AIR PRODUCTS & CHEMICALS INC /DE/
Form 10-Q
July 26, 2018

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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 30 June 2018

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 001-04534

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, smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ¨

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 30 June 2018
Common Stock, $1 par value	219,272,496

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		Nine Months Ended	
	30 June		30 June	
(Millions of dollars, except for share and per share data)	2018	2017	2018	2017
Sales	$2,259.0	$2,121.9	$6,631.3	$5,984.5
Cost of sales	1,545.4	1,486.0	4,623.7	4,206.5
Selling and administrative	188.6	184.1	574.8	526.4
Research and development	15.0	14.6	44.1	44.4
Business separation costs	—	—	—	32.5
Cost reduction and asset actions	—	42.7	—	103.0
Goodwill and intangible asset impairment charge	—	162.1	—	162.1
Other income (expense), net	5.8	26.3	43.2	73.0
Operating Income	515.8	258.7	1,431.9	982.6
Equity affiliates' income (loss)	58.1	(36.9)	115.6	35.3
Interest expense	34.9	29.8	95.1	89.8
Other non-operating income (expense), net	12.8	3.7	33.7	8.8
Income From Continuing Operations Before Taxes	551.8	195.7	1,486.1	936.9
Income tax provision	107.1	89.3	455.1	262.2
Income From Continuing Operations	444.7	106.4	1,031.0	674.7
Income (Loss) From Discontinued Operations, net of tax	43.2	(2.3)	42.2	1,871.5
Net Income	487.9	104.1	1,073.2	2,546.2
Net Income Attributable to Noncontrolling Interests of Continuing Operations	14.0	2.2	28.3	14.5
Net Income Attributable to Air Products	$473.9	$101.9	$1,044.9	$2,531.7
Net Income Attributable to Air Products				
Income from continuing operations	$430.7	$104.2	$1,002.7	$660.2
Income (Loss) from discontinued operations	43.2	(2.3)	42.2	1,871.5
Net Income Attributable to Air Products	$473.9	$101.9	$1,044.9	$2,531.7
Basic Earnings Per Common Share Attributable to Air Products				
Income from continuing operations	$1.96	$.48	$4.57	$3.03
Income (Loss) from discontinued operations	.20	(.01)	.19	8.59
Net Income Attributable to Air Products	$2.16	$.47	$4.76	$11.62
Diluted Earnings Per Common Share Attributable to Air Products				
Income from continuing operations	$1.95	$.47	$4.54	$3.00
Income (Loss) from discontinued operations	.20	(.01)	.19	8.52
Net Income Attributable to Air Products	$2.15	$.46	$4.73	$11.52
Weighted Average Common Shares – Basic (in millions)	219.5	218.1	219.3	217.9
Weighted Average Common Shares – Diluted (in millions)	220.9	219.8	220.7	219.8
Dividends Declared Per Common Share – Cash	$1.10	$.95	$3.15	$2.76

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 30 June	
(Millions of dollars)	2018	2017
Net Income	$487.9	$104.1
Other Comprehensive Income (Loss), net of tax:		
Translation adjustments, net of tax of $5.2 and ($33.1)	(392.4)	141.4
Net gain on derivatives, net of tax of $8.8 and $9.6	27.1	23.0
Pension and postretirement benefits	—	.1
Reclassification adjustments:		
Currency translation adjustment	—	8.2
Derivatives, net of tax of ($5.5) and ($7.9)	(17.7)	(23.6)
Pension and postretirement benefits, net of tax of $7.8 and $12.8	26.0	27.7
Total Other Comprehensive Income (Loss)	(357.0)	176.8
Comprehensive Income	130.9	280.9
Net Income Attributable to Noncontrolling Interests	14.0	2.2
Other Comprehensive Income (Loss) Attributable to Noncontrolling Interests	(14.5)	.2
Comprehensive Income Attributable to Air Products	$131.4	$278.5

	Nine Months Ended 30 June	
(Millions of dollars)	2018	2017
Net Income	$1,073.2	$2,546.2
Other Comprehensive Income (Loss), net of tax:		
Translation adjustments, net of tax of ($14.6) and ($8.8)	(130.4)	9.8
Net gain (loss) on derivatives, net of tax of $7.5 and ($6.8)	35.4	(2.2)
Pension and postretirement benefits, net of tax of $– and $1.2	—	3.9
Reclassification adjustments:		
Currency translation adjustment	3.1	57.3
Derivatives, net of tax of ($7.1) and $5.4	(24.4)	7.8
Pension and postretirement benefits, net of tax of $26.7 and $39.4	75.5	85.2
Total Other Comprehensive Income (Loss)	(40.8)	161.8
Comprehensive Income	1,032.4	2,708.0
Net Income Attributable to Noncontrolling Interests	28.3	14.5
Other Comprehensive Income (Loss) Attributable to Noncontrolling Interests	(10.4)	2.1
Comprehensive Income Attributable to Air Products	$1,014.5	$2,691.4

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)	30 June 2018	30 September 2017
Assets		
Current Assets		
Cash and cash items	$2,986.5	$3,273.6
Short-term investments	7.3	404.0
Trade receivables, net	1,227.6	1,174.0
Inventories	322.1	335.4
Contracts in progress, less progress billings	93.9	84.8
Prepaid expenses	104.1	191.4
Other receivables and current assets	314.0	403.3
Current assets of discontinued operations	—	10.2
Total Current Assets	5,055.5	5,876.7
Investment in net assets of and advances to equity affiliates	1,259.3	1,286.9
Plant and equipment, at cost	21,387.5	19,547.8
Less: accumulated depreciation	11,485.5	11,107.6
Plant and equipment, net	9,902.0	8,440.2
Goodwill, net	794.1	721.5
Intangible assets, net	449.0	368.3
Noncurrent capital lease receivables	1,058.2	1,131.8
Other noncurrent assets	687.9	641.8
Total Noncurrent Assets	14,150.5	12,590.5
Total Assets	$19,206.0	$18,467.2
Liabilities and Equity		
Current Liabilities		
Payables and accrued liabilities	$1,968.4	$1,814.3
Accrued income taxes	46.0	98.6
Short-term borrowings	90.4	144.0
Current portion of long-term debt	5.0	416.4
Current liabilities of discontinued operations	—	15.7
Total Current Liabilities	2,109.8	2,489.0
Long-term debt	3,377.1	3,402.4
Long-term debt – related party	398.7	—
Other noncurrent liabilities	1,831.8	1,611.9
Deferred income taxes	678.6	778.4
Total Noncurrent Liabilities	6,286.2	5,792.7
Total Liabilities	8,396.0	8,281.7
Commitments and Contingencies - See Note 14		
Air Products Shareholders' Equity		
Common stock (par value $1 per share; issued 2018 and 2017 - 249,455,584 shares)	249.4	249.4
Capital in excess of par value	1,020.0	1,001.1
Retained earnings	13,200.2	12,846.6
Accumulated other comprehensive loss	(1,877.8)	(1,847.4)
Treasury stock, at cost (2018 - 30,183,088 shares; 2017 - 31,109,510 shares)	(2,105.8)	(2,163.5)
Total Air Products Shareholders' Equity	10,486.0	10,086.2

Noncontrolling Interests	324.0	99.3
Total Equity	10,810.0	10,185.5
Total Liabilities and Equity	$19,206.0	$18,467.2

The accompanying notes are an integral part of these statements.

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

	Nine Months Ended 30 June	
(Millions of dollars)	2018	2017
Operating Activities		
Net income	$1,073.2	$2,546.2
Less: Net income attributable to noncontrolling interests of continuing operations	28.3	14.5
Net income attributable to Air Products	1,044.9	2,531.7
Income from discontinued operations	(42.2)	(1,871.5)
Income from continuing operations attributable to Air Products	1,002.7	660.2
Adjustments to reconcile income to cash provided by operating activities:		
Depreciation and amortization	713.5	634.8
Deferred income taxes	(86.9)	(78.1)
Tax reform repatriation	310.3	—
Undistributed earnings of unconsolidated affiliates	(27.7)	(34.4)
Gain on sale of assets and investments	(5.2)	(7.9)
Share-based compensation	30.4	27.4
Noncurrent capital lease receivables	73.7	69.4
Goodwill and intangible asset impairment charge	—	162.1
Equity method investment impairment charge	—	79.5
Write-down of long-lived assets associated with cost reduction actions	—	59.1
Other adjustments	(23.2)	110.7
Working capital changes that provided (used) cash, excluding effects of acquisitions and divestitures:		
Trade receivables	(50.5)	(25.7)
Inventories	16.0	44.8
Contracts in progress, less progress billings	(10.4)	(18.6)
Other receivables	95.9	80.0
Payables and accrued liabilities	(164.9)	(99.9)
Other working capital	(10.4)	(50.0)
Cash Provided by Operating Activities	1,863.3	1,613.4
Investing Activities		
Additions to plant and equipment	(1,158.1)	(806.8)
Acquisitions, less cash acquired	(320.2)	—
Investment in and advances to unconsolidated affiliates	—	(8.1)
Proceeds from sale of assets and investments	45.8	20.7
Purchases of investments	(349.8)	(2,488.6)
Proceeds from investments	745.2	1,473.5
Other investing activities	(1.8)	(1.5)
Cash Used for Investing Activities	(1,038.9)	(1,810.8)
Financing Activities		
Long-term debt proceeds	.5	2.2
Payments on long-term debt	(418.2)	(483.5)
Net decrease in commercial paper and short-term borrowings	(46.1)	(799.2)
Dividends paid to shareholders	(656.6)	(580.9)
Proceeds from stock option exercises	58.2	38.2
Other financing activities	(35.6)	(31.2)
Cash Used for Financing Activities	(1,097.8)	(1,854.4)
Discontinued Operations		
Cash used for operating activities	(12.8)	(768.0)
Cash provided by investing activities	18.6	3,750.6

Cash provided by financing activities	—	69.5
Cash Provided by Discontinued Operations	5.8	3,052.1
Effect of Exchange Rate Changes on Cash	(19.5)	1.5
(Decrease) Increase in cash and cash items	(287.1)	1,001.8
Cash and Cash items – Beginning of Year	3,273.6	1,330.8
Cash and Cash Items – End of Period	$2,986.5	$2,332.6

The accompanying notes are an integral part of these statements.

AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)
(Millions of dollars unless otherwise indicated, except for share and per share data)

1. BASIS OF PRESENTATION AND MAJOR ACCOUNTING POLICIES

Refer to our 2017 Form 10-K for a description of major accounting policies. There have been no significant changes to these accounting policies during the first nine months of fiscal year 2018 other than those detailed in Note 2, New Accounting Guidance, under *Accounting Guidance Implemented in 2018*.

Certain prior year information included in the interim consolidated financial statements and the accompanying notes has been reclassified to conform to the fiscal year 2018 presentation. The notes to the interim consolidated financial statements, unless otherwise indicated, are on a continuing operations basis.

The interim 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. In order to fully understand the basis of presentation, the consolidated financial statements and related notes included herein should be read in conjunction with the consolidated financial statements and notes thereto included in our 2017 Form 10-K. 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 2018

Income Taxes

In March 2018, the Financial Accounting Standards Board (FASB) issued an update for Staff Accounting Bulletin (SAB) No. 118 issued by the SEC in December 2017 related to the U.S. Tax Cuts and Jobs Act ("the Tax Act"). We adopted the SEC guidance under SAB No. 118 in the first quarter of fiscal year 2018. We continue to report the impacts of the Tax Act as provisional based on reasonable estimates as of 30 June 2018. The SEC guidance provides a one-year measurement period to complete accounting for provisional amounts. For additional details, see Note 19, Income Taxes.

Presentation of Net Periodic Pension and Postretirement Benefit Cost

In March 2017, the FASB issued guidance for improving the presentation of net periodic pension cost and net periodic postretirement benefit cost. The amendments require the service cost component of net periodic benefit cost to be presented in the same operating income line items as other compensation costs arising from services rendered by employees during the period. The non-service costs (e.g., interest cost, expected return on plan assets, amortization of actuarial gains/losses, settlements) should be presented in the consolidated income statement outside of operating income. The amendments also allow only the service cost component to be eligible for capitalization when applicable. We early adopted this guidance during the first quarter of fiscal year 2018. The amendments have been applied retrospectively for the income statement presentation requirements and prospectively for the limit on costs eligible for capitalization. We applied the practical expedient to use the amounts disclosed in its retirement benefits note for the prior comparative periods as the estimation basis for applying the retrospective presentation requirements.

Prior to adoption of the guidance, we classified all net periodic benefit costs within operating costs, primarily within "Cost of sales" and "Selling and administrative" on the consolidated income statements. The line item classification changes required by the new guidance did not impact our pre tax earnings or net income; however, "Operating income" and "Other non-operating income (expense), net" changed by immaterial offsetting amounts.

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. We adopted this guidance in the first quarter of fiscal year 2018. This guidance did not have an 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 will adopt this guidance in fiscal year 2019 under the modified retrospective approach. Upon adoption, we will no longer present "Contracts in progress, less progress billings" on our consolidated balance sheets and will have expanded disclosure requirements. Otherwise, we do not expect adoption of this guidance to have a material impact on our consolidated financial statements.

Leases

In February 2016, the FASB issued guidance that 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.

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 all leases, including operating leases, on the balance sheet with a right-of-use asset and corresponding liability for future payment obligations.

We plan to adopt this guidance in fiscal year 2020. We are currently evaluating the impact this guidance will have on our consolidated financial statements, including the assessment of our current lease population under the revised definition of what qualifies as a leased asset. We plan to implement a new application to administer the accounting and disclosure requirements under the new guidance.

Credit Losses on Financial Instruments

In June 2016, the FASB issued guidance 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 in fiscal year 2021, with early adoption permitted beginning in fiscal year 2020. We are currently evaluating the impact this guidance 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 in fiscal year 2019, with early adoption permitted, and should be applied retrospectively. We plan to adopt this guidance in fiscal year 2019 and do not expect adoption to have a significant impact on our consolidated financial statements.

Intra-Entity Asset Transfers

In October 2016, the FASB issued guidance on accounting for the income tax effects of intra-entity transfers of assets other than inventory. Current guidance 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 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.

Derecognition of Nonfinancial Assets

In February 2017, the FASB issued an update to clarify the scope of guidance on gains and losses from the derecognition of nonfinancial assets and to add guidance for partial sales of nonfinancial assets. The update must be adopted at the same time as the new guidance on revenue recognition discussed above, which we will adopt in fiscal year 2019. The guidance may be applied retrospectively or with a cumulative-effect adjustment to retained earnings as of the date of adoption. We are currently evaluating the impact this update will have on our consolidated financial statements.

Hedging Activities
In August 2017, the FASB issued guidance on hedging activities to expand the related presentation and disclosure requirements, change how companies assess effectiveness, and eliminate the separate measurement and reporting of hedge ineffectiveness. The guidance also enables more financial and nonfinancial hedging strategies to become eligible for hedge accounting. The guidance is effective in fiscal year 2020, with early adoption permitted. For cash flow and net investment hedges existing at the date of adoption, an entity should apply a cumulative-effect adjustment to eliminate the separate measurement of ineffectiveness within equity as of the beginning of the fiscal year the guidance is adopted. The amended presentation and disclosure guidance is applied prospectively. We are currently evaluating the impact this guidance will have on our consolidated financial statements.
Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income
In February 2018, the FASB issued guidance allowing a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Act. The guidance is effective in fiscal year 2020, with early adoption permitted, including adoption in any interim period. If elected, the reclassification can be applied in either the period of adoption or retrospectively to the period of the Tax Act's enactment (i.e., our first quarter of fiscal year 2018). We are currently evaluating the adoption alternatives and the impact this guidance will have on our consolidated financial statements.

