net expense included a charge of $53.4 for actions taken during the first quarter of fiscal year 2017, partially offset by the favorable settlement of the remaining $3.4 accrued balance associated with business restructuring actions taken in 2015.

Asset actions taken in the first quarter of 2017 of $45.7 resulted from the write-down of an air separation unit in the Industrial Gases – EMEA segment that was constructed mainly to provide oxygen to one of the Energy-from-Waste plants. Severance and other benefits totaled $7.7 and related to the elimination of approximately 50 positions primarily in the Corporate and other and Industrial Gases – EMEA segments.

During fiscal year 2016, we incurred an expense of $34.5 for severance and other benefits related to the elimination of approximately 610 positions. No expense was recognized in the first quarter of fiscal year 2016. The fiscal year 2016 expenses primarily related to the Industrial Gases – Americas and the Industrial Gases – EMEA segments.

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

	Severance and Other Benefits	Asset Actions/Other	Total
2016 Charge	$ 34.5	$ —	$ 34.5
Amount reflected in pension liability	(.9)	—	(.9)
Cash expenditures	(21.6)	—	(21.6)
Currency translation adjustment	.3	—	.3
30 September 2016	$ 12.3	$ —	$ 12.3
2017 Charge	7.7	45.7	53.4
Noncash expenses	—	(45.7)	(45.7)
Amount reflected in pension liability	(.3)	—	(.3)
Cash expenditures	(7.6)	—	(7.6)
Currency translation adjustment	(.6)	—	(.6)
31 December 2016	$ 11.5	$ —	$ 11.5

6. INVENTORIES

The components of inventories are as follows:

	31 December 2016	30 September 2016
Finished goods	$ 126.5	$ 131.3
Work in process	17.3	18.3
Raw materials, supplies and other	202.0	117.1
	$ 345.8	$ 266.7
Less: Excess of FIFO cost over LIFO cost	(15.1)	(11.7)
Inventories	$ 330.7	$ 255.0

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

7. GOODWILL

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

	Industrial Gases– Americas	Industrial Gases– EMEA	Industrial Gases– Asia	Industrial Gases– Global	Total
Goodwill, net at 30 September 2016	$ 309.1	$ 380.6	$ 135.2	$ 20.2	$ 845.1
Currency translation	(4.0)	(26.9)	(2.7)	(.4)	(34.0)
Goodwill, net at 31 December 2016	$ 305.1	$ 353.7	$ 132.5	$ 19.8	$ 811.1

	31 December 2016		30 September 2016	
Goodwill, gross	$	1,064.6	$	1,103.7
Accumulated impairment losses[(A)]		(253.5)		(258.6)
Goodwill, net	$	811.1	$	845.1

(A) Amount is attributable to the Industrial Gases – Americas segment and includes currency translation of $51.7 and $46.6 as of 31 December 2016 and 30 September 2016, 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.

8. 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. The maximum remaining term of any forward exchange contract currently outstanding and designated as a cash flow hedge at 31 December 2016 is 2.5 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 pairs in this portfolio of forward exchange contracts are Euros and U.S. dollars and British Pound Sterling 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 December 2016			30 September 2016		
		US$ Notional	Years Average Maturity		US$ Notional	Years Average Maturity
Forward Exchange Contracts:						
Cash flow hedges	$	4,148.1	.4	$	4,130.3	.5
Net investment hedges		833.3	2.7		968.2	2.7
Not designated		2,405.1	.2		2,648.3	.4
Total Forward Exchange Contracts	$	7,386.5	.6	$	7,746.8	.7

The notional value of forward exchange contracts not designated in the table above includes forward contracts which were hedging intercompany loans that were repaid prior to their original maturity dates in anticipation of the spin-off of Versum. The forward exchange contracts no longer qualified as cash flow hedges due to the early repayment of the loans. We entered into additional forward exchange contracts to offset these outstanding positions to eliminate any future earnings impact.

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 €910.9 million ($958.0) at 31 December 2016 and €920.7 million ($1,034.4) at 30 September 2016. 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.

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 December 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. The contracts are used to hedge either certain net investments in foreign operations or non-functional 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 December 2016				30 September 2016			
	US$ Notional	Average Pay %	Average Receive %	Years Average Maturity	US$ Notional	Average Pay %	Average Receive %	Years Average Maturity
Interest rate swaps (fair value hedge)	$ 600.0	LIBOR	2.28%	2.0	$ 600.0	LIBOR	2.28%	2.3
Cross currency interest rate swaps (net investment hedge)	$ 522.0	3.24%	2.41%	2.3	$ 517.7	3.24%	2.43%	2.6
Cross currency interest rate swaps (cash flow hedge)	$ 1,088.9	4.77%	2.72%	3.0	$ 1,088.9	4.77%	2.72%	3.3
Cross currency interest rate swaps (not designated)	$ 23.1	3.62%	.81%	1.6	$ 27.4	3.62%	.81%	1.8

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

	Balance Sheet Location	31 December 2016	30 September 2016	Balance Sheet Location	31 December 2016	30 September 2016
Derivatives Designated as Hedging Instruments:						
Forward exchange contracts	Other receivables	$ 62.4	$ 72.3	Accrued liabilities	$ 144.2	$ 44.0
Interest rate management contracts	Other receivables	32.3	19.9	Accrued liabilities	—	—
Forward exchange contracts	Other noncurrent assets	73.6	44.4	Other noncurrent liabilities	1.9	9.1
Interest rate management contracts	Other noncurrent assets	202.6	160.0	Other noncurrent liabilities	14.8	12.0
Total Derivatives Designated as Hedging Instruments		$ 370.9	$ 296.6		$ 160.9	$ 65.1
Derivatives Not Designated as Hedging Instruments:						
Forward exchange contracts	Other receivables	$ 93.4	$ 77.1	Accrued liabilities	$ 47.7	$ 29.5
Forward exchange contracts	Other noncurrent assets	—	—	Other noncurrent liabilities	.2	—
Interest rate management contracts	Other noncurrent assets	—	—	Other noncurrent liabilities	.3	.7
Total Derivatives Not Designated as Hedging Instruments		$ 93.4	$ 77.1		$ 48.2	$ 30.2
Total Derivatives		$ 464.3	$ 373.7		$ 209.1	$ 95.3

Refer to Note 9, Fair Value Measurements, which defines fair value, describes the method for measuring fair value, and provides additional disclosures regarding fair value measurements.

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 December							
	Forward Exchange Contracts		Foreign Currency Debt		Other (A)		Total	
	2016	2015	2016	2015	2016	2015	2016	2015
Cash Flow Hedges, net of tax:								
Net gain (loss) recognized in OCI (effective portion)	$ (59.4)	$ (4.7)	$ —	$ —	$ 49.6	$ 20.7	$ (9.8)	$ 16.0
Net (gain) loss reclassified from OCI to sales/cost of sales (effective portion)	4.6	.9	—	—	—	—	4.6	.9
Net (gain) loss reclassified from OCI to other income (expense), net (effective portion)	49.5	(1.8)	—	—	(28.2)	(20.2)	21.3	(22.0)
Net (gain) loss reclassified from OCI to interest expense (effective portion)	(.8)	1.4	—	—	.7	.8	(.1)	2.2
Net (gain) loss reclassified from OCI to other income (expense), net (ineffective portion)	(.2)	(.4)	—	—	—	—	(.2)	(.4)
Fair Value Hedges:								
Net gain (loss) recognized in interest expense(B)	$ —	$ —	$ —	$ —	$ (9.1)	$ (9.0)	$ (9.1)	$ (9.0)
Net Investment Hedges, net of tax:								
Net gain (loss) recognized in OCI	$ 27.9	$ 3.0	$ 41.8	$ 7.6	$ 13.1	$ 6.5	$ 82.8	$ 17.1
Derivatives Not Designated as Hedging Instruments:								
Net gain (loss) recognized in other income (expense), net(C)	$ 2.1	$ (.4)	$ —	$ —	$ .8	$ —	$ 2.9	$ (.4)

(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 recognized gains and losses resulting from the impact of changes in related interest rates on outstanding debt.

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

The amount of cash flow hedges' unrealized gains and losses at 31 December 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 $17.4 as of 31 December 2016 and $11.2 as of 30 September 2016. 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 $334.0 as of 31 December 2016 and $267.6 as of 30 September 2016. No financial institution is required to post collateral at this time, as all have credit ratings at or above threshold.

9. FAIR VALUE MEASUREMENTS

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

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

Level 1 — Quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 — Inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the asset or liability.

Level 3 — Inputs that are unobservable for the asset or liability based on our own assumptions (about the assumptions market participants would use in pricing the asset or liability).

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

Derivatives

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

Refer to Note 8, Financial Instruments, for a description of derivative instruments, including details on the balance sheet line classifications.

Long-term Debt

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

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

	31 December 2016		30 September 2016	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Assets				
Derivatives				
Forward exchange contracts	$ 229.4	$ 229.4	$ 193.8	$ 193.8
Interest rate management contracts	234.9	234.9	179.9	179.9
Liabilities				
Derivatives				
Forward exchange contracts	$ 194.0	$ 194.0	$ 82.6	$ 82.6
Interest rate management contracts	15.1	15.1	12.7	12.7
Long-term debt, including current portion	4,162.3	4,253.8	4,275.1	4,450.5

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 December 2016				30 September 2016			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Assets at Fair Value								
Derivatives								
Forward exchange contracts	$ 229.4	$ —	$ 229.4	$ —	$ 193.8	$ —	$ 193.8	$ —
Interest rate management contracts	234.9	—	234.9	—	179.9	—	179.9	—
Total Assets at Fair Value	$ 464.3	$ —	$ 464.3	$ —	$ 373.7	$ —	$ 373.7	$ —
Liabilities at Fair Value								
Derivatives								
Forward exchange contracts	$ 194.0	$ —	$ 194.0	$ —	$ 82.6	$ —	$ 82.6	$ —
Interest rate management contracts	15.1	—	15.1	—	12.7	—	12.7	—
Total Liabilities at Fair Value	$ 209.1	$ —	$ 209.1	$ —	$ 95.3	$ —	$ 95.3	$ —

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 December 2016				2017
	Total	Level 1	Level 2	Level 3	Loss
Plant and Equipment – Continuing operations[(A)]	$ 1.4	$ —	$ —	$ 1.4	$ 45.7
Plant and Equipment – Discontinued operations[(A)]	$ 11.0	$ —	$ —	$ 11.0	$ 6.3

(A) We assessed the recoverability of the carrying value of assets associated with the EfW discontinued operation, including the air separation unit within continuing operations of our Industrial Gases- EMEA segment. We based our estimates primarily on an orderly liquidation valuation which resulted in losses for the difference between the orderly liquidation value and net book value of the assets as of 31 December 2016. For additional information, see Note 3, Discontinued Operations and Note 5, Cost Reduction and Asset Actions.

10. RETIREMENT BENEFITS

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

	Pension Benefits				Other Benefits	
	2016		2015		2016	2015
Three Months Ended 31 December	U.S.	International	U.S.	International		
Service Cost	$ 8.3	$ 6.7	$ 9.0	$ 6.2	$ .5	$ .5
Interest Cost	24.9	7.6	27.7	11.6	.4	.5
Expected return on plan assets	(52.7)	(18.5)	(50.5)	(20.7)	—	—
Prior service cost amortization	.6	—	.7	—	—	—
Actuarial loss amortization	26.1	13.9	21.1	9.2	.2	.2
Settlements	—	(2.3)	—	—	—	—
Curtailment	4.2	(3.1)	—	—	—	—
Special termination benefits	1.1	.4	—	—	—	—
Other	—	2.7	—	.5	—	—
Net periodic benefit cost (Total)	$ 12.5	$ 7.4	$ 8.0	$ 6.8	$ 1.1	$ 1.2
Less: Discontinued Operations	(.6)	(.7)	(1.8)	(1.4)	—	(.1)
Net periodic benefit cost (Continuing Operations)	$ 11.9	$ 6.7	$ 6.2	$ 5.4	$ 1.1	$ 1.1

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 fiscal year 2017 and 2016 was not material.

In connection with the disposition of the two divisions comprising the Materials Technologies segment, we incurred settlement, curtailment, special termination benefits and other pension related costs totaling $2.5. These costs are reflected on the consolidated income statements as "Business separation costs".

As discussed in Note 3, Discontinued Operations, we completed the separation of EMD through the spin-off of Versum on 1 October 2016. In connection with the spin-off, the Company transferred defined benefit pension assets and obligations to Versum resulting in a net decrease in the underfunded status of the Company's sponsored pension plans of $24. Additionally, as a result of the transfer of unrecognized losses to Versum, accumulated other comprehensive loss, net of tax, decreased by approximately $5.

The increase in pension expense primarily resulted from a decrease in discount rates, partially offset by favorable asset experience and the adoption of new mortality projections for certain of our plans.

For the three months ended 31 December 2016 and 2015, our cash contributions to funded pension plans and benefit payments under unfunded pension plans were $24.9 and $51.8, respectively. Total contributions for fiscal 2017 are expected to be approximately $65 to $85. During fiscal 2016, total contributions were $79.3.

11. 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 $55 at 31 December 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 $55 at 31 December 2016) plus interest accrued thereon until final disposition of the proceedings.

