

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

FORM 10-Q

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

For the quarterly period ended 31 December 2019

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 and 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)

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

<u>Title of each class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$1.00 per share	APD	New York Stock Exchange
2.000% Euro Notes due 2020	APD20	New York Stock Exchange
0.375% Euro Notes due 2021	APD21B	New York Stock Exchange
1.000% Euro Notes due 2025	APD25	New York Stock Exchange

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 such files). Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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  Accelerated filer  Non-accelerated filer  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

The number of shares of common stock, \$1 par value per share, outstanding at 31 December 2019 was 220,678,482.

**AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries  
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**FORWARD-LOOKING STATEMENTS**

This quarterly report contains “forward-looking statements” within the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include all statements that do not relate solely to historical or current facts and can generally be identified by words such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “forecast,” “goal,” “intend,” “may,” “outlook,” “plan,” “positioned,” “possible,” “potential,” “project,” “should,” “target,” “will,” “would,” and similar expressions or variations thereof, or the negative thereof, but these terms are not the exclusive means of identifying such statements. Forward-looking statements are based on management’s expectations and assumptions as of the date of this report and are not guarantees of future performance. You are cautioned not to place undue reliance on our forward-looking statements.

Forward-looking statements may relate to a number of matters, including expectations regarding revenue, margins, expenses, earnings, tax provisions, cash flows, pension obligations, share repurchases or other statements regarding economic conditions or our business outlook; statements regarding plans, projects, strategies and objectives for our future operations, including our ability to win new projects and execute the projects in our backlog; and statements regarding our expectations with respect to pending legal claims or disputes. While forward-looking statements are made in good faith and based on assumptions, expectations and projections that management believes are reasonable based on currently available information, actual performance and financial results may differ materially from projections and estimates expressed in the forward-looking statements because of many factors, including, without limitation:

- changes in global or regional economic conditions, supply and demand dynamics in the market segments we serve, or in the financial markets;
- risks associated with having extensive international operations, including political risks, risks associated with unanticipated government actions and risks of investing in developing markets;
- project delays, contract terminations, customer cancellations, or postponement of projects and sales;
- our ability to develop and operate large scale and technically complex projects, including gasification projects;
- the future financial and operating performance of major customers and joint venture partners;

- our ability to develop, implement, and operate new technologies, or to execute the projects in our backlog;
- tariffs, economic sanctions and regulatory activities in jurisdictions in which we and our affiliates and joint ventures operate;
- the impact of environmental, tax or other legislation, as well as regulations affecting our business and related compliance requirements, including legislation or regulations related to global climate change;
- changes in tax rates and other changes in tax law;
- the timing, impact, and other uncertainties relating to acquisitions and divestitures, including our ability to integrate acquisitions and separate divested businesses, respectively;
- risks relating to cybersecurity incidents, including risks from the interruption, failure or compromise of our information systems;
- catastrophic events, such as natural disasters, acts of war, or terrorism;
- the impact of price fluctuations in oil and natural gas and disruptions in markets and the economy due to oil and natural gas price volatility;
- costs and outcomes of legal or regulatory proceedings and investigations;
- asset impairments due to economic conditions or specific events;
- significant fluctuations in interest rates and foreign currency exchange rates from those currently anticipated;
- damage to facilities, pipelines or delivery systems, including those we own or operate for third parties;
- availability and cost of raw materials; and
- the success of productivity and operational improvement programs.

In addition to the foregoing factors, forward-looking statements contained herein are qualified with respect to the risks disclosed elsewhere in this document, including in Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations and Item 3, Quantitative and Qualitative Disclosures About Market Risk, as well as with respect to the risks described in Item 1A, Risk Factors, to our Annual Report on Form 10-K for the year ended 30 September 2019. Any of these factors, as well as those not currently anticipated by management, could cause our results of operations, financial condition or liquidity to differ materially from what is expressed or implied by any forward-looking statement. Except as required by law, we disclaim any obligation or undertaking to update or revise any forward-looking statements contained herein to reflect any change in assumptions, beliefs, or expectations or any change in events, conditions, or circumstances upon which any such forward-looking statements are based.

## PART I. FINANCIAL INFORMATION

## Item 1. Consolidated Financial Statements

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

(Millions of dollars, except for share and per share data)	Three Months Ended 31 December	
	2019	2018
<b>Sales</b>	\$2,254.7	\$2,224.0
Cost of sales	1,486.6	1,544.0
Facility closure	—	29.0
Selling and administrative	201.7	189.6
Research and development	17.7	15.0
Other income (expense), net	12.3	8.6
<b>Operating Income</b>	561.0	455.0
Equity affiliates' income	58.2	52.9
Interest expense	18.7	37.3
Other non-operating income (expense), net	9.1	18.5
<b>Income Before Taxes</b>	609.6	489.1
Income tax provision	120.7	132.1
<b>Net Income</b>	488.9	357.0
Net income attributable to noncontrolling interests	13.3	9.5
<b>Net Income Attributable to Air Products</b>	\$475.6	\$347.5
<b>Basic Earnings Per Common Share Attributable to Air Products</b>	\$2.15	\$1.58
<b>Diluted Earnings Per Common Share Attributable to Air Products</b>	\$2.14	\$1.57
<b>Weighted Average Common Shares – Basic</b> (in millions)	220.9	219.9
<b>Weighted Average Common Shares – Diluted</b> (in millions)	222.2	221.0

The accompanying notes are an integral part of these statements.

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

(Millions of dollars)	Three Months Ended	
	31 December	
	2019	2018
<b>Net Income</b>	\$488.9	\$357.0
<b>Other Comprehensive Income (Loss), net of tax:</b>		
Translation adjustments, net of tax of (\$10.8) and \$4.9	264.0	(68.1)
Net gain (loss) on derivatives, net of tax of \$2.6 and (\$0.7)	22.1	(10.3)
Pension and postretirement benefits, net of tax of \$– and (\$0.8)	—	(3.9)
Reclassification adjustments:		
Derivatives, net of tax of (\$0.8) and (\$0.8)	(3.6)	(3.1)
Pension and postretirement benefits, net of tax of \$6.5 and \$5.0	19.7	15.2
<b>Total Other Comprehensive Income (Loss)</b>	302.2	(70.2)
<b>Comprehensive Income</b>	791.1	286.8
<b>Net Income Attributable to Noncontrolling Interests</b>	13.3	9.5
<b>Other Comprehensive Income (Loss) Attributable to Noncontrolling Interests</b>	15.2	(0.9)
<b>Comprehensive Income Attributable to Air Products</b>	\$762.6	\$278.2

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 and per share data)	31 December 2019	30 September 2019
<b>Assets</b>		
<b>Current Assets</b>		
Cash and cash items	\$2,406.1	\$2,248.7
Short-term investments	—	166.0
Trade receivables, net	1,288.6	1,260.2
Inventories	400.6	388.3
Prepaid expenses	98.3	77.4
Other receivables and current assets	526.1	477.7
<b>Total Current Assets</b>	<b>4,719.7</b>	<b>4,618.3</b>
Investment in net assets of and advances to equity affiliates	1,339.9	1,276.2
Plant and equipment, at cost	23,099.8	22,333.7
Less: accumulated depreciation	12,407.6	11,996.1
Plant and equipment, net	10,692.2	10,337.6
Goodwill, net	816.1	797.1
Intangible assets, net	415.9	419.5
Noncurrent lease receivables	883.2	890.0
Other noncurrent assets	784.6	604.1
<b>Total Noncurrent Assets</b>	<b>14,931.9</b>	<b>14,324.5</b>
<b>Total Assets</b>	<b>\$19,651.6</b>	<b>\$18,942.8</b>
<b>Liabilities and Equity</b>		
<b>Current Liabilities</b>		
Payables and accrued liabilities	\$1,630.0	\$1,635.7
Accrued income taxes	113.4	86.6
Short-term borrowings	36.5	58.2
Current portion of long-term debt	39.1	40.4
<b>Total Current Liabilities</b>	<b>1,819.0</b>	<b>1,820.9</b>
Long-term debt	2,937.0	2,907.3
Long-term debt – related party	328.6	320.1
Other noncurrent liabilities	1,826.7	1,712.4
Deferred income taxes	810.5	793.8
<b>Total Noncurrent Liabilities</b>	<b>5,902.8</b>	<b>5,733.6</b>
<b>Total Liabilities</b>	<b>7,721.8</b>	<b>7,554.5</b>
<b>Commitments and Contingencies - See Note 11</b>		
<b>Air Products Shareholders' Equity</b>		
Common stock (par value \$1 per share; issued 2020 and 2019 - 249,455,584 shares)	249.4	249.4
Capital in excess of par value	1,061.7	1,070.9
Retained earnings	14,356.9	14,138.4
Accumulated other comprehensive loss	(2,088.6)	(2,375.6)
Treasury stock, at cost (2020 - 28,777,102 shares; 2019 - 29,040,322 shares)	(2,023.4)	(2,029.5)
<b>Total Air Products Shareholders' Equity</b>	<b>11,556.0</b>	<b>11,053.6</b>
<b>Noncontrolling Interests</b>	<b>373.8</b>	<b>334.7</b>
<b>Total Equity</b>	<b>11,929.8</b>	<b>11,388.3</b>
<b>Total Liabilities and Equity</b>	<b>\$19,651.6</b>	<b>\$18,942.8</b>

The accompanying notes are an integral part of these statements.

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

(Millions of dollars)	Three Months Ended	
	2019	2018
<b>Operating Activities</b>		
Net income	\$488.9	\$357.0
Less: Net income attributable to noncontrolling interests	13.3	9.5
Net income attributable to Air Products	475.6	347.5
Adjustments to reconcile income to cash provided by operating activities:		
Depreciation and amortization	289.2	258.0
Deferred income taxes	24.4	(1.0)
Tax reform repatriation	—	46.2
Facility closure	—	29.0
Undistributed (earnings) losses of unconsolidated affiliates	(26.2)	1.0
Gain on sale of assets and investments	(1.1)	(0.7)
Share-based compensation	13.9	9.3
Noncurrent lease receivables	23.5	24.8
Other adjustments	30.8	12.7
Working capital changes that provided (used) cash, excluding effects of acquisitions:		
Trade receivables	0.9	(73.6)
Inventories	(8.4)	(10.4)
Other receivables	1.4	10.3
Payables and accrued liabilities	(115.4)	(55.4)
Other working capital	(41.6)	57.5
<b>Cash Provided by Operating Activities</b>	<b>667.0</b>	<b>655.2</b>
<b>Investing Activities</b>		
Additions to plant and equipment	(447.7)	(403.4)
Investment in and advances to unconsolidated affiliates	(7.1)	—
Proceeds from sale of assets and investments	15.2	1.1
Purchases of investments	—	(5.3)
Proceeds from investments	177.0	178.0
Other investing activities	1.9	3.1
<b>Cash Used for Investing Activities</b>	<b>(260.7)</b>	<b>(226.5)</b>
<b>Financing Activities</b>		
Payments on long-term debt	(2.8)	(2.6)
Net decrease in commercial paper and short-term borrowings	(10.4)	(38.0)
Dividends paid to shareholders	(255.7)	(241.5)
Proceeds from stock option exercises	5.5	4.7
Other financing activities	(6.9)	(12.4)
<b>Cash Used for Financing Activities</b>	<b>(270.3)</b>	<b>(289.8)</b>
<b>Effect of Exchange Rate Changes on Cash</b>	<b>21.4</b>	<b>(6.9)</b>
Increase in cash and cash items	157.4	132.0
Cash and Cash items – Beginning of Year	2,248.7	2,791.3
<b>Cash and Cash Items – End of Period</b>	<b>\$2,406.1</b>	<b>\$2,923.3</b>

The accompanying notes are an integral part of these statements.