3. DISCONTINUED OPERATIONS
For the three and nine months ended 30 June 2018, income from discontinued operations, net of tax, on the consolidated income statements was $43.2 and $42.2, respectively. During the third quarter of fiscal year 2018, we recorded an income tax benefit of $29.6 primarily resulting from the resolution of uncertain tax positions taken in conjunction with the disposition of our former European Homecare business in fiscal year 2012. In addition, we recorded a before-tax benefit of $13.6 primarily resulting from the resolution of certain post-closing adjustments associated with the sale of our former Performance Materials Division (PMD). Refer to Note 19, Income Taxes, for additional information. The nine months ended 30 June 2018 also includes an after-tax loss of $1.0 related to Energy-from-Waste (EfW) project exit activities and administrative costs incurred during the first quarter of fiscal year 2018.
For the three months ended 30 June 2017, the loss from discontinued operations, net of tax, on the consolidated income statements was $2.3. The loss primarily relates to EfW project exit activities and administrative costs.
For the nine months ended 30 June 2017, income from discontinued operations, net of tax, on the consolidated income statements was $1,871.5. The year-to-date income includes a gain of $2,870 ($1,833 after-tax, or $8.34 per share) recognized on the sale of PMD to Evonik Industries AG (Evonik). The sale closed on 3 January 2017 for $3.8 billion in cash. In addition, we recorded a loss on the disposal of EfW of $59.3 ($47.1 after-tax) during the first quarter of 2017, primarily for land lease obligations and to update our estimate of the net realizable value of the plant assets. The loss on disposal was recorded as a component of discontinued operations while the liability associated with land lease obligations was and continues to be recorded in continuing operations. The liability recorded in continuing operations was approximately $64 as of 30 June 2018.

The following table details income (loss) from discontinued operations, net of tax, on the consolidated income statements for the nine months ended 30 June 2017:

	Nine Months Ended 30 June 2017		
	Performance Materials	Energy-from-Waste	Total Discontinued Operations
Sales	$254.8	$—	$254.8
Cost of sales	182.3	11.9	194.2
Selling and administrative	22.5	.5	23.0
Research and development	5.1	—	5.1
Other income (expense), net	.3	(.9)	(.6)
Operating Income (Loss)	45.2	(13.3)	31.9
Equity affiliates' income	.3	—	.3
Income (Loss) Before Taxes	45.5	(13.3)	32.2
Income tax benefit[(A)]	(50.8)	(3.1)	(53.9)
Income (Loss) From Operations of Discontinued Operations, net of tax	96.3	(10.2)	86.1
Gain (Loss) on Disposal, net of tax	1,832.5	(47.1)	1,785.4
Income (Loss) From Discontinued Operations, net of tax	$1,928.8	($57.3)	$1,871.5

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

There were no assets or liabilities presented in discontinued operations on the consolidated balance sheets as of 30 June 2018. As of 30 September 2017, current assets of discontinued operations of $10.2 related to EfW and current liabilities of discontinued operations of $15.7 primarily related to reserves associated with the disposition of PMD.

4. MATERIALS TECHNOLOGIES SEPARATION

In fiscal year 2017, we completed the separation of the divisions comprising the former Materials Technologies segment. As further discussed below, we completed the separation of the Electronic Materials Division (EMD) through the spin-off of Versum Materials, Inc. (Versum). For information on the disposition of PMD, refer to Note 3, Discontinued Operations.

Spin-off of EMD

On 1 October 2016 (the distribution date), Air Products completed the spin-off of Versum into a separate and independent public company. The spin-off was completed by way of a distribution to 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. The spin-off of Versum was treated as a noncash transaction in the consolidated statements of cash flows in fiscal year 2017. There has been no activity in discontinued operations on the consolidated income statements and no assets or liabilities presented in discontinued operations on the consolidated balance sheets related to EMD for the periods presented.

Business Separation Costs

In connection with the dispositions of EMD and PMD, we incurred net separation costs of $30.2 for the nine months ended 30 June 2017. The net costs include legal and advisory fees of $32.5, which are reflected on the consolidated income statements as "Business separation costs," and a pension settlement benefit of $2.3 that is now presented within "Other non-operating income (expense), net" as a result of the adoption of pension guidance at the beginning of fiscal

year 2018. Refer to Note 2, New Accounting Guidance, for additional information.
Our income tax provision for the three and nine months ended 30 June 2017 includes net tax benefits of $8.2 and $5.5, respectively, primarily related to changes in tax positions on business separation activities.

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5. COST REDUCTION AND ASSET ACTIONS

For the three months ended 30 June 2017, we recognized an expense of $42.7 for cost reduction and asset actions. Asset actions totaled $33.2 and severance and other benefits totaled $9.5. For the nine months ended 30 June 2017, we recognized a net expense of $103.0, which included $78.9 for asset actions and $27.5 for severance and other benefits. These expenses were partially offset by the favorable settlement of the remaining accrual from prior year actions discussed below.

In fiscal year 2017, we recognized a net expense of $151.4. The net expense included a charge of $154.8 for actions taken during fiscal year 2017, including asset actions of $88.5 and severance and other benefits of $66.3, partially offset by the favorable settlement of the remaining $3.4 accrued balance associated with business restructuring actions taken in 2015. The 2017 charge related to the segments as follows: $39.3 in Industrial Gases – Americas, $77.9 in Industrial Gases – EMEA, $.9 in Industrial Gases – Asia, $2.5 in Industrial Gases – Global, and $34.2 in Corporate and other. The charges we record for cost reduction and asset actions have been excluded from segment operating income.

The following table summarizes the carrying amount of the accrual for cost reduction and asset actions at 30 June 2018:

	Severance and Other Benefits	Asset Actions/Other	Total
30 September 2016	$12.3	$—	$12.3
2017 Charge	66.3	88.5	154.8
Noncash expenses	—	(84.2)	(84.2)
Cash expenditures	(35.7)	(1.2)	(36.9)
Amount reflected in pension liability	(2.0)	—	(2.0)
Amount reflected in other noncurrent liabilities	—	(2.2)	(2.2)
Currency translation adjustment	(.3)	—	(.3)
30 September 2017	$40.6	$.9	$41.5
Cash expenditures	(24.8)	(.2)	(25.0)
Amount reflected in pension liability	(.4)	—	(.4)
30 June 2018	$15.4	$.7	$16.1

6. ACQUISITIONS

Asset Acquisition

On 9 September 2017, Air Products signed an agreement to form a joint venture, Air Products Lu’an (Changzhi) Co., Ltd. (“the JV”) with Lu’An Clean Energy Company ("Lu’An"). The JV will receive coal, steam and power from Lu’An and will supply syngas to Lu’An under a long-term onsite contract. On 26 April 2018 ("the acquisition date"), we completed the formation of the JV, of which Air Products owns 60% and Lu’An owns 40%. Air Products contributed four large air separation units to the JV with a carrying value of approximately $300, and the JV acquired gasification and syngas clean-up assets from Lu’An for 7.9 billion RMB (approximately $1.2 billion). As a result, the carrying value of the plant and equipment of the JV was approximately $1.5 billion at the acquisition date. The four gasifiers are being brought on stream in stages, and the JV is expected to be operating in full production by the end of fiscal year 2018. Additional capital expenditures will be incurred on this project as the assets under construction are completed. The JV is consolidated within the results of the Industrial Gases – Asia segment.

We accounted for the acquisition of the gasification and syngas clean-up assets as an asset acquisition. In connection with closing the acquisition, we paid net cash of approximately 1.5 billion RMB ($235) and issued equity of 1.4 billion RMB ($227) to Lu'An for their noncontrolling interest in the JV.

In addition, Lu'An made a loan of 2.6 billion RMB ($399) to the JV with regularly scheduled principal and interest payments at a fixed interest rate of 5.5%, and we established a liability of 2.3 billion RMB ($345) for cash payments expected to be made to or on behalf of Lu'An in the fourth quarter of fiscal year 2018. The long-term debt from Lu'An

is presented on the consolidated balance sheets as "Long-term debt – related party," and our expected cash payment is presented within "Payables and accrued liabilities."
The issuance of equity to Lu'An for their noncontrolling interest, the long-term debt, and the liability for the remaining cash payment were noncash transactions; therefore, they have been excluded from the consolidated statement of cash flows for the nine months ended 30 June 2018. During the three months ended 30 June 2018, sales related to the JV were not material.

Business Combinations

During the first nine months of fiscal year 2018, we completed eight acquisitions that were accounted for as business combinations. These acquisitions had an aggregate purchase price, net of cash acquired, of $355.4. The largest of the acquisitions was completed during the first quarter of fiscal year 2018 and consisted primarily of three air separation units serving onsite and merchant customers in China. This acquisition is expected to strengthen our position in the region. The results of this business are consolidated within our Industrial Gases – Asia segment.

Our fiscal year 2018 business combinations resulted in the recognition of $178.4 of plant and equipment, $81.4 of goodwill, $18.0 of which is deductible for tax purposes, and $105.8 of intangible assets, primarily customer relationships, having a weighted-average useful life of twelve years. The goodwill recognized on the transactions is attributable to expected growth and cost synergies and was primarily recorded in the Industrial Gases – Asia and the Industrial Gases – EMEA segments.

Our 2018 business combinations did not materially impact our consolidated income statements for the periods presented.

7. INVENTORIES

The components of inventories are as follows:

	30 June 2018	30 September 2017
Finished goods	$126.7	$120.0
Work in process	18.5	15.7
Raw materials, supplies and other	201.0	223.0
Total FIFO cost	$346.2	$358.7
Less: Excess of FIFO cost over LIFO cost	(24.1)	(23.3)
Inventories	$322.1	$335.4

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

8. EQUITY AFFILIATES

For the nine months ended 30 June 2018, equity affiliates' income includes an expense of $32.5 for the impact of the U.S. Tax Cuts and Jobs Act recorded during the first quarter of fiscal year 2018. Refer to Note 19, Income Taxes, to the consolidated financial statements for additional information.

During the third quarter of fiscal year 2017, we recorded an other-than-temporary impairment charge of $79.5 on our investment in Abdullah Hashim Industrial Gases & Equipment Co., Ltd. (AHG), a 25%-owned equity affiliate in our Industrial Gases – EMEA segment. The impairment charge is reflected on our consolidated income statements within "Equity affiliates' income (loss)" for the three and nine months ended 30 June 2017. This charge was not deductible for tax purposes and has been excluded from segment results.

The decline in value resulted from expectations for lower future cash flows to be generated by AHG, primarily due to challenging economic conditions in Saudi Arabia, including the impacts of lower prices in the oil and gas industry, increased competition, and capital project growth opportunities not materializing as anticipated.

The AHG investment was valued based on the results of the income and market valuation approaches. The income approach utilized a discount rate based on a market-participant, risk-adjusted weighted average cost of capital, which considers industry required rates of return on debt and equity capital for a target industry capital structure adjusted for risks associated with size and geography. Other significant estimates and assumptions that drove our updated valuation of AHG included revenue growth rates and profit margins that were lower than those upon acquisition and our assessment of AHG's business improvement plan effectiveness. Under the market approach, we estimated fair value based on market multiples of revenue and earnings derived from publicly-traded industrial gases companies engaged in similar lines of business, adjusted to reflect differences in size and growth prospects.

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9. GOODWILL

Changes to the carrying amount of consolidated goodwill by segment for the nine months ended 30 June 2018 are as follows:

	Industrial Gases– Americas	Industrial Gases– EMEA	Industrial Gases– Asia	Industrial Gases– Global	Corporate and other	Total
Goodwill, net at 30 September 2017	$163.7	$402.4	$135.2	$20.2	$—	$721.5
Acquisitions	—	30.8	39.8	—	10.8	81.4
Currency translation	(1.4)	(7.7)	.3	—	—	(8.8)
Goodwill, net at 30 June 2018	$162.3	$425.5	$175.3	$20.2	$10.8	$794.1

	30 June 2018	30 September 2017
Goodwill, gross	$1,201.8	$1,138.7
Accumulated impairment losses(A)	(407.7)	(417.2)
Goodwill, net	$794.1	$721.5

(A) Accumulated impairment losses are attributable to our Latin America reporting unit (LASA) within the Industrial Gases – Americas segment and include impairment charges recorded in previous years as well as the impacts of currency translation on the losses.

We review goodwill for impairment annually in the fourth quarter of the fiscal year and whenever events or changes in circumstances indicate that the carrying value of goodwill might not be recoverable. The impairment test for goodwill involves calculating the fair value of each reporting unit and comparing that value to the carrying value. If the fair value of the reporting unit is less than its carrying value, the difference is recorded as a goodwill impairment charge, not to exceed the total amount of goodwill allocated to that reporting unit.

During the third quarter of fiscal year 2017, we recorded a noncash impairment charge of $145.3 to write down the goodwill associated with LASA within the Industrial Gases – Americas segment. The impairment charge is reflected on our consolidated income statements within “Goodwill and intangible asset impairment charge” for the three and nine months ended 30 June 2017. This charge was not deductible for tax purposes and is excluded from segment operating income.

LASA includes assets and goodwill associated with operations in Chile and other Latin American countries. The decline in value resulted from lowered long-term growth projections reflecting weak economic conditions in Latin America and expectations for continued volume weakness in the Latin American countries and markets in which we operate. We estimated the fair value of LASA based on two valuation approaches, the income approach and the market approach. We reviewed relevant facts and circumstances in determining the weighting of the approaches.

Under the income approach, we estimated the fair value of LASA based on the present value of estimated future cash flows. Cash flow projections were based on management’s estimates of revenue growth rates and EBITDA margins, taking into consideration business and market conditions for the Latin American countries and markets in which we operate. We calculated the discount rate based on a market-participant, risk-adjusted weighted average cost of capital, which considers industry specific rates of return on debt and equity capital for a target industry capital structure, adjusted for risks associated with business size and geography. Under the market approach, we estimated fair value based on market multiples of revenue and earnings derived from publicly-traded industrial gases companies and regional manufacturing companies, adjusted to reflect differences in size and growth prospects. Management judgment is required in the determination of each assumption utilized in the valuation model, and actual results could differ from our estimates.

Prior to completing the LASA goodwill impairment test, we tested the recoverability of LASA’s long-lived assets and other indefinite-lived intangible assets. Refer to Note 10, Intangible Assets, for additional information.

10. INTANGIBLE ASSETS

The table below provides details of acquired intangible assets:

	30 June 2018			30 September 2017		
	Gross	Accumulated Amortization/ Impairment	Net	Gross	Accumulated Amortization/ Impairment	Net
Customer relationships	$497.6	($158.2)	$339.4	$424.1	($142.3)	$281.8
Patents and technology	34.1	(11.3)	22.8	13.4	(10.6)	2.8
Other	71.5	(33.8)	37.7	73.4	(36.6)	36.8
Total finite-lived intangible assets	603.2	(203.3)	399.9	510.9	(189.5)	321.4
Trade names and trademarks, indefinite-lived	62.7	(13.6)	49.1	67.8	(20.9)	46.9
Total Intangible Assets	$665.9	($216.9)	$449.0	$578.7	($210.4)	$368.3

Indefinite-lived intangible assets are subject to impairment testing at least annually or more frequently if events or changes in circumstances indicate that potential impairment exists. The impairment test for indefinite-lived intangible assets involves calculating the fair value of the indefinite-lived intangible assets and comparing the fair value to their carrying value. If the fair value is less than the carrying value, the difference is recorded as an impairment loss.

During the third quarter of fiscal year 2017, we recorded a noncash impairment charge of $16.8 to write down the trade names and trademarks associated with LASA within the Industrial Gases – Americas segment. The impairment charge is reflected on our consolidated income statements within "Goodwill and intangible asset impairment charge" for the three and nine months ended 30 June 2017. This charge has been excluded from segment operating income.

As discussed in Note 9, Goodwill, LASA includes assets and goodwill associated with operations in Chile and other Latin American countries. The decline in value resulted from lowered long-term growth projections reflecting weak economic conditions in Latin America and expectations for continued volume weakness in the Latin American countries and markets in which we operate. We estimated the fair value of the indefinite-lived intangibles associated with LASA utilizing the royalty savings method, a form of the income approach.

We tested the recoverability of LASA long-lived assets, including finite-lived intangible assets subject to amortization, and concluded that they were recoverable from expected future undiscounted cash flows.

11. 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 seek 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 30 June 2018 is 1.8 years.