Other than this matter, we do not currently believe there are any legal proceedings, individually or in the aggregate, that are reasonably possible to have a material impact on our financial condition, results of operations, or cash flows.

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 33 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 December 2016 and 30 September 2016 included an accrual of $80.1 and $81.3, respectively, primarily as part of other noncurrent liabilities. The environmental liabilities will be paid over a period of up to 30 years. We estimate the exposure for environmental loss contingencies to range from $80 to a reasonably possible upper exposure of $94 as of 31 December 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 December 2016, $29.8 of the environmental accrual was related to the Pace facility.

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

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

PIEDMONT

At 31 December 2016, $17.3 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 December 2016, $10.3 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.

12. SHARE-BASED COMPENSATION

We have various share-based compensation programs, which include deferred stock units, stock options, and restricted stock. During the three months ended 31 December 2016, we granted market-based and time-based deferred stock units. 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 December 2016, there were 4,793,342 shares available for future grant under our Long-Term Incentive Plan (LTIP), which is shareholder approved.

As discussed in Note 3, Discontinued Operations, we completed the separation of EMD through the spin-off of Versum on 1 October 2016. In connection with spin-off, the Company adjusted the number of deferred stock units and stock options pursuant to existing anti-dilution provisions in the LTIP, to preserve the intrinsic value of the awards immediately before and after the separation. The outstanding awards will continue to vest over the original vesting period defined at the grant date. Outstanding awards at the time of spin-off were primarily converted into awards of the holder's employer following the separation. The adjustment to the awards did not result in incremental fair value and no incremental compensation expense was recorded related to the conversion of these awards.

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

	Three Months Ended 31 December	
	2016	2015
Before-Tax Share-Based Compensation Cost	$ 9.0	$ 8.3
Income Tax Benefit	(3.0)	(2.8)
After-Tax Share-Based Compensation Cost	$ 6.0	$ 5.5

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 fiscal year 2017 and 2016 was not material.

Deferred Stock Units

During the three months ended 31 December 2016, we granted 116,740 market-based deferred stock units. The market-based deferred stock units are earned out at the end of a performance period beginning 1 October 2016 and ending 30 September 2019, 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 $156.87 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	20.6%
Risk-free interest rate	1.4%
Expected dividend yield	2.5%

In addition, during the three months ended 31 December 2016, we granted 145,604 time-based deferred stock units at a weighted average grant-date fair value of $143.51.

13. EQUITY

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

	Three Months Ended 31 December					
	2016			2015		
	Air Products	Non-controlling Interests	Total Equity	Air Products	Non-controlling Interests	Total Equity
Balance at 30 September	$ 7,079.6	$ 133.8	$ 7,213.4	$ 7,249.0	$ 132.1	$ 7,381.1
Net income	299.8	6.6	306.4	363.6	8.4	372.0
Other comprehensive loss	(234.9)	(3.1)	(238.0)	(82.7)	—	(82.7)
Dividends on common stock (per share $0.86, $0.81)	(187.1)	—	(187.1)	(174.7)	—	(174.7)
Dividends to noncontrolling interests	—	(4.2)	(4.2)	—	(8.5)	(8.5)
Share-based compensation	9.0	—	9.0	8.3	—	8.3
Treasury shares for stock option and award plans	(.3)	—	(.3)	(2.0)	—	(2.0)
Tax benefit of stock option and award plans	—	—	—	4.9	—	4.9
Spin-off of Versum	186.5	(33.9)	152.6	—	—	—
Cumulative change in accounting principle (Note 2)	8.8	—	8.8	—	—	—
Other equity transactions	.1	.4	.5	.7	(.1)	.6
Balance at 31 December	$ 7,161.5	$ 99.6	$ 7,261.1	$ 7,367.1	$ 131.9	$ 7,499.0

14. 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 months ended 31 December 2016:

	Net loss on derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance at 30 September 2016	$ (65.0)	$ (949.3)	$ (1,374.0)	$ (2,388.3)
Other comprehensive loss before reclassifications	(9.8)	(281.2)	—	(291.0)
Amounts reclassified from AOCL	25.6	—	27.4	53.0
Net current period other comprehensive income (loss)	15.8	(281.2)	27.4	(238.0)
Spin-off of Versum	.2	6.0	5.3	11.5
Amount attributable to noncontrolling interests	—	(3.1)	—	(3.1)
Balance at 31 December 2016	$ (49.0)	$ (1,221.4)	$ (1,341.3)	$ (2,611.7)

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 31 December 2016	2015
(Gain) Loss on Cash Flow Hedges, net of tax		
Sales/Cost of sales	$ 4.6	$ .9
Other income (expense), net	21.1	(22.4)
Interest expense	(.1)	2.2
Total (Gain) Loss on Cash Flow Hedges, net of tax	$ 25.6	$ (19.3)
Currency Translation Adjustment(A)	$ —	$ 2.4
Pension and Postretirement Benefits, net of tax(B)	$ 27.4	$ 21.1

(A) The impact is reflected in Other income (expense), net and relates to the sale of an equity affiliate.

(B) 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 10, Retirement Benefits.

15. EARNINGS PER SHARE

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

	Three Months Ended 31 December 2016	2015
Numerator		
Income from continuing operations	$ 251.6	$ 280.9
Income from discontinued operations	48.2	82.7
Net Income Attributable to Air Products	$ 299.8	$ 363.6
Denominator (in millions)		
Weighted average common shares — Basic	217.7	215.8
Effect of dilutive securities		
Employee stock option and other award plans	2.0	1.8
Weighted average common shares — Diluted	219.7	217.6
Basic Earnings Per Common Share Attributable to Air Products		
Income from continuing operations	$ 1.16	$ 1.30
Income from discontinued operations	.22	.38
Net Income Attributable to Air Products	$ 1.38	$ 1.68
Diluted Earnings Per Common Share Attributable to Air Products		
Income from continuing operations	$ 1.15	$ 1.29
Income from discontinued operations	.22	.38
Net Income Attributable to Air Products	$ 1.37	$ 1.67

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

16. SUPPLEMENTAL INFORMATION

Cash Paid for Taxes (Net of Cash Refunds)

On a total company basis, income tax payments, net of refunds, were $96.7 and $66.9 for the three months ended 31 December 2016 and 2015, respectively.

Subsequent Event

On 26 January 2017, the Board of Directors declared the second quarter dividend of $.95. The dividend is payable on 8 May 2017 to shareholders of record at the close of business on 3 April 2017.

17. 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
- Corporate and other

Business Segment

	Industrial Gases–Americas	Industrial Gases–EMEA	Industrial Gases–Asia	Industrial Gases–Global	Corporate and other	Segment Total
Three Months Ended 31 December 2016						
Sales	$ 863.9	$ 399.7	$ 438.3	$ 147.9	$ 32.7	$ 1,882.5
Operating income (loss)	223.8	88.0	118.1	8.2	(29.8)	408.3
Depreciation and amortization	111.8	42.2	46.7	2.0	3.4	206.1
Equity affiliates' income	14.7	9.5	13.5	.3	—	38.0
Three Months Ended 31 December 2015						
Sales	$ 836.3	$ 439.6	$ 414.6	$ 104.3	$ 71.5	$ 1,866.3
Operating income (loss)	211.6	92.3	117.3	(19.3)	(17.4)	384.5
Depreciation and amortization	109.0	46.8	51.9	2.1	4.9	214.7
Equity affiliates' income (loss)	14.5	7.6	11.7	(.5)	—	33.3
Total Assets						
31 December 2016	$ 5,873.9	$ 3,005.0	$ 4,098.0	$ 268.5	$ 1,850.6	$ 15,096.0
30 September 2016	5,896.7	3,178.6	4,232.7	367.6	2,384.5	16,060.1

The sales information noted above relates to external customers only. All intersegment sales are eliminated in consolidation. For the three months ended 31 December 2016 and 2015, the Industrial Gases – Global segment had intersegment sales of $61.0 and $54.6, 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.

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

	Three Months Ended 31 December	
Operating Income	2016	2015
Segment total	$ 408.3	$ 384.5
Business separation costs	(30.2)	(12.0)
Cost reduction and asset actions	(50.0)	—
Consolidated Total	$ 328.1	$ 372.5

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

Total Assets	31 December 2016	30 September 2016
Segment total	$ 15,096.0	$ 16,060.1
Discontinued operations	860.2	1,968.5
Consolidated Total	$ 15,956.2	$ 18,028.6

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 2016 Form 10-K. An analysis of results for the first quarter of 2017 is provided in the Management’s Discussion and Analysis to follow.

On 1 October 2016, we completed the separation of EMD through the spin-off of Versum Materials, Inc. (Versum). On 3 January 2017, we completed the sale of PMD to Evonik Industries AG for $3.8 billion in cash subject to customary post-closing adjustments, including working capital. As a result, these divisions are reflected in our consolidated financial statements as discontinued operations for all periods presented.

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 to non-GAAP financial measures. The presentation of non-GAAP measures is intended to enhance the usefulness of financial information by providing measures which, when viewed together with our financial results reported in accordance with GAAP, provide a more complete understanding of the factors and trends affecting our historical financial performance and projected future results. The reconciliation of reported GAAP results to non-GAAP measures is presented on pages 35-38. Descriptions of the excluded items appear on page 31.

FIRST QUARTER 2017 VS. FIRST QUARTER 2016

FIRST QUARTER 2017 IN SUMMARY

- Sales of $1,882.5 increased 1%, or $16.2, as higher volumes and energy contractual pass-through to customers of 2% each were partially offset by an unfavorable currency impact of 3%.
- Operating income of $328.1 decreased 12%, or $44.4, and operating margin of 17.4% decreased 260 basis points (bp). On a non-GAAP basis, operating income of $408.3 increased 6%, or $23.8, and operating margin of 21.7% increased 110 bp.
- Adjusted EBITDA of $652.4 increased 3%, or $19.9, primarily due to favorable cost performance. Adjusted EBITDA margin of 34.7% increased 80 bp.
- Income from continuing operations of $251.6 decreased 10%, or $29.3, and diluted earnings per share of $1.15 decreased 11%, or $0.14. On a non-GAAP basis, income from continuing operations of $322.0 increased 10%, or $29.1, and diluted earnings per share of $1.47 increased 9%, or $0.12. A summary table of changes in diluted earnings per share is presented below.
- We completed the spin-off of EMD as Versum Materials, Inc. on 1 October 2016.

Changes in Diluted Earnings per Share Attributable to Air Products

	Three Months Ended 31 December		Increase
	2016	2015	(Decrease)
Diluted Earnings per Share			
Net Income	**$ 1.37**	**$ 1.67**	**$ (.30)**
Income from Discontinued Operations	.22	.38	(.16)
Income from Continuing Operations – GAAP Basis	**$ 1.15**	**$ 1.29**	**$ (.14)**
Operating Income Impact (after-tax)			
Underlying business			
Volume			$ (.07)
Price/raw materials			(.01)
Costs			.19
Currency			(.03)
Business separation costs			(.06)
Cost reduction and asset actions			(.19)
Operating Income			**$ (.17)**
Other (after-tax)			
Equity affiliates' income			.02
Interest expense			(.03)
Income tax			.06
Tax costs associated with business separation			(.01)
Weighted average diluted shares			(.01)
Other			**$ .03**
Total Change in Diluted Earnings per Share from Continuing Operations – GAAP Basis			**$ (.14)**

	Three Months Ended 31 December		Increase
	2016	2015	(Decrease)
Income from Continuing Operations – GAAP Basis	**$ 1.15**	**$ 1.29**	**$ (.14)**
Business separation costs	.12	.06	.06
Tax costs associated with business separation	.01	—	.01
Cost reduction and asset actions	.19	—	.19
Income from Continuing Operations – Non-GAAP Basis	**$ 1.47**	**$ 1.35**	**$ .12**

RESULTS OF OPERATIONS

Discussion of Consolidated Results

	Three Months Ended 31 December 2016	2015	$ Change	Change
Sales	$ 1,882.5	$ 1,866.3	$ 16.2	1 %
Operating income	328.1	372.5	(44.4)	(12)%
Operating margin	17.4%	20.0%		(260 bp)
Equity affiliates' income	38.0	33.3	4.7	14 %
Non-GAAP Basis				
Adjusted EBITDA	$ 652.4	$ 632.5	$ 19.9	3 %
Adjusted EBITDA margin	34.7%	33.9%		80 bp
Adjusted Operating income	408.3	384.5	23.8	6 %
Adjusted Operating margin	21.7%	20.6%		110 bp

Sales

	% Change from Prior Year
Underlying business	
Volume	2 %
Price	— %
Currency	(3)%
Energy and raw material cost pass-through	2 %
Total Consolidated Change	**1 %**

Underlying sales increased 2% as higher volumes in the Industrial Gases – Asia and Industrial Gases – Global segments were partially offset by lower activity from our LNG business in the Corporate and other segment. Higher volumes in the Industrial Gases – Global segment resulted from our Jazan sale-of-equipment project. Unfavorable currency impacts, primarily from the British Pound Sterling and the Chinese Renminbi, reduced sales by 3%. Higher energy and natural gas contractual cost pass-through to customers increased sales by 2%.

Operating Income and Margin

Operating income of $328.1 decreased 12%, or $44.4, as higher cost reduction and asset actions of $50, unfavorable volumes of $20, higher business separation costs of $18, unfavorable currency impacts of $10, and unfavorable pricing net of raw material costs of $2, were partially offset by favorable net operating costs of $56. Net operating costs were lower primarily due to benefits from operational improvements and higher other income. Operating margin of 17.4% decreased 260 bp.