**AIR PRODUCTS AND CHEMICALS, INC. and Subsidiaries**  
**CONSOLIDATED STATEMENTS OF EQUITY**  
**(Unaudited)**

Three Months Ended

31 December 2019

(Millions of dollars, except for per share data)	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Air Products Shareholders' Equity	Non-controlling Interests	Total Equity
Balance at 30 September 2019	\$249.4	\$1,070.9	\$14,138.4	(\$2,375.6)	(\$2,029.5)	\$11,053.6	\$334.7	\$11,388.3
Net income	—	—	475.6	—	—	475.6	13.3	488.9
Other comprehensive income (loss)	—	—	—	287.0	—	287.0	15.2	302.2
Dividends on common stock (per share \$1.16)	—	—	(256.0)	—	—	(256.0)	—	(256.0)
Dividends to noncontrolling interests	—	—	—	—	—	—	(1.3)	(1.3)
Share-based compensation	—	13.9	—	—	—	13.9	—	13.9
Issuance of treasury shares for stock option and award plans	—	(18.5)	—	—	6.1	(12.4)	—	(12.4)
Investments by noncontrolling interests	—	—	—	—	—	—	11.9	11.9
Other equity transactions	—	(4.6)	(1.1)	—	—	(5.7)	—	(5.7)
Balance at 31 December 2019	\$249.4	\$1,061.7	\$14,356.9	(\$2,088.6)	(\$2,023.4)	\$11,556.0	\$373.8	\$11,929.8

Three Months Ended

31 December 2018

(Millions of dollars, except for per share data)	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Air Products Shareholders' Equity	Non-controlling Interests	Total Equity
Balance at 30 September 2018	\$249.4	\$1,029.3	\$13,409.9	(\$1,741.9)	(\$2,089.2)	\$10,857.5	\$318.8	\$11,176.3
Net income	—	—	347.5	—	—	347.5	9.5	357.0
Other comprehensive income (loss)	—	—	—	(69.3)	—	(69.3)	(0.9)	(70.2)
Dividends on common stock (per share \$1.10)	—	—	(241.6)	—	—	(241.6)	—	(241.6)
Dividends to noncontrolling interests	—	—	—	—	—	—	(6.9)	(6.9)
Share-based compensation	—	8.9	—	—	—	8.9	—	8.9
Issuance of treasury shares for stock option and award plans	—	(7.6)	—	—	5.6	(2.0)	—	(2.0)
Cumulative change in accounting principle	—	—	(17.1)	—	—	(17.1)	—	(17.1)
Other equity transactions	—	(0.2)	(0.8)	—	—	(1.0)	—	(1.0)
Balance at 31 December 2018	\$249.4	\$1,030.4	\$13,497.9	(\$1,811.2)	(\$2,083.6)	\$10,882.9	\$320.5	\$11,203.4



**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)

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

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 (the "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 disclosures to make the information presented not misleading. Adjustments included herein are of a normal, recurring nature unless otherwise disclosed in the notes.

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 Annual Report on Form 10-K for the year ended 30 September 2019 (the "2019 Form 10-K"). Results of operations for interim periods are not necessarily indicative of the results of operations for a full year.

Refer to our 2019 Form 10-K for a description of major accounting policies. In fiscal year 2020, these policies were impacted by the implementation of certain new accounting guidance, including the adoption of Accounting Standards Codification ("ASC") Topic 842, *Leases*, and all related amendments (the "new lease standard"). We adopted the new lease standard as of 1 October 2019 under the modified retrospective approach. Comparative prior year information has not been restated and continues to be reported under the accounting standards in effect for those periods. Our updated lease policy is discussed below.

Other than the adoption of new accounting guidance as discussed in Note 2, *New Accounting Guidance*, and presentation changes discussed below, there were no notable changes to our accounting policies during the first three months of fiscal year 2020.

## Leases

As lessee, we recognize a right-of-use ("ROU") asset and lease liability on the balance sheet for all leases with a term in excess of 12 months. We determine if an arrangement contains a lease at inception. The arrangement contains a lease when there is an identifiable asset, we obtain substantially all of the economic benefits from that asset, and we direct how and for what purpose the asset is used during the term of the arrangement. If the initial term of an arrangement is 12 months or less, we have made an accounting election to not assess if these arrangements contain a lease for inclusion on our balance sheet.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the commencement date based on the present value of lease payments over the lease term. Since our leases generally do not provide an implicit discount rate, we use our incremental borrowing rates based on the information available at the commencement date in determining the present value of lease payments. To determine the incremental borrowing rate, we consider our unsecured borrowings and published market rates, and then adjust those rates to assume full collateralization and to factor in the individual lease term, geography, and payment structure.

Our lease term includes periods covered by options to extend or terminate the lease when it is reasonably certain that we will exercise an option to extend or not exercise an option to terminate. Lease payments consider our practical expedient to combine amounts for lease and related nonlease components for all classes of underlying assets in which we are lessee. Fixed payments and those associated with escalation clauses based on an index are included in the ROU asset and lease liability at commencement. Variable lease payments are excluded from the ROU assets and lease liabilities and are recognized in the period in which the obligation for those payments is incurred. Our variable lease payments primarily include the impact from escalation clauses that are not fixed. Prepaid lease payments are included in the recognition of ROU assets. Our lease agreements do not contain any material lease incentives, residual value guarantees or restrictions or covenants.

## Foreign Currency

As further discussed in Note 2, *New Accounting Guidance*, we adopted new accounting guidance on hedging activities in fiscal year 2020 that changed the income statement presentation of excluded components (foreign currency forward points and currency swap basis differences) of our cash flow hedges of intercompany loans. This activity is now amortized on a straight-line basis within "Other non-operating income (expense), net" instead of being recognized in "Interest expense." In addition, gains and losses from the foreign currency remeasurement of intercompany and third-party financing transactions as well as income tax assets and liabilities and the impact of related hedges are now also reflected within "Other non-operating income (expense), net." All other gains and losses from foreign currency transactions continue to be reflected within "Other income (expense), net" on our consolidated income statements. Comparative prior year information has not been restated.

## 2. NEW ACCOUNTING GUIDANCE

### *Accounting Guidance Implemented in Fiscal Year 2020*

#### Leases

In February 2016, the FASB issued lease guidance (the "new lease 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 Company is the lessee under various agreements for real estate, vehicles, aircraft, and other equipment that are accounted for as operating leases.

We adopted this guidance in fiscal year 2020 using a modified retrospective approach with the election to apply the guidance as of 1 October 2019, "the adoption date," instead of the earliest comparative period presented in the consolidated financial statements.

We elected the following practical expedients provided by this guidance:

- The package of practical expedients, which allows us to carry forward the lease population and classification existing as of the adoption date, among other things;
- The land easements practical expedient, which allows us to carry forward our accounting treatment for land easements on agreements existing before the adoption date;
- The hindsight practical expedient, which is used to determine the reasonably certain lease term for existing leases as of the adoption date;
- The component combination practical expedient, which allows us to account for lease and non-lease components associated with that lease as a single component, if certain criteria are met; and
- The short-term leases practical expedient, which allows us to not record the related lease liabilities and right-of-use assets for operating leases in which we are the lessee with a term of 12 months or less.

Adoption of the standard resulted in recognition of lease liabilities and right-of-use assets on our consolidated balance sheets of \$375.3 and \$332.3, respectively. The standard did not materially affect our retained earnings, results of operations or liquidity. Refer to Note 7, *Leases*, for additional information.

### **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 hedging strategies to become eligible for hedge accounting.

We adopted the new guidance on 1 October 2019 on a modified retrospective basis. The primary impact of adoption was the presentation in the consolidated income statement of foreign currency forward points and currency swap basis differences ("excluded components"), since these are excluded from the assessment of hedge effectiveness for our hedges of intercompany loans. Historically, the impacts from changes in value of these components were recorded in "Interest expense." Beginning in fiscal year 2020, the excluded components were recognized in "Other non-operating income (expense), net" consistent with the remeasurement of the intercompany loans. In the first quarter of 2020, we recognized \$8.9 in "Other non-operating income (expense), net." In the first quarter of 2019, \$8.3 was recognized in "Interest expense."

In accordance with the transition provisions of the guidance, the separate measurement of ineffectiveness for our cash flow hedging instruments existing as of the date of adoption should be eliminated through a cumulative-effect adjustment within equity. Ineffectiveness recognized for our cash flow hedging instruments existing as of the date of adoption was not material to the consolidated financial statements.

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

#### **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.

#### **Fair Value Measurement Disclosures**

In August 2018, the FASB issued guidance which modifies the disclosure requirements for fair value measurements. The guidance is effective in fiscal year 2021, with early adoption permitted. Certain amendments must be applied prospectively and other amendments retrospectively. We are currently evaluating the impact this guidance will have on the disclosures in the notes to our consolidated financial statements.

#### **Retirement Benefit Disclosures**

In August 2018, the FASB issued guidance which modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. The guidance is effective in fiscal year 2021, with early adoption permitted, and must be applied on a retrospective basis. We are currently evaluating the impact this guidance will have on the disclosures in the notes to our consolidated financial statements.

### Cloud Computing Implementation Costs

In August 2018, the FASB issued guidance which aligns the capitalization requirements for implementation costs incurred in a hosting arrangement that is a service contract with the existing capitalization requirements for implementation costs incurred to develop or obtain internal-use software. The guidance is effective in fiscal year 2021, with early adoption permitted, and may be applied either prospectively or retrospectively. We are currently evaluating the impact this guidance will have on our consolidated financial statements.