Forward exchange contracts are also used to hedge the value of investments in certain foreign subsidiaries and affiliates by creating a liability in a currency in which we have a net equity position. The primary currency pair in this portfolio of forward exchange contracts is Euros and U.S. Dollars.
In addition to the forward exchange contracts that are designated as hedges, we utilize forward exchange contracts that are not designated as hedges. The primary objective of these forward exchange contracts is to protect the value of foreign currency-denominated monetary assets and liabilities, primarily working capital, from the effects of volatility in foreign exchange rates that might occur prior to their receipt or settlement. This portfolio of forward exchange contracts comprises many different foreign currency pairs, with a profile that changes from time to time depending on business activity and sourcing decisions.
The table below summarizes our outstanding currency price risk management instruments:

	30 June 2018		30 September 2017	
	US$ Notional	Years Average Maturity	US$ Notional	Years Average Maturity
Forward Exchange Contracts:				
Cash flow hedges	$2,905.0	0.4	$3,150.2	0.4
Net investment hedges	359.8	2.2	675.5	3.0
Not designated	1,121.0	1.4	273.8	0.1
Total Forward Exchange Contracts	$4,385.8	0.8	$4,099.5	0.8

The notional value of forward exchange contracts not designated increased from the prior year. As a result of changes in our currency exposures, we de-designated a portion of forward exchange contracts previously designated as net investment hedges. To eliminate any future earnings impact of the de-designated portion, we entered into equal and offsetting forward exchange contracts.
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 €910.1 million ($1,063.3) at 30 June 2018 and €912.2 million ($1,077.7) at 30 September 2017. The designated foreign currency-denominated debt is located on the consolidated balance sheets within "Long-term debt."
Debt Portfolio Management
It is our policy to identify on a continuing basis the need for debt capital and evaluate the financial risks inherent in funding the Company with debt capital. Reflecting the result of this ongoing review, the debt portfolio and hedging program are managed with the objectives and intent to (1) reduce funding risk with respect to borrowings made by us to preserve our access to debt capital and provide debt capital as required for funding and liquidity purposes, and (2) manage the aggregate interest rate risk and the debt portfolio in accordance with certain debt management parameters.
Interest Rate Management Contracts
We enter into interest rate swaps to change the fixed/variable interest rate mix of our debt portfolio in order to maintain the percentage of fixed- and variable-rate debt within the parameters set by management. In accordance with these parameters, the agreements are used to manage interest rate risks and costs inherent in our debt portfolio. Our interest rate management portfolio generally consists of fixed-to-floating interest rate swaps (which are designated as fair value hedges), pre-issuance interest rate swaps and treasury locks (which hedge the interest rate risk associated with anticipated fixed-rate debt issuances and are designated as cash flow hedges), and floating-to-fixed interest rate swaps (which are designated as cash flow hedges). At 30 June 2018, 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:

	30 June 2018							30 September 2017						
	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		2.60	%	1.9		$600.0	LIBOR		2.28	%	1.3
Cross currency interest rate swaps (net investment hedge)	$692.6	3.72	%	2.76	%	2.1		$539.7	3.27	%	2.59	%	1.9
Cross currency interest rate swaps (cash flow hedge)	$916.6	5.33	%	2.73	%	2.3		$1,095.7	4.96	%	2.78	%	2.4
Cross currency interest rate swaps (not designated)	$35.6	3.16	%	2.86	%	1.2		$41.6	3.28	%	2.32	%	1.7

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

	Balance Sheet Location	30 June 2018	30 September 2017	Balance Sheet Location	30 June 2018	30 September 2017
Derivatives Designated as Hedging Instruments:						
Forward exchange contracts	Other receivables	$25.1	$81.7	Accrued liabilities	$47.4	$82.0
Interest rate management contracts	Other receivables	16.0	11.1	Accrued liabilities	5.5	10.7
Forward exchange contracts	Other noncurrent assets	17.4	27.1	Other noncurrent liabilities	5.6	13.8
Interest rate management contracts	Other noncurrent assets	73.8	102.6	Other noncurrent liabilities	20.6	22.2
Total Derivatives Designated as Hedging Instruments		$132.3	$222.5		$79.1	$128.7
Derivatives Not Designated as Hedging Instruments:						
Forward exchange contracts	Other receivables	$5.6	$1.1	Accrued liabilities	$5.3	$2.2
Interest rate management contracts	Other receivables	—	—	Accrued liabilities	.1	1.0
Forward exchange contracts	Other noncurrent assets	14.2	—	Other noncurrent liabilities	21.8	—
Interest rate management contracts	Other noncurrent assets	5.0	4.2	Other noncurrent liabilities	—	—
Total Derivatives Not Designated as Hedging Instruments		$24.8	$5.3		$27.2	$3.2
Total Derivatives		$157.1	$227.8		$106.3	$131.9

Refer to Note 12, 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 30 June							
	Forward Exchange Contracts		Foreign Currency Debt		Other [(A)]		Total	
	2018	2017	2018	2017	2018	2017	2018	2017
Cash Flow Hedges, net of tax:								
Net gain (loss) recognized in OCI (effective portion)	($34.4)	$41.2	$—	$—	$61.5	($18.2)	$27.1	$23.0
Net (gain) loss reclassified from OCI to sales/cost of sales (effective portion)	1.9	4.3	—	—	—	—	1.9	4.3
Net (gain) loss reclassified from OCI to other income (expense), net (effective portion)	33.7	(37.9)	—	—	(55.6)	10.7	(21.9)	(27.2)
Net (gain) loss reclassified from OCI to interest expense (effective portion)	.8	.4	—	—	2.0	.7	2.8	1.1
Net (gain) loss reclassified from OCI to other income (expense), net (ineffective portion)	—	(1.8)	—	—	(.5)	—	(.5)	(1.8)
Fair Value Hedges:								
Net gain (loss) recognized in interest expense[(B)]	$—	$—	$—	$—	($2.1)	($.6)	($2.1)	($.6)
Net Investment Hedges, net of tax:								
Net gain (loss) recognized in OCI	$16.2	($23.2)	$44.2	($44.4)	$36.9	($9.8)	$97.3	($77.4)
Derivatives Not Designated as Hedging Instruments:								
Net gain (loss) recognized in other income (expense), net[(C)]	($.3)	$3.7	$—	$—	$2.2	($.7)	$1.9	$3.0

	Nine Months Ended 30 June							
	Forward Exchange Contracts		Foreign Currency Debt		Other [(A)]		Total	
	2018	2017	2018	2017	2018	2017	2018	2017
Cash Flow Hedges, net of tax:								
Net gain (loss) recognized in OCI (effective portion)	$5.0	($7.1)	$—	$—	$30.4	$4.9	$35.4	($2.2)
Net (gain) loss reclassified from OCI to sales/cost of sales (effective portion)	6.9	10.1	—	—	—	—	6.9	10.1
Net (gain) loss reclassified from OCI to other income (expense), net (effective portion)	(13.2)	.8	—	—	(23.4)	(1.7)	(36.6)	(.9)
Net (gain) loss reclassified from OCI to interest expense (effective portion)	3.0	(2.0)	—	—	3.3	2.1	6.3	.1
Net (gain) loss reclassified from OCI to other income (expense), net (ineffective portion)	(.5)	(1.5)	—	—	(.5)	—	(1.0)	(1.5)
Fair Value Hedges:								
Net gain (loss) recognized in interest expense[(B)]	$—	$—	$—	$—	($8.9)	($12.5)	($8.9)	($12.5)
Net Investment Hedges, net of tax:								
Net gain (loss) recognized in OCI	($6.5)	$3.9	$4.7	($10.4)	$2.4	($3.2)	$.6	($9.7)
Derivatives Not Designated as Hedging Instruments:								
Net gain (loss) recognized in other income (expense), net[(C)]	($.2)	$3.3	$—	$—	($1.3)	($.5)	($1.5)	$2.8

(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 30 June 2018 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 $51.1 as of 30 June 2018 and $34.6 as of 30 September 2017. 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 $109.9 as of 30 June 2018 and $138.5 as of 30 September 2017. No financial institution is required to post collateral at this time as all have credit ratings at or above threshold.

12. 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:

Short-term Investments

Short-term investments primarily include time deposits and treasury securities with original maturities greater than three months and less than one year. The estimated fair value of the short-term investments, which approximates carrying value as of 30 June 2018 and 30 September 2017, was determined using level 2 inputs within the fair value hierarchy. Level 2 measurements were based on current interest rates for similar investments with comparable credit risk and time to maturity.

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 as well as 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 11, Financial Instruments, for a description of derivative instruments, including details on the balance

sheet line classifications.

Long-term Debt

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

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

	30 June 2018		30 September 2017	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Assets				
Derivatives				
Forward exchange contracts	$62.3	$62.3	$109.9	$109.9
Interest rate management contracts	94.8	94.8	117.9	117.9
Liabilities				
Derivatives				
Forward exchange contracts	$80.1	$80.1	$98.0	$98.0
Interest rate management contracts	26.2	26.2	33.9	33.9
Long-term debt, including current portion and related party	3,780.8	3,822.3	3,818.8	3,928.2

The carrying amounts reported on the consolidated balance sheets for cash and cash items, short-term investments, 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:

	30 June 2018				30 September 2017			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Assets at Fair Value								
Derivatives								
Forward exchange contracts	$62.3	$—	$62.3	$—	$109.9	$—	$109.9	$—
Interest rate management contracts	94.8	—	94.8	—	117.9	—	117.9	—
Total Assets at Fair Value	$157.1	$—	$157.1	$—	$227.8	$—	$227.8	$—
Liabilities at Fair Value								
Derivatives								
Forward exchange contracts	$80.1	$—	$80.1	$—	$98.0	$—	$98.0	$—
Interest rate management contracts	26.2	—	26.2	—	33.9	—	33.9	—
Total Liabilities at Fair Value	$106.3	$—	$106.3	$—	$131.9	$—	$131.9	$—

13. RETIREMENT BENEFITS

The components of net periodic benefit cost for the defined benefit pension plans for the three and nine months ended 30 June 2018 and 2017 were as follows:

	Pension Benefits			
	2018		2017	
Three Months Ended 30 June	U.S.	International	U.S.	International
Service cost	$6.4	$6.5	$7.0	$6.5
Interest cost	26.8	9.4	27.5	8.2
Expected return on plan assets	(50.4)	(20.6)	(51.6)	(18.9)
Prior service cost amortization	.4	—	.6	—
Actuarial loss amortization	21.8	10.2	20.9	13.5
Settlements	1.5	—	5.5	—
Special termination benefits	—	—	.8	—
Other	—	.3	—	.2
Net Periodic Benefit Cost (Total)	$6.5	$5.8	$10.7	$9.5
Less: Discontinued Operations	—	—	—	—
Net Periodic Benefit Cost (Continuing Operations)	$6.5	$5.8	$10.7	$9.5

	Pension Benefits			
	2018		2017	
Nine Months Ended 30 June	U.S.	International	U.S.	International
Service cost(A)	$19.2	$19.4	$22.2	$19.5
Interest cost	80.3	28.2	80.0	23.7
Expected return on plan assets	(151.2)	(61.9)	(156.0)	(55.7)
Prior service cost amortization	1.2	—	1.8	(.1)
Actuarial loss amortization	65.7	30.5	67.9	40.6
Settlements	4.8	—	9.6	1.7
Curtailment	—	—	4.3	(1.3)
Special termination benefits	.4	—	1.8	.5
Other	—	.9	—	.7
Net Periodic Benefit Cost (Total)	$20.4	$17.1	$31.6	$29.6
Less: Discontinued Operations	—	—	(.7)	(4.1)
Net Periodic Benefit Cost (Continuing Operations)	$20.4	$17.1	$30.9	$25.5

(A) Includes total service costs from discontinued operations of $1.3 for the nine months ended 30 June 2017.

As noted in Note 2, New Accounting Guidance, we early adopted guidance on the presentation of net periodic pension and postretirement benefit cost during the first quarter of fiscal year 2018. The amendments require that the service cost component of the net periodic benefit cost be presented in the same line items as other compensation costs arising from services rendered by employees during the period. The non-service related costs are presented outside of operating income in "Other non-operating income (expense), net."

Service costs are primarily included in "Cost of sales" and "Selling and administrative" on our consolidated income statements. The costs capitalized in fiscal year 2018 and 2017 were not material.

For the nine months ended 30 June 2018 and 2017, our cash contributions to funded pension plans and benefit payments under unfunded pension plans were $43.0 and $57.0, respectively. Total contributions for fiscal year 2018 are expected to be approximately $50 to $70. During fiscal year 2017, total contributions were $64.1.

14. 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 $46 at 30 June 2018) 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 $46 at 30 June 2018) 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 34 sites on which a final settlement has not been reached where we, along with others, have been designated a potentially responsible party by the Environmental Protection Agency or are otherwise engaged in investigation or remediation, including cleanup activity at certain of our current and former manufacturing sites. We continually monitor these sites for which we have environmental exposure.

Accruals for environmental loss contingencies are recorded when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The consolidated balance sheets at 30 June 2018 and 30 September 2017 included an accrual of $78.4 and $83.6, respectively, primarily as part of other noncurrent liabilities. The environmental liabilities will be paid over a period of up to 30 years. We estimate the exposure for environmental loss contingencies to range from $78 to a reasonably possible upper exposure of $92 as of 30 June 2018.

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

PACE

At 30 June 2018, $26.7 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 a substantial period of time 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 and have started additional field work to support the design of an improved groundwater recovery network with the objective of targeting areas of higher contaminant concentration and avoiding areas of high groundwater iron which has proven to be a significant operability issue for the project. 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 consistent with our previous estimates.

PIEDMONT

At 30 June 2018, $15.9 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 (SCDHEC) to address both contaminated soil and groundwater. Numerous areas of soil contamination have been addressed, and contaminated groundwater is being recovered and treated. On 13 June 2017, the SCDHEC issued its final approval to the site-wide feasibility study, and on 27 June 2018 issued the Record of Decision for the site. Field work has started to support the remedial design and we are negotiating an amendment to the existing Consent Agreement memorializing our obligations to complete the cleanup of the Piedmont site. We estimate that source area remediation and groundwater recovery and treatment will continue 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 30 June 2018, $11.8 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 have been no significant changes to the estimated exposure.

Asset Retirement Obligations

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

Our asset retirement obligations as of 30 June 2018 and 30 September 2017 were $185.8 and $144.7, respectively. The increase in the liability primarily relates to new obligations associated with the Lu'An asset acquisition completed in April 2018.

Unconditional Purchase Obligations
Our unconditional purchase obligations for helium purchases were approximately $6,500 as of 30 June 2018. The majority of these obligations occur after fiscal year 2022. Helium purchases include crude feedstock supply to multiple helium refining plants in North America as well as refined helium purchases from sources around the world. As a rare byproduct of natural gas production in the energy sector, these helium sourcing agreements are medium- to long-term and contain take-if-tendered provisions. The refined helium is distributed globally and sold as a merchant gas, primarily under medium-term requirements contracts. While contract terms in the energy sector are longer than those in merchant, helium is a rare gas used in applications with few or no substitutions because of its unique physical and chemical properties.

15. SHARE-BASED COMPENSATION

We have various share-based compensation programs, which include deferred stock units, stock options, and restricted stock. During the nine months ended 30 June 2018, 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 30 June 2018, there were 4,656,128 shares available for future grant under our Long-Term Incentive Plan (LTIP), which is shareholder approved.
Share-based compensation cost recognized in continuing operations on the consolidated income statements is summarized below:

	Three Months Ended		Nine Months Ended	
	30 June		30 June	
	2018	2017	2018	2017
Before-tax share-based compensation cost	$7.9	$8.9	$30.4	$27.4
Income tax benefit	(1.9)	(3.2)	(7.2)	(9.5)
After-tax share-based compensation cost	$6.0	$5.7	$23.2	$17.9

Before-tax share-based compensation cost is primarily included in "Selling and administrative" on our consolidated income statements. The amount of share-based compensation cost capitalized in the first nine months of fiscal year 2018 and 2017 was not material.
Deferred Stock Units
During the nine months ended 30 June 2018, we granted 105,268 market-based deferred stock units. The market-based deferred stock units are earned out at the end of a performance period beginning 1 October 2017 and ending 30 September 2020, 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 $202.50 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	18.7%
Risk-free interest rate	1.9%
Expected dividend yield	2.6%

In addition, during the nine months ended 30 June 2018, we granted 141,189 time-based deferred stock units at a weighted average grant-date fair value of $162.07.