On a non-GAAP basis, operating income of $408.3 increased $23.8. Operating margin of 21.7% increased 110 bp primarily due to favorable cost performance from productivity actions, partially offset by unfavorable volume mix.

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 $652.4 increased 3%, or $19.9, primarily due to favorable costs. Adjusted EBITDA margin of 34.7% increased 80 bp.

Equity Affiliates' Income

Income from equity affiliates of $38.0 increased $4.7 primarily due to Industrial Gases – EMEA and Industrial Gases – Asia affiliates.

Cost of Sales and Gross Margin

Cost of sales of $1,318.1 increased $22.2, due to higher costs attributable to sales volumes of $52 and higher energy costs of $38, partially offset by favorable currency impacts of $44 and lower operating costs of $24.

Gross margin of 30.0% decreased 60 bp, primarily due to unfavorable volume mix of 160 bp, partially offset by favorable costs.

Selling and Administrative Expense

Selling and administrative expense of $165.7 decreased $8.2, primarily due to benefits of our productivity actions. Selling and administrative expense, as a percent of sales, decreased from 9.3% to 8.8%.

Research and Development

Research and development expense of $15.1 decreased $1.8. Research and development expense, as a percent of sales, decreased from .9% to .8%.

Business Separation Costs

In connection with the disposition of the two divisions comprising the former Materials Technologies segment, we incurred separation costs of $30.2 ($26.5 after-tax, or $.12 per share) and $12.0 ($0.06 per share), for the three months ended 31 December 2016 and 2015, respectively. These costs are reflected on the consolidated income statements as “Business separation costs” and include legal, advisory, and pension related costs. A significant portion of these costs were not tax deductible because they were directly related to the plan for the tax-free spin-off of Versum. In addition, our income tax provision includes additional tax expense related to the separation of $2.7 ($.01 per share). Refer to the discussion on Discontinued Operations below and Note 3, Discontinued Operations, to the consolidated financial statements for additional information regarding the dispositions.

Cost Reduction and Asset Actions

During the three months ended 31 December 2016, we recognized a net expense of $50.0 ($41.2 after-tax, or $.19 per share), primarily related to the write-down of an air separation unit in the Industrial Gases – EMEA segment that was constructed mainly to provide oxygen to one of the Energy-from-Waste plants and for severance and other benefits. Refer to Note 5, Cost Reduction and Asset Actions, for additional details.

Other Income (Expense), Net

Other income (expense), net of $24.7 increased $19.8 partly due to income from the transition services agreement with Versum and higher gains from asset sales. Otherwise, no individual items were significant in comparison to the prior year.

Interest Expense

	Three Months Ended 31 December	
	2016	2015
Interest incurred	$ 35.8	$ 35.8
Less: capitalized interest	6.3	13.6
Interest expense	$ 29.5	$ 22.2

Interest incurred was flat as the impact from a higher average interest rate on the debt portfolio was offset by the impact from a lower average debt balance and 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, primarily as a result of our decision to exit from the Energy-from-Waste business in the second quarter of fiscal year 2016.

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 23.3% and 25.1% in the first quarter of 2017 and 2016, respectively. The decrease included a 210 bp impact from excess tax benefits on shared-based compensation in accordance with our adoption of new accounting guidance, as well as a 150 bp benefit related to foreign tax law changes. These benefits were partially offset by higher business separation costs for which a tax benefit was not available. On a non-GAAP basis, the effective tax rate decreased 320bp from 24.4% in 2016 to 21.2% in 2017 due to the impact of the excess tax benefits on share-based compensation and foreign tax law changes. Refer to Note 2, New Accounting Guidance, for additional information on our adoption of the share based compensation accounting guidance.

Discontinued Operations

The results of our previous Materials Technologies segment, which contained EMD and PMD, and the former Energy-from-Waste segment have been presented as discontinued operations. Refer to Note 3, Discontinued Operations, for additional information, including detail of the major line items that comprise income from discontinued operations, net of tax, on the consolidated income statements for the three months ended 31 December 2016 and 2015.

Materials Technologies

On 16 September 2015, we announced plans to separate our Materials Technologies business, which contained EMD and PMD. On 1 October 2016, we completed the separation of EMD through the spin-off of Versum. On 3 January 2017, we completed the sale of PMD to Evonik Industries AG for $3.8 billion in cash subject to customary post-closing adjustments, including working capital. As a result, these divisions are reflected in our consolidated financial statements as discontinued operations for all periods presented.

Energy-from-Waste

During the second quarter of fiscal year 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, had been discontinued and a loss on disposal of $945.7 ($846.6 after-tax) was recorded to write down assets to their estimated net realizable value and record a liability for plant disposition costs.

During the first quarter of fiscal year 2017, we determined that it is unlikely for a buyer to assume the remaining assets and contract obligations, including the related land leases. As a result, an additional loss of $59.3 ($47.1 after-tax) was recorded in the results of discontinued operations. Of this loss, $53.0 was recorded for contract and other obligations and $6.3 was recorded to update our estimated net realizable value for the plant assets as of 31 December 2016. We may incur additional exit costs in future periods related to other outstanding commitments.

Segment Analysis

Industrial Gases – Americas

	Three Months Ended 31 December			
	2016	2015	$ Change	% Change
Sales	$ 863.9	$ 836.3	$ 27.6	3%
Operating income	223.8	211.6	12.2	6%
Operating margin	25.9%	25.3%		60 bp
Equity affiliates' income	14.7	14.5	.2	1%
Adjusted EBITDA	350.3	335.1	15.2	5%
Adjusted EBITDA margin	40.5%	40.1%		40 bp

Industrial Gases – Americas Sales

	% Change from Prior Year
Underlying business	
Volume	(2)%
Price	— %
Currency	— %
Energy and raw material cost pass-through	5 %
Total Industrial Gases – Americas Sales Change	**3 %**

Underlying sales decreased 2% from lower volumes in both North and South America of 1% each. The decrease in South America volumes primarily resulted from weakness in packaged gases and equipment. North America volumes decreased as weakness in helium was partially offset by slightly higher liquid oxygen and nitrogen volumes. In addition, HyCo volumes were modestly positive as a new plant onstream was mostly offset by planned maintenance outages. Higher energy contractual cost pass-through to customers, primarily related to natural gas, increased sales by 5%.

Industrial Gases – Americas Operating Income and Margin

Operating income of $223.8 increased $12.2, or 6%, as favorable operating costs of $27 and higher pricing net of energy and fuel costs of $2 were partially offset by lower volumes of $16. Operating costs were lower due to benefits from productivity actions. Operating margin of 25.9% increased 60 bp from the prior year primarily due to favorable cost performance partially offset by lower volumes and higher energy pass-through.

Industrial Gases – Americas Equity Affiliates' Income

Equity affiliates' income of $14.7 increased $.2.

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

	Three Months Ended 31 December			
	2016	2015	$ Change	% Change
Sales	$ 399.7	$ 439.6	$ (39.9)	(9)%
Operating income	88.0	92.3	(4.3)	(5)%
Operating margin	22.0%	21.0%		100 bp
Equity affiliates' income	9.5	7.6	1.9	25%
Adjusted EBITDA	139.7	146.7	(7.0)	(5)%
Adjusted EBITDA margin	35.0%	33.4%		160 bp

Industrial Gases – EMEA Sales

	% Change from Prior Year
Underlying business	
Volume	(2)%
Price	— %
Currency	(6)%
Energy and raw material cost pass-through	(1)%
Total Industrial Gases – EMEA Sales Change	**(9)%**

Underlying sales decreased 2% from lower volumes as pricing was flat. Volumes decreased from lower liquid volumes across all regions. Unfavorable currency impacts, primarily from the British Pound Sterling, reduced sales by 6%. Lower energy and natural gas contractual cost pass-through to customers decreased sales by 1%.

Industrial Gases – EMEA Operating Income and Margin

Operating income of $88.0 decreased by 5%, or $4.3, primarily due to unfavorable currency impacts of $8, lower volumes of $3, and lower pricing net of energy and fuel costs of $2, partially offset by favorable costs, driven by operational improvements, of $9. The lower pricing net of energy and fuel costs primarily resulted from higher power costs. Operating margin of 22.0% increased 100 bp from the prior year, primarily due to favorable cost performance.

Industrial Gases – EMEA Equity Affiliates' Income

Equity affiliates' income of $9.5 increased $1.9.

Industrial Gases – Asia

	Three Months Ended 31 December			
	2016	2015	$ Change	% Change
Sales	$ 438.3	$ 414.6	$ 23.7	6%
Operating income	118.1	117.3	.8	1%
Operating margin	26.9%	28.3%		(140 bp)
Equity affiliates' income	13.5	11.7	1.8	15%
Adjusted EBITDA	178.3	180.9	(2.6)	(1)%
Adjusted EBITDA margin	40.7%	43.6%		(290 bp)

Industrial Gases – Asia Sales

	% Change from Prior Year
Underlying business	
Volume	10 %
Price	(1)%
Currency	(3)%
Energy and raw material cost pass-through	— %
Total Industrial Gases – Asia Sales Change	**6 %**

Underlying sales increased by 9% from higher volumes of 10%, partially offset by lower pricing of 1%. Volumes increased primarily due to new plants, including the commencement of a utility pass-through, and base business growth driven by higher merchant volumes across Asia. Pricing was down slightly primarily due to helium pricing. Unfavorable currency impacts, primarily from the Chinese Renminbi, decreased sales by 3%.

Industrial Gases – Asia Operating Income and Margin

Operating income of $118.1 increased 1%, or $.8, primarily due to higher volumes of $7 and lower operating costs of $1, partially offset by an unfavorable currency impact of $4 and unfavorable price net of energy and fuel costs of $3. Operating margin of 26.9% decreased 140 bp from the prior year, due to the higher utility pass-through on new plants and lower pricing.

Industrial Gases – Asia Equity Affiliates' Income

Equity affiliates' income of $13.5 increased $1.8.

Industrial Gases – Global

	Three Months Ended 31 December			
	2016	2015	$ Change	% Change
Sales	$ 147.9	$ 104.3	$ 43.6	42%
Operating income (loss)	8.2	(19.3)	27.5	142%
Adjusted EBITDA	10.5	(17.7)	28.2	159%

Industrial Gases – Global Sales and Operating Income (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 $147.9 increased $43.6, or 42%. 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.

Operating income of $8.2 increased $27.5 from an operating loss in the prior year, primarily from income on the Jazan project and productivity improvements.

Corporate and other

	Three Months Ended 31 December			
	2016	2015	$ Change	% Change
Sales	$ 32.7	$ 71.5	$ (38.8)	(54)%
Operating loss	(29.8)	(17.4)	(12.4)	(71)%
Adjusted EBITDA	(26.4)	(12.5)	(13.9)	(111)%

Corporate and other Sales and Operating Loss

Sales of $32.7 decreased $38.8 primarily due to lower liquefied natural gas (LNG) project activity. We expect delays in new LNG project orders due to continued weakness in energy markets. Operating loss of $29.8 increased $12.4 due to lower LNG activity, partially offset by productivity improvements and the transition service agreement with Versum.

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES
(Millions of dollars unless otherwise indicated, except for share data)

The Company has presented certain financial measures on a non-GAAP ("adjusted") basis and has provided a reconciliation to the most directly comparable financial measure calculated in accordance with GAAP. These financial measures are not meant to be considered in isolation or as a substitute for the most directly comparable financial measure calculated in accordance with GAAP. The Company believes these non-GAAP measures provide investors, potential investors, securities analysts, and others with useful information to evaluate the performance of the business because such measures, when viewed together with our financial results computed in accordance with GAAP, provide a more complete understanding of the factors and trends affecting our historical financial performance and projected future results.

In many cases, our non-GAAP measures are determined by adjusting the most directly comparable GAAP financial measure to exclude certain disclosed items ("non-GAAP adjustments") that we believe are not representative of the underlying business performance. For example, Air Products has executed its strategic plan to restructure the Company and, as part of this plan, is now focusing on the Company's core Industrial Gases businesses, which will continue to result in significant cost reduction and asset actions that we believe are important for investors to understand separately from the performance of the underlying business. The tax impact of our non-GAAP adjustments reflects the expected current and deferred income tax expense impact of the transactions and is impacted primarily by the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions. 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. Investors should also consider the limitations associated with these non-GAAP measures, including the potential lack of comparability of these measures from one company to another.