### Related Party Guidance for Variable Interest Entities

In October 2018, the FASB issued an update which amends the guidance for determining whether a decision-making fee is a variable interest. The amendments require consideration of indirect interests held through related parties under common control on a proportional basis rather than as the equivalent of a direct interest in its entirety as currently required. The guidance is effective in fiscal year 2021, with early adoption permitted. The amendments must be applied retrospectively with a cumulative-effect adjustment to retained earnings at the beginning of the earliest period presented. We are currently evaluating the impact this guidance will have on our consolidated financial statements.

### Simplifying the Accounting for Income Taxes

In December 2019, the FASB issued an update to simplify the accounting for income taxes and improve consistent application by clarifying or amending existing guidance. This guidance is effective in fiscal year 2022, with early adoption permitted. We are currently evaluating the impact this guidance will have on our consolidated financial statements. Depending on the provision, application can be made on a prospective, retrospective, or on a modified retrospective basis.

## 3. REVENUE RECOGNITION

The majority of the Company's revenue is generated from its sale of gas customers within its Industrial Gases regional segments. We distribute gases through either our on-site or merchant supply mode depending on various factors, including the customer's volume requirements and location. The Industrial Gases – Global and the Corporate and other segments serve our sale of equipment customers.

### Disaggregation of Revenue

The tables below present our consolidated sales disaggregated by supply mode for each of our reporting segments for the three months ended 31 December 2019 and 2018. We believe this presentation best depicts the nature, timing, type of customer, and contract terms for our sales.

	Industrial Gases– Americas	Industrial Gases– EMEA	Industrial Gases– Asia	Industrial Gases– Global	Corporate and other	Total	%
<b>Three Months Ended 31 December 2019</b>							
On-site	\$534.5	\$171.4	\$418.3	\$—	\$—	\$1,124.2	50%
Merchant	401.7	327.3	274.5	—	—	1,003.5	44%
Sale of Equipment	—	—	—	92.6	34.4	127.0	6%
<b>Total</b>	<b>\$936.2</b>	<b>\$498.7</b>	<b>\$692.8</b>	<b>\$92.6</b>	<b>\$34.4</b>	<b>\$2,254.7</b>	<b>100%</b>

	Industrial Gases– Americas	Industrial Gases– EMEA	Industrial Gases– Asia	Industrial Gases– Global	Corporate and other	Total	%
<b>Three Months Ended 31 December 2018</b>							
On-site	\$596.0	\$222.2	\$381.0	\$—	\$—	\$1,199.2	54%
Merchant	393.2	302.0	245.8	—	—	941.0	42%
Sale of Equipment	—	—	—	68.2	15.6	83.8	4%
<b>Total</b>	<b>\$989.2</b>	<b>\$524.2</b>	<b>\$626.8</b>	<b>\$68.2</b>	<b>\$15.6</b>	<b>\$2,224.0</b>	<b>100%</b>

**Remaining Performance Obligations**

As of 31 December 2019, the transaction price allocated to remaining performance obligations is estimated to be approximately \$19 billion. This amount includes fixed-charge contract provisions associated with our on-site and sale of equipment supply modes. We estimate that approximately half of this revenue will be recognized over approximately the next five years and the balance thereafter.

Expected revenue associated with new on-site plants that are not yet onstream is excluded from this amount. In addition, this amount excludes consideration associated with contracts having an expected duration of less than one year and variable consideration for which we recognize revenue at the amount to which we have the right to invoice, including pass-through costs related to energy and natural gas.

In the future, actual amounts will differ due to events outside of our control, including but not limited to inflationary price escalations, currency exchange rates, and terminated or renewed contracts.

**Contract Balances**

The table below details balances arising from contracts with customers:

	Balance Sheet Location	31 December 2019	30 September 2019
<b>Assets</b>			
Contract assets – current	Other receivables and current assets	\$94.4	\$64.3
Contract fulfillment costs – current	Other receivables and current assets	86.1	64.5
<b>Liabilities</b>			
Contract liabilities – current	Payables and accrued liabilities	284.9	247.4
Contract liabilities – noncurrent	Other noncurrent liabilities	53.3	49.2

Changes to our contract balances primarily relate to our sale of equipment contracts. During the three months ended 31 December 2019, we recognized approximately \$60 in revenue associated with sale of equipment contracts that was included within our contract liabilities as of 30 September 2019.

**4. COST REDUCTION ACTIONS**

In fiscal year 2019, we recognized an expense of \$25.5 for severance and other benefits associated with the elimination or planned elimination of approximately 300 positions. These actions were taken to drive cost synergies primarily within the Industrial Gases – EMEA and the Industrial Gases – Americas segments. The charge was not recorded in segment results.

Liabilities associated with these actions are reflected on our consolidated balance sheets within "Payables and accrued liabilities." The table below summarizes the carrying amount of the accrual as of 31 December 2019:

2019 Charge	\$25.5
Cash expenditures	(6.9)
Amount reflected in pension liability	(0.3)
Currency translation adjustment	(0.5)
30 September 2019	\$17.8
Cash expenditures	(5.0)
Currency translation adjustment	0.3
31 December 2019	\$13.1

## 5. INVENTORIES

The components of inventories are as follows:

	31 December 2019	30 September 2019
Finished goods	\$127.0	\$128.8
Work in process	29.8	27.5
Raw materials, supplies and other	243.8	232.0
Inventories	\$400.6	\$388.3

## 6. GOODWILL

Changes to the carrying amount of consolidated goodwill by segment for the three months ended 31 December 2019 are as follows:

	Industrial Gases— Americas	Industrial Gases— EMEA	Industrial Gases— Asia	Industrial Gases— Global	Corporate and other	Total
Goodwill, net at 30 September 2019	\$156.3	\$432.3	\$178.5	\$19.6	\$10.4	\$797.1
Currency translation and other	(1.7)	19.2	1.3	0.2	—	19.0
Goodwill, net at 31 December 2019	\$154.6	\$451.5	\$179.8	\$19.8	\$10.4	\$816.1

	31 December 2019	30 September 2019
Goodwill, gross	\$1,169.2	\$1,162.2
Accumulated impairment losses <sup>(A)</sup>	(353.1)	(365.1)
Goodwill, net	\$816.1	\$797.1

<sup>(A)</sup> Accumulated impairment losses include the impacts of currency translation. These losses are attributable to our Latin America reporting unit ("LASA") within the Industrial Gases – Americas segment.

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.

## 7. LEASES

As discussed in Note 2, *New Accounting Guidance*, we adopted the new lease guidance in fiscal year 2020 using a modified retrospective approach with the election to apply the guidance as of 1 October 2019. For adoption, we elected the package of practical expedients permitted under the transition guidance to carry forward the historical lease populations as well as their classifications existing as of the adoption date (i.e. contracts having a lease commencement date prior to 1 October 2019). Refer to Note 1, *Basis of Presentation and Major Accounting Policies*, and Note 2, *New Accounting Guidance*, for additional information on our adoption and related policies under the new lease standard.

### Lessee Accounting

The Company is the lessee under various agreements for real estate, vehicles, aircraft, and other equipment that are accounted for as operating leases. Our finance leases principally relate to the right to use machinery and equipment and are not material.

The operating lease expense for the three months ended 31 December 2019, which exclude short-term and variable lease expenses, as those expenses are immaterial, was \$19.4.

Amounts associated with operating leases, including their presentation on our consolidated balance sheets, as of our most recent balance sheet date and our adoption date are as follows:

	31 December 2019	1 October 2019
<b>Operating lease ROU asset</b>		
Other noncurrent assets	\$318.8	\$332.3
<b>Operating lease liabilities</b>		
Payables and accrued liabilities	67.8	68.6
Other noncurrent liabilities	296.8	306.7
<b>Total Operating Lease Liabilities</b>	<b>\$364.6</b>	<b>\$375.3</b>

The difference between the ROU assets and lease liabilities recorded upon adoption primarily relate to the land lease associated with our former Energy-from-Waste business in which a ROU asset was not recognized.

	31 December 2019
Weighted-average remaining lease term (in years) <sup>(A)</sup>	12.9
Weighted-average discount rate <sup>(B)</sup>	2.1%

<sup>(A)</sup> Calculated on the basis of the remaining lease term and the lease liability balance for each lease as of the reporting date.

<sup>(B)</sup> Calculated on the basis of the discount rate used to calculate the lease liability for each lease as of the reporting date and the remaining balance of the lease payments for each lease as of the reporting date.

At 31 December 2019, the maturity analysis of lease liabilities, showing the undiscounted cash flows, is as follows:

	Operating Leases
2020 (excluding the three months ended 31 December 2019)	\$57.5
2021	63.4
2022	45.0
2023	36.1
2024	28.9
Thereafter	179.6
<b>Total Undiscounted Lease Payments</b>	<b>\$410.5</b>
Imputed interest	(45.9)
<b>Present Value of Lease Liability Recognized on the Balance Sheet</b>	<b>\$364.6</b>

As previously disclosed in our 2019 Form 10-K, at 30 September 2019, prior to our adoption of the new lease guidance, minimum payments due under leases were as follows:

	Operating Leases
2020	\$75.1
2021	62.6
2022	44.4
2023	35.9
2024	28.6
Thereafter	171.4
<b>Total Undiscounted Lease Payments</b>	<b>\$418.0</b>

The impacts associated with our operating leases on the consolidated statements of cash flows are reflected within "Other adjustments" within operating activities. This includes the non-cash impact from operating lease costs of \$19.4 as well as a use of cash of \$19.0 for payments on amounts included in the measurement of the lease liability. The net impact to operating cash flows from these activities is not material.

Other than the ROU assets established upon adoption, there were no significant non-cash additions during the three months ended 31 December 2019.

We have additional operating leases that have not yet commenced as of 31 December 2019, the largest of which commences in the second quarter of 2020 having annual fixed payments in excess of \$1 for almost 40 years.

### Lessor Accounting

Historically, certain contracts associated with facilities that are built to provide product to a specific customer were accounted for as leases. As noted above, we elected the package of practical expedients permitted under the transition guidance to carry forward these lease determinations as of 30 September 2019.

In cases where operating lease treatment is appropriate, there is no difference in revenue recognition over the life of the contract as compared to accounting for the contract under a sale of gas agreement. Under the new lease standard, these contracts qualify for a practical expedient available to lessors to combine the lease and non-lease components and account for the combined component in accordance with the accounting treatment for the predominant component. We elected to apply this practical expedient and have accounted for the combined component as product sales under the revenue standard as we control the operations and maintenance of the assets that provide the supply of gas to our customers.