16. EQUITY

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

	Three Months Ended 30 June					
	2018			2017		
	Air Products	Non-controlling Interests	Total Equity	Air Products	Non-controlling Interests	Total Equity
Balance at 31 March	$10,580.8	$112.4	$10,693.2	$9,317.4	$102.8	$9,420.2
Net income	473.9	14.0	487.9	101.9	2.2	104.1
Other comprehensive income (loss)	(342.5)	(14.5)	(357.0)	176.6	.2	176.8
Dividends on common stock (per share $1.10, $0.95)	(241.2)	—	(241.2)	(207.0)	—	(207.0)
Dividends to noncontrolling interests	—	(15.4)	(15.4)	—	(7.9)	(7.9)
Share-based compensation	7.9	—	7.9	8.9	—	8.9
Treasury shares for stock option and award plans	5.4	—	5.4	17.8	—	17.8
Lu'An joint venture	—	227.4	227.4	—	—	—
Other equity transactions	1.7	.1	1.8	(3.2)	.2	(3.0)
Balance at 30 June	$10,486.0	$324.0	$10,810.0	$9,412.4	$97.5	$9,509.9

	Nine Months Ended 30 June					
	2018			2017		
	Air Products	Non-controlling Interests	Total Equity	Air Products	Non-controlling Interests	Total Equity
Balance at 30 September	$10,086.2	$99.3	$10,185.5	$7,079.6	$133.8	$7,213.4
Net income	1,044.9	28.3	1,073.2	2,531.7	14.5	2,546.2
Other comprehensive income (loss)	(30.4)	(10.4)	(40.8)	159.7	2.1	161.8
Dividends on common stock (per share $3.15, $2.76)	(690.3)	—	(690.3)	(601.0)	—	(601.0)
Dividends to noncontrolling interests	—	(26.0)	(26.0)	—	(19.5)	(19.5)
Share-based compensation	29.7	—	29.7	27.4	—	27.4
Treasury shares for stock option and award plans	45.5	—	45.5	25.5	—	25.5
Spin-off of Versum	—	—	—	186.5	(33.9)	152.6
Cumulative change in accounting principle	—	—	—	8.8	—	8.8
Lu'An joint venture	—	227.4	227.4	—	—	—
Other equity transactions	.4	5.4	5.8	(5.8)	.5	(5.3)
Balance at 30 June	$10,486.0	$324.0	$10,810.0	$9,412.4	$97.5	$9,509.9

17. ACCUMULATED OTHER COMPREHENSIVE LOSS

The tables below summarize changes in accumulated other comprehensive loss (AOCL), net of tax, attributable to Air Products for the three and nine months ended 30 June 2018:

	Derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance at 31 March 2018	($51.4)	($526.2)	($957.7)	($1,535.3)
Other comprehensive income (loss) before reclassifications	27.1	(392.4)	—	(365.3)
Amounts reclassified from AOCL	(17.7)	—	26.0	8.3
Net current period other comprehensive income (loss)	9.4	(392.4)	26.0	(357.0)
Amount attributable to noncontrolling interests	.1	(14.6)	—	(14.5)
Balance at 30 June 2018	($42.1)	($904.0)	($931.7)	($1,877.8)

	Derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance at 30 September 2017	($53.1)	($787.1)	($1,007.2)	($1,847.4)
Other comprehensive income (loss) before reclassifications	35.4	(130.4)	—	(95.0)
Amounts reclassified from AOCL	(24.4)	3.1	75.5	54.2
Net current period other comprehensive income (loss)	11.0	(127.3)	75.5	(40.8)
Amount attributable to noncontrolling interests	—	(10.4)	—	(10.4)
Balance at 30 June 2018	($42.1)	($904.0)	($931.7)	($1,877.8)

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 30 June		Nine Months Ended 30 June	
	2018	2017	2018	2017
(Gain) Loss on Cash Flow Hedges, net of tax				
Sales/Cost of sales	$1.9	$4.3	$6.9	$10.1
Other income/expense, net	(22.4)	(29.0)	(37.6)	(2.4)
Interest expense	2.8	1.1	6.3	.1
Total (Gain) Loss on Cash Flow Hedges, net of tax	($17.7)	($23.6)	($24.4)	$7.8
Currency Translation Adjustment				
Cost of sales[(A)]	$—	$—	$3.1	$—
Cost reduction and assets actions[(B)]	—	8.2	—	8.2
Loss from discontinued operations, net of tax[(C)]	—	—	—	49.1
Total Currency Translation Adjustment	$—	$8.2	$3.1	$57.3
Pension and Postretirement Benefits, net of tax[(D)]	$26.0	$27.7	$75.5	$85.2

(A) The fiscal year 2018 impact relates to an equipment sale resulting from the termination of a contract in the Industrial Gases – Asia segment during the first quarter.

(B) The fiscal year 2017 impact relates to the planned sale of a non-industrial gas hardgoods business in the Industrial Gases – Americas segment.

(C) The fiscal year 2017 impact relates to the sale of PMD during the second quarter.

(D) The components of net periodic benefit cost reclassified out of accumulated other comprehensive loss include items such as prior service cost amortization, actuarial loss amortization, and settlements and are included in “Other non-operating income (expense), net” on the consolidated income statements. Refer to Note 13, Retirement Benefits, for additional information.

18. EARNINGS PER SHARE

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

	Three Months Ended		Nine Months Ended	
	30 June		30 June	
	2018	2017	2018	2017
Numerator				
Income from continuing operations	$430.7	$104.2	$1,002.7	$660.2
Income (Loss) from discontinued operations	43.2	(2.3)	42.2	1,871.5
Net Income Attributable to Air Products	$473.9	$101.9	$1,044.9	$2,531.7
Denominator (in millions)				
Weighted average common shares — Basic	219.5	218.1	219.3	217.9
Effect of dilutive securities				
Employee stock option and other award plans	1.4	1.7	1.4	1.9
Weighted average common shares — Diluted	220.9	219.8	220.7	219.8
Basic Earnings Per Common Share Attributable to Air Products				
Income from continuing operations	$1.96	$.48	$4.57	$3.03
Income (Loss) from discontinued operations	.20	(.01)	.19	8.59
Net Income Attributable to Air Products	$2.16	$.47	$4.76	$11.62
Diluted Earnings Per Common Share Attributable to Air Products				
Income from continuing operations	$1.95	$.47	$4.54	$3.00
Income (Loss) from discontinued operations	.20	(.01)	.19	8.52
Net Income Attributable to Air Products	$2.15	$.46	$4.73	$11.52

For the three months ended 30 June 2018, there were no antidilutive outstanding share-based awards. Outstanding share-based awards of .1 million shares were antidilutive and therefore excluded from the computation of diluted earnings per share for the nine months ended 30 June 2018. For the three and nine months ended 30 June 2017, there were no antidilutive outstanding share-based awards.

19. INCOME TAXES

Unrecognized Tax Benefits

The consolidated balance sheets as of 30 June 2018 and 30 September 2017 include unrecognized tax benefits of $199.9 and $146.4, respectively. The net increase resulted from increases for current year tax positions of $22.8, including uncertain tax positions on the restructuring of foreign subsidiaries and reserves for ongoing transfer pricing uncertainties, and an increase for prior year tax positions of $86.9, primarily for uncertain state tax filing positions from the sale of PMD.

These increases were offset by a reduction in prior year positions of $40.4 and a reduction for settlement payments of $13.4. On 17 April 2018, we received a final audit settlement agreement that resolved uncertainties related to unrecognized tax benefits of $43.1, including interest. This settlement primarily related to tax positions taken in conjunction with the disposition of our European Homecare business in fiscal year 2012. As a result, we recorded an income tax benefit of $25.8, including interest, in income from discontinued operations during the three months ended 30 June 2018. The settlement also resulted in an income tax benefit of $9.1, including interest, in continuing operations during the three months ended 30 June 2018 for the release of tax reserves on other matters. The reduction in prior year positions and settlement payments also reflect the settlement of U.S. federal tax audits for 2012 through 2014.

U.S. Tax Cuts and Jobs Act

On 22 December 2017, the United States enacted the U.S. Tax Cuts and Jobs Act ("the Tax Act"), which significantly changed existing U.S. tax laws, including a reduction in the federal corporate income tax rate from 35% to 21%, a deemed repatriation tax on unremitted foreign earnings, as well as other changes. As a result of the Tax Act, our consolidated income statements for the nine months ended 30 June 2018 reflect a net expense of $239.0 for the impacts recorded during the first quarter of fiscal year 2018. This includes an expense of $453.0 for the cost of the deemed repatriation tax and adjustments to the future cost of repatriation from foreign investments. This expense impacted our income tax provision by $420.5 and equity affiliate income by $32.5 for future costs of repatriation that will be borne by an equity affiliate. In addition, the income tax provision was benefited by $214.0 primarily from the re-measurement of our net U.S. deferred tax liabilities at the lower corporate tax rate.

The $420.5 adjustment recorded during the first quarter of fiscal year 2018 reflects a deemed repatriation tax of $364.1 that is payable over eight years and $56.4 resulting primarily from withholding taxes that were established for repatriation of foreign earnings and other impacts of the Tax Act. We expect to apply $71.5 of existing foreign tax credits towards the $364.1 deemed repatriation tax. Of the remaining $292.6 obligation, $234.8 is recorded on our consolidated balance sheets in noncurrent liabilities.

We are reporting the impacts of the Tax Act provisionally based upon reasonable estimates as of 30 June 2018. The impacts are not yet finalized as they are dependent on factors and analysis not yet known or fully completed, including but not limited to, the final cash balances for fiscal year 2018, further book to U.S. tax adjustments for the earnings of foreign entities, the issuance of additional guidance, as well as our ongoing analysis of the Tax Act.

As a fiscal year-end taxpayer, certain provisions of the Tax Act become effective in our fiscal year 2018 while other provisions do not become effective until fiscal year 2019. The corporate tax rate reduction is effective as of 1 January 2018 and, accordingly, reduces our 2018 fiscal year U.S. federal statutory rate to a blended rate of approximately 24.5%.

Primarily due to the net impact of the Tax Act and the restructuring benefit discussed below, our effective tax rate was 30.6% for the nine months ended 30 June 2018.

Restructuring Benefit

During the second quarter of fiscal year 2018, we recognized a tax benefit of $38.8, net of reserves for uncertain tax positions, and a corresponding decrease in net deferred tax liabilities resulting from the restructuring of several foreign subsidiaries.

Cash Paid for Taxes (Net of Cash Refunds)

On a total company basis, income tax payments, net of refunds, were $319.1 and $1,109.8 for the nine months ended 30 June 2018 and 2017, respectively. The prior year includes tax payments related to the gain on the sale of PMD.

20. 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

	Industrial Gases – Americas	Industrial Gases – EMEA	Industrial Gases – Asia	Industrial Gases – Global	Corporate and other	Segment Total
Three Months Ended 30 June 2018						
Sales	$948.7	$561.1	$623.8	$101.1	$24.3	$2,259.0
Operating income (loss)	237.1	118.8	185.5	19.8	(45.4)	515.8
Depreciation and amortization	120.5	49.8	69.5	2.3	3.5	245.6
Equity affiliates' income	24.1	17.5	15.1	1.4	—	58.1
Three Months Ended 30 June 2017						
Sales	$930.1	$451.7	$538.3	$187.4	$14.4	$2,121.9
Operating income (loss)	234.9	96.2	149.5	27.8	(44.9)	463.5
Depreciation and amortization	117.0	45.1	49.6	2.3	2.9	216.9
Equity affiliates' income	14.1	15.7	12.5	.3	—	42.6

	Industrial Gases – Americas	Industrial Gases – EMEA	Industrial Gases – Asia	Industrial Gases – Global	Corporate and other	Segment Total
Nine Months Ended 30 June 2018						
Sales	$2,771.7	$1,638.6	$1,825.0	$335.8	$60.2	$6,631.3
Operating income (loss)	676.6	340.0	509.7	41.4	(135.8)	1,431.9
Depreciation and amortization	360.6	149.6	188.9	5.8	8.6	713.5
Equity affiliates' income	59.6	41.7	44.7	2.1	—	148.1
Nine Months Ended 30 June 2017						
Sales	$2,684.1	$1,265.6	$1,412.5	$551.8	$70.5	$5,984.5
Operating income (loss)	681.4	274.8	380.2	58.7	(114.9)	1,280.2
Depreciation and amortization	344.8	128.9	145.6	6.0	9.5	634.8
Equity affiliates' income	41.8	33.5	38.9	.6	—	114.8
Total Assets						
30 June 2018	$5,857.7	$3,311.8	$5,880.0	$267.9	$3,888.6	$19,206.0
30 September 2017	5,840.8	3,276.1	4,412.1	279.6	4,648.4	18,457.0

The sales information noted above relates to external customers only. All intersegment sales are eliminated in consolidation. For the three and nine months ended 30 June 2018, the Industrial Gases – Global segment had intersegment sales of $68.7 and $186.6, respectively. For the three and nine months ended 30 June 2017, the Industrial Gases – Global segment had intersegment sales of $57.4 and $179.4, 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.

Changes in estimates on projects accounted for under the percentage-of-completion method favorably impacted operating income by approximately $15 and $25 for the three and nine months ended 30 June 2018, respectively. Changes in estimates on projects accounted for under the percentage-of-completion method favorably impacted operating income by approximately $15 and $27 for the three and nine months ended 30 June 2017, respectively.
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. Sales related to this contract are included in the results of our Industrial Gases – Global segment. During the three and nine months ended 30 June 2018, sales were approximately $50 and $200, respectively, related to this contract. During the three and nine months ended 30 June 2017, sales were approximately $140 and $420, respectively.
Below is a reconciliation of segment total operating income to consolidated operating income:

	Three Months Ended 30 June		Nine Months Ended 30 June	
Operating Income	2018	2017	2018	2017
Segment total	$515.8	$463.5	$1,431.9	$1,280.2
Business separation costs	—	—	—	(32.5)
Cost reduction and asset actions	—	(42.7)	—	(103.0)
Goodwill and intangible asset impairment charge	—	(162.1)	—	(162.1)
Consolidated Total	$515.8	$258.7	$1,431.9	$982.6

Below is a reconciliation of segment total equity affiliates' income to consolidated equity affiliates' income (loss):

	Three Months Ended 30 June		Nine Months Ended 30 June	
Equity Affiliates' Income (Loss)	2018	2017	2018	2017
Segment total	$58.1	$42.6	$148.1	$114.8
Equity method investment impairment charge	—	(79.5)	—	(79.5)
Tax reform repatriation - equity method investment	—	—	(32.5)	—
Consolidated Total	$58.1	($36.9)	$115.6	$35.3

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

	30 June	30 September
Total Assets	2018	2017
Segment total	$19,206.0	$18,457.0
Discontinued operations	—	10.2
Consolidated Total	$19,206.0	$18,467.2

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

The disclosures in this quarterly report are complementary to those made in our 2017 Form 10-K. An analysis of results for the third quarter and first nine months of fiscal year 2018 is provided in this Management's Discussion and Analysis.

The following discussion should be read in conjunction with the consolidated financial statements and the accompanying notes contained in this report. Unless otherwise indicated, financial information is presented 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. All amounts are presented in millions of dollars, except for per share data, unless otherwise indicated.

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 (EPS)" throughout this Management's Discussion and Analysis, unless otherwise stated.

The discussion of results that follows includes comparisons to certain non-GAAP ("adjusted") financial measures. The presentation of non-GAAP measures is intended to provide investors, potential investors, securities analysts, and others with useful supplemental 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. The reconciliations of reported GAAP results to non GAAP measures are presented on pages 46-51. Descriptions of the excluded items appear on pages 34-35 and pages 41-42.

THIRD QUARTER 2018 VS. THIRD QUARTER 2017

THIRD QUARTER 2018 IN SUMMARY

- Sales of $2,259.0 increased 6%, or $137.1, from higher volumes of 3% across the regional industrial gases segments and favorable currency impacts of 3%. Favorable pricing of 1% was offset by lower energy and natural gas cost pass-through to customers.
- Operating income of $515.8 increased 99%, or $257.1, and operating margin of 22.8% increased 1,060 basis points (bp). On a non-GAAP basis, adjusted operating income of $515.8 increased 11%, or $52.3, and adjusted operating margin of 22.8% increased 100 bp.
- Income from continuing operations of $430.7 increased 313%, or $326.5, and diluted earnings per share of $1.95 increased 315%, or $1.48. On a non-GAAP basis, adjusted income from continuing operations of $430.7 increased 19%, or $67.7, and adjusted diluted earnings per share of $1.95 increased 18%, or $.30. A summary table of changes in diluted earnings per share is presented below.
- Adjusted EBITDA of $819.5 increased 13%, or $96.5. Adjusted EBITDA margin of 36.3% increased 220 bp.
- We completed the formation of a syngas supply joint venture with Lu'An, including the acquisition of their gasification and syngas clean-up assets.