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

CONSOLIDATED RESULTS

	Continuing Operations				
	Three Months Ended 31 December				
2017 vs. 2016	Operating Income	Operating Margin [(A)]	Income Tax Provision[(B)]	Net Income	Diluted EPS
2017 GAAP	**$ 328.1**	**17.4%**	**$ 78.4**	**$ 251.6**	**$ 1.15**
2016 GAAP	**372.5**	**20.0%**	**96.4**	**280.9**	**1.29**
Change GAAP	$ (44.4)	(260)bp	$ (18.0)	$ (29.3)	$ (.14)
% Change GAAP	(12)%			(10)%	(11)%
2017 GAAP	$ 328.1	17.4%	$ 78.4	$ 251.6	$ 1.15
Business separation costs	30.2	1.6%	3.7	26.5	.12
Tax costs associated with business separation	—	—%	(2.7)	2.7	.01
Cost reduction and asset actions	50.0	2.7%	8.8	41.2	.19
2017 Non-GAAP Measure	**$ 408.3**	**21.7%**	**$ 88.2**	**$ 322.0**	**$ 1.47**
2016 GAAP	$ 372.5	20.0%	$ 96.4	$ 280.9	$ 1.29
Business separation costs	12.0	.6%	—	12.0	.06
2016 Non-GAAP Measure	**$ 384.5**	**20.6%**	**$ 96.4**	**$ 292.9**	**$ 1.35**
Change Non-GAAP Measure	$ 23.8	110bp	$ (8.2)	$ 29.1	$ .12
% Change Non-GAAP Measure	6 %			10 %	9 %

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

(B) The tax impact of our non-GAAP adjustments reflects the expected current and deferred income tax expense impact of the transactions and is impacted primarily by the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions.

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 December	
	2016	2015
Income from Continuing Operations[(A)]	$ 258.2	$ 287.2
Add: Interest expense	29.5	22.2
Add: Income tax provision	78.4	96.4
Add: Depreciation and amortization	206.1	214.7
Add: Business separation costs	30.2	12.0
Add: Cost reduction and asset actions	50.0	—
Adjusted EBITDA	$ 652.4	$ 632.5

(A) Includes net income attributable to noncontrolling interests.

2017 vs. 2016		Three Months Ended 31 December
Change GAAP		
Income from continuing operations change	$	(29.0)
Income from continuing operations % change		(10)%
Change Non-GAAP		
Adjusted EBITDA change	$	19.9
Adjusted EBITDA % change		3 %

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

		Industrial Gases–Americas		Industrial Gases–EMEA		Industrial Gases–Asia		Industrial Gases–Global		Corporate and other		Segment Total
GAAP MEASURE												
Three Months Ended 31 December 2016												
Operating income (loss)	$	223.8	$	88.0	$	118.1	$	8.2	$	(29.8)	$	408.3
Operating margin		25.9%		22.0 %		26.9 %						21.7%
Three Months Ended 31 December 2015												
Operating income (loss)	$	211.6	$	92.3	$	117.3	$	(19.3)	$	(17.4)	$	384.5
Operating margin		25.3%		21.0 %		28.3 %						20.6%
Operating income (loss) change	$	12.2	$	(4.3)	$	.8	$	27.5	$	(12.4)	$	23.8
Operating income (loss) % change		6%		(5)%		1 %		142%		(71)%		6%
Operating margin change		60bp		100bp		(140) bp						110bp
NON-GAAP MEASURE												
Three Months Ended 31 December 2016												
Operating income (loss)	$	223.8	$	88.0	$	118.1	$	8.2	$	(29.8)	$	408.3
Add: Depreciation and amortization		111.8		42.2		46.7		2.0		3.4		206.1
Add: Equity affiliates' income		14.7		9.5		13.5		.3		—		38.0
Adjusted EBITDA	$	350.3	$	139.7	$	178.3	$	10.5	$	(26.4)	$	652.4
Adjusted EBITDA margin		40.5%		35.0 %		40.7 %						34.7%
Three Months Ended 31 December 2015												
Operating income (loss)	$	211.6	$	92.3	$	117.3	$	(19.3)	$	(17.4)	$	384.5
Add: Depreciation and amortization		109.0		46.8		51.9		2.1		4.9		214.7
Add: Equity affiliates' income (loss)		14.5		7.6		11.7		(.5)		—		33.3
Adjusted EBITDA	$	335.1	$	146.7	$	180.9	$	(17.7)	$	(12.5)	$	632.5
Adjusted EBITDA margin		40.1%		33.4 %		43.6 %						33.9%
Adjusted EBITDA change	$	15.2	$	(7.0)	$	(2.6)	$	28.2	$	(13.9)	$	19.9
Adjusted EBITDA % change		5%		(5)%		(1)%		159%		(111)%		3%
Adjusted EBITDA margin change		40bp		160bp		(290) bp						80bp

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

	Three Months Ended 31 December	
Operating Income	2016	2015
Segment total	$ 408.3	$ 384.5
Business separation costs	(30.2)	(12.0)
Cost reduction and asset actions	(50.0)	—
Consolidated Total	$ 328.1	$ 372.5

INCOME TAXES

The tax impact of our non-GAAP adjustments reflects the expected current and deferred income tax expense impact of the transactions and is impacted primarily by the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions.

	Effective Tax Rate	
	Three Months Ended 31 December	
	2016	2015
Income Tax Provision — GAAP	**$ 78.4**	**$ 96.4**
Income From Continuing Operations Before Taxes — GAAP	**$ 336.6**	**$ 383.6**
Effective Tax Rate — GAAP	**23.3%**	**25.1%**
Income Tax Provision — GAAP	$ 78.4	$ 96.4
Business separation costs	3.7	—
Tax costs associated with business separation	(2.7)	—
Cost reduction and asset actions	8.8	—
Income Tax Provision — Non-GAAP Measure	**$ 88.2**	**$ 96.4**
Income From Continuing Operations Before Taxes — GAAP	$ 336.6	$ 383.6
Business separation costs	30.2	12.0
Cost reduction and asset actions	50.0	—
Income From Continuing Operations Before Taxes — Non-GAAP Measure	**$ 416.8**	**$ 395.6**
Effective Tax Rate — Non-GAAP Measure	**21.2%**	**24.4%**

PENSION BENEFITS

For the three months ended 31 December 2016 and 2015, we recognized net periodic benefit cost of $18.6 and $11.6, respectively, in continuing operations. The increase in pension expense primarily resulted from a decrease in discount rates, partially offset by favorable asset experience and the adoption of new mortality tables for our major plans.

In connection with the disposition of the two divisions comprising the former Materials Technologies segment, we incurred settlement, curtailment, special termination benefit and other pension related costs totaling $2.5. These costs are reflected on the consolidated income statements within "Business separation costs".

Upon completion of the separation of EMD on 1 October 2016, the Company transferred defined benefit pension assets and obligations to the Versum plans resulting in a net decrease in the underfunded status of the sponsored pension plans of $24. Additionally, as a result of the transfer of unrecognized losses to Versum, accumulated other comprehensive loss, net of tax, decreased by approximately $5.

Management considers various factors when making pension funding decisions, including tax, cash flow, and regulatory implications. For the three months ended 31 December 2016 and 2015, our cash contributions to funded pension plans and benefit payments under unfunded pension plans were $24.9 and $51.8, respectively. Total contributions for fiscal 2017 are expected to be approximately $65 to $85. During fiscal 2016, total contributions were $79.3.

Refer to Note 10, Retirement Benefits, to the consolidated financial statements for details on pension cost and cash contributions.

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 December 2016, we had $644.9 of foreign cash and cash items compared to total cash and cash items of $655.5. If we needed foreign cash 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 those 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 additional repatriation of foreign funds.

Operating Activities

For the first three months of 2017, cash provided by operating activities was $574.3. Income from continuing operations of $251.6 included the non-cash write-down of an air separation unit in the Industrial Gases – EMEA segment that was constructed mainly to provide oxygen to one of the Energy-from-Waste plants. Other adjustments included depreciation and amortization, deferred income taxes, share-based compensation, noncurrent capital lease receivables, and undistributed earnings of unconsolidated affiliates. The working capital accounts were a source of cash of $64.4 which was primarily driven by a decrease in trade receivables of $42.3 and other working capital of $31.6. The decrease in trade receivables includes collections from our joint venture in Jazan, Saudi Arabia. The source of cash from other working capital was primarily due to a decrease in prepaid income taxes.

For the first three months of 2016, cash provided by operating activities was $397.2 which includes income from continuing operations of $280.9. Other adjustments include a use of cash of $66.2, which included $51.8 of pension and postretirement contributions primarily for a plan in the U.K. The change in payables and accrued liabilities of $100.7 was primarily driven by a decrease in the accrual for incentive compensation due to payments on the 2015 plan.

We estimate that cash paid for taxes, net of refunds, on a continuing operations basis were $79.7 and $59.8 for the three months ended 31 December 2016 and 2015, respectively.

Investing Activities

For the first three months of 2017, cash used for investing activities was $238.1, primarily driven by capital expenditures for plant and equipment of $239.2.

For the first three months of 2016, cash used for investing activities was $215.7, primarily driven by capital expenditures for plant and equipment of $248.4. Proceeds from the sale of assets and investments of $30.8 were primarily driven by the receipt of $30.0 for our rights to a corporate aircraft that was under construction.

Capital expenditures are detailed in the table below:

	Three Months Ended 31 December	
	2016	2015
Additions to plant and equipment	$239.2	$248.4
Acquisitions, less cash acquired	—	—
Investment in and advances to unconsolidated affiliates	8.8	(1.3)
Capital expenditures on a GAAP basis	$248.0	$247.1
Capital lease expenditures[A]	4.0	7.3
Capital expenditures on a Non-GAAP basis	$252.0	$254.4

(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 $1,000 in 2017.

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

Sales backlog represents our estimate of revenue to be recognized in the future on sale of equipment orders and related process technologies that are under firm contracts. The sales backlog for the Company at 31 December 2016 was $920, compared to $1,057 at 30 September 2016.

Financing Activities

For the first three months of 2017, cash used for financing activities was $974.5. This consisted primarily of repayments of commercial paper and short-term borrowings of $772.2 and dividend payments of $186.9.

For the first three months of 2016, cash used for financing activities was $200.2. This consisted primarily of dividend payments of $174.4 and a $19.5 net use of cash from our borrowings (short- and long-term proceeds, net of repayments).

Financing and Capital Structure

Capital needs were satisfied primarily with cash from operations. Total debt at 31 December 2016 and 30 September 2016, expressed as a percentage of the sum of total debt and total capitalization (total debt plus total equity), was 37.3% and 41.9%, respectively. Total debt decreased from $5,210.9 at 30 September 2016 to $4,318.4 at 31 December 2016 as a result of the repayment of commercial paper.

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

Commitments totaling $35.5 are maintained by our foreign subsidiaries, all of which was borrowed and outstanding at 31 December 2016.

As of 31 December 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 three months of fiscal year 2017, we did not purchase any of our outstanding shares. At 31 December 2016, $485.3 in share repurchase authorization remained.

Subsequent Events

PMD Sale to Evonik Industries AG

On 3 January 2017, we completed the sale of our PMD division to Evonik Industries AG for $3.8 billion in cash subject to customary post-closing adjustments, including working capital. We expect approximately one billion of the proceeds to be utilized to pay income taxes associated with the taxable gain on the transaction.

Dividends

On 26 January 2017, the Board of Directors declared the second quarter dividend of $.95. The dividend is payable on 8 May 2017 to shareholders of record at the close of business on 3 April 2017.

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 2016.

COMMITMENTS AND CONTINGENCIES

There have been no material changes to commitments and contingencies since 30 September 2016. For current updates on Litigation and Environmental matters, refer to Note 11, 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 2016. We are not a primary beneficiary in any material variable interest entity. Our off-balance sheet arrangements are not reasonably likely to have a material impact on financial condition, changes in financial condition, results of operations, or liquidity.

RELATED PARTY TRANSACTIONS

Our principal related parties are equity affiliates operating in the industrial gas business. 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 $110 and $60 during the three months ended 31 December 2016 and 2015, 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 GAAP. 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.

During the three months ended 31 December 2016, we assessed the recoverability of the carrying value of the assets associated with the Energy-from-Waste discontinued operation, including an air separation unit within continuing operations of our Industrial Gases – EMEA segment, and recorded losses to reduce the carrying value of the assets as of 31 December 2016 to their estimated net realizable value. Refer to Note 9, Fair Value Measurements, for additional information.

Information concerning the implementation and impact of new accounting standards issued by the FASB is included in Note 2, New Accounting Guidance, to the consolidated financial statements.

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

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

FORWARD-LOOKING STATEMENTS

This Management's Discussion and Analysis contains “forward-looking statements” within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including statements about business outlook. These forward-looking statements are based on management’s reasonable expectations and assumptions as of the date of this report. 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 (including, as to the United Kingdom and Europe, the impact of the recent “Brexit” referendum) and supply and demand dynamics in market segments into which the Company sells; the inability to eliminate stranded costs previously allocated to the Company’s Electronic Materials and Performance Materials divisions which have been divested and other unexpected impacts of the divestitures; significant fluctuations in interest rates and foreign currencies from that currently anticipated; future financial and operating performance of major customers; unanticipated contract terminations or customer cancellations or postponement of projects and sales; our ability to execute projects involving new geographies, technologies or applications; asset impairments due to economic conditions or specific events; the impact of price fluctuations in natural gas and disruptions in markets and the economy due to oil price volatility; costs and outcomes of litigation or regulatory investigations; the success of productivity and operational improvement programs; the timing, impact, and other uncertainties of future acquisitions or divestitures, including reputational impacts; 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 30 September 2016. 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 2016 Form 10-K. The disclosures about market risk that follow are on a continuing operations basis.

The net financial instrument position decreased from a liability of $4,172.1 at 30 September 2016 to a liability of $3,998.6 at 31 December 2016. The decrease was due primarily to a stronger U.S. dollar and higher interest rates.