In cases where sales-type lease treatment is appropriate, revenue and expense are recognized up front for the sale of equipment component of the contract as compared to revenue recognition over the life of the arrangement under contracts not qualifying as sales-type leases. Additionally, a portion of the revenue representing interest income from the financing component of the lease receivable is reflected as sales over the life of the contract. During the three months ended 31 December 2019, we recognized interest income of \$18.5 on our lease receivables. As we control the operations and maintenance of the assets that provide the supply of gas to our customers, we do not expect new arrangements to qualify as leases.

Our contracts generally do not have the option to extend or terminate the lease, or provide the customer the right to purchase the asset at the end of the contract term. Instead, renewal of such contracts requires negotiation of mutually agreed upon terms by both parties. Unless the customer terminates within the required notice period, the contract will go into evergreen. Given the long-term duration of our contracts, there is no assumed residual value for the assets at the end of the lease term.

Lease receivables, net, primarily relate to sales-type leases and are mostly included within "Noncurrent lease receivables" on our consolidated balance sheets, with the remaining balance in "Other receivables and current assets."

Lease payments collected during the three months ended 31 December 2019 were \$42.0. These payments reduced the lease receivable balance by \$23.5 in fiscal year 2020.

At 31 December 2019, minimum lease payments expected to be collected, which reconciles to the total undiscounted minimum lease payments reflected in the table below, were as follows:

2020 (excluding the three months ended 31 December 2019)	\$122.9
2021	159.2
2022	148.3
2023	142.0
2024	135.8
Thereafter	730.2
Total	\$1,438.4
Unearned interest income	(463.6)
Lease Receivables, net	\$974.8



As previously disclosed in our 2019 Form 10-K, at 30 September 2019, prior to our adoption of the new lease guidance, minimum lease payments expected to be collected were as follows:

2020	\$162.5
2021	156.9
2022	145.7
2023	139.4
2024	133.2
Thereafter	715.5
Total	\$1,453.2
Unearned interest income	(472.3)
Lease Receivables, net	\$980.9

Other than lease payments received during the first three months of fiscal year 2020 and the impact of currency, there have been no changes to our minimum lease payments expected to be collected since those disclosed as of 30 September 2019 in our 2019 Form 10-K.

## 8. FINANCIAL INSTRUMENTS

### Currency Price Risk Management

Our earnings, cash flows, and financial position are exposed to foreign currency risk from foreign currency-denominated transactions and net investments in foreign operations. It is our policy to 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 strategies necessary to manage such exposures. Our objective is to maintain economically balanced currency risk management strategies that provide adequate downside protection.

### Forward Exchange Contracts

We enter into forward exchange contracts to reduce the cash flow exposure to foreign currency fluctuations associated with highly anticipated cash flows and certain firm commitments, such as the purchase of plant and equipment. We also enter into forward exchange contracts to hedge the cash flow exposure on intercompany loans. This portfolio of forward exchange contracts consists primarily of Euros and U.S. Dollars. The maximum remaining term of any forward exchange contract currently outstanding and designated as a cash flow hedge at 31 December 2019 is 1.9 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.

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

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

	31 December 2019		30 September 2019	
	US\$ Notional	Years Average Maturity	US\$ Notional	Years Average Maturity
<b>Forward Exchange Contracts:</b>				
Cash flow hedges	\$2,659.3	0.5	\$2,418.2	0.5
Net investment hedges	836.2	0.7	830.8	0.9
Not designated	887.6	0.6	1,053.5	0.6
<b>Total Forward Exchange Contracts</b>	<b>\$4,383.1</b>	<b>0.6</b>	<b>\$4,302.5</b>	<b>0.6</b>

We also 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 was €953.2 million (\$1,068.8) at 31 December 2019 and €951.3 million (\$1,036.9) at 30 September 2019. The designated foreign currency-denominated debt is presented within "Long-term debt" on the consolidated balance sheets.

#### Debt Portfolio Management

It is our policy to identify, on a continuing basis, the need for debt capital and to evaluate the financial risks inherent in funding the Company with debt capital. Reflecting the result of this ongoing review, our debt portfolio and hedging program are managed with the 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). As of 31 December 2019, 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 Chinese Renminbi, U.S. Dollars and Indian Rupee, and U.S. Dollars and Chilean Pesos.

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

	31 December 2019				30 September 2019			
	US\$ Notional	Average Pay %	Average Receive %	Years Average Maturity	US\$ Notional	Average Pay %	Average Receive %	Years Average Maturity
Interest rate swaps (fair value hedge)	\$200.0	LIBOR	2.76%	1.8	\$200.0	LIBOR	2.76%	2.1
Cross currency interest rate swaps (net investment hedge)	\$207.8	4.69%	3.31%	3.2	\$216.8	4.80%	3.31%	3.5
Cross currency interest rate swaps (cash flow hedge)	\$1,098.1	4.94%	3.07%	2.1	\$1,129.3	4.92%	3.04%	2.3
Cross currency interest rate swaps (not designated)	\$15.1	5.39%	3.54%	4.0	\$6.1	2.55%	3.72%	4.5

The table below provides the amounts recorded on the consolidated balance sheet related to cumulative basis adjustments for fair value hedges:

Balance Sheet Location	Carrying amounts of hedged item		Cumulative hedging adjustment, included in carrying amount	
	31 December 2019	30 September 2019	31 December 2019	30 September 2019
Long-term debt	\$403.8	\$404.7	\$4.3	\$5.2

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

	Balance Sheet Location	31 December 2019	30 September 2019	Balance Sheet Location	31 December 2019	30 September 2019
<b>Derivatives Designated as Hedging Instruments:</b>						
Forward exchange contracts	Other receivables and current assets	\$66.0	\$79.0	Payables and accrued liabilities	\$19.6	\$53.8
Interest rate management contracts	Other receivables and current assets	26.7	24.8	Payables and accrued liabilities	0.3	1.1
Forward exchange contracts	Other noncurrent assets	8.7	11.9	Other noncurrent liabilities	0.2	0.7
Interest rate management contracts	Other noncurrent assets	41.8	60.9	Other noncurrent liabilities	—	0.7
<b>Total Derivatives Designated as Hedging Instruments</b>		<b>\$143.2</b>	<b>\$176.6</b>		<b>\$20.1</b>	<b>\$56.3</b>
<b>Derivatives Not Designated as Hedging Instruments:</b>						
Forward exchange contracts	Other receivables and current assets	\$33.0	\$38.7	Payables and accrued liabilities	\$30.6	\$36.3
Forward exchange contracts	Other noncurrent assets	6.5	8.4	Other noncurrent liabilities	17.6	19.8
Interest rate management contracts	Other noncurrent assets	0.4	0.5	Other noncurrent liabilities	—	—
<b>Total Derivatives Not Designated as Hedging Instruments</b>		<b>\$39.9</b>	<b>\$47.6</b>		<b>\$48.2</b>	<b>\$56.1</b>
<b>Total Derivatives</b>		<b>\$183.1</b>	<b>\$224.2</b>		<b>\$68.3</b>	<b>\$112.4</b>

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

The tables below summarize gains (losses) recognized in other comprehensive income during the period related to our net investment and cash flow hedging relationships:

	Three Months Ended 31 December	
	2019	2018
<b>Net Investment Hedging Relationships</b>		
Forward exchange contracts	(\$9.1)	\$15.5
Foreign currency debt	(29.9)	12.6
Cross currency interest rate swaps	(3.5)	0.9
<b>Total Amount Recognized in OCI</b>	<b>(42.5)</b>	<b>29.0</b>
Tax effects	10.2	(7.0)
<b>Net Amount Recognized in OCI</b>	<b>(\$32.3)</b>	<b>\$22.0</b>

	Three Months Ended 31 December	
	2019	2018
<b>Derivatives in Cash Flow Hedging Relationships</b>		
Forward exchange contracts	\$26.3	\$8.9
Forward exchange contracts, excluded components	(4.5)	(3.8)
Other <sup>(A)</sup>	2.9	(16.1)
<b>Total Amount Recognized in OCI</b>	<b>24.7</b>	<b>(11.0)</b>
Tax effects	(2.6)	0.7
<b>Net Amount Recognized in OCI</b>	<b>\$22.1</b>	<b>(\$10.3)</b>

<sup>(A)</sup> Other primarily includes interest rate and cross currency interest rate swaps for which excluded components are recognized in "Payables and accrued liabilities" and "Other receivables and current assets" as a component of accrued interest payable and accrued interest receivable, respectively. These excluded components are recorded in "Other Non-operating income (expense), net" over the life of the cross currency interest rate swap.

The table below summarizes by contract type the location and amounts recognized in income related to our cash flow and fair value hedging relationships:

	Three Months Ended 31 December									
	Sales		Cost of Sales		Other Income (Expense), Net		Interest Expense		Other Non-Operating Income (Expense), Net	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
<b>Total Amounts Presented in the Consolidated Income Statement in which the Effects of Cash Flow and Fair Value Hedges are Recorded</b>	\$2,254.7	\$2,224.0	\$1,486.6	\$1,544.0	\$12.3	\$8.6	\$18.7	\$37.3	\$9.1	\$18.5
<b>(Gain) Loss Effects of Cash Flow Hedging:</b>										
Forward Exchange Contracts:										
Amount reclassified from OCI into income <sup>(A)</sup>	\$0.1	\$0.4	(\$0.2)	\$0.2	\$—	(\$11.9)	\$—	\$4.2	(\$23.4)	\$—
Amount excluded from effectiveness testing recognized in earnings based on amortization approach <sup>(A)</sup>	—	—	—	—	—	—	—	—	4.5	—
Other:										
Amount reclassified from OCI into income <sup>(B)</sup>	—	—	—	—	—	2.2	1.0	1.0	13.6	—
<b>Total (Gain) Loss Reclassified from OCI to Income</b>	0.1	0.4	(0.2)	0.2	—	(9.7)	1.0	5.2	(5.3)	—
Tax effects	—	(0.1)	0.1	—	—	2.3	(0.3)	(1.4)	1.0	—
<b>Net (Gain) Loss Reclassified from OCI to Income</b>	\$0.1	\$0.3	(\$0.1)	\$0.2	\$—	(\$7.4)	\$0.7	\$3.8	(\$4.3)	\$—
<b>(Gain) Loss Effects of Fair Value Hedging:</b>										
Other:										
Hedged items	\$—	\$—	\$—	\$—	\$—	\$—	(\$0.9)	\$2.6	\$—	\$—
Derivatives designated as hedging instruments	—	—	—	—	—	—	0.9	(2.6)	—	—
<b>Total (Gain) Loss Recognized in Income</b>	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—

<sup>(A)</sup> Net amount excluded from effectiveness testing recognized in interest expense for FY19, see Note 2, *New Accounting Guidance*, for additional details.