Changes in Diluted Earnings per Share Attributable to Air Products

	Three Months Ended 30 June		Increase
	2018	2017	(Decrease)
Diluted Earnings per Share			
Net income	**$2.15**	**$.46**	**$1.69**
Income (Loss) from discontinued operations	.20	(.01)	.21
Income from Continuing Operations – GAAP Basis	**$1.95**	**$.47**	**$1.48**
Operating Income Impact (after-tax)			
Underlying business			
Volume			$.18
Price/raw materials			.04
Costs			(.08)
Currency			.05
Cost reduction and asset actions			.14
Goodwill and intangible asset impairment charge			.70
Total Operating Income Impact (after-tax)			**$1.03**
Other Impact (after-tax)			
Equity affiliates' income			$.05
Equity method investment impairment charge			.36
Interest expense			(.02)
Other non-operating income (expense), net			.03
Noncontrolling interests			(.04)
Income tax			.12
Tax benefit associated with business separation			(.04)
Weighted average diluted shares			(.01)
Total Other Impact (after-tax)			**$.45**
Total Change in Diluted Earnings per Share from Continuing Operations – GAAP Basis			**$1.48**

	Three Months Ended 30 June		Increase
	2018	2017	(Decrease)
Income from Continuing Operations – GAAP Basis	**$1.95**	**$.47**	**$1.48**
Tax benefit associated with business separation	—	(.04)	.04
Cost reduction and asset actions	—	.14	(.14)
Goodwill and intangible asset impairment charge	—	.70	(.70)
Equity method investment impairment charge	—	.36	(.36)
Pension settlement loss	—	.02	(.02)
Income from Continuing Operations – Non-GAAP Basis	**$1.95**	**$1.65**	**$.30**

RESULTS OF OPERATIONS

Discussion of Consolidated Results

	Three Months Ended 30 June			
	2018	2017	$ Change	Change
Sales	$2,259.0	$2,121.9	$137.1	6 %
Operating income	515.8	258.7	257.1	99 %
Operating margin	22.8 %	12.2 %		1,060 bp
Equity affiliates' income	58.1	(36.9)	95.0	257 %
Income from continuing operations	430.7	104.2	326.5	313 %
Non-GAAP Basis				
Adjusted EBITDA	$819.5	$723.0	$96.5	13 %
Adjusted EBITDA margin	36.3 %	34.1 %		220 bp
Adjusted operating income	515.8	463.5	52.3	11 %
Adjusted operating margin	22.8 %	21.8 %		100 bp
Adjusted equity affiliates' income	58.1	42.6	15.5	36 %

Sales

	% Change from Prior Year
Underlying business	
Volume	3 %
Price	1 %
Energy and natural gas cost pass-through	(1)%
Currency	3 %
Total Consolidated Change	**6 %**

Sales of $2,259.0 increased 6%, or $137.1. Underlying sales increased 4% from higher volumes of 3% and higher pricing of 1%. Volumes were higher across all regional Industrial Gases segments, primarily due to new project onstreams, partially offset by lower sale of equipment activity in the Industrial Gases – Global segment. The pricing improvement was largely attributable to the Industrial Gases – Asia and Industrial Gases – EMEA segments, primarily driven by improved merchant pricing in China and Europe. Lower energy and natural gas cost pass-through to customers decreased sales by 1%, and favorable currency impacts, primarily from the Euro, the British Pound Sterling, and the Chinese Renminbi, increased sales by 3%.

Operating Income and Margin

Operating income of $515.8 increased 99%, or $257.1, due to the prior year goodwill and intangible asset impairment charge of $162, higher volumes of $52, lower cost reduction and asset actions of $43, favorable currency impacts of $13, and favorable pricing, net of energy, fuel, and raw material costs, of $13, partially offset by unfavorable net operating costs of $26. The increase in net operating costs was primarily driven by higher planned maintenance costs and lower cost reimbursement, including costs for transition services. Operating margin of 22.8% increased 1,060 bp, primarily due to the goodwill and intangible asset impairment charge and cost reduction and asset actions in the prior year.

On a non-GAAP basis, adjusted operating income of $515.8 increased 11%, or $52.3, primarily due to higher volumes, favorable currency impacts, and favorable pricing, net of energy, fuel, and raw material costs, partially offset by unfavorable net operating costs. Adjusted operating margin of 22.8% increased 100 bp, primarily due to the higher volumes, partially offset by higher net operating costs.

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, other non-operating income (expense), net, income tax provision, and depreciation and amortization expense. Adjusted EBITDA provides a useful metric for management to assess operating performance.

Adjusted EBITDA of $819.5 increased 13%, or $96.5, primarily due to higher volumes, favorable currency impacts, higher income from regional industrial gases equity affiliates, and positive pricing, partially offset by higher operating costs. Adjusted EBITDA margin of 36.3% increased 220 bp, primarily due to higher volumes and higher income from regional industrial gases equity affiliates, partially offset by higher operating costs.

Equity Affiliates' Income (Loss)

Equity affiliates' income of $58.1 increased $95.0 from a loss of $36.9 in the third quarter of fiscal year 2017. The prior year loss included a noncash impairment charge of $79.5 ($.36 per share) on our investment in Abdullah Hashim Industrial Gases & Equipment Co., Ltd. (AHG), a 25%-owned equity affiliate in our Industrial Gases – EMEA segment. On a non-GAAP basis, equity affiliates' income of $58.1 increased $15.5, or 36%, primarily driven by higher volumes and favorable currency impacts.

Cost of Sales and Gross Margin

Cost of sales of $1,545.4 increased $59.4, or 4%, due to unfavorable currency impacts of $53, higher other costs, including planned maintenance, of $24, and higher costs attributable to sales volumes of $5, partially offset by lower energy and natural gas cost pass-through to customers of $23. Gross margin of 31.6% increased 160 bp primarily due to higher volumes and favorable pricing, partially offset by higher other costs.

Selling and Administrative Expense

Selling and administrative expense of $188.6 increased $4.5, or 2.0%, primarily driven by unfavorable currency impacts, partially offset by lower costs, including incentive compensation. Selling and administrative expense, as a percentage of sales, decreased from 8.7% to 8.3%.

Research and Development

Research and development expense of $15.0 increased $.4. For both the three months ended 30 June 2018 and 2017, research and development expense, as a percentage of sales, was .7%.

Cost Reduction and Asset Actions

For the three months ended 30 June 2017, we recognized an expense of $42.7 ($30.0 attributable to Air Products after-tax, or $.14 per share), which includes $33.2 for asset actions and $9.5 for severance and other benefits. Refer to Note 5, Cost Reduction and Asset Actions, to the consolidated financial statements for additional details.

Goodwill and Intangible Asset Impairment Charge

During the third quarter of fiscal year 2017, we determined that the goodwill and indefinite-lived intangible assets (primarily acquired trade names) associated with our Latin America reporting unit of our Industrial Gases – Americas segment were impaired. We recorded a noncash impairment charge of $162.1 ($154.1 attributable to Air Products, after-tax, or $.70 per share), which was driven by lower economic growth and profitability in the region. Refer to Note 9, Goodwill, and Note 10, Intangible Assets, to the consolidated financial statements for additional details.

Other Income (Expense), Net

Other income (expense), net of $5.8 decreased $20.5, or 78.0%, due to lower income from transition services agreements with Versum and Evonik Industries AG (Evonik) and unfavorable foreign exchange impacts.

Interest Expense

	Three Months Ended 30 June	
	2018	2017
Interest incurred	$42.4	$32.9
Less: capitalized interest	7.5	3.1
Interest expense	$34.9	$29.8

Interest incurred increased $9.5, primarily due to project financing associated with the Lu'An joint venture. The change in capitalized interest was driven by an increase in the carrying value of projects under construction.

Other Non-Operating Income (Expense), Net

Other non-operating income (expense), net of $12.8 increased $9.1 due to lower pension expense and higher interest income on short-term investments. The prior year pension expense included settlement losses of $5.5 ($3.4 after-tax, or $.02 per share) to accelerate recognition of a portion of actuarial losses deferred in accumulated other comprehensive loss, primarily associated with the U.S. Supplementary Pension Plan.

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 19.4% and 45.6% in the third quarter of fiscal year 2018 and 2017, respectively. The effective tax rate in the prior year was higher primarily due to the impact of a goodwill impairment charge of $145.3 in our Latin America reporting unit (LASA) and an impairment of $79.5 of an equity method investment for which no tax benefits were available. We estimate that the lower U.S. federal tax rate and other impacts of the U.S. Tax Cuts and Jobs Act ("the Tax Act") reduced our effective tax rate by approximately 3.2% for the three months ended 30 June 2018. In addition, the current year rate was impacted by a benefit of $9.1 related to a final foreign tax audit settlement. On a non-GAAP basis, the adjusted effective tax rate decreased from 24.0% in fiscal year 2017 to 19.4% in fiscal year 2018, primarily due to the impacts of the Tax Act and the tax audit settlement.

Refer to Note 19, Income Taxes, to the consolidated financial statements for additional information.

Discontinued Operations

For the three months ended 30 June 2018, income from discontinued operations, net of tax, on the consolidated income statements was $43.2. During the third quarter of fiscal year 2018, we recorded an income tax benefit of $29.6, primarily resulting from the resolution of uncertain tax positions taken in conjunction with the disposition of our former European Homecare business in fiscal year 2012. In addition, we recorded a before-tax benefit of $13.6 primarily resulting from the resolution of certain post-closing adjustments associated with the sale of our former Performance Materials Division (PMD).

For the three months ended 30 June 2017, the loss from discontinued operations, net of tax, on the consolidated income statements was $2.3. The loss primarily relates to Energy-from-Waste (EfW) project exit activities and administrative costs.

Refer to Note 3, Discontinued Operations, to the consolidated financial statements for additional information.

Segment Analysis

Industrial Gases – Americas

	Three Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$948.7	$930.1	$18.6	2%
Operating income	237.1	234.9	2.2	1%
Operating margin	25.0 %	25.3 %		(30 bp)
Equity affiliates’ income	24.1	14.1	10.0	71%
Adjusted EBITDA	381.7	366.0	15.7	4%
Adjusted EBITDA margin	40.2 %	39.4 %		80 bp

Industrial Gases – Americas Sales

	% Change from Prior Year
Underlying business	
Volume	6 %
Price	— %
Energy and natural gas cost pass-through	(4)%
Currency	— %
Total Industrial Gases – Americas Sales Change	**2 %**

Sales of $948.7 increased 2%, or $18.6. Underlying sales were up 6% from higher volumes as pricing was flat. The volume increase was primarily driven by higher hydrogen volumes in the U.S. Gulf Coast and a new plant onstream. Merchant volumes were positive but were partially offset by a contract termination that occurred during the fourth quarter of fiscal year 2017. Lower energy and natural gas cost pass-through to customers decreased sales by 4%. Currency was flat versus the prior year.

Industrial Gases – Americas Operating Income and Margin

Operating income of $237.1 increased 1%, or $2.2, as favorable volumes of $37 and favorable currency impacts of $2 were mostly offset by higher costs of $31 and lower price, net of power and fuel costs, of $6. The higher costs were primarily driven by higher planned maintenance costs. Operating margin of 25.0% decreased 30 bp, primarily due to unfavorable cost performance, mostly offset by higher volumes and lower energy and natural gas cost pass-through to customers.

Industrial Gases – Americas Equity Affiliates' Income

Equity affiliates' income of $24.1 increased $10.0 primarily due to volume growth.

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

	Three Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$561.1	$451.7	$109.4	24%
Operating income	118.8	96.2	22.6	23%
Operating margin	21.2 %	21.3 %		(10 bp)
Equity affiliates' income	17.5	15.7	1.8	11%
Adjusted EBITDA	186.1	157.0	29.1	19%
Adjusted EBITDA margin	33.2 %	34.8 %		(160 bp)

Industrial Gases – EMEA Sales

	% Change from Prior Year
Underlying business	
Volume	12 %
Price	3 %
Energy and natural gas cost pass-through	2 %
Currency	7 %
Total Industrial Gases – EMEA Sales Change	**24 %**

Sales of $561.1 increased 24%, or $109.4. Underlying sales were up 15% from higher volumes of 12% and higher pricing of 3%. The volume increase was primarily driven by a new hydrogen plant in India and base merchant business growth. The pricing improvement was primarily driven by packaged gases. Energy and natural gas cost pass-through to customers increased sales by 2% versus the prior year. Favorable currency impacts, primarily from the

Euro and British Pound Sterling, increased sales by 7%.

Industrial Gases – EMEA Operating Income and Margin

Operating income of $118.8 increased 23%, or $22.6, due to higher volumes of $11, favorable currency impacts of $7, and favorable pricing, net of power and fuel costs, of $5. Operating margin of 21.2% decreased 10 bp.

Industrial Gases – EMEA Equity Affiliates' Income

Equity affiliates' income of $17.5 increased $1.8 primarily due to favorable pricing.

Industrial Gases – Asia

	Three Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$623.8	$538.3	$85.5	16%
Operating income	185.5	149.5	36.0	24%
Operating margin	29.7 %	27.8 %		190 bp
Equity affiliates' income	15.1	12.5	2.6	21%
Adjusted EBITDA	270.1	211.6	58.5	28%
Adjusted EBITDA margin	43.3 %	39.3 %		400 bp

Industrial Gases – Asia Sales

	% Change from Prior Year
Underlying business	
Volume	6 %
Price	4 %
Energy and natural gas cost pass-through	— %
Currency	6 %
Total Industrial Gases – Asia Sales Change	**16 %**

Sales of $623.8 increased 16%, or $85.5. Underlying sales were up 10% from higher volumes of 6% and higher pricing of 4%. The volume increase was primarily driven by new plant onstreams, base merchant business growth, and acquisitions, partially offset by the impact from short-term sale of equipment activity in the prior year. Pricing improved across Asia driven primarily by the China merchant market. Energy and natural gas cost pass-through to customers was flat versus the prior year. Favorable currency impacts, primarily from the Chinese Renminbi, increased sales by 6%.

Industrial Gases – Asia Operating Income and Margin

Operating income of $185.5 increased 24%, or $36.0, due to favorable price, net of power costs, of $13, higher volumes of $10, favorable currency impacts of $9, and lower operating costs of $4. Operating margin of 29.7% increased 190 bp primarily due to favorable price, net of power costs, and cost performance.

Industrial Gases – Asia Equity Affiliates' Income

Equity affiliates' income of $15.1 increased $2.6, primarily due to plant maintenance costs in the prior year.

Industrial Gases – Global

	Three Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$101.1	$187.4	($86.3)	(46)%
Operating income	19.8	27.8	(8.0)	(29)%
Adjusted EBITDA	23.5	30.4	(6.9)	(23)%

Industrial Gases – Global Sales and Operating Income

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 Industrial Gases segments.

Sales of $101.1 decreased 46%, or $86.3. The decrease in sales was primarily driven by lower sale of equipment activity on the multiple air separation units that will serve Saudi Aramco's Jazan oil refinery and power plant in Saudi Arabia.

Operating income of $19.8 decreased 29%, or $8.0, primarily due to the lower sale of equipment activity.

Corporate and other

In addition to our liquefied natural gas (LNG) and helium storage and distribution sale of equipment businesses, the results of the Corporate and other segment include stranded costs related to the former Materials Technologies segment, which is now presented as discontinued operations. Stranded costs primarily relate to costs in support of transition services agreements with Versum and Evonik, the majority of which were reimbursed to Air Products. All transition services are substantially complete.

	Three Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$24.3	$14.4	$9.9	69%
Operating loss	(45.4)	(44.9)	(.5)	(1)%
Adjusted EBITDA	(41.9)	(42.0)	.1	—%

Corporate and other Sales and Operating Loss

Sales of $24.3 increased $9.9, primarily due to higher liquefied natural gas (LNG) sales versus the prior year despite continued weakness in LNG project activity. Operating loss of $45.4 increased $.5.