Interest Rate Risk

Our debt portfolio as of 30 September 2016, including the effect of currency and interest rate swap agreements, was composed of 55% fixed-rate debt and 45% variable-rate debt. Our debt portfolio as of 31 December 2016, including the effect of currency and interest rate swap agreements, was composed of 64% fixed-rate debt and 36% variable-rate debt. The change in debt portfolio composition was due primarily to the repayment of commercial paper.

The sensitivity analysis related to the interest rate risk on the fixed portion of our debt portfolio assumes an instantaneous 100 bp move in interest rates from the level at period end, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of $121 and $137 in the net liability position of financial instruments at 31 December 2016 and 30 September 2016, respectively. A 100 bp decrease in market interest rates would result in an increase of $130 and $148 in the net liability position of financial instruments at 31 December 2016 and 30 September 2016, respectively.

Based on the variable-rate debt included in our debt portfolio, including the interest rate swap agreements, a 100 bp increase in interest rates would result in an additional $16 and $24 of interest incurred per year at the end of 31 December 2016 and 30 September 2016, respectively. A 100 bp decline in interest rates would lower interest incurred by $16 and $24 per year at 31 December 2016 and 30 September 2016, respectively.

Foreign Currency Exchange Rate Risk

The sensitivity analysis related to foreign currency exchange rates assumes an instantaneous 10% change in the foreign currency exchange rates from their levels at period end, with all other variables held constant. A 10% strengthening or weakening of the functional currency of an entity versus all other currencies would result in a decrease or increase, respectively, of $395 and $422 in the net liability position of financial instruments at 31 December 2016 and 30 September 2016, respectively.

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 December 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.

On 1 October 2016, Air Products completed the spin-off of Versum into a separate and independent public company. On 3 January 2017, we completed the sale of PMD to Evonik Industries AG. In connection with these transactions, staffing changes, including the consolidation of certain positions and transition of responsibilities, resulted in changes in certain individuals responsible for executing internal controls.

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

PART II. OTHER INFORMATION

Item 5. Other Information

Not applicable.

Item 6. Exhibits.

Exhibits required by Item 601 of Regulation S-K

10.1	Amendment No. 5 dated as of 9 June 2016, to the Revolving Credit Agreement dated as of 30 April 2013.
10.2	Air Products and Chemicals, Inc. Senior Management Severance Plan and Summary Plan Description effective 1 April 2016.
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.

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.

		Air Products and Chemicals, Inc.
		(Registrant)
Date: January 27, 2017	By:	/s/ M. Scott Crocco
		M. Scott Crocco
		Executive Vice President and Chief Financial Officer

EXHIBIT INDEX

10.1	Form of Award Agreement under the Long-Term Incentive Plan of the Company for FY2017.
10.2	Form of Award Agreement under the Long-Term Incentive Plan of the Company for FY2017.
10.3	Amendment No. 2 to the Air Products and Chemicals, Inc. Retirement Savings Plan effective 3 January, 2017.
12.	Computation of Ratios of Earnings to Fixed Charges.
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EXHIBIT I
FORM OF FY2017 RESTRICTED STOCK UNIT AWARD AGREEMENT

Air Products and Chemicals, Inc. (the “Company”)
Restricted Stock Unit Award Agreement

Company Confidential Communication to: «Participant Name»

You have been granted a Restricted Stock Unit award under the Air Products and Chemicals, Inc. Long-Term Incentive Plan (the “Plan”).

Your FY2017 award consists of «Shares Granted» 4-Year Restricted Stock Units, each Unit being equivalent in value to one share of Common Stock.

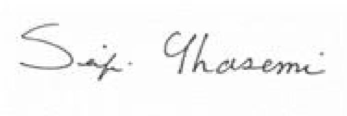
Your FY2017 Restricted Stock Unit Award is subject to and contingent upon your agreement to the attached conditions described in Exhibit A. Please read these conditions carefully, particularly the descriptions of the “Restrictive Covenants”. This letter, together with its Exhibits, constitutes the agreement governing your FY2017 Restricted Stock Unit Award (“Award Agreement”). Your FY2017 Restricted Stock Unit Award is also at all times subject to the applicable provisions of the Long-Term Incentive Plan and to any determinations made by the Management Development and Compensation Committee of the Company’s Board of Directors (the “Committee”) or its delegate, with respect to your FY2017 Restricted Stock Unit Award as contemplated or permitted by the Plan or the Conditions.

Neither your FY2017 Restricted Stock Unit Award, this Award Agreement or the Plan constitute a contract of employment; nor do they guarantee your continued employment for any period required for all or any of your FY2017 Restricted Stock Unit Award to vest, become exercisable, be earned or be paid out. Except as otherwise indicated all capitalized words used in this Award Agreement have the meanings described in the Plan.

WITNESSETH the due execution of this Award Agreement at Allentown, Pennsylvania effective as of the 1st day of December 2016 intending to be legally bound hereby.

AIR PRODUCTS AND CHEMICALS, INC.

By:



Seifi Ghasemi

Exhibits

EXHIBIT A

FY2017 AWARDS UNDER THE PLAN ARE SUBJECT TO THE FOLLOWING CONDITIONS:

In the event the Company determines, in its sole discretion, that you have violated the Restrictive Covenants set forth in Paragraph 1, at any time during your employment, or within one year after termination of your employment from the Company or any Subsidiary, the Company shall be entitled to (i) preliminary and permanent injunctive relief, without the necessity of providing actual damages or posting of a bond, (ii) damages equal to an equitable accounting of all earnings, profits and other benefits arising from such violation of Paragraph 1 and (iii) subject to the requirements of Section 409A of the Internal Revenue Code, cancel, not deliver, modify, rescind, suspend, withhold, or otherwise limit or restrict any unexpired, unpaid, unexercised or deferred Awards outstanding under the Plan, and any exercise, payment or delivery of an Award or shares of Company Common Stock pursuant to an Award may be recouped by the Company within twelve months after such exercise, payment or delivery. In the event of any such reversion, you shall pay to the Company the amount of any gain realized or payment received as a result of the exercise, payment or delivery, in such manner and on such terms as may be required by the Company, and the Company shall be entitled to set off against the amount of any such gain or payment any amount owed to you by the Company or any Subsidiary.

1. Restrictive Covenants.

(a) Definitions. For purposes of this Paragraph 1, the following words shall have the following definitions.

(i) "Affiliate" of a specified Person shall mean any Person which is under common control with the specified Person, or of which the specified Person is an executive officer, manager, trustee, executor or similar controlling Person.

(ii) "Company" shall be deemed to include Air Products and Chemicals, Inc. and the subsidiaries and Affiliates of Air Products and Chemicals, Inc.

(iii) "Business of the Company" means the production, manufacturing and distribution of industrial gases, including atmospheric and process gases; the designing and manufacturing of equipment for the production, processing, purification distribution or storage of gases or for natural gas liquefaction; and any other line of business conducted, developed or being developed by the Company during your employment with the Company, in each case, in which you are or were involved during the course of your employment with the Company or about which you possess Confidential Information.

(iv) "Confidential Information" means any non-public, proprietary confidential or trade secret information of the Company and/or its customers, including but not limited to, business processes, know-how, practices, methods, plans, research, operations, services, strategies, techniques, formulae, manuals, data, notes, diagrams, customer or vendor information, pricing or cost information, product plans, designs, experimental processes and inventions.

(v) "Person" means any natural person, corporation, general partnership, limited partnership, limited liability company or partnership, joint venture, proprietorship or other business organization.

(vi) "Provide Services" means to directly or indirectly, own, manage, control, or participate in the ownership, management or control of, or be employed or engaged by, participate in, serve on the board of directors of, consult with, contribute to, hold a security interest in, render services for, give advice to, provide assistance to or be otherwise affiliated or associated with.

(vii) "Restricted Area" means any country in which you worked during your employment with the Company, over which you had supervisory responsibility for the Business of the Company while employed by the Company, or with respect to which you have Confidential Information pertaining to the Business of the Company.

(b) Acknowledgment.

(i) You acknowledge and agree that (A) the Business of the Company is intensely competitive and that your employment with the Company has required you to have access to, and knowledge of, Confidential Information, which is of vital importance to the success of the Business of the Company; (B) the use, disclosure or dissemination of any Confidential Information, except on behalf of the Company, could place the Company at a serious competitive disadvantage and could do serious damage, financial and otherwise, to the Business of the Company; and (C) the Company is engaged in business, and has customers, throughout the world.

(ii) You further understand and acknowledge that the Company invests in customer relationships and as a result, has developed and will develop considerable goodwill with and among its customers. You agree that the restrictive covenants below are necessary to protect the Company's legitimate business interests in its Confidential Information and goodwill, and that the Company would not have provided the good and valuable consideration set forth in this Award Agreement in absence of such restrictions. You further understand and acknowledge that the Company will be irreparably harmed if you violate the restrictive covenants below.

(c) Confidential Information.

(i) You hereby expressly acknowledge and agree that the obligations in this Award Agreement are in addition to, and shall not supersede, obligations you may have pursuant to other agreements with the Company, including, without limitation, your obligations under your Employee Patent and Confidential Information Agreement entered at the time you were employed by the Company, which shall continue to apply in accordance with its terms.

(ii) You agree that you have and will at all times hereafter, (A) treat all Confidential Information as strictly confidential; and (B) not directly or indirectly disclose, publish, communicate or make available Confidential Information, or allow it to be disclosed, published, communicated, or made available, in whole or part, to any Person who is not authorized by the Company to know such Confidential Information in the furtherance of the Company's business.

(d) Non-Disparagement. You agree not to directly or indirectly make, or cause to be made, any statement, observation or opinion that disparages or impugns the business or reputation of the Company, its products, services, agents or employees.

(e) Permitted Disclosures. Pursuant to 18 U.S.C. § 1833(b), you understand that you will not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret of the Company that (i) is made (A) in confidence to a Federal, State, or local government official, either directly or indirectly, or to your attorney and (B) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document that is filed under seal in a lawsuit or other proceeding. You understand that if you file a lawsuit for retaliation by the Company for reporting a suspected violation of law, you may disclose the trade secret to your attorney and use the trade secret information in the court proceeding if you (I) file any document containing the trade secret under seal, and (II) do not disclose the trade secret, except pursuant to court order. Nothing in this Award Agreement, or any other agreement you have with the Company, is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by such section. Further, nothing in this Award Agreement or any other agreement you have with the Company shall prohibit or restrict you from making any disclosure of information or documents to any governmental agency or legislative body, or any self-regulatory organization, in each case, without advance notice to the Company.

(f) Return of Company Property. You represent that upon request from the Company at any time and, without request, upon termination of your employment with the Company for any reason, you will deliver to the Company all memoranda, notes, records, manuals, or other documents, including all electronic or other copies of such materials and all documentation prepared or produced in connection therewith, containing Confidential Information, which is in your possession, custody and control, whether made or compiled by you or furnished to you by virtue of your employment with the Company. You further represents that you will deliver to the Company all vehicles, computers, credit cards, telephones, handheld electronic devices, office equipment and other property furnished to you by virtue of your employment with the Company.

(g) Notice. You agree that during your employment with the Company and for one year after your employment with the Company terminates for any reason, you will give the Company ten (10) business days' written notice of your intention to Provide Services to any other Person that engages in or is preparing to engage in the Business of the Company within the Restricted Area. Such written notice must provide sufficiently detailed information so as to allow the Company to determine if you will be in breach of this Award Agreement if you Provide Services to such other Person.

(h) Non-Competition. During your employment by the Company and for one year after your employment with the Company terminates for any reason, you agree that you will not Provide Services to any Person, other than the Company, that engages in or is preparing to engage in the Business of the Company within the Restricted Area, unless (i) such other Person also engages in lines of business that are separate, distinct and divisible from the Business of the Company, (ii) you do not Provide Services, Confidential Information or strategy to the Business of the Company conducted by such other Person, and (iii) you do not attend meetings where the Business of the Company of such other Person is discussed or where you could, even inadvertently, disclose Confidential Information. Your passive ownership of not more than one percent (1%) of the capital stock or other ownership or equity interest, or voting power, in a public company, registered under the Securities Exchange Act of 1934, as amended, shall not be deemed to be a violation of this paragraph.

(i) Non-Solicitation; Non-Interference. During your employment by the Company and for one (1) year after your last day of employment with the Company, you also agree that you will not, directly or indirectly without the prior written consent of the Company:

(i) encourage, persuade, induce, or attempt to encourage or persuade or induce, any person who is an employee at the grade level of 118 or above, an officer, or a director of the Company, in each case, to terminate such relationship with the Company; or hire or engage, participate in the hiring or engagement of, or solicit or make an offer of employment or engagement to any employee at the grade level of 118 or above, officer or director of the Company who was employed or engaged by the Company as of your last day of employment with the Company.

(ii) on behalf of any Person engaged in the Business of the Company (other than the Company) solicit, contact, or attempt to solicit or contact any current, former or prospective customer of the Company whom you had contacted within the twenty-four (24) months prior to your last day of employment with the Company or about whom you have any Confidential Information.

(iii) encourage or persuade, or attempt to encourage or persuade any (A) customer of the Company, (B) potential customer of the Company during the last twenty-four (24) months of your employment with the Company with which or with whom you knew to be such a potential customer, or (C) prior customer of the Company, in each case, not to do business with the Company or to reduce the amount of business it is doing or might do in the future with or through the Company.