<sup>(B)</sup> Other primarily includes interest rate and cross currency interest rate swaps for which excluded components are recognized in "Payables and accrued liabilities" and "Other receivables and current assets" as a component of accrued interest payable and accrued interest receivable, respectively. These excluded components are recorded in "Other Non-operating income (expense), net" over the life of the cross currency interest rate swap.

The table below summarizes by contract type the location and amounts recognized in income related to our derivatives not designated as hedging instruments:

	Three Months Ended 31 December			
	Other Income (Expense), net		Other Non-Operating Income (Expense), net	
	2019	2018	2019	2018
<b>The Effects of Derivatives Not Designated as a Hedging Instruments:</b>				
Forward Exchange Contracts	\$0.2	\$0.1	(\$0.6)	\$—
Other	—	(0.8)	0.4	—
<b>Total (Gain) Loss Recognized in Income</b>	<b>\$0.2</b>	<b>(\$0.7)</b>	<b>(\$0.2)</b>	<b>\$—</b>

The amount of unrealized gains and losses related to cash flow hedges as of 31 December 2019 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 \$29.9 and \$30.1 as of 31 December 2019 and 30 September 2019, respectively. 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 \$128.2 and \$157.1 as of 31 December 2019 and 30 September 2019, respectively. No financial institution is required to post collateral at this time as all have credit ratings at or above threshold.

## **9. FAIR VALUE MEASUREMENTS**

Fair value is defined as an exit price, or 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 with original maturities greater than three months and less than one year. We estimated the fair value of our short-term investments, which approximates carrying value as of the balance sheet date, 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 consider 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 that 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 8, *Financial Instruments*, for a description of derivative instruments, including details related to the balance sheet line classifications.

### Long-term Debt, Including Related Party

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

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

	31 December 2019		30 September 2019	
	Carrying Value	Fair Value	Carrying Value	Fair Value
<b>Assets</b>				
Derivatives				
Forward exchange contracts	\$114.2	\$114.2	\$138.0	\$138.0
Interest rate management contracts	68.9	68.9	86.2	86.2
<b>Liabilities</b>				
Derivatives				
Forward exchange contracts	\$68.0	\$68.0	\$110.6	\$110.6
Interest rate management contracts	0.3	0.3	1.8	1.8
Long-term debt, including current portion and related party	3,304.7	3,349.9	3,267.8	3,350.9

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 on the consolidated balance sheets that are measured at fair value on a recurring basis:

	31 December 2019				30 September 2019			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
<b>Assets at Fair Value</b>								
Derivatives								
Forward exchange contracts	\$114.2	\$—	\$114.2	\$—	\$138.0	\$—	\$138.0	\$—
Interest rate management contracts	68.9	—	68.9	—	86.2	—	86.2	—
Total Assets at Fair Value	\$183.1	\$—	\$183.1	\$—	\$224.2	\$—	\$224.2	\$—
<b>Liabilities at Fair Value</b>								
Derivatives								
Forward exchange contracts	\$68.0	\$—	\$68.0	\$—	\$110.6	\$—	\$110.6	\$—
Interest rate management contracts	0.3	—	0.3	—	1.8	—	1.8	—
Total Liabilities at Fair Value	\$68.3	\$—	\$68.3	\$—	\$112.4	\$—	\$112.4	\$—

## 10. RETIREMENT BENEFITS

The components of net periodic benefit cost for our defined benefit pension plans for the three months ended 31 December 2019 and 2018 were as follows:

Three Months Ended 31 December	Pension Benefits			
	2019		2018	
	U.S.	International	U.S.	International
Service cost	\$5.8	\$5.9	\$5.4	\$4.9
Interest cost	22.8	6.2	28.4	9.0
Expected return on plan assets	(47.2)	(19.5)	(43.1)	(18.9)
Prior service cost amortization	0.3	—	0.3	—
Actuarial loss amortization	21.0	4.9	16.1	2.8
Settlements	—	—	0.8	0.2
Special termination benefits	—	—	0.7	—
Other	—	0.2	—	0.3
<b>Net Periodic (Benefit) Cost</b>	<b>\$2.7</b>	<b>(\$2.3)</b>	<b>\$8.6</b>	<b>(\$1.7)</b>

Our service costs are primarily included within "Cost of sales" and "Selling and administrative" on our consolidated income statements. The amount of service costs capitalized in the first three months of fiscal years 2020 and 2019 were not material. The non-service related costs, including pension settlement losses, are presented outside operating income within "Other non-operating income (expense), net."

For the three months ended 31 December 2019 and 2018, our cash contributions to funded pension plans and benefit payments under unfunded pension plans were \$8.3 and \$19.5, respectively. Total contributions for fiscal year 2020 are expected to be approximately \$30 to \$40. During fiscal year 2019, total contributions were \$40.2.

### U.K. Lloyds Pensions Equalization Ruling

On 26 October 2018, the United Kingdom High Court issued a ruling related to the equalization of pension plan participants' benefits for the gender effects of Guaranteed Minimum Pensions. As a result of this ruling, we estimated the impact of retroactively increasing benefits in our U.K. plan in accordance with the High Court ruling. We treated the additional benefits as a prior service cost, which resulted in an increase to our projected benefit obligation and accumulated other comprehensive loss of \$4.7 during the first quarter of fiscal year 2019. We are amortizing this cost over the average remaining life expectancy of the U.K. participants.

## 11. COMMITMENTS AND CONTINGENCIES

### Litigation

We are involved in various legal proceedings, including commercial, competition, environmental, intellectual property, regulatory, product liability, and insurance matters. In September 2010, the Brazilian Administrative Council for Economic Defense ("CADE") issued a decision against our Brazilian subsidiary, Air Products Brasil Ltda., and several other Brazilian industrial gas companies for alleged anticompetitive activities. CADE imposed a civil fine of R\$179.2 million (approximately \$45 at 31 December 2019) on Air Products Brasil Ltda. This fine was based on a recommendation by a unit of the Brazilian Ministry of Justice, whose investigation began in 2003, alleging violation of competition laws with respect to the sale of industrial and medical gases. The fines are based on a percentage of our total revenue in Brazil in 2003.

We have denied the allegations made by the authorities and filed an appeal in October 2010 with the Brazilian courts. On 6 May 2014, our appeal was granted and the fine against Air Products Brasil Ltda. was dismissed. CADE has appealed that ruling and the matter remains pending. We, with advice of our outside legal counsel, have assessed the status of this matter and have concluded that, although an adverse final judgment after exhausting all appeals is possible, such a judgment is not probable. As a result, no provision has been made in the consolidated financial statements. We estimate the maximum possible loss to be the full amount of the fine of R\$179.2 million (approximately \$45 at 31 December 2019) 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 30 sites on which a final settlement has not been reached where we, along with others, have been designated a potentially responsible party by the Environmental Protection Agency or are otherwise engaged in investigation or remediation, including cleanup activity at certain of our current and former manufacturing sites. We continually monitor these sites for which we have environmental exposure.

Accruals for environmental loss contingencies are recorded when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. The consolidated balance sheets at 31 December 2019 and 30 September 2019 included an accrual of \$67.1 and \$68.9, 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 \$67 to a reasonably possible upper exposure of \$80 as of 31 December 2019.

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

### **PACE**

At 31 December 2019, \$24.1 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 before-tax expense of \$42 in fiscal 2006 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 31 December 2019, \$14.3 of the environmental accrual was related to the Piedmont site.

On 30 June 2008, we sold our Elkton, Maryland, and Piedmont, South Carolina, production facilities and the related North American atmospheric emulsions and global pressure sensitive adhesives businesses. In connection with the sale, we recognized a liability for retained environmental obligations associated with remediation activities at the Piedmont site. This site is under active remediation for contamination caused by an insolvent prior owner.

We are required by the South Carolina Department of Health and Environmental Control ("SCDHEC") to address both contaminated soil and groundwater. Numerous areas of soil contamination have been addressed, and contaminated groundwater is being recovered and treated. The SCDHEC issued its final approval to the site-wide feasibility study on 13 June 2017 and the Record of Decision for the site on 27 June 2018. Field work has started to support the remedial design, and in the fourth quarter of fiscal year 2018, we signed a Consent Agreement Amendment memorializing our obligations to complete the cleanup of the site. We estimate that source area remediation and groundwater recovery and treatment will continue through 2029. Thereafter, we expect this site to go into a state of monitored natural attenuation through 2047.

We recognized a before-tax expense of \$24 in 2008 as a component of income from discontinued operations and recorded an environmental liability of \$24 in continuing operations on the consolidated balance sheets. There have been no significant changes to the estimated exposure.

**PASADENA**

At 31 December 2019, \$11.7 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.

**12. SHARE-BASED COMPENSATION**

We have various share-based compensation programs, which include deferred stock units, stock options, and restricted stock. During the three months ended 31 December 2019, we granted market-based and time-based deferred stock units. Under all programs, the terms of the awards are fixed at the grant date. We issue shares from treasury stock upon the payout of deferred stock units, the exercise of stock options, and the issuance of restricted stock awards. As of 31 December 2019, there were 4,302,632 shares available for future grant under our Long-Term Incentive Plan ("LTIP"), which is shareholder approved.

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

	Three Months Ended 31 December	
	2019	2018
Before-tax share-based compensation cost	\$15.4	\$9.3
Income tax benefit	(3.7)	(2.2)
After-tax share-based compensation cost	\$11.7	\$7.1

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 three months of fiscal years 2020 and 2019 was not material.

### Deferred Stock Units

During the three months ended 31 December 2019, we granted 80,215 market-based deferred stock units. The market-based deferred stock units are earned at the end of the performance period beginning 1 October 2019 and ending 30 September 2022, 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 \$275.19 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	17.8%
Risk-free interest rate	1.6%
Expected dividend yield	2.4%

In addition, during the three months ended 31 December 2019, we granted 110,253 time-based deferred stock units at a weighted average grant-date fair value of \$229.09.

### 13. ACCUMULATED OTHER COMPREHENSIVE LOSS

The table below summarizes changes in accumulated other comprehensive loss ("AOCL"), net of tax, attributable to Air Products for the three months ended 31 December 2019:

	Derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance at 30 September 2019	(\$61.4)	(\$1,356.9)	(\$957.3)	(\$2,375.6)
Other comprehensive income before reclassifications	22.1	264.0	—	286.1
Amounts reclassified from AOCL	(3.6)	—	19.7	16.1
Net current period other comprehensive income	18.5	264.0	19.7	302.2
Amount attributable to noncontrolling interests	5.6	9.6	—	15.2
Balance at 31 December 2019	(\$48.5)	(\$1,102.5)	(\$937.6)	(\$2,088.6)

The table below summarizes the reclassifications out of AOCL and the affected line item on the consolidated income statements:

	Three Months Ended 31 December	
	2019	2018
<b>(Gain) Loss on Cash Flow Hedges, net of tax</b>		
Sales/Cost of sales	\$—	\$0.5
Other income/expense, net	—	(7.4)
Interest expense	0.7	3.8
Other non-operating income (expense), net <sup>(A)</sup>	(4.3)	—
<b>Total (Gain) Loss on Cash Flow Hedges, net of tax</b>	<b>(\$3.6)</b>	<b>(\$3.1)</b>
<b>Pension and Postretirement Benefits, net of tax<sup>(B)</sup></b>	<b>\$19.7</b>	<b>\$15.2</b>

<sup>(A)</sup> The fiscal year 2020 impact includes amortization of the excluded component and the effective portion of the related hedges.