FIRST NINE MONTHS 2018 VS. FIRST NINE MONTHS 2017

FIRST NINE MONTHS 2018 IN SUMMARY

- Sales of $6,631.3 increased 11%, or $646.8 from underlying sales growth of 8% and favorable currency impacts of 4%. The underlying sales growth was primarily driven by higher volumes across the regional industrial gases segments.
- Operating income of $1,431.9 increased 46%, or $449.3, and operating margin of 21.6% increased 520 bp. On a non-GAAP basis, adjusted operating income of $1,431.9 increased 12%, or $151.7, and adjusted operating margin of 21.6% increased 20 bp.
- Income from continuing operations of $1,002.7 increased 52%, or $342.5, and diluted earnings per share of $4.54 increased 51%, or $1.54. On a non-GAAP basis, adjusted income from continuing operations of $1,202.9 increased 20%, or $203.7, and adjusted diluted earnings per share of $5.45 increased 20%, or $.90. A summary table of changes in diluted earnings per share is presented below.
- Adjusted EBITDA of $2,293.5 increased 13%, or $263.7. Adjusted EBITDA margin of 34.6% increased 70 bp.
- We completed the formation of a syngas supply joint venture with Lu'An, including the acquisition of their gasification and syngas clean-up assets.

Changes in Diluted Earnings per Share Attributable to Air Products

	Nine Months Ended 30 June		Increase
	2018	2017	(Decrease)
Diluted Earnings per Share			
Net income	**$4.73**	**$11.52**	**($6.79)**
Income from discontinued operations	.19	8.52	(8.33)
Income from Continuing Operations – GAAP Basis	**$4.54**	**$3.00**	**$1.54**
Operating Income Impact (after-tax)			
Underlying business			
Volume			$.49
Price/raw materials			.14
Costs			(.29)
Currency			.19
Business separation costs			.12
Cost reduction and asset actions			.36
Goodwill and intangible asset impairment charge			.70
Operating Income			**$1.71**
Other (after-tax)			
Equity affiliates' income			.12
Equity method investment impairment charge			.36
Interest expense			(.02)
Other non-operating income (expense), net			.09
Income tax			.28
Tax reform repatriation			(2.06)
Tax reform rate change and other			.97
Tax restructuring benefit			.18
Tax benefit associated with business separation			(.02)
Noncontrolling interests			(.05)
Weighted average diluted shares			(.02)
Other			**($.17)**
Total Change in Diluted Earnings per Share from Continuing Operations – GAAP Basis			**$1.54**

	Nine Months Ended 30 June		Increase
	2018	2017	(Decrease)
Income from Continuing Operations – GAAP Basis	**$4.54**	**$3.00**	**$1.54**
Business separation costs	—	.12	(.12)
Tax benefit associated with business separation	—	(.02)	.02
Cost reduction and asset actions	—	.36	(.36)
Goodwill and intangible asset impairment charge	—	.70	(.70)
Equity method investment impairment charge	—	.36	(.36)
Pension settlement loss	—	.03	(.03)
Tax reform repatriation	2.06	—	2.06
Tax reform rate change and other	(.97)	—	(.97)
Tax restructuring benefit	(.18)	—	(.18)

Income from Continuing Operations – Non-GAAP Basis	**$5.45**	**$4.55**	**$.90**

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RESULTS OF OPERATIONS

Discussion of Consolidated Results

	Nine Months Ended 30 June			
	2018	2017	$ Change	Change
Sales	$6,631.3	$5,984.5	$646.8	11 %
Operating income	1,431.9	982.6	449.3	46 %
Operating margin	21.6 %	16.4 %		520 bp
Equity affiliates' income	115.6	35.3	80.3	227 %
Income from continuing operations	1,002.7	660.2	342.5	52 %
Non-GAAP Basis				
Adjusted EBITDA	2,293.5	2,029.8	263.7	13 %
Adjusted EBITDA margin	34.6 %	33.9 %		70 bp
Adjusted operating income	1,431.9	1,280.2	151.7	12 %
Adjusted operating margin	21.6 %	21.4 %		20 bp
Adjusted equity affiliates' income	148.1	114.8	33.3	29 %

Sales

	% Change from Prior Year
Underlying business	
Volume	7 %
Price	1 %
Energy and natural gas cost pass-through	(1)%
Currency	4 %
Total Consolidated Change	**11 %**

Sales of $6,631.3 increased 11%, or $646.8. Underlying sales were up 8% from higher volumes of 7% and higher pricing of 1%. Volumes were higher across all regional Industrial Gases segments driven by new project onstreams in the Industrial Gases – EMEA and Industrial Gases – Asia segments and an equipment sale resulting from the termination of a contract in the Industrial Gases – Asia segment. The pricing improvement was primarily attributable to the Industrial Gases – Asia segment. Energy and natural gas cost pass-through to customers reduced sales by 1% versus the prior year. Favorable currency impacts, primarily from the Euro, the British Pound Sterling, and the Chinese Renminbi, increased sales by 4%.

Operating Income and Margin

Operating income of $1,431.9 increased 46%, or $449.3, due to the prior year goodwill and intangible asset impairment charge of $162, higher volumes of $139, lower cost reduction and asset actions of $103, favorable currency impacts of $55, favorable pricing, net of energy, fuel, and raw material costs, of $41, and lower business separation costs of $33, partially offset by unfavorable net operating costs of $84. The increase in net operating costs was primarily driven by higher incentive compensation, lower cost reimbursement, including costs for transition services, higher maintenance costs, and a legal settlement. Operating margin of 21.6% increased 520 bp, primarily due to the goodwill and intangible asset impairment charge, cost reduction and asset actions, and business separation costs in the prior year.

On a non-GAAP basis, adjusted operating income of $1,431.9 increased 12%, or $151.7, primarily due to higher volumes, favorable currency impacts, and favorable pricing, net of energy, fuel, and raw material costs, partially offset by unfavorable net operating costs. Adjusted operating margin of 21.6% increased 20 bp as higher volumes and favorable pricing, net of power costs were mostly offset by higher costs.

Adjusted EBITDA

Adjusted EBITDA of $2,293.5 increased 13%, or $263.7, primarily due to higher volumes, favorable currency, positive pricing, and income from regional industrial gases equity affiliates, partially offset by higher costs. Adjusted EBITDA margin of 34.6% increased 70 bp, primarily due to higher volumes and income from regional industrial gases equity affiliates, partially offset by higher costs.

Equity Affiliates' Income

Equity affiliates' income of $115.6 increased $80.3. The fiscal year 2017 income included a noncash impairment charge of $79.5 ($.36 per share) on our investment in Abdullah Hashim Industrial Gases & Equipment Co., Ltd. (AHG), a 25%-owned equity affiliate in our Industrial Gases – EMEA segment. Refer to Note 8, Equity Affiliates, to the consolidated financial statements for additional information. The fiscal year 2018 income includes an expense of $32.5 resulting from the Tax Act. Refer to Note 19, Income Taxes, to the consolidated financial statements for additional information. On a non-GAAP basis, adjusted equity affiliates' income of $148.1 increased 29%, or $33.3, primarily driven by Industrial Gases – Americas and Industrial Gases – EMEA affiliates.

Cost of Sales and Gross Margin

Cost of sales of $4,623.7 increased 10%, or $417.2, due to higher costs attributable to sales volumes of $226, unfavorable currency impacts of $154, and higher other costs of $67, partially offset by lower energy and natural gas cost pass-through to customers of $30. Gross margin of 30.3% increased 60 bp, primarily due to higher volumes and favorable pricing, partially offset by higher other costs.

Selling and Administrative Expense

Selling and administrative expense of $574.8 increased $48.4, or 9.0%, primarily driven by unfavorable currency impacts and higher other costs, including incentive compensation costs. Selling and administrative expense, as a percentage of sales, decreased from 8.8% to 8.7%.

Research and Development

Research and development expense of $44.1 decreased $.3. For both the nine months ended 30 June 2018 and 2017, research and development expense, as a percentage of sales, was .7%.

Business Separation Costs

With the disposition of the two divisions comprising the former Materials Technologies segment complete, no business separation costs were incurred during fiscal year 2018. Refer to Note 3, Discontinued Operations, and Note 4, Materials Technologies Separation, to the consolidated financial statements for additional information regarding the dispositions.

For the nine months ended 30 June 2017, we incurred legal and advisory fees of $32.5 ($26.5 after-tax, or $.12 per share). Our income tax provision for the nine months ended 30 June 2017 includes additional tax expense of $5.5, or $.02 per share, related to the separation.

Cost Reduction and Asset Actions

For the nine months ended 30 June 2017, we recognized a net expense of $103.0 ($78.4 attributable to Air Products after-tax, or $.36 per share), which included $78.9 for asset actions and $27.5 for severance and other benefits. These expenses were partially offset by the favorable settlement of the remaining $3.4 accrued balance associated with business restructuring actions taken in 2015.

Refer to Note 5, Cost Reduction and Asset Actions, to the consolidated financial statements for additional details.

Goodwill and Intangible Asset Impairment Charge

During the third quarter of fiscal year 2017, we determined that the goodwill and indefinite-lived intangible assets (primarily acquired trade names) associated with our Latin America reporting unit of our Industrial Gases – Americas segment were impaired. We recorded a noncash impairment charge of $162.1 ($154.1 attributable to Air Products, after-tax, or $.70 per share), which was driven by lower economic growth and profitability in the region. Refer to Note 9, Goodwill, and Note 10, Intangible Assets, to the consolidated financial statements for additional information.

Other Income (Expense), Net

Other income (expense), net of $43.2 decreased $29.8, or 41.0%, primarily due to lower income from the transition services agreements with Versum and Evonik and an unfavorable foreign exchange impact.

Interest Expense

	Nine Months Ended 30 June	
	2018	2017
Interest incurred	$109.4	$105.1
Less: capitalized interest	14.3	15.3
Interest expense	$95.1	$89.8

Interest incurred increased $4.3 as a higher average interest rate on the debt portfolio and project financing associated with the Lu'An joint venture was partially offset by the impact from a lower average debt balance. The change in capitalized interest was driven by a year-to-date decrease in the carrying value of projects under construction.

Other Non-Operating Income (Expense), net

Other non-operating income (expense), net of $33.7 increased $24.9 due to higher interest income on cash and cash items and short-term investments and lower pension expense. The prior year pension expense included a settlement loss of $9.6 ($6.0 after-tax, or $.03 per share) associated with the U.S. Supplementary Pension Plan and a settlement benefit of $2.3 related to the disposition of EMD and PMD. The settlement benefit was previously presented in "Business separation costs" prior to the adoption of pension guidance in the first quarter of fiscal year 2018. Refer to Note 2, New Accounting Guidance, to the consolidated financial statements for additional information.

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 30.6% and 28.0% for the nine months ended 30 June 2018 and 2017, respectively. The current year rate was higher primarily due to the enactment of the Tax Act, which significantly changed existing U.S. tax laws, including a reduction in the federal corporate income tax rate from 35% to 21% that is effective 1 January 2018, a deemed repatriation tax on unremitted foreign earnings, as well as other changes. As a result of the Tax Act, our income tax provision for the nine months ended 30 June 2018 reflects a discrete net income tax expense of $206.5. This included a deemed repatriation tax on accumulated unremitted foreign earnings and adjustments to the future cost of repatriation from foreign investments of $420.5, partially offset by a benefit of $214.0 primarily from the re-measurement of our net U.S. deferred tax liabilities at the lower corporate tax rate. This expense was partially offset by a tax benefit of $38.8 that resulted from the restructuring of foreign subsidiaries, a $9.1 benefit related to a final foreign tax audit settlement, higher tax benefits from share-based compensation, and a lower U.S. federal statutory rate on current year income. The effective tax rate in the prior year was impacted by a goodwill impairment charge of $145.3 in our Latin America reporting unit (LASA) and an impairment of $79.5 of an equity method investment for which no tax benefits were available.

On a non-GAAP basis, the adjusted effective tax rate decreased from 23.0% in fiscal year 2017 to 18.9% in fiscal year 2018. We estimate that the lower U.S. federal statutory rate and other impacts of the Tax Act reduced our adjusted effective tax rate by approximately 3.2% for the nine months ended 30 June 2018. The current year rate was also lower due to the benefit of the tax audit settlement and higher tax benefits from share-based compensation.

We are reporting the impacts of the Tax Act provisionally based upon reasonable estimates. The impacts are not yet finalized as they are dependent on factors and analysis not yet known or fully completed, including but not limited to, the final cash balances for fiscal year 2018, further book to U.S. tax adjustments for the earnings of foreign entities, the issuance of additional guidance, as well as our ongoing analysis of the Tax Act.

At this time, we do not anticipate a significant change in our full-year rate in fiscal year 2019 versus our estimated fiscal year 2018 full-year rate on a non-GAAP basis related to provisions of the Tax Act.

Refer to Note 19, Income Taxes, to the consolidated financial statements for additional information.

Discontinued Operations

For the nine months ended 30 June 2018, income from discontinued operations, net of tax, on the consolidated income statements was $42.2. During the third quarter of fiscal year 2018, we recorded an income tax benefit of $29.6 primarily resulting from the resolution of uncertain tax positions taken in conjunction with the disposition of our former European Homecare business in fiscal year 2012. In addition, we recorded a before-tax benefit of $13.6

primarily resulting from the resolution of certain post-closing adjustments associated with the sale of our former Performance Materials Division (PMD). The nine months ended 30 June 2018 also includes an after-tax loss of $1.0 related to EfW project exit activities and administrative costs incurred during the first quarter of fiscal year 2018.

For the nine months ended 30 June 2017, income from discontinued operations, net of tax, on the consolidated income statements was $1,871.5. The year-to-date income included a gain of $2,870 ($1,833 after-tax, or $8.34 per share) recognized on the sale of PMD to Evonik. In addition, we recorded a loss on the disposal of EfW of $59.3 ($47.1 after-tax) during the first quarter of 2017, primarily for land lease obligations and to update our estimate of the net realizable value of the plant assets.

Refer to Note 3, Discontinued Operations, to the consolidated financial statements for additional information.

Segment Analysis

Industrial Gases – Americas

	Nine Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$2,771.7	$2,684.1	$87.6	3 %
Operating income	676.6	681.4	(4.8)	(1)%
Operating margin	24.4 %	25.4 %		(100 bp)
Equity affiliates' income	59.6	41.8	17.8	43 %
Adjusted EBITDA	1,096.8	1,068.0	28.8	3 %
Adjusted EBITDA margin	39.6 %	39.8 %		(20 bp)

Industrial Gases – Americas Sales

	% Change from Prior Year
Underlying business	
Volume	4 %
Price	— %
Currency	1 %
Energy and natural gas cost pass-through	(2)%
Total Industrial Gases – Americas Sales Change	**3 %**

Sales of $2,771.7 increased 3%, or $87.6. Underlying sales were up 4% from higher volumes as pricing was flat. The volume increase was primarily driven by higher hydrogen volumes. Lower energy and natural gas cost pass-through to customers decreased sales by 2%. Currency increased sales by 1%.

Industrial Gases – Americas Operating Income and Margin

Operating income of $676.6 decreased 1%, or $4.8, primarily due to higher costs of $53 and lower pricing, net of power and fuel costs, of $13, mostly offset by higher volumes of $56 and favorable currency impacts of $5. The higher costs included higher planned maintenance costs. Operating margin of 24.4% decreased 100 bp from the prior year, primarily due to higher costs, partially offset by favorable volumes.

Industrial Gases – Americas Equity Affiliates' Income

Equity affiliates' income of $59.6 increased $17.8 due to volume growth and favorable currency.

Industrial Gases – EMEA

	Nine Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$1,638.6	$1,265.6	$373.0	29 %
Operating income	340.0	274.8	65.2	24 %
Operating margin	20.7 %	21.7 %		(100 bp)
Equity affiliates' income	41.7	33.5	8.2	24 %
Adjusted EBITDA	531.3	437.2	94.1	22 %
Adjusted EBITDA margin	32.4 %	34.5 %		(210 bp)

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Industrial Gases – EMEA Sales

	% Change from Prior Year	
Underlying business		
Volume	16	%
Price	2	%
Energy and natural gas cost pass-through	1	%
Currency	10	%
Total Industrial Gases – EMEA Sales Change	**29**	**%**

Sales of $1,638.6 increased 29%, or $373.0. Underlying sales were up 18% from higher volumes of 16% and higher pricing of 2%. The volume increase was primarily driven by a new hydrogen plant in India and higher merchant and onsite volumes. Higher energy and natural gas cost pass-through to customers increased sales by 1%. Favorable currency impacts, primarily from the Euro and British Pound Sterling, increased sales by 10%.