(j) Tolling. If you violate any of the terms of the restrictive covenant obligations articulated herein, the obligation at issue will run from the first date on which you cease to be in violation of such obligation.

(k) Successors and Assigns. This Paragraph 1 shall inure to the benefit of the successors and assigns of the Company and therefore the Company may assign this Paragraph 1, without your consent to, including but not limited to, any of its subsidiaries or affiliates or to any successor (whether by merger, purchase, bankruptcy, reorganization or otherwise) to all or substantially all of the equity, assets or businesses of the Company.

2. Interpretation. All determinations regarding the interpretation, construction, enforcement, waiver, or modification of this Award Agreement and/or the Plan shall be made in the Company's sole discretion and shall be final and binding on you and the Company. Determinations made under this Award Agreement and the Plan need not be uniform and may be made selectively among individuals, whether or not such individuals are similarly situated.

3. Conflict. If any of the terms of this Award Agreement in the opinion of the Company conflict or are inconsistent with any applicable law or regulation of any governmental agency having jurisdiction, the Company reserves the right to modify this Award Agreement to be consistent with applicable laws or regulations.

4. Personal Data. You understand and acknowledge that the Company holds certain personal information about you, including but not limited to your name, home address, telephone number, date of birth, social security number, salary, nationality, job title, and details of all Shares awarded, cancelled, vested, unvested, or outstanding (the “personal data”). Certain personal data may also constitute “sensitive personal data” within the meaning of applicable local law. Such data include but are not limited to the information provided above and any changes thereto and other appropriate personal and financial data about you. You hereby provide explicit consent to the Company and any Subsidiary to process any such personal data and sensitive personal data. You also hereby provide explicit consent to the Company and any Subsidiary to transfer any such personal data and sensitive personal data outside the country in which you are employed, and to the United States. The legal persons for whom such personal data are intended are the Company and any third party providing services to the Company in connection with the administration of the Plan.

5. Plan Documents. By accepting this award, you acknowledge having received and read the Plan Prospectus, and you consent to receiving information and materials in connection with this Award or any subsequent awards under the Company’s long-term performance plans, including without limitation any prospectuses and plan documents, by any means of electronic delivery available now and/or in the future (including without limitation by e-mail, by Website access, and/or by facsimile), such consent to remain in effect unless and until revoked in writing by you. This Award Agreement and the Plan, which is incorporated herein by reference, constitute the entire agreement between you and the Company regarding the terms and conditions of this Award.

6. Jurisdiction; Governing Law. The parties agree that upon any violation of this Award Agreement, suit may be brought, and the parties consent to personal jurisdiction, in the United States District Court for the Eastern District of Pennsylvania, or in any court of general jurisdiction in Allentown, Pennsylvania; the parties consent to the non-exclusive jurisdiction of any such court in any such suit, action or proceeding; and waive any objection which either party may have to the laying of venue of any such suit, action or proceeding in any such court. This Award Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania without reference to its principles of conflict of law. The parties also irrevocably and unconditionally consents to the service of any process, pleadings, notices, or other papers with respect thereto. EACH PARTY HERETO IRREVOCABLY AGREES TO WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING, CLAIM, OR COUNTERCLAIM BROUGHT BY OR ON BEHALF OF ANY PARTY RELATED TO OR ARISING OUT OF THIS AWARD AGREEMENT.

7. Modification; Severability. If any court of competent jurisdiction finds any provision of this Award Agreement, and particularly the covenants set forth in Paragraph 1, or portion thereof, to not be fully enforceable, it is the intention and desire of the parties that the provision be fully enforced to the extent the court finds them enforceable and, if necessary, that the court modify any provisions of this Award Agreement to the extent deemed necessary by the court to render them reasonable and enforceable and that the court enforce them to such extent. To the extent that such provisions cannot be modified, it is the intention of the parties that the provisions be severable and that the invalidity of any one or more provisions of this Award Agreement shall not affect the legality, validity and enforceability of the remaining provisions of this Award Agreement. If Paragraph 1 is unenforceable in its entirety, then this Award Agreement shall be considered null and void *ab initio*.

8. Waiver. The failure of the Company to enforce any terms, provisions or covenants of this Exhibit shall not be construed as a waiver of the same or of the right of the Company to enforce the same. Waiver by the Company of any breach or default by you of any term or provision of this Exhibit shall not operate as a waiver of any other breach or default.

9. No Contract. Neither your FY2017 Restricted Stock Unit Awards, this Award Agreement, nor the Plan constitute a contract of employment; nor do they guarantee your continued employment for any period required for all or any of your Awards to vest or become exercisable.

EXHIBIT B

RESTRICTED STOCK UNITS

Grant of Restricted Stock Units. Restricted Stock Units (“Units”) are granted to you subject to the terms of the Air Products and Chemicals, Inc. Long-Term Incentive Plan as amended and restated on 1 October 2014 and as amended from time to time thereafter and the conditions described below. All capitalized terms have the meaning ascribed to them in the Plan unless otherwise noted. The Units are “Deferred Stock Units” as described in Section 9 of the Plan. The Deferral Period for Units begins on 1 December 2016 and ends on 1 December 2020.

Payment of Restricted Stock Units. Each Unit granted to you represents the value of one share of Common Stock. Payment in respect of the Units will be delivered in shares of Common Stock or cash as determined by the Committee or its delegate, as soon as administratively practical following the end of the Deferral Period (but in no event later than 60 days thereafter) or at such other time as is specified below.

Dividends. No cash dividends or other amounts shall be payable with respect to the Units during the Deferral Period. At the end of the Deferral Period, for each Unit that has not been forfeited, you will also be entitled to receive a cash payment equal to the dividends which would have been paid with respect to a share of Company Common Stock during the Deferral Period (“Dividend Equivalents”).

Termination of Employment. If your employment by the Company and all of its affiliates is terminated for any reason other than by the Company without Cause (“Involuntary Termination”) prior to 1 December 2017, all of your Units will be automatically forfeited in their entirety. If your employment by the Company and all its affiliates terminates on or after 1 December 2017, but during the Deferral Period, other than due to death, Disability, Retirement or Involuntary Termination, all of your Units will be automatically forfeited in their entirety.

If your employment by the Company and all its affiliates is terminated on or after 1 December 2017, but during the Deferral Period, due to death, Disability, or Retirement, you will vest in all of your Units. If your employment is terminated at any time during the Deferral Period due to Involuntary Termination and you execute a general release of claims in favor of the Company within 45 days following your termination in a form satisfactory to the Administrator (a “Release”), you will vest in a pro-rata portion of your Units (which portion shall be based on the number of full months you worked during the Deferral Period) and all of your remaining Units will be forfeited. If you do not execute a Release, all of your Units will be automatically forfeited in their entirety. For purposes of this Paragraph, an Involuntary Termination which is also a Retirement shall be treated as an Involuntary Termination.

In the event of your termination of employment due to Disability or Retirement prior to the end of the Deferral Period, payment in respect of the Units due to you and of related Dividend Equivalents shall be made as soon as administratively practical following the end of the Deferral Period (but in no event later than 60 days thereafter).

If your employment by the Company and all its affiliates terminates during the Deferral Period due to Involuntary Termination, payment in respect of Units that have not been forfeited and of related Dividend Equivalents shall be made as soon as administratively practical following your termination (but in no event later than 60 days thereafter).

If your employment by the Company and all its affiliates terminates during the deferral period due to death, payment in respect of Units due to you and of related Dividend Equivalents shall be made as soon as practicable following your death (but in no event later than 60 days thereafter) to your Designated Beneficiary or, if none, your legal representative.

Notwithstanding anything to the contrary above, if your employment by the Company and its affiliates is terminated and such termination constitutes a “Termination of Employment” within the meaning of the Air Products and Chemicals, Inc. Executive Separation Program (the “Program”) and the Administrator of the Program determines you are entitled to the benefits of the Program, your outstanding Awards under this Agreement shall be treated in accordance with the Program.

Recoupment. Notwithstanding anything to the contrary above, any Units and any related Dividend Equivalents paid to you may be recouped by the Company within three years of their payment in the event that: (i) the payment of such Units is predicated upon the achievement of financial results that are subsequently the subject of a restatement; (ii) the Committee determines in its sole discretion that you engaged in misconduct that caused or partially caused the need for the restatement; and (iii) the Units would not have been paid or a lesser amount of Units would have been paid based upon the restated financial results. In the event of any such recoupment, you shall pay to the Company the amount of any gain realized or payment received as a result of any recouped payment, in such manner and on such terms as may be required, and the Company shall be entitled to reduce any amount owed to you by the Company or any Subsidiary by such gain or payment.

Notwithstanding any other provisions of this Award Agreement, in the event the Company is required to prepare an accounting restatement due to its material noncompliance with any financial reporting requirement, the Company may recover from you any amounts or awards which it is required to recover under Section 10D of the Securities Exchange Act of 1934 or any other applicable law or securities exchange listing standard.

Taxes. The Company shall have the right to deduct from all Awards hereunder paid or any payment in respect of an Award, any federal, state, local or foreign taxes required or permitted by law to be withheld. In the case of a payment in respect of Units made in Common Stock, the Company shall reduce number of the shares of Common Stock to be distributed by an amount with a value equal to the value of such taxes required or permitted to be withheld.

Adjustments. In the event of any change in the outstanding shares of Common Stock of the Company or the occurrence of certain other events as described in Section 12 of the Plan, an equitable adjustment of the number of Units covered by this Award Agreement shall be made as provided in the Plan.

Exhibit 10.2

EXHIBIT II
FY2017 FORM OF PERFORMANCE SHARE AWARD AGREEMENT

Air Products and Chemicals, Inc. (the "Company")
Performance Share Award Agreement

Company Confidential Communication to: «Participant Name»

You have been granted a Performance Share award under the Air Products and Chemicals, Inc. Long-Term Incentive Plan (the "Plan").

Your FY2017 award consists of «Shares Granted» Deferred Stock Units with a three year performance period, each Unit (a "Performance Share") being equivalent in value to one share of Common Stock.

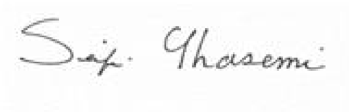
Your FY2017 Performance Share Award is subject to and contingent upon your agreement to the attached conditions described in Exhibit A. Please read these conditions carefully, particularly the descriptions of "Restrictive Covenants". This letter, together with its Exhibits, constitutes the agreement governing your FY2017 Performance Share Award ("Award Agreement"). Your FY2017 Performance Share Award is also at all times subject to the applicable provisions of the Long-Term Incentive Plan and to any determinations made by the Management Development and Compensation Committee of the Company's Board of Directors (the "Committee") or its delegate, with respect to your FY2017 Performance Share Award as contemplated or permitted by the Plan or the Conditions.

Neither your FY2017 Performance Share Award, this Award Agreement or the Plan constitute a contract of employment; nor do they guarantee your continued employment for any period required for all or any of your FY2017 Performance Share Award to vest, become exercisable, be earned or be paid out. Except as otherwise indicated all capitalized words used in this Award Agreement have the meanings described in the Plan.

WITNESSETH the due execution of this Award Agreement effective as of the 1st day of December 2016 intending to be legally bound hereby.

AIR PRODUCTS AND CHEMICALS, INC.

By:



Seifi Ghasemi

Exhibits

EXHIBIT A

FY2017 AWARDS UNDER THE PLAN ARE SUBJECT TO THE FOLLOWING CONDITIONS:

In the event the Company determines, in its sole discretion, that you have violated the Restrictive Covenants set forth in Paragraph 1, at any time during your employment, or within one year after termination of your employment from the Company or any Subsidiary, the Company shall be entitled to (i) preliminary and permanent injunctive relief, without the necessity of providing actual damages or posting of a bond, (ii) damages equal to an equitable accounting of all earnings, profits and other benefits arising from such violation of Paragraph 1 and (iii) subject to the requirements of Section 409A of the Internal Revenue Code, cancel, not deliver, modify, rescind, suspend, withhold, or otherwise limit or restrict any unexpired, unpaid, unexercised or deferred Awards outstanding under the Plan, and any exercise, payment or delivery of an Award or shares of Company Common Stock pursuant to an Award may be recouped by the Company within twelve months after such exercise, payment or delivery. In the event of any such reversion, you shall pay to the Company the amount of any gain realized or payment received as a result of the exercise, payment or delivery, in such manner and on such terms as may be required by the Company, and the Company shall be entitled to set off against the amount of any such gain or payment any amount owed to you by the Company or any Subsidiary.

1. Restrictive Covenants.

(a) Definitions. For purposes of this Paragraph 1, the following words shall have the following definitions.

(i) "Affiliate" of a specified Person shall mean any Person which is under common control with the specified Person, or of which the specified Person is an executive officer, manager, trustee, executor or similar controlling Person.

(ii) "Company" shall be deemed to include Air Products and Chemicals, Inc. and the subsidiaries and Affiliates of Air Products and Chemicals, Inc.

(iii) "Business of the Company" means the production, manufacturing and distribution of industrial gases, including atmospheric and process gases; the designing and manufacturing of equipment for the production, processing, purification distribution or storage of gases or for natural gas liquefaction; and any other line of business conducted, developed or being developed by the Company during your employment with the Company, in each case, in which you are or were involved during the course of your employment with the Company or about which you possess Confidential Information.