<sup>(B)</sup> The components of net periodic benefit cost reclassified out of AOCL 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 10, *Retirement Benefits*, for additional information.

## 14. EARNINGS PER SHARE

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

	Three Months Ended 31 December	
	2019	2018
<b>Numerator</b>		
<b>Net Income Attributable to Air Products</b>	<b>\$475.6</b>	<b>\$347.5</b>
<b>Denominator (in millions)</b>		
Weighted average common shares — Basic	220.9	219.9
Effect of dilutive securities		
Employee stock option and other award plans	1.3	1.1
<b>Weighted average common shares — Diluted</b>	<b>222.2</b>	<b>221.0</b>
<b>Basic Earnings Per Common Share Attributable to Air Products</b>	<b>\$2.15</b>	<b>\$1.58</b>
<b>Diluted Earnings Per Common Share Attributable to Air Products</b>	<b>\$2.14</b>	<b>\$1.57</b>

For the three months ended 31 December 2019 and 2018, there were no antidilutive outstanding share-based awards.

## 15. INCOME TAXES

### U.S. Tax Cuts and Jobs Act

Our income tax provision for the three months ended 31 December 2018 reflected a discrete net income tax expense of \$40.6 related to impacts from the U.S. Tax Cuts and Jobs Act (the "Tax Act"). The net expense included the reversal of a non-recurring \$56.2 benefit recorded in fiscal year 2018 related to the U.S. taxation of deemed foreign dividends. This was partially offset by a benefit of \$15.6 to finalize our estimates of the impacts of the Tax Act and reduce the total expected costs of the deemed repatriation tax.

### Effective Tax Rate

The effective tax rate was 19.8% and 27.0% for the three months ended 31 December 2019 and 2018, respectively.

**Cash Paid for Taxes (Net of Cash Refunds)**

Income tax payments, net of refunds, were \$66.2 and \$28.7 for the three months ended 31 December 2019 and 2018, respectively.

**16. SUPPLEMENTAL INFORMATION****Facility Closure**

In December 2018, one of our customers was subject to a government enforced shutdown due to environmental reasons. As a result, we recognized a charge of \$29.0 during the first quarter of fiscal year 2019 primarily related to the write-off of onsite assets. This charge is reflected as "Facility closure" on our consolidated income statements for the three months ended 31 December 2018 and has not been recorded in segment results.

**Related Party Transactions**

We have related party sales to some of our equity affiliates and joint venture partners as well as other income primarily from fees charged for use of Air Products' patents and technology. Sales to and other income from related parties totaled approximately \$90 and \$100 for the three months ended 31 December 2019 and 2018, respectively. Sales agreements with related parties include terms that are consistent with those that we believe would have been negotiated at an arm's length with an independent party.

In addition, 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 the JV acquired gasification and syngas clean-up assets from Lu'An during the third quarter of fiscal year 2018. The table below summarizes the liabilities resulting from this acquisition as reflected on our consolidated balance sheets:

	31 December 2019	30 September 2019
Payables and accrued liabilities	\$8.0	\$8.9
Current portion of long-term debt	38.8	37.8
Long-term debt – related party	328.6	320.1

**Changes in Estimates**

Changes in estimates on projects accounted for under the cost incurred input method are recognized as a cumulative adjustment for the inception-to-date effect of such change. There were no changes in estimates for the three months ended 31 December 2019. Changes in estimates favorably impacted operating income by approximately \$10 for the three months ended 31 December 2018.

**17. BUSINESS SEGMENT INFORMATION**

Our reporting segments reflect the manner in which our chief operating decision maker reviews results and allocates resources. Except in the Industrial Gases – EMEA and Corporate and other segments, each reporting segment meets the definition of an operating segment and does not include the aggregation of multiple operating segments. Our Industrial Gases – EMEA and Corporate and other segments each include the aggregation of two operating segments that meet the aggregation criteria under GAAP.

Our reporting segments are:

- Industrial Gases – Americas;
- Industrial Gases – EMEA (Europe, Middle East, and Africa);
- Industrial Gases – Asia;
- Industrial Gases – Global; and
- Corporate and other

	Industrial Gases – Americas	Industrial Gases – EMEA	Industrial Gases – Asia	Industrial Gases – Global	Corporate and other	Total
<b>Three Months Ended 31 December 2019</b>						
Sales	\$936.2	\$498.7	\$692.8	\$92.6	\$34.4	\$2,254.7 <sup>(A)</sup>
Operating income (loss)	257.2	120.5	228.5	3.6	(48.8)	561.0 <sup>(B)</sup>
Depreciation and amortization	131.8	48.4	101.6	2.4	5.0	289.2
Equity affiliates' income	20.6	19.3	16.9	1.4	—	58.2
<b>Three Months Ended 31 December 2018</b>						
Sales	\$989.2	\$524.2	\$626.8	\$68.2	\$15.6	\$2,224.0 <sup>(A)</sup>
Operating income (loss)	219.2	105.6	201.8	3.9	(46.5)	484.0 <sup>(B)</sup>
Depreciation and amortization	125.6	46.3	79.9	2.1	4.1	258.0
Equity affiliates' income	22.6	13.7	16.2	0.4	—	52.9
<b>Total Assets</b>						
31 December 2019	\$5,971.3	\$3,509.3	\$6,478.7	\$365.0	\$3,327.3	\$19,651.6
30 September 2019	5,832.2	3,250.8	6,240.6	325.7	3,293.5	18,942.8

<sup>(A)</sup> The sales information noted above relates to external customers only. All intersegment sales are eliminated in consolidation. Intersegment sales are generally transacted at market pricing. We generally do not have intersegment sales from our regional industrial gases businesses. Equipment manufactured for our regional industrial gases segments are generally transferred at cost and are not reflect as an intersegment sale.

<sup>(B)</sup> Refer to the *Reconciliation to Consolidated Results* section below.

### Reconciliation to Consolidated Results

The table below reconciles total operating income in the table above to consolidated operating income as reflected on our consolidated income statements:

Operating Income	Three Months Ended	
	2019	2018
Total	\$561.0	\$484.0
Facility closure	—	(29.0)
<b>Consolidated Operating Income</b>	<b>\$561.0</b>	<b>\$455.0</b>

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

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The discussion that follows includes a comparison of our results of operations and liquidity and capital resources for fiscal years 2020 and 2019. The disclosures provided in this quarterly report are complementary to those made in our 2019 Form 10-K.

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

The financial measures included in the discussion that follows are presented in accordance with U.S. generally accepted accounting principles ("GAAP"), except as noted. We present certain financial measures on a non-GAAP ("adjusted") basis because we believe such measures, when viewed together with 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. For each non-GAAP financial measure, including adjusted diluted earnings per share ("EPS"), adjusted EBITDA, adjusted EBITDA margin, and adjusted effective tax rate, we present a reconciliation to the most directly comparable financial measure calculated in accordance with GAAP. These reconciliations and explanations regarding the use of these measures are presented on pages 38-42.

#### **FIRST QUARTER 2020 IN SUMMARY**

The results below are compared to the first quarter of fiscal year 2019.

- Sales of \$2,254.7 increased 1%, or \$30.7, as higher volumes of 6% and favorable pricing of 3% were mostly offset by lower energy and natural gas cost pass-through to customers of 5%, the impact of a contract modification to a tolling arrangement in India of 2%, and a negative impact from currency of 1%.
- Operating income of \$561.0 increased 23%, or \$106.0, and operating margin of 24.9% increased 440 basis points ("bp").
- Net income of \$488.9 increased 37%, or \$131.9, and net income margin of 21.7% increased 570 bp.
- Adjusted EBITDA of \$908.4 increased 14%, or \$113.5, and adjusted EBITDA margin of 40.3% increased 460 bp.
- Diluted EPS of \$2.14 increased 36%, or \$0.57 per share. Adjusted diluted EPS of \$2.14 increased 15%, or \$0.28 per share. A summary table of changes in diluted EPS is presented below.

**Changes in Diluted EPS Attributable to Air Products**

	Three Months Ended		Increase (Decrease)
	2019	31 December 2018	
<b>Diluted EPS</b>	<b>\$2.14</b>	<b>\$1.57</b>	<b>\$0.57</b>
<b>Operating Impacts</b>			
Underlying business			
Volume			\$0.15
Price, net of variable costs			0.25
Other costs			(0.12)
Facility closure			0.10
<b>Total Operating Impacts</b>			<b>\$0.38</b>
<b>Other Impacts</b>			
Equity affiliates' income			\$0.02
Interest expense			0.07
Other non-operating income (expense), net			(0.04)
Change in effective tax rate, excluding discrete items below			(0.02)
Tax reform repatriation			(0.07)
Tax reform adjustment related to deemed foreign dividends			0.26
Noncontrolling interests			(0.02)
Weighted average diluted shares			(0.01)
<b>Total Other Impacts</b>			<b>\$0.19</b>
<b>Total Change in Diluted EPS</b>			<b>\$0.57</b>

	Three Months Ended		Increase (Decrease)
	2019	31 December 2018	
<b>Diluted EPS</b>	<b>\$2.14</b>	<b>\$1.57</b>	<b>\$0.57</b>
Facility closure	—	0.10	(0.10)
Tax reform repatriation	—	(0.07)	0.07
Tax reform adjustment related to deemed foreign dividends	—	0.26	(0.26)
<b>Adjusted Diluted EPS</b>	<b>\$2.14</b>	<b>\$1.86</b>	<b>\$0.28</b>



**FIRST QUARTER 2020 RESULTS OF OPERATIONS**
**Discussion of Consolidated Results**

	Three Months Ended		\$ Change	Change
	2019	2018		
<b>GAAP Measures</b>				
Sales	\$2,254.7	\$2,224.0	\$30.7	1%
Operating income	561.0	455.0	106.0	23%
Operating margin	24.9%	20.5%	—	440 bp
Equity affiliates' income	58.2	52.9	5.3	10%
Net income	488.9	357.0	131.9	37%
Net income margin	21.7%	16.0%	—	570 bp
<b>Non-GAAP Measures</b>				
Adjusted EBITDA	\$908.4	\$794.9	\$113.5	14%
Adjusted EBITDA margin	40.3%	35.7%	—	460 bp

**Sales**

Sales % Change from Prior Year

Volume	6 %
Price	3 %
Energy and natural gas cost pass-through	(5)%
Currency	(1)%
Other <sup>(A)</sup>	(2)%
<b>Total Consolidated Sales Change</b>	<b>1 %</b>

<sup>(A)</sup> Includes the impact from the modification of a hydrogen supply contract to a tolling arrangement in India in December 2018 (the "India contract modification").