Industrial Gases – EMEA Operating Income and Margin

Operating income of $340.0 increased 24%, or $65.2, due to higher volumes of $33, favorable currency impacts of $28, and higher pricing, net of power and fuel costs, of $6, partially offset by unfavorable costs $2. Operating margin of 20.7% decreased 100 bp from the prior year, primarily due to lower margins on the new hydrogen volumes in India.

Industrial Gases – EMEA Equity Affiliates' Income

Equity affiliates' income of $41.7 increased $8.2, primarily due to volume growth, lower costs, and favorable currency.

Industrial Gases – Asia

	Nine Months Ended 30 June					
	2018		2017		$ Change	% Change	
Sales	$1,825.0		$1,412.5		$412.5	29	%
Operating income	509.7		380.2		129.5	34	%
Operating margin	27.9	%	26.9	%		100 bp	
Equity affiliates' income	44.7		38.9		5.8	15	%
Adjusted EBITDA	743.3		564.7		178.6	32	%
Adjusted EBITDA margin	40.7	%	40.0	%		70 bp	

Industrial Gases – Asia Sales

	% Change from Prior Year	
Underlying business		
Volume	19	%
Price	4	%
Energy and natural gas cost pass-through	—	
Currency	6	%
Total Industrial Gases – Asia Sales Change	**29**	**%**

Sales of $1,825.0 increased 29%, or $412.5. Underlying sales were up 23% from higher volumes of 19% and higher pricing of 4%. The volume increase was primarily driven by an equipment sale resulting from the termination of a contract in the first quarter of fiscal year 2018, new plant onstreams, and higher merchant volumes, partially offset by the impact of short-term sale of equipment activity in the third quarter of fiscal year 2017. Pricing improved across Asia driven primarily by the China merchant market. Energy and natural gas cost pass-through to customers was flat versus the prior year. Favorable currency impacts, primarily from the Chinese Renminbi, South Korean Won, and Taiwan Dollar, increased sales by 6%.

Industrial Gases – Asia Operating Income and Margin

Operating income of $509.7 increased 34%, or $129.5, due to higher volumes of $76, favorable price, net of power costs, of $45, and favorable currency impacts of $23, partially offset by higher operating costs of $14. Operating margin of 27.9% increased 100 bp as favorable price, net of power costs, and higher volumes were partially offset by unfavorable cost performance.

Industrial Gases – Asia Equity Affiliates' Income

Equity affiliates' income of $44.7 increased $5.8 due to higher volumes.

Industrial Gases – Global

	Nine Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$335.8	$551.8	($216.0)	(39)%
Operating income	41.4	58.7	(17.3)	(29)%
Adjusted EBITDA	49.3	65.3	(16.0)	(25)%

Industrial Gases – Global Sales and Operating Income

Sales of $335.8 decreased 39%, or $216.0. The decrease in sales was primarily driven by lower sale of equipment activity on the multiple air separation units that will serve Saudi Aramco's Jazan oil refinery and power plant in Saudi Arabia.

Operating income of $41.4 decreased 29%, or $17.3, primarily due to the lower sale of equipment activity.

Corporate and other

	Nine Months Ended 30 June			
	2018	2017	$ Change	% Change
Sales	$60.2	$70.5	($10.3)	(15)%
Operating loss	(135.8)	(114.9)	(20.9)	(18)%
Adjusted EBITDA	(127.2)	(105.4)	(21.8)	(21)%

Corporate and other Sales and Operating Loss

Sales of $60.2 decreased 15%, or $10.3, primarily due to lower year-to-date activity in our LNG projects and our helium container business. Operating loss of $135.8 increased 18%, or $20.9, primarily due to lower LNG activity.

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

(Millions of dollars unless otherwise indicated, except for per 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, we restructured the Company to focus on its core Industrial Gases business. This resulted in significant cost reduction and asset actions that we believe were important for investors to understand separately from the performance of the underlying business. The reader should be aware that we may incur similar expenses in the future. The tax impact on our pre-tax 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. 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.

During the first quarter of fiscal year 2018, we adopted accounting guidance on the presentation of net periodic pension and postretirement benefit cost. Certain prior year information has been reclassified to conform to the fiscal year 2018 presentation. Refer to Note 2, New Accounting Guidance, to the consolidated financial statements for additional information.

Presented below are reconciliations of the reported GAAP results to the non-GAAP measures for the third quarter and first nine months of fiscal years 2018 and 2017:

CONSOLIDATED RESULTS

	Continuing Operations Three Months Ended 30 June					
Q3 2018 vs. Q3 2017	**Operating Income**	**Operating Margin**[A]	**Equity Affiliates' Income (Loss)**	**Income Tax Provision**	**Net Income**	**Diluted EPS**
2018 GAAP	$515.8	22.8 %	$58.1	$107.1	$430.7	$1.95
2017 GAAP	258.7	12.2 %	(36.9)	89.3	104.2	.47
Change GAAP	$257.1	1,060 bp	$95.0	$17.8	$326.5	$1.48
% Change GAAP	99 %		257 %	20 %	313 %	315 %
2018 GAAP	$515.8	22.8 %	$58.1	$107.1	$430.7	$1.95
2018 Non-GAAP Measure	$515.8	22.8 %	$58.1	$107.1	$430.7	$1.95
2017 GAAP	$258.7	12.2 %	($36.9)	$89.3	$104.2	$.47
Tax benefit associated with business separation	—	— %	—	8.2	(8.2)	(.04)
Cost reduction and assets actions[B]	42.7	2.0 %	—	12.2	30.0	.14
Goodwill and intangible asset impairment charge[C]	162.1	7.6 %	—	4.6	154.1	.70
Equity method investment impairment charge	—	— %	79.5	—	79.5	.36
Pension settlement loss	—	— %	—	2.1	3.4	.02
2017 Non-GAAP Measure	$463.5	21.8 %	$42.6	$116.4	$363.0	$1.65
Change Non-GAAP Measure	$52.3	100 bp	$15.5	($9.3)	$67.7	$.30
% Change Non-GAAP Measure	11 %		36 %	(8)%	19 %	18 %

2018 vs. 2017	Continuing Operations Nine Months Ended 30 June Operating Income	Operating Margin[A]	Equity Affiliates' Income	Income Tax Provision	Net Income	Diluted EPS
2018 GAAP	$1,431.9	21.6 %	$115.6	$455.1	$1,002.7	$4.54
2017 GAAP	982.6	16.4 %	35.3	262.2	660.2	3.00
Change GAAP	$449.3	520 bp	$80.3	$192.9	$342.5	$1.54
% Change GAAP	46 %		227 %	74 %	52 %	51 %
2018 GAAP	$1,431.9	21.6 %	$115.6	$455.1	$1,002.7	$4.54
Tax reform repatriation	—	— %	32.5	(420.5)	453.0	2.06
Tax reform rate change and other	—	— %	—	214.0	(214.0)	(.97)
Tax restructuring benefit	—	— %	—	38.8	(38.8)	(.18)
2018 Non-GAAP Measure	$1,431.9	21.6 %	$148.1	$287.4	$1,202.9	$5.45
2017 GAAP	$982.6	16.4 %	$35.3	$262.2	$660.2	$3.00
Business separation costs	32.5	.6 %	—	3.7	26.5	.12
Tax benefit associated with business separation	—	— %	—	5.5	(5.5)	(.02)
Cost reduction and assets actions[B]	103.0	1.7 %	—	24.1	78.4	.36
Goodwill and intangible asset impairment charge[C]	162.1	2.7 %	—	4.6	154.1	.70
Equity method investment impairment charge	—	— %	79.5	—	79.5	.36
Pension settlement loss	—	— %	—	3.6	6.0	.03
2017 Non-GAAP Measure	$1,280.2	21.4 %	$114.8	$303.7	$999.2	$4.55
Change Non-GAAP Measure	$151.7	20 bp	$33.3	($16.3)	$203.7	$.90
% Change Non-GAAP Measure	12 %		29 %	(5)%	20 %	20 %

[A] Operating margin is calculated by dividing operating income by sales.
[B] Noncontrolling interests impact of $.5 for the three and nine months ended 30 June 2017.
[C] Noncontrolling interests impact of $3.4 for the three and nine months ended 30 June 2017.

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, other non operating income (expense), net, 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 30 June		Nine Months Ended 30 June	
	2018	2017	2018	2017
Income from Continuing Operations[(A)]	$444.7	$106.4	$1,031.0	$674.7
Add: Interest expense	34.9	29.8	95.1	89.8
Less: Other non-operating income (expense), net	12.8	3.7	33.7	8.8
Add: Income tax provision	107.1	89.3	455.1	262.2
Add: Depreciation and amortization	245.6	216.9	713.5	634.8
Add: Business separation costs	—	—	—	32.5
Add: Cost reduction and asset actions	—	42.7	—	103.0
Add: Goodwill and intangible asset impairment charge	—	162.1	—	162.1
Add: Equity method investment impairment charge	—	79.5	—	79.5
Add: Tax reform repatriation - equity method investment	—	—	32.5	—
Adjusted EBITDA	$819.5	$723.0	$2,293.5	$2,029.8
Change GAAP				
Income from continuing operations change	$338.3		$356.3	
Income from continuing operations % change	318 %		53 %	
Change Non-GAAP				
Adjusted EBITDA change	$96.5		$263.7	
Adjusted EBITDA % change	13 %		13 %	

(A) Includes net income attributable to noncontrolling interests.

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 30 June 2018						
Operating income (loss)	$237.1	$118.8	$185.5	$19.8	($45.4)	$515.8
Operating margin	25.0 %	21.2 %	29.7 %			22.8 %
Three Months Ended 30 June 2017						
Operating income (loss)	$234.9	$96.2	$149.5	$27.8	($44.9)	$463.5
Operating margin	25.3 %	21.3 %	27.8 %			21.8 %
Operating income (loss) change	$2.2	$22.6	$36.0	($8.0)	($.5)	$52.3
Operating income (loss) % change	1 %	23 %	24 %	(29)%	(1)%	11 %
Operating margin change	(30) bp	(10) bp	190 bp			100 bp
NON-GAAP MEASURE						
Three Months Ended 30 June 2018						
Operating income (loss)	$237.1	$118.8	$185.5	$19.8	($45.4)	$515.8
Add: Depreciation and amortization	120.5	49.8	69.5	2.3	3.5	245.6
Add: Equity affiliates' income	24.1	17.5	15.1	1.4	—	58.1
Adjusted EBITDA	$381.7	$186.1	$270.1	$23.5	($41.9)	$819.5
Adjusted EBITDA margin	40.2 %	33.2 %	43.3 %			36.3 %
Three Months Ended 30 June 2017						
Operating income (loss)	$234.9	$96.2	$149.5	$27.8	($44.9)	$463.5
Add: Depreciation and amortization	117.0	45.1	49.6	2.3	2.9	216.9
Add: Equity affiliates' income	14.1	15.7	12.5	.3	—	42.6
Adjusted EBITDA	$366.0	$157.0	$211.6	$30.4	($42.0)	$723.0
Adjusted EBITDA margin	39.4 %	34.8 %	39.3 %			34.1 %
Adjusted EBITDA change	$15.7	$29.1	$58.5	($6.9)	$.1	$96.5
Adjusted EBITDA % change	4 %	19 %	28 %	(23)%	— %	13 %
Adjusted EBITDA margin change	80 bp	(160) bp	400 bp			220 bp

	Industrial Gases–Americas	Industrial Gases–EMEA	Industrial Gases–Asia	Industrial Gases–Global	Corporate and other	Segment Total
GAAP MEASURE						
Nine Months Ended 30 June 2018						
Operating income (loss)	$676.6	$340.0	$509.7	$41.4	($135.8)	$1,431.9
Operating margin	24.4 %	20.7 %	27.9 %			21.6 %
Nine Months Ended 30 June 2017						
Operating income (loss)	$681.4	$274.8	$380.2	$58.7	($114.9)	$1,280.2
Operating margin	25.4 %	21.7 %	26.9 %			21.4 %
Operating income (loss) change	($4.8)	$65.2	$129.5	($17.3)	($20.9)	$151.7
Operating income (loss) % change	(1)%	24 %	34 %	(29)%	(18)%	12 %
Operating margin change	(100) bp	(100) bp	100 bp			20 bp
NON-GAAP MEASURE						
Nine Months Ended 30 June 2018						
Operating income (loss)	$676.6	$340.0	$509.7	$41.4	($135.8)	$1,431.9
Add: Depreciation and amortization	360.6	149.6	188.9	5.8	8.6	713.5
Add: Equity affiliates' income	59.6	41.7	44.7	2.1	—	148.1
Adjusted EBITDA	$1,096.8	$531.3	$743.3	$49.3	($127.2)	$2,293.5
Adjusted EBITDA margin	39.6 %	32.4 %	40.7 %			34.6 %
Nine Months Ended 30 June 2017						
Operating income (loss)	$681.4	$274.8	$380.2	$58.7	($114.9)	$1,280.2
Add: Depreciation and amortization	344.8	128.9	145.6	6.0	9.5	634.8
Add: Equity affiliates' income	41.8	33.5	38.9	.6	—	114.8
Adjusted EBITDA	$1,068.0	$437.2	$564.7	$65.3	($105.4)	$2,029.8
Adjusted EBITDA margin	39.8 %	34.5 %	40.0 %			33.9 %
Adjusted EBITDA change	$28.8	$94.1	$178.6	($16.0)	($21.8)	$263.7
Adjusted EBITDA % change	3 %	22 %	32 %	(25)%	(21)%	13 %
Adjusted EBITDA margin change	(20) bp	(210) bp	70 bp			70 bp

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

	Three Months Ended 30 June		Nine Months Ended 30 June	
Operating Income	2018	2017	2018	2017
Segment total	$515.8	$463.5	$1,431.9	$1,280.2
Business separation costs	—	—	—	(32.5)
Cost reduction and asset actions	—	(42.7)	—	(103.0)
Goodwill and intangible asset impairment charge	—	(162.1)	—	(162.1)
Consolidated Total	$515.8	$258.7	$1,431.9	$982.6

Below is a reconciliation of segment total equity affiliates' income to consolidated equity affiliates' income (loss):

	Three Months Ended 30 June		Nine Months Ended 30 June	
Equity Affiliates' Income (Loss)	2018	2017	2018	2017
Segment total	$58.1	$42.6	$148.1	$114.8
Equity method investment impairment charge	—	(79.5)	—	(79.5)
Tax reform repatriation - equity method investment	—	—	(32.5)	—
Consolidated Total	$58.1	($36.9)	$115.6	$35.3

INCOME TAXES

The tax impact on our pre-tax 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. For additional discussion on the fiscal year 2018 non-GAAP tax adjustments, including the impact of the Tax Act, refer to Note 19, Income Taxes, to the consolidated financial statements.