(iv) "Confidential Information" means any non-public, proprietary confidential or trade secret information of the Company and/or its customers, including but not limited to, business processes, know-how, practices, methods, plans, research, operations, services, strategies, techniques, formulae, manuals, data, notes, diagrams, customer or vendor information, pricing or cost information, product plans, designs, experimental processes and inventions.

(v) "Person" means any natural person, corporation, general partnership, limited partnership, limited liability company or partnership, joint venture, proprietorship or other business organization.

(vi) "Provide Services" means to directly or indirectly, own, manage, control, or participate in the ownership, management or control of, or be employed or engaged by, participate in, serve on the board of directors of, consult with, contribute to, hold a security interest in, render services for, give advice to, provide assistance to or be otherwise affiliated or associated with.

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(b) Acknowledgment.

(i) You acknowledge and agree that (A) the Business of the Company is intensely competitive and that your employment with the Company has required you to have access to, and knowledge of, Confidential Information, which is of vital importance to the success of the Business of the Company; (B) the use, disclosure or dissemination of any Confidential Information, except on behalf of the Company, could place the Company at a serious competitive disadvantage and could do serious damage, financial and otherwise, to the Business of the Company; and (C) the Company is engaged in business, and has customers, throughout the world.

(ii) You further understand and acknowledge that the Company invests in customer relationships and as a result, has developed and will develop considerable goodwill with and among its customers. You agree that the restrictive covenants below are necessary to protect the Company's legitimate business interests in its Confidential Information and goodwill, and that the Company would not have provided the good and valuable consideration set forth in this Award Agreement in absence of such restrictions. You further understand and acknowledge that the Company will be irreparably harmed if you violate the restrictive covenants below.

(c) Confidential Information.

(i) You hereby expressly acknowledge and agree that the obligations in this Award Agreement are in addition to, and shall not supersede, the obligations you may have pursuant to other agreements with the Company, including, without limitation, your obligations under your Employee Patent and Confidential Information Agreement, entered when you were employed by the Company, which shall continue to apply in accordance with its terms.

(ii) You agree that you have and will at all times hereafter, (A) treat all Confidential Information as strictly confidential; and (B) not directly or indirectly disclose, publish, communicate or make available Confidential Information, or allow it to be disclosed, published, communicated, or made available, in whole or part, to any Person who is not authorized by the Company to know such Confidential Information in the furtherance of the Company's business.

(d) Non-Disparagement. You agree not to directly or indirectly make, or cause to be made, any statement, observation or opinion that disparages or impugns the business or reputation of the Company, its products, services, agents or employees.

(e) Permitted Disclosures. Pursuant to 18 U.S.C. § 1833(b), you understand that you will not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret of the Company that (i) is made (A) in confidence to a Federal, State, or local government official, either directly or indirectly, or to your attorney and (B) solely for the purpose of reporting or investigating a suspected violation of law; or (ii) is made in a complaint or other document that is filed under seal in a lawsuit or other proceeding. You understand that if you file a lawsuit for retaliation by the Company for reporting a suspected violation of law, you may disclose the trade secret to your attorney and use the trade secret information in the court proceeding if you (I) file any document containing the trade secret under seal, and (II) do not disclose the trade secret, except pursuant to court order. Nothing in this Award Agreement, or any other agreement you have with the Company, is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by such section. Further, nothing in this Award Agreement or any other agreement you have with the Company shall prohibit or restrict you from making any disclosure of information or documents to any governmental agency or legislative body, or any self-regulatory organization, in each case, without advance notice to the Company.

(f) Return of Company Property. You represent that upon request from the Company at any time and, without request, upon termination of your employment with the Company for any reason, you will deliver to the Company all memoranda, notes, records, manuals, or other documents, including all electronic or other copies of such materials and all documentation prepared or produced in connection therewith, containing Confidential Information, which is in your possession, custody and control, whether made or compiled by you or furnished to you by virtue of your employment with the Company. You further represents that you will deliver to the Company all vehicles, computers, credit cards, telephones, handheld electronic devices, office equipment and other property furnished to you by virtue of your employment with the Company.

(g) Notice. You agree that during your employment with the Company and for one year after your employment with the Company terminates for any reason, you will give the Company ten (10) business days' written notice of your intention to Provide Services to any other Person that engages in or is preparing to engage in the Business of the Company within the Restricted Area. Such written notice must provide sufficiently detailed information so as to allow the Company to determine if you will be in breach of this Award Agreement if you Provide Services to such other Person.

(h) Non-Competition. During your employment by the Company and for one year after your employment with the Company terminates for any reason, you agree that you will not Provide Services to any Person, other than the Company, that engages in or is preparing to engage in the Business of the Company within the Restricted Area, unless (i) such other Person also engages in lines of business that are separate, distinct and divisible from the Business of the Company, (ii) you do not Provide Services, Confidential Information or strategy to the Business of the Company conducted by such other Person, and (iii) you do not attend meetings where the Business of the Company conducted by such other Person is discussed or where you could, even inadvertently, disclose Confidential Information. Your passive ownership of not more than one percent (1%) of the capital stock or other ownership or equity interest, or voting power, in a public company, registered under the Securities Exchange Act of 1934, as amended, shall not be deemed to be a violation of this paragraph.

(i) Non-Solicitation; Non-Interference. During your employment by the Company and for one (1) year after your last day of employment with the Company, you also agree that you will not, directly or indirectly without the prior written consent of the Company:

(i) encourage, persuade, induce, or attempt to encourage or persuade or induce, any person who is an employee at the grade level of 118 or above, an officer, or a director of the Company, in each case, to terminate such relationship with the Company; or hire or engage, participate in the hiring or engagement of, or solicit or make an offer of employment or engagement to any employee at the grade level of 118 or above, officer or director of the Company who was employed or engaged by the Company as of your last day of employment with the Company.

(ii) on behalf of any Person engaged in the Business of the Company (other than the Company) solicit, contact, or attempt to solicit or contact any current, former or prospective customer of the Company whom you had contacted within the twenty-four (24) months prior to your last day of employment with the Company or about whom you have any Confidential Information.

(iii) encourage or persuade, or attempt to encourage or persuade any (A) customer of the Company, (B) potential customer of the Company during the last twenty-four (24) months of your employment with the Company with which or with whom you knew to be such a potential customer, or (C) prior customer of the Company, in each case, not to do business with the Company or to reduce the amount of business it is doing or might do in the future with or through the Company.

(j) Tolling. If you violate any of the terms of the restrictive covenant obligations articulated herein, the obligation at issue will run from the first date on which you cease to be in violation of such obligation.

(k) Successors and Assigns. This Paragraph 1 shall inure to the benefit of the successors and assigns of the Company and therefore the Company may assign this Paragraph 1, without your consent to, including but not limited to, any of its subsidiaries or affiliates or to any successor (whether by merger, purchase, bankruptcy, reorganization or otherwise) to all or substantially all of the equity, assets or businesses of the Company.

2. Interpretation. All determinations regarding the interpretation, construction, enforcement, waiver, or modification of this Award Agreement and/or the Plan shall be made in the Company's sole discretion and shall be final and binding on you and the Company. Determinations made under this Award Agreement and the Plan need not be uniform and may be made selectively among individuals, whether or not such individuals are similarly situated.

3. <u>Conflict</u>. If any of the terms of this Award Agreement in the opinion of the Company conflict or are inconsistent with any applicable law or regulation of any governmental agency having jurisdiction, the Company reserves the right to modify this Award Agreement to be consistent with applicable laws or regulations.

4. <u>Personal Data</u>. You understand and acknowledge that the Company holds certain personal information about you, including but not limited to your name, home address, telephone number, date of birth, social security number, salary, nationality, job title, and details of all Shares awarded, cancelled, vested, unvested, or outstanding (the "personal data"). Certain personal data may also constitute "sensitive personal data" within the meaning of applicable local law. Such data include but are not limited to the information provided above and any changes thereto and other appropriate personal and financial data about you. You hereby provide explicit consent to the Company and any Subsidiary to process any such personal data and sensitive personal data. You also hereby provide explicit consent to the Company and any Subsidiary to transfer any such personal data and sensitive personal data outside the country in which you are employed, and to the United States. The legal persons for whom such personal data are intended are the Company and any third party providing services to the Company in connection with the administration of the Plan.

5. <u>Plan Documents</u>. By accepting this award, you acknowledge having received and read the Plan Prospectus, and you consent to receiving information and materials in connection with this Award or any subsequent awards under the Company's long-term performance plans, including without limitation any prospectuses and plan documents, by any means of electronic delivery available now and/or in the future (including without limitation by e-mail, by Website access, and/or by facsimile), such consent to remain in effect unless and until revoked in writing by you. This Award Agreement and the Plan, which is incorporated herein by reference, constitute the entire agreement between you and the Company regarding the terms and conditions of this Award.

6. <u>Jurisdiction; Governing Law</u>. The parties agree that upon any violation of this Award Agreement, suit may be brought, and the parties consent to personal jurisdiction, in the United States District Court for the Eastern District of Pennsylvania, or in any court of general jurisdiction in Allentown, Pennsylvania; the parties consent to the non-exclusive jurisdiction of any such court in any such suit, action or proceeding; and waive any objection which either party may have to the laying of venue of any such suit, action or proceeding in any such court. This Award Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania without reference to its principles of conflict of law. The parties also irrevocably and unconditionally consents to the service of any process, pleadings, notices, or other papers with respect thereto. EACH PARTY HERETO IRREVOCABLY AGREES TO WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING, CLAIM, OR COUNTERCLAIM BROUGHT BY OR ON BEHALF OF ANY PARTY RELATED TO OR ARISING OUT OF THIS AGREEMENT.

7. <u>Modification; Severability</u>. If any court of competent jurisdiction finds any provision of this Award Agreement, and particularly the covenants set forth in Paragraph 1, or portion thereof, to not be fully enforceable, it is the intention and desire of the parties that the provision be fully enforced to the extent the court finds them enforceable and, if necessary, that the court modify any provisions of this Award Agreement to the extent deemed necessary by the court to render them reasonable and enforceable and that the court enforce them to such extent. To the extent that such provisions cannot be modified, it is the intention of the parties that the provisions be severable and that the invalidity of any one or more provisions of this Award Agreement shall not affect the legality, validity and enforceability of the remaining provisions of this Award Agreement. If Paragraph 1 is unenforceable in its entirety, then this Award Agreement shall be considered null and void *ab initio*.

8. <u>Waiver</u>. The failure of the Company to enforce any terms, provisions or covenants of this Exhibit shall not be construed as a waiver of the same or of the right of the Company to enforce the same. Waiver by the Company of any breach or default by you of any term or provision of this Exhibit shall not operate as a waiver of any other breach or default.

9. <u>No Contract</u>. Neither your FY2017 Performance Share Awards, this Award Agreement, nor the Plan constitute a contract of employment; nor do they guarantee your continued employment for any period required for all or any of your Awards to vest or become exercisable.

EXHIBIT B

PERFORMANCE SHARES

Grant of Performance Shares. Performance Shares are granted to you subject to the terms of the Air Products and Chemicals, Inc. Long-Term Incentive Plan as amended and restated on 1 October 2014 and as amended from time to time thereafter and the conditions described below. All capitalized terms have the meaning ascribed to them in the Plan unless otherwise noted. The Performance Shares are “Deferred Stock Units” as described in Section 9 of the Plan.

Payment of Deferred Stock Units. The Performance Shares granted to you will be earned in accordance with the formula indicated on the attached Earn Out Schedule based on Air Products Relative Total Shareholder Return in relation to the Peer Group over the three fiscal year performance period beginning 1 October 2016 and ending 30 September 2019 (the “Performance Period”). Subject to the conditions described below, each earned Performance Share will entitle you to receive, at the end of the Deferral Period, one Share. The Deferral Period will begin on the date of this Award Agreement and will end on 1 December 2019.

Performance Shares earned and not forfeited (including in the event of your termination of employment prior to the end of the Deferral Period) shall be paid in shares of Common Stock or cash as determined by the Committee or its delegate, as soon as administratively practical following the end of the Deferral Period (but in no event later than 60 days thereafter).

Dividends. No cash dividends or other amounts shall be payable with respect to the Performance Shares during the Deferral Period. At the end of the Deferral Period, for each earned Performance Share that has not been forfeited, you will also be entitled to receive a cash payment equal to the dividends which would have been paid with respect to a share of Company Common Stock during the Deferral Period (“Dividend Equivalents”).

Termination of Employment. If your employment by the Company and all of its affiliates is terminated for any reason other than by the Company without Cause (“Involuntary Termination”) prior to 1 December 2017, all of your Performance Shares will be automatically forfeited in their entirety. If your employment by the Company and all its affiliates terminates on or after 1 December 2017, but during the Deferral Period, other than due to death, Disability, Retirement or Involuntary Termination, all of your Performance Shares will be automatically forfeited in their entirety.

If your employment by the Company and all its affiliates is terminated on or after 1 December 2017, but during the Deferral Period, due to death, Disability, or Retirement, you vest in a pro-rata portion of your earned Performance Shares, based on actual financial performance (which portion in each case shall be based on the number of full months you worked during the Performance Period) and your remaining Performance Shares will be forfeited. If your employment is terminated at any time during the Deferral Period due to Involuntary Termination and you execute a general release of claims in favor of the Company within 45 days following your termination and in a form satisfactory to the Administrator (a “Release”), you will vest in a pro-rata portion of your earned Performance Shares, based on actual financial performance (which portion shall be based on the number of full months you worked during the Performance Period) and all of your remaining Performance Shares will be forfeited. If you do not execute a Release, all of your Performance Shares will be automatically forfeited in their entirety. For purposes of this Paragraph, an Involuntary Termination which is also a Retirement shall be treated as an Involuntary Termination.