Sales of \$2,254.7 increased 1%, or \$30.7, as higher volumes of 6% and favorable pricing of 3% were mostly offset by lower energy and natural gas cost pass-through to customers of 5%, the India contract modification of 2%, and a negative impact from currency of 1%. Both volume and price were higher across the regional segments. The volume growth was driven by modest base business growth, new plants, acquisitions, and a short-term contract in Asia. The pricing improvement was attributable to our merchant business. Unfavorable currency impacts were driven by the Chinese Renminbi and Euro.

**Cost of Sales and Gross Margin**

Cost of sales of \$1,486.6 decreased 5%, or \$86.4, from total cost of sales of \$1,573.0 in the prior year, which included the facility closure further discussed below. The decrease from the prior year was primarily driven by lower energy and natural gas cost pass-through to customers of \$102, the favorable impact from the India contract modification of \$41, the facility closure of \$29 that occurred in the prior year, and positive currency impacts of \$22, partially offset by higher costs attributable to sales volumes of \$97 and higher other costs of \$10. Gross margin of 34.1% increased 480 bp, primarily due to positive pricing, lower energy and natural gas cost pass-through to customers, the facility closure that occurred in the prior year, and the India contract modification, partially offset by unfavorable net operating costs.

**Facility Closure**

In December 2018, one of our customers was subject to a government enforced shutdown due to environmental reasons. As a result, we recognized a charge of \$29.0 (\$22.1 after-tax, or \$0.10 per share) during the first quarter of fiscal year 2019 primarily related to the write-off of onsite assets. This charge is reflected as "Facility closure" on our consolidated income statements for the three months ended 31 December 2018.

**Selling and Administrative**

Selling and administrative expense of \$201.7 increased 6%, or \$12.1, from investing in business development resources to support our growth strategy. Selling and administrative expense as a percentage of sales increased from 8.5% to 8.9%.

**Research and Development**

Research and development expense of \$17.7 increased 18%, or \$2.7. Research and development expense as a percentage of sales increased from 0.7% to 0.8%.

**Other Income (Expense), Net**

Other income (expense), net of \$12.3 increased 43%, or \$3.7, primarily due to foreign exchange impacts.

**Operating Income and Operating Margin**

Operating income of \$561.0 increased 23%, or \$106.0, primarily due to positive pricing, net of power and fuel costs, of \$69, favorable volumes of \$40, and a charge for a facility closure of \$29 in the prior year, partially offset by higher net operating costs of \$30. Operating margin of 24.9% increased 440 bp, primarily due to positive pricing, the prior year facility closure, and lower energy and natural gas cost pass-through to customers, partially offset by unfavorable net operating costs.

**Equity Affiliates' Income**

Equity affiliates' income of \$58.2 increased 10%, or \$5.3, primarily due to the Jazan Gas Projects Company joint venture.

**Interest Expense**

	Three Months Ended 31 December	
	2019	2018
Interest incurred	\$22.4	\$40.0
Less: Capitalized interest	3.7	2.7
Interest expense	\$18.7	\$37.3

Interest incurred decreased 44%, or \$17.6. The prior year included \$8.3 of interest expense related to foreign currency forward points and currency swap basis differences of our cash flow hedges of intercompany loans. As discussed in Note 2, *New Accounting Guidance*, to the consolidated financial statements, we adopted new accounting guidance on hedging activities that changed the presentation of these items from "Interest expense, net" to "Other non-operating income (expense), net" in fiscal year 2020. In addition to this presentation change, interest expense decreased due to lower interest expense associated with financing the Lu'An joint venture and a lower average debt balance. Capitalized interest increased 37%, or \$1.0, due to an increase in the carrying value of projects under construction.

**Other Non-Operating Income (Expense), Net**

Other non-operating income (expense), net, of \$9.1 decreased 51%, or \$9.4, primarily due to the impact of the adoption of the guidance on hedging activities discussed above and lower interest income on cash and cash items, partially offset by higher non-service pension income.

**Net Income and Net Income Margin**

Net income of \$488.9 increased 37%, or \$131.9, primarily due to positive pricing and higher volumes as well as the impacts from the facility closure and the U.S. Tax Cuts and Jobs Act in the prior year. Net income margin of 21.7% increased 570 bp, primarily due to the factors noted above as well as lower energy pass-through and the India contract modification.

**Adjusted EBITDA and Adjusted EBITDA Margin**

Adjusted EBITDA of \$908.4 increased 14%, or \$113.5, primarily due to positive pricing and higher volumes. Adjusted EBITDA margin of 40.3% increased 460 bp, primarily due to positive pricing, lower energy pass-through, and the India contract modification. The lower energy pass-through and the India contract modification contributed 230 bp.

**Effective Tax Rate**

The effective tax rate equals the income tax provision divided by income before taxes. The effective tax rate was 19.8% and 27.0% in the first quarter of fiscal years 2020 and 2019, respectively.

The higher 2019 tax rate reflected a discrete net income tax expense of \$40.6 related to impacts from the U.S. Tax Cuts and Jobs Act (the "Tax Act"). The net expense included the reversal of a non-recurring \$56.2 (\$.26 per share) benefit recorded in 2018 related to the U.S. taxation of deemed foreign dividends. This was partially offset by a benefit of \$15.6 (\$0.07 per share) to finalize our estimates of the impacts of the Tax Act and reduce the total expected costs of the deemed repatriation tax. Additionally, the current year included higher excess tax benefits on share-based compensation in 2020. These impacts were partially offset by beneficial changes in foreign tax law and changes in valuation allowance recorded at various entities in 2019.

The adjusted effective tax rate increased from 19.0% in the first quarter of fiscal year 2019 to 19.8% in the first quarter of fiscal year 2020. This increase was primarily driven by beneficial changes in foreign tax law and changes in valuation allowance recorded at various entities in 2019. This increase was partially offset by higher excess tax benefits on share-based compensation in 2020.

Refer to Note 15, *Income Taxes*, to the consolidated financial statements for additional information.

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

	Three Months Ended		\$ Change	% Change
	2019	2018		
Sales	\$936.2	\$989.2	(\$53.0)	(5)%
Operating income	257.2	219.2	38.0	17 %
Operating margin	27.5%	22.2%	—	530 bp
Equity affiliates' income	20.6	22.6	(2.0)	(9)%
Adjusted EBITDA	409.6	367.4	42.2	11 %
Adjusted EBITDA margin	43.8%	37.1%	—	670 bp

**Sales % Change from Prior Year**

Volume	1 %
Price	3 %
Energy and natural gas cost pass-through	(8)%
Currency	(1)%
<b>Total Industrial Gases – Americas Sales Change</b>	<b>(5)%</b>

Sales of \$936.2 decreased 5%, or \$53.0, as lower energy and natural gas cost pass-through of 8% and a negative impact from currency of 1% were only partially offset by positive pricing of 3% and higher volumes of 1%. The pricing improvement was driven by our merchant business.

Operating income of \$257.2 increased 17%, or \$38.0, primarily due to higher pricing, net of power and fuel costs, of \$28 and favorable volumes of \$7. Operating margin of 27.5% increased 530 bp, primarily due to positive pricing, lower energy and natural gas cost pass-through to customers, and favorable cost performance, including lower maintenance.

Equity affiliates' income of \$20.6 decreased 9%, or \$2.0, primarily due to higher costs.

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

	Three Months Ended			
	31 December			
	2019	2018	\$ Change	% Change
Sales	\$498.7	\$524.2	(\$25.5)	(5)%
Operating income	120.5	105.6	14.9	14%
Operating margin	24.2%	20.1%	—	410 bp
Equity affiliates' income	19.3	13.7	5.6	41%
Adjusted EBITDA	188.2	165.6	22.6	14%
Adjusted EBITDA margin	37.7%	31.6%	—	610 bp

**Sales % Change from Prior Year**

Volume	6 %
Price	3 %
Energy and natural gas cost pass-through	(4)%
Currency	(2)%
Other <sup>(A)</sup>	(8)%
<b>Total Industrial Gases – EMEA Sales Change</b>	<b>(5)%</b>

<sup>(A)</sup> Includes the impact from the modification of a hydrogen supply contract to a tolling arrangement in India in December 2018 (the "India contract modification").

Sales of \$498.7 decreased 5%, or \$25.5, as the negative impact from the India contract modification of 8%, lower energy and natural gas cost pass-through to customers of 4%, and unfavorable currency impacts of 2% were only partially offset by favorable volumes of 6% and positive pricing of 3%. Volumes increased primarily due to demand for hydrogen in our Rotterdam pipeline system and from the carbon dioxide business we acquired in the second quarter of fiscal year 2019. The pricing improvement was attributable to our merchant business. The negative currency impact was mainly driven by the Euro.

Operating income of \$120.5 increased 14%, or \$14.9, primarily due to higher pricing, net of power and fuel costs, of \$20 and favorable volumes of \$5, partially offset by higher costs of \$8 and unfavorable currency impacts of \$2. Operating margin of 24.2% increased 410 bp, primarily due to favorable pricing, the impact of the India contract modification, and lower energy and natural gas cost pass-through to customers, partially offset by higher costs. The lower energy and natural gas pass-through and the India contract modification contributed 240 bp.

Equity affiliates' income of \$19.3 increased 41%, or \$5.6, primarily due to the Jazan Gas Projects Company joint venture.

**Industrial Gases – Asia**

	Three Months Ended			
	31 December			
	2019	2018	\$ Change	% Change
Sales	\$692.8	\$626.8	\$66.0	11%
Operating income	228.5	201.8	26.7	13%
Operating margin	33.0%	32.2%	—	80 bp
Equity affiliates' income	16.9	16.2	0.7	4%
Adjusted EBITDA	347.0	297.9	49.1	16%
Adjusted EBITDA margin	50.1%	47.5%	—	260 bp

**Sales % Change from Prior Year**

Volume	9 %
Price	4 %
Energy and natural gas cost pass-through	— %
Currency	(2)%
<b>Total Industrial Gases – Asia Sales Change</b>	<b>11 %</b>

Sales of \$692.8 increased 11%, or \$66.0, as higher volumes of 9% and positive pricing of 4% were partially offset by unfavorable currency impacts of 2%. The volume increase was primarily driven by new plants onstream, base business growth, and a short-term supply contract. Pricing improved across Asia, driven by our merchant business. The unfavorable currency impact was primarily attributable to the Chinese Renminbi. Energy and natural gas cost pass-through to customers was flat versus the prior year.