	Effective Tax Rate Three Months Ended 30 June		Nine Months Ended 30 June	
	2018	2017	2018	2017
Income Tax Provision—GAAP	**$107.1**	**$89.3**	**$455.1**	**$262.2**
Income From Continuing Operations Before Taxes—GAAP	**$551.8**	**$195.7**	**$1,486.1**	**$936.9**
Effective Tax Rate—GAAP	**19.4%**	**45.6%**	**30.6%**	**28.0%**
Income Tax Provision—GAAP	$107.1	$89.3	$455.1	$262.2
Business separation costs	—	—	—	3.7
Tax benefit associated with business separation	—	8.2	—	5.5
Cost reduction and asset actions	—	12.2	—	24.1
Pension settlement loss	—	2.1	—	3.6
Goodwill and intangible asset impairment charge	—	4.6	—	4.6
Equity method investment impairment charge	—	—	—	—
Tax reform repatriation	—	—	(420.5)	—
Tax reform rate change and other	—	—	214.0	—
Tax restructuring benefit	—	—	38.8	—
Income Tax Provision—Non-GAAP Measure	**$107.1**	**$116.4**	**$287.4**	**$303.7**
Income From Continuing Operations Before Taxes—GAAP	$551.8	$195.7	$1,486.1	$936.9
Business separation costs	—	—	—	30.2
Cost reduction and asset actions	—	42.7	—	103.0
Pension settlement loss	—	5.5	—	9.6
Goodwill and intangible asset impairment charge	—	162.1	—	162.1
Equity method investment impairment charge	—	79.5	—	79.5
Tax reform repatriation - equity method investment	—	—	32.5	—
Income From Continuing Operations Before Taxes—Non-GAAP Measure	**$551.8**	**$485.5**	**$1,518.6**	**$1,321.3**
Effective Tax Rate—Non-GAAP Measure	**19.4%**	**24.0%**	**18.9%**	**23.0%**

PENSION BENEFITS

As noted in Note 2, New Accounting Guidance, to the consolidated financial statements, we early adopted guidance on the presentation of net periodic pension and postretirement benefit cost during the first quarter of fiscal year 2018. The amendments require that the service cost component of the net periodic benefit cost be presented in the same line items as other compensation costs arising from services rendered by employees during the period. The non-service related costs are presented outside of operating income in "Other non-operating income (expense), net."

For the nine months ended 30 June 2018 and 2017, net periodic pension cost was $37.5 and $56.4, respectively. We recognized service-related costs of $39.5 and $41.1, respectively, on our consolidated income statements within operating income. The non-service benefit of $2.0 and cost of $15.3 were included in "Other non-operating income (expense), net" for the nine months ended 30 June 2018 and 2017, respectively. The decrease in pension expense in fiscal year 2018 results from lower loss amortization primarily due to favorable asset experience. The costs capitalized in fiscal year 2018 and 2017 were not material.

For the nine months ended 30 June 2018 and 2017, we recognized a pension settlement loss of $4.8 and $9.6, respectively, in "Other non-operating income (expense), net" on our consolidated income statements to accelerate recognition of a portion of actuarial gains and losses deferred in accumulated other comprehensive loss. The pension settlement loss in 2018 and 2017 was associated with the U.S. Supplementary Pension Plan. We expect total pension settlement losses of approximately $6 in fiscal year 2018.

Management considers various factors when making pension funding decisions, including tax, cash flow, and regulatory implications. For the nine months ended 30 June 2018 and 2017, our cash contributions to funded pension plans and benefit payments under unfunded pension plans were $43.0 and $57.0, respectively. Total contributions for fiscal 2018 are expected to be approximately $50 to $70. During fiscal 2017, total contributions were $64.1.

Refer to Note 13, 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 our cash balance and cash flows from operations and financing activities are expected to meet liquidity needs for the foreseeable future.

As of 30 June 2018, we had $1,136.0 of foreign cash and cash items compared to total cash and cash items of $2,986.5. As a result of the Tax Act, we currently do not expect that a significant portion of the earnings of our foreign subsidiaries and affiliates will be subject to U.S. income tax upon subsequent repatriation to the United States. Depending on the country in which the subsidiaries and affiliates reside, the repatriation of these earnings may be subject to foreign withholding and other taxes.

Operating Activities

For the first nine months of 2018, cash provided by operating activities was $1,863.3. Income from continuing operations of $1,002.7 was adjusted for items including depreciation and amortization, deferred income taxes, impacts from the Tax Act, undistributed earnings of unconsolidated affiliates, share-based compensation, and noncurrent capital lease receivables. The tax reform repatriation adjustment of $310.3 represents our obligation for the deemed repatriation tax resulting from the Tax Act and is payable over a period of eight years. Undistributed earnings of unconsolidated affiliates includes $32.5 of expense resulting from the Tax Act. See Note 19, Income Taxes, to the consolidated financial statements for additional information. The working capital accounts were a use of cash of $124.3, primarily driven by $164.9 from payables and accrued liabilities. The use of cash within payables and accrued liabilities includes a decrease in customer advances of $87.5 primarily related to sale of equipment activity, a decrease of $24.8 for severance payments, and a $23.2 decrease in accrued incentive compensation due to payments on the 2017 plan.

For the first nine months of 2017, cash provided by operating activities was $1,613.4. Income from continuing operations of $660.2 included the goodwill and intangible asset impairment charge of $162.1, the equity method investment impairment charge of $79.5, and the write-down of long lived assets associated with cost reduction actions of $59.1. Refer to Note 5, Cost Reduction and Asset Actions; Note 8, Equity Affiliates; Note 9, Goodwill; and Note 10, Intangible Assets, to the consolidated financial statements for additional information on these charges. Other adjustments of $110.7 included the remeasurement of intercompany transactions as the related hedging instruments

that eliminate the earnings impact are included in other receivables and payables and accrued liabilities. The working capital accounts were a use of cash of $69.4, primarily driven by payables and accrued liabilities and other working capital, partially offset by other receivables. The use of cash in payables and accrued liabilities of $99.9 was primarily driven by a decrease in customer advances of $51.7 related to our joint venture in Jazan, Saudi Arabia, and a $53.7 decrease in accrued incentive compensation, primarily due to payments on the 2016 plan. Other working capital was a use of $50.0, primarily driven by payments for accrued income taxes. Other receivables was a source of $80.0, primarily due to the maturities of forward exchange contracts that hedged foreign currency exposures.

We estimate that cash paid for taxes, net of refunds, on a continuing operations basis was $311.6 and $357.0 for the nine months ended 30 June 2018 and 2017, respectively.

Investing Activities

For the first nine months of 2018, cash used for investing activities was $1,038.9. Capital expenditures for plant and equipment were $1,158.1. Cash paid for acquisitions, net of cash acquired, was $320.2. See Note 6, Acquisitions, to the consolidated financial statements for further details. Proceeds from investments of $745.2 resulted from maturities of short-term instruments with original terms greater than three months but less than one year. Purchases of investments of $349.8 include time deposits with original maturities greater than three months and less than one year.

For the first nine months of 2017, cash used for investing activities was $1,810.8. Capital expenditures for plant and equipment were $806.8. Purchases of investments of $2,488.6 include time deposits with original maturities greater than three months and less than one year. Proceeds from investments of $1,473.5 resulted from maturities of short-term instruments with original terms greater than three months but less than one year.

Capital expenditures are detailed in the table below:

	Nine Months Ended 30 June	
	2018	2017
Additions to plant and equipment	$1,158.1	$806.8
Acquisitions, less cash acquired	320.2	—
Investment in and advances to unconsolidated affiliates	—	8.1
Capital expenditures on a GAAP basis	$1,478.3	$814.9
Capital lease expenditures(A)	15.3	6.8
Capital expenditures on a Non-GAAP basis	$1,493.6	$821.7

(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 $1,800 to $2,000 on a GAAP and non-GAAP basis in fiscal year 2018. This range includes our investment in our joint venture, Air Products Lu'an (Changzhi) Co., Ltd., with Lu'An Clean Energy Company, which closed on 26 April 2018. See Note 6, Acquisitions, to the consolidated financial statements for additional information.

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 30 June 2018 was $298, compared to $481 at 30 September 2017.

Financing Activities

For the first nine months of 2018, cash used for financing activities was $1,097.8. This consisted primarily of dividend payments to shareholders of $656.6 and repayment on long-term debt of $418.2. Payments on long-term debt primarily related to the repayment of a 1.2% U.S. Senior Note of $400.0 that matured on 16 October 2017.

For the first nine months of 2017, cash used for financing activities was $1,854.4. This consisted primarily of repayments of commercial paper and short-term borrowings of $799.2, payments on long-term debt of $483.5, and dividend payments to shareholders of $580.9. Payments on long-term debt primarily consisted of the repayment of a 4.625% Eurobond of €300 million ($317.2) that matured on 15 March 2017 and $138.0 for the repayment of industrial revenue bonds.

Discontinued Operations

For the first nine months of 2017, cash flows of discontinued operations primarily included impacts associated with the spin-off of EMD as Versum on 1 October 2016 and the sale of PMD to Evonik on 3 January 2017. Cash used for operating activities of $768.0 was primarily driven by taxes paid on the gain on sale of PMD. Cash provided by

investing activities of $3,750.6 primarily resulted from the proceeds on the sale of PMD. Cash provided by financing activities resulted from a $69.5 receipt of cash from Versum related to finalization of the spin-off. Refer to Note 3, Discontinued Operations, and Note 4, Materials Technologies Separation, to the consolidated financial statements for additional information.

Financing and Capital Structure

Capital needs were satisfied primarily with cash from operations. Total debt at 30 June 2018 and 30 September 2017, expressed as a percentage of total capitalization (total debt plus total equity), was 26.4% and 28.0%, respectively. Total debt decreased from $3,962.8 at 30 September 2017 to $3,871.2 at 30 June 2018, primarily due to the repayment of the 1.2% U.S. Senior Note. The current year total debt balance includes $399 of related party debt associated with the Lu'An joint venture.

On 31 March 2017, we entered into a five-year $2,500.0 revolving credit agreement with a syndicate of banks (the “2017 Credit Agreement”), under which senior unsecured debt is available to both the Company and certain of its subsidiaries. The 2017 Credit Agreement provides a source of liquidity for the Company and supports its commercial paper program. The Company’s only financial covenant is a maximum ratio of total debt to total capitalization no greater than 70%. No borrowings were outstanding under the 2017 Credit Agreement as of 30 June 2018.

Commitments totaling $7.3 are maintained by our foreign subsidiaries, all of which was borrowed and outstanding at 30 June 2018.

As of 30 June 2018, we were 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 nine months of fiscal year 2018, we did not purchase any of our outstanding shares. At 30 June 2018, $485.3 in share repurchase authorization remained.

Dividends

On 19 July 2018, the Board of Directors declared the fourth quarter dividend of $1.10 per share. The dividend is payable on 12 November 2018 to shareholders of record at the close of business on 1 October 2018.

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. As discussed in Note 19, Income Taxes, to the consolidated financial statements, our income tax provision includes an expense of $364.1 for a deemed repatriation tax on unremitted foreign earnings resulting from the Tax Act that was enacted during the first quarter of fiscal year 2018. We expect to apply $71.5 of existing foreign tax credits towards the $364.1 deemed repatriation tax. The remaining obligation of $292.6 will be paid over eight years beginning in fiscal year 2019.

Our unconditional purchase obligations for helium purchases were approximately $6,500 as of 30 June 2018. The majority of these obligations occur after fiscal year 2022. Helium purchases include crude feedstock supply to multiple helium refining plants in North America as well as refined helium purchases from sources around the world. As a rare byproduct of natural gas production in the energy sector, these helium sourcing agreements are medium- to long-term and contain take-if-tendered provisions. The refined helium is distributed globally and sold as a merchant gas, primarily under medium-term requirements contracts. While contract terms in the energy sector are longer than those in merchant, helium is a rare gas used in applications with few or no substitutions because of its unique physical and chemical properties.

On 26 April 2018, we completed the formation of Air Products Lu’an (Changzhi) Co., Ltd., a 60%-owned joint venture (JV) with Lu'An Clean Energy Company ("Lu'An") and acquired their gasification and syngas clean-up assets. In connection with the acquisition, Lu'An made a loan of 2.6 billion RMB ($399) to the JV, and we established a liability of 2.3 billion RMB ($345) for cash payments expected to be made to or on behalf of Lu'An in the fourth quarter of fiscal year 2018. The long-term debt from Lu'An is presented on the consolidated balance sheets as "Long-term debt – related party," and our expected cash payment is presented within "Payables and accrued liabilities." See Note 6, Acquisitions, to the consolidated financial statements for additional information.

Other than the above, there have been no material changes to our contractual obligations since 30 September 2017.

COMMITMENTS AND CONTINGENCIES

Refer to Note 14, Commitments and Contingencies, to the consolidated financial statements for information concerning our commitments and contingencies, including litigation and environmental matters.

OFF-BALANCE SHEET ARRANGEMENTS

There have been no material changes to off-balance sheet arrangements since 30 September 2017. 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. During the three and nine months ended 30 June 2018, sales were approximately $50 and $200, respectively, related to this contract. During the three and nine months ended 30 June 2017, sales were approximately $140 and $420, respectively.

On 26 April 2018, we completed the formation of Air Products Lu'an (Changzhi) Co., Ltd., a 60%-owned JV with Lu'An Clean Energy Company ("Lu'An") and acquired their gasification and syngas clean-up assets. The JV will receive coal, steam and power from Lu'An and will supply syngas to Lu'An under a long-term onsite contract. In connection with the acquisition, Lu'An made a loan of 2.6 billion RMB ($399) to the JV, and we established a liability of 2.3 billion ($345) for cash payments expected to be made to or on behalf of Lu'An in the fourth quarter of fiscal year 2018. The long-term debt from Lu'An is presented on the consolidated balance sheets as "Long-term debt – related party," and our expected cash payment is presented within "Payables and accrued liabilities." During the three months ended 30 June 2018, sales related to the JV were not material.

See Note 6, Acquisitions, to the consolidated financial statements for additional information.

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.

Other than those detailed below and in Note 2, New Accounting Guidance, to the consolidated financial statements, 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.

Revenue Recognition

Revenue from equipment sale contracts is recorded primarily using the percentage-of-completion method. Changes in estimates on projects accounted for under the percentage-of-completion method favorably impacted operating income by approximately $15 and $25 for the three and nine months ended 30 June 2018, respectively. Changes in estimates on projects accounted for under the percentage-of-completion method favorably impacted operating income by approximately $15 and $27 for the three and nine months ended 30 June 2017, respectively.

We assess the performance of our sale of equipment projects as they progress. Our earnings could be positively or negatively impacted by changes to our forecast of revenues and costs on these projects in the future.

Income Taxes

On 22 December 2017, the United States enacted the Tax Act, which had a significant impact on our consolidated financial statements for the nine months ended 30 June 2018. The impacts, which were recorded in the first quarter of fiscal year 2018, reflect provisional amounts for which accounting was incomplete but a reasonable estimate could be determined. Updates to the estimates are permissible for a period of no greater than one year. Refer to Note 19, Income Taxes, to the consolidated financial statements for additional information.

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 quarterly report 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 and supply and demand dynamics in market segments into which the Company sells; political risks, including the risks of unanticipated government actions; acts of war or terrorism; 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 the projects in our backlog; 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; the Company's ability to implement and operate with new technologies; the impact of changes in environmental, tax or other legislation, economic sanctions 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 2017. 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 2017 Form 10-K.

Our net financial instrument position decreased from a liability of $3,832.3 at 30 September 2017 to a liability of $3,771.5 at 30 June 2018.

Interest Rate Risk

The sensitivity analysis related to the interest rate risk on the fixed portion of our debt portfolio assumes an instantaneous 100 bp move in interest rates from the level at 30 June 2018, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of $101 and $112 in the net liability position of financial instruments at 30 June 2018 and 30 September 2017, respectively. A 100 bp decrease in market interest rates would result in an increase of $107 and $119 in the net liability position of financial instruments at 30 June 2018 and 30 September 2017, respectively.

There were no material changes to the sensitivity analysis related to the variable portion of our debt portfolio since 30 September 2017.

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 $398 and $312 in the net liability position of financial instruments at 30 June 2018 and 30 September 2017, respectively.

Item 4. Controls and Procedures

Disclosure 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). Under the supervision of the Chief Executive Officer and Chief Financial Officer, the Company’s management conducted an evaluation of the effectiveness of the Company’s disclosure controls and procedures as of 30 June 2018. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of 30 June 2018, the disclosure controls and procedures were effective.

Internal Control Over Financial Reporting

There was no change in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended 30 June 2018 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II. OTHER INFORMATION

Item 5. Other Information

Not applicable.

Item 6. Exhibits.

(a) Exhibits required by Item 601 of Regulation S-K

Exhibit No.	Description
10.1	Separation Agreement dated as of 16 May 2018, by and between Air Products and Chemicals, Inc. and Corning F. Painter
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.
32.1	Certification by the Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. †
101.INS	XBRL Instance Document. The XBRL Instance Document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL 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.

SIGNATURE

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: 26 July 2018 By: /s/ M. Scott Crocco
M. Scott Crocco
Executive Vice President and Chief Financial Officer