If your employment by the Company and all its affiliates terminates during the Deferral Period due to death, payment in respect of earned Performance Shares that have not been forfeited and of related Dividend Equivalents shall be made, as soon as practical after the end of the Deferral Period (but in no event later than 60 days thereafter), to your Designated Beneficiary or, if none, your legal representative.

Notwithstanding anything to the contrary above, if your employment by the Company and its affiliates is terminated and such termination constitutes a “Termination of Employment” within the meaning of the Air Products and Chemicals, Inc. Executive Separation Program (the “Program”) and the Administrator of the Program determines you are entitled to the benefits of the Program, your outstanding Awards under this Agreement shall be treated in accordance with the Program.

Recoupment. Notwithstanding anything to the contrary above, any Performance Shares earned or paid and any related Dividend Equivalents paid to you may be recouped by the Company within three years of their payment in the event that: (i) the earning of such Performance Shares is predicated upon the achievement of financial results that are subsequently the subject of a restatement; (ii) the Committee determines in its sole discretion that you engaged in misconduct that caused or partially caused the need for the restatement; and (iii) the Performance Shares would not have been earned or a lesser amount of Performance Shares would have been earned based upon the restated financial results. In the event of any such recoupment, you shall pay to the Company the amount of any gain realized or payment received as a result of any recouped payment, in such manner and on such terms as may be required, and the Company shall be entitled to reduce any amount owed to you by the Company or any Subsidiary by such gain or payment.

Notwithstanding any other provisions of this Award Agreement, in the event the Company is required to prepare an accounting restatement due to its material noncompliance with any financial reporting requirement, the Company may recover from you any amounts or awards which it is required to recover under Section 10D of the Securities Exchange Act of 1934 or any other applicable law or securities exchange listing standard.

Taxes. The Company shall have the right to deduct from all Awards hereunder paid or any payment in respect of an Award, any federal, state, local or foreign taxes required or permitted by law to be withheld. In the case of a payment in respect of Performance Shares made in Common Stock, the Company shall reduce number of the shares of Common Stock to be distributed by an amount with a value equal to the value of such taxes required or permitted to be withheld.

Adjustments. In the event of any change in the outstanding shares of Common Stock of the Company or the occurrence of certain other events as described in Section 13 of the Plan, an equitable adjustment of the number of Performance Shares covered by this Award Agreement shall be made as provided in the Plan.

Addendum

FY2017-2019 Performance Share Earn Out Schedule

1. Performance Shares Earned. For the avoidance of doubt, capitalized terms that are otherwise not defined in this Addendum will have the same definition as in the Award Agreement. The number of Performance Shares earned will be determined in accordance with the following formula:

(PERFORMANCE SHARES AWARDED) x (PAYOUT FACTOR) =
(PERFORMANCE SHARES EARNED)

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2. Payout Factor. The Payout Factor is based on the Company's TSR Percentile Rank among the Peer Group for the Performance Period. The Initial Payout Factor is determined in accordance with the following schedule:

Company's TSR Percentile Rank	Initial Payout Factor
$\geq$ 75th %ile	200%
$\geq$ 50th %ile	100%
$\geq$ 30th %ile	30%
< 30th %ile	0%

The Initial Payout Factor will be interpolated for TSR Percentile Rank between discrete points, from a minimum Initial Payout Factor of 30 percentage points to a maximum Initial Payout Factor of 200 percentage points.

The Initial Payout Factor will be increased by 15 percentage points to determine the Maximum Payout Factor, but in no event will the Maximum Payout Factor exceed 215 percentage points. The Committee, in its discretion, may decrease the Maximum Payout Factor by up to 30 percentage points (15 percentage points from the Initial Payout Factor) to determine the Actual Payout Factor. The Committee, in its discretion, may adjust the amount of any individual's payout, but it may not exceed the Maximum Payout Factor.

3. Definitions.

"Beginning Price" means, with respect to the Company's and any other Peer Group member's common stock, the average of the closing sale prices of a share of such common stock on the principal exchange on which such stock is traded for the thirty (30) calendar days preceding the first day of the of the Performance Period.

"Ending Price" means, with respect to the Company's and any other Peer Group member's common stock, the average of the closing sale prices of a share of such company's common stock on the principal exchange on which such stock is traded for thirty (30) calendar days ending with the last day of the Performance Period.

The "Peer Group" shall be the following companies:

Celanese Corp.	**Ingersoll-Rand, Plc**
Danaher Corp.	**Illinois Tool Works, Inc.**
Dover Corp.	**Parker-Hannifin Corp.**
DuPont (E.I.) De Nemours & Co.	**PPG Industries Inc.**
Eastman Chemical Co.	**Praxair, Inc.**
Eaton Corp.	**Rockwell Automation, Inc.**
Ecolab Inc.	**TE Connectivity, Ltd.**
Huntsman Corp.	

The Peer Group may be modified by the Committee in the event of the merger, acquisition or bankruptcy of a Peer Group member. The Peer Group may also be modified by the Committee in connection with a corporate transaction of the Company.

“Total Shareholder Return” or “TSR” shall be the percent increase/decrease in value that would be experienced from purchasing a share of the Company’s or a Peer Group member’s common stock at the Beginning Price and holding it for the Performance Period and selling at the Ending Price of such a share, assuming that dividends and other distributions are reinvested in additional shares of such stock at the closing market price on the ex-dividend date. Any non-cash distributions shall be valued at market value that shall be determined by the Committee.

“TSR Rank” means the ranking of the Company’s TSR among the TSRs for the Peer Group members for the Performance Period. TSR Rank is determined by ordering the Peer Group members and the Company from highest to lowest based on TSR for the Performance Period and counting down from the company with the highest TSR (ranked first) to the Company’s position on the list. If two companies are ranked equally, the ranking of the next company shall account for the tie, so that if one company is ranked first, and two companies are tied for second, the next company is ranked fourth. In the event of any ambiguity, the determination of the Committee shall be final and binding.

4. TSR Percentile Rank. The TSR Percentile Rank will be determined as follows:

The n^{th} ranked company out of the N companies (including Air Products) would have the following TSR Percentile Rank

TSR Percentile Rank =

$$\frac{(N-n)}{(N-1)}$$

That is, if Air Products ranked 5^{th} out of 16 companies, its TSR Percentile Rank would be 73.3% ((16-5)/(16-1)), which would give an Initial Payout Factor of 193.3%.

Exhibit 10.3

AMENDMENT NO. 2 TO THE
AIR PRODUCTS AND CHEMICALS, INC.
RETIREMENT SAVINGS PLAN

WHEREAS, Air Products and Chemicals, Inc. (the “Company”) is the Plan Sponsor of the Air Products and Chemicals, Inc. Retirement Savings Plan (the “Plan”); and

WHEREAS, pursuant to Plan Section 7.01 the Plan may be amended at anytime; and

WHEREAS, on May 6, 2016 the Company entered into a Purchase Agreement with Evonik Industries AG (“Evonik”) whereby the Company agreed to sell, convey, assign, transfer and deliver to Evonik the right, title and interest of the Company PMD Business and whereby Evonik agreed to purchase, acquire and accept from the Company the PMD Business, the terms of which are set forth in the Purchase Agreement by and between Air Products and Chemicals, Inc., and Evonik Industries AG Dated as of May 6, 2016 (the “Agreement”); and

WHEREAS, pursuant to the terms of the Agreement, the Company desires to amend the Plan to update Schedule I and to vest the Core Contribution of employees of the Company’s PMD Business who will become employees of Evonik who are Participants in the Plan.

NOW, THEREFORE, the Plan is hereby amended as follows:

1. Schedule I is amended as attached hereto.
2. A new paragraph is added to the end of Section 3.05(a) to read as follows:

   “Effective the later of January 3, 2017 or the Closing, in the case of a Participant who prior to the Closing as defined in the Purchase Agreement by and between Air Products and Chemicals, Inc., and Evonik Industries AG Dated as of May 6, 2016 (the “Evonik Agreement”) was employed by the Company’s PMD Business as that term is defined in the Evonik Agreement and who upon the Closing will become an employee of Evonik Industries AG or one of its affiliates, such Participant shall have a vested, nonforfeitable right to the portion of the Participant’s account attributable to Company Core Contributions, including any related investment earnings and losses.”
3. In all other respects the Plan shall remain in full force and effect.

IN WITNESS WHEREOF, the Company has caused its Vice President, Human Resources to execute this Second Amendment to the Plan on this ________________ day of December 2016.

AIR PRODUCTS AND CHEMICALS, INC.

By: ________________________________

Jennifer L. Grant
Vice President- Human Resources

SCHEDULE I

PARTICIPATING EMPLOYERS
AS OF 1 January 2017

Name of Affiliated Company	Participating Employer Since Date	Revocation Date
ProCal	2 March 2015	N/A
Air Products Energy Enterprising, Inc.	Continuing	N/A
Air Products Helium, Inc.	Continuing	N/A
Air Products Manufacturing Co., Inc.	Continuing	N/A
Air Products LLC	1 June 2007	N/A
Air Products Performance Manufacturing, Inc. (formerly known as "Tomah Products, Inc." and "Tomah Reserve, Inc.")	1 April 2006	The Later of January 3, 2017 or the Closing
Versum Materials US, LLC	1 August 2016	1 October 2016

Exhibit 12

AIR PRODUCTS AND CHEMICALS, INC., AND SUBSIDIARIES
COMPUTATION OF RATIOS OF EARNINGS TO FIXED CHARGES
(Unaudited)

(Millions of dollars, except ratios)	Three Months Ended 31 December 2016	Year Ended 30 September 2016	2015	2014	2013
Earnings:					
Income from continuing operations[(1)]	$ 258.2	$ 1,122.0	$ 965.9	$ 691.0	$ 854.0
Add (deduct):					
Provision for income taxes	78.4	432.6	300.2	258.1	321.1
Fixed charges, excluding capitalized interest	33.1	123.6	117.6	140.7	156.3
Capitalized interest amortized during the period	2.4	9.7	9.8	8.7	9.8
Undistributed earnings of equity investees	(6.9)	(51.1)	(101.8)	(74.9)	(57.1)
Noncontrolling interest in pre-tax income of subsidiaries that have not incurred fixed charges	(0.8)	(2.6)	(3.0)	(2.8)	—
Earnings, as adjusted	$ 364.4	$ 1,634.2	$ 1,288.7	$ 1,020.8	$ 1,284.1
Fixed Charges:					
Interest on indebtedness, including capital lease obligations	$ 28.1	$ 105.8	$ 94.6	$ 120.1	$ 136.7
Capitalized interest	6.3	32.7	49.1	33.0	26.0
Amortization of debt discount/premium and expense	1.4	3.6	8.2	3.9	2.1
Portion of rents under operating leases representative of the interest factor	3.6	14.2	14.8	16.7	17.5
Fixed charges[(2)]	$ 39.4	$ 156.3	$ 166.7	$ 173.7	$ 182.3
Ratio of Earnings to Fixed Charges[(3)]	9.2	10.5	7.7	5.9	7.0

(1) Income from continuing operations includes income attributable to noncontrolling interests as well as business restructuring and cost reduction actions of $50.0 ($41.2 after-tax) in 2017, $34.5 ($24.7 after-tax) in 2016, $180.1 ($132.9 after-tax) in 2015, $98.3 ($67.0 after-tax) in 2013, business separation costs of $30.2 ($26.5 after-tax) in 2017 and $50.6 ($46.7 after-tax) in 2016, and a goodwill and intangible asset impairment charge of $310.1 ($308.8 after-tax) in 2014.

(2) We are party to certain debt guarantees of equity affiliates. Since we have not been required to satisfy the guarantees, nor is it probable that we will, interest expense related to the guaranteed debt is not included in fixed charges.

(3) The ratio of earnings to fixed charges is determined by dividing earnings, as adjusted, by fixed charges. Fixed charges consist of interest on all indebtedness plus that portion of operating lease rentals representative of the interest factor (deemed to be 21% of operating lease rentals).

Exhibit 31.1

PRINCIPAL EXECUTIVE OFFICER'S CERTIFICATION

I, Seifi Ghasemi, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Air Products and Chemicals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 27, 2017

/s/ Seifi Ghasemi

Seifi Ghasemi
Chairman, President and Chief Executive Officer

Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION

I, M. Scott Crocco, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Air Products and Chemicals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 27, 2017

/s/ M. Scott Crocco

M. Scott Crocco
Executive Vice President and Chief Financial Officer

Exhibit 32

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906 OF THE
SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Air Products and Chemicals, Inc. (the “Company”) on Form 10-Q for the period ending 31 December 2016, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Seifi Ghasemi, Chairman, President and Chief Executive Officer of the Company, and M. Scott Crocco, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: January 27, 2017

/s/ Seifi Ghasemi
Seifi Ghasemi
Chairman, President and Chief Executive Officer

/s/ M. Scott Crocco
M. Scott Crocco
Chief Financial Officer