Operating income of \$228.5 increased 13%, or \$26.7, due to positive pricing, net of power and fuel costs, of \$20 and favorable volumes of \$16, partially offset by higher net operating costs of \$6 and unfavorable currency impacts of \$3. Operating margin of 33.0% increased 80 bp, primarily due to positive pricing, partially offset by higher net operating costs.

Equity affiliates' income of \$16.9 increased 4%, or \$0.7.

**Industrial Gases – Global**

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.

	Three Months Ended 31 December		\$ Change	% Change
	2019	2018		
Sales	\$92.6	\$68.2	\$24.4	36 %
Operating income	3.6	3.9	(0.3)	(8)%
Adjusted EBITDA	7.4	6.4	1.0	16 %

Sales of \$92.6 increased 36%, or \$24.4. The increase in sales was primarily driven by unusually high other project activity.

Operating income of \$3.6 decreased 8%, or \$0.3, as the current quarter project activity was mostly offset by favorable impacts from the Jazan project in the prior year.

**Corporate and other**

The Corporate and other segment includes our liquefied natural gas ("LNG"), turbo machinery equipment, and distribution sale of equipment businesses and corporate support functions that benefit all segments. The results of the Corporate and other segment also include income and expense that is not directly associated with the other segments, such as foreign exchange gains and losses.

	Three Months Ended 31 December		\$ Change	% Change
	2019	2018		
Sales	\$34.4	\$15.6	\$18.8	121 %
Operating loss	(48.8)	(46.5)	(2.3)	(5)%
Adjusted EBITDA	(43.8)	(42.4)	(1.4)	(3)%

Sales of \$34.4 increased 121%, or \$18.8, primarily due to higher LNG activity. Operating loss of \$48.8 increased 5%, or \$2.3, primarily due to higher corporate costs, including business development costs to support our growth strategy, partially offset by the higher LNG activity.

## **RECONCILIATIONS OF NON-GAAP FINANCIAL MEASURES**

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

The Company presents certain financial measures, other than in accordance with U.S. generally accepted accounting principles ("GAAP"), on an "adjusted" or "non-GAAP" basis. On a consolidated basis, these measures include adjusted diluted earnings per share ("EPS"), adjusted EBITDA, adjusted EBITDA margin, and adjusted effective tax rate. On a segment basis, these measures include adjusted EBITDA and adjusted EBITDA margin. In addition to these measures, which are presented above, we also include certain supplemental non-GAAP financial measures that are presented below to help the reader understand the impact that our non-GAAP adjustments have on the calculation of our adjusted diluted EPS. For each non-GAAP financial measure, we present below a reconciliation to the most directly comparable financial measure calculated in accordance with GAAP.

The Company's non-GAAP measures are not meant to be considered in isolation or as a substitute for the most directly comparable 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 financial results computed in accordance with GAAP, provide a more complete understanding of the factors and trends affecting the Company's historical financial performance and projected future results.

In many cases, non-GAAP measures are determined by adjusting the most directly comparable GAAP measure to exclude certain disclosed items, or "non-GAAP adjustments," that the Company believes are not representative of underlying business performance. For example, the Company previously excluded certain expenses associated with cost reduction actions, impairment charges, and gains on disclosed transactions. The reader should be aware that the Company may recognize similar losses or gains in the future. Readers 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.

The tax impact on our pre-tax non-GAAP adjustments reflects the expected current and deferred income tax impact of our non-GAAP adjustments. These tax impacts are primarily driven by the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions.

**ADJUSTED DILUTED EPS**

The table below provides a reconciliation to the most directly comparable GAAP measure for each of the major components used to calculate adjusted diluted EPS, which the Company views as a key performance metric. We believe it is important for the reader to understand the per share impact of our non-GAAP adjustments as management does not consider these impacts when evaluating underlying business performance.

There were no non-GAAP adjustments to arrive at the adjusted diluted EPS in the first quarter of fiscal year 2020.

Q1 2020 vs. Q1 2019	Three Months Ended 31 December				
	Operating Income	Equity Affiliates' Income	Income Tax Provision	Net Income Attributable to Air Products	Diluted EPS
2020 GAAP	\$561.0	\$58.2	\$120.7	\$475.6	\$2.14
2019 GAAP	455.0	52.9	132.1	347.5	1.57
Change GAAP				\$128.1	\$0.57
% Change GAAP				37%	36%
2020 GAAP	\$561.0	\$58.2	\$120.7	\$475.6	\$2.14
2020 Non-GAAP Measure ("Adjusted")	\$561.0	\$58.2	\$120.7	\$475.6	\$2.14
2019 GAAP	\$455.0	\$52.9	\$132.1	\$347.5	\$1.57
Facility closure	29.0	—	6.9	22.1	0.10
Tax reform repatriation	—	—	15.6	(15.6)	(0.07)
Tax reform adjustment related to deemed foreign dividends	—	—	(56.2)	56.2	0.26
2019 Non-GAAP Measure ("Adjusted")	\$484.0	\$52.9	\$98.4	\$410.2	\$1.86
Change Non-GAAP Measure ("Adjusted")				\$65.4	\$0.28
% Change Non-GAAP Measure ("Adjusted")				16%	15%

## ADJUSTED EBITDA AND ADJUSTED EBITDA MARGIN

We define adjusted EBITDA as net income less income (loss) from discontinued operations, net of tax (when applicable), and excluding certain non-GAAP adjustments, 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 and adjusted EBITDA margin provide useful metrics for management to assess operating performance. Margin is calculated for each period by dividing each line item by consolidated sales for the respective period.

Below is a presentation of consolidated sales and a reconciliation of net income on a GAAP basis to adjusted EBITDA and net income margin on a GAAP basis to adjusted EBITDA margin:

	Three Months Ended			
	31 December			
	2019		2018	
	\$	Margin	\$	Margin
<b>Sales</b>	\$2,254.7		\$2,224.0	
<b>Net income and net income margin</b>	\$488.9	21.7%	\$357.0	16.0%
Add: Interest expense	18.7	0.8%	37.3	1.7%
Less: Other non-operating income (expense), net	9.1	0.4%	18.5	0.8%
Add: Income tax provision	120.7	5.4%	132.1	5.9%
Add: Depreciation and amortization	289.2	12.8%	258.0	11.6%
Add: Facility closure	—	—%	29.0	1.3%
<b>Adjusted EBITDA and adjusted EBITDA margin</b>	\$908.4	40.3%	\$794.9	35.7%
<b>Change GAAP</b>				
Net income \$ change		\$131.9		
Net income % change		37%		
Net income margin change		570 bp		
<b>Change Non-GAAP</b>				
Adjusted EBITDA \$ change		\$113.5		
Adjusted EBITDA % change		14%		
Adjusted EBITDA margin change		460 bp		



Below is a reconciliation of operating income and operating margin by segment to adjusted EBITDA and adjusted EBITDA margin by segment for the three months ended 31 December 2019 and 2018:

	Industrial Gases— Americas	Industrial Gases— EMEA	Industrial Gases— Asia	Industrial Gases— Global	Corporate and other	Total
<b>GAAP MEASURES</b>						
<b>Three Months Ended 31 December 2019</b>						
Operating income (loss)	\$257.2	\$120.5	\$228.5	\$3.6	(\$48.8)	\$561.0 <sup>(A)</sup>
Operating margin	27.5%	24.2%	33.0%			
<b>Three Months Ended 31 December 2018</b>						
Operating income (loss)	\$219.2	\$105.6	\$201.8	\$3.9	(\$46.5)	\$484.0 <sup>(A)</sup>
Operating margin	22.2%	20.1%	32.2%			
Operating income (loss) change	\$38.0	\$14.9	\$26.7	(\$0.3)	(\$2.3)	
Operating income (loss) % change	17%	14%	13%	(8)%	(5)%	
Operating margin change	530 bp	410 bp	80 bp			
<b>NON-GAAP MEASURES</b>						
<b>Three Months Ended 31 December 2019</b>						
Operating income (loss)	\$257.2	\$120.5	\$228.5	\$3.6	(\$48.8)	\$561.0 <sup>(A)</sup>
Add: Depreciation and amortization	131.8	48.4	101.6	2.4	5.0	289.2
Add: Equity affiliates' income	20.6	19.3	16.9	1.4	—	58.2
Adjusted EBITDA	\$409.6	\$188.2	\$347.0	\$7.4	(\$43.8)	\$908.4
Adjusted EBITDA margin	43.8%	37.7%	50.1%			
<b>Three Months Ended 31 December 2018</b>						
Operating income (loss)	\$219.2	\$105.6	\$201.8	\$3.9	(\$46.5)	\$484.0 <sup>(A)</sup>
Add: Depreciation and amortization	125.6	46.3	79.9	2.1	4.1	258.0
Add: Equity affiliates' income	22.6	13.7	16.2	0.4	—	52.9
Adjusted EBITDA	\$367.4	\$165.6	\$297.9	\$6.4	(\$42.4)	\$794.9
Adjusted EBITDA margin	37.1%	31.6%	47.5%			
Adjusted EBITDA change	\$42.2	\$22.6	\$49.1	\$1.0	(\$1.4)	
Adjusted EBITDA % change	11%	14%	16%	16 %	(3)%	
Adjusted EBITDA margin change	670 bp	610 bp	260 bp			

<sup>(A)</sup> The table below reconciles operating income as reflected on our consolidated income statements to total operating income in the table above:

	Three Months Ended 31 December	
	2019	2018
<b>Operating Income</b>		
Consolidated operating income	\$561.0	\$455.0
Facility closure	—	29.0
<b>Total</b>	<b>\$561.0</b>	<b>\$484.0</b>

## ADJUSTED EFFECTIVE TAX RATE

The tax impact of our pre-tax non-GAAP adjustments reflects the expected current and deferred income tax expense associated with each adjustment and is primarily dependent upon the statutory tax rate of the various relevant jurisdictions and the taxability of the adjustments in those jurisdictions. For additional discussion on the impact of the U.S. Tax Cuts and Jobs Act, refer to Note 15, *Income Taxes*, to the consolidated financial statements.

There were no non-GAAP adjustments to arrive at the adjusted effective tax rate in the first quarter of fiscal year 2020.

	Three Months Ended 31 December	
	2019	2018
<b>Income Tax Provision</b>	<b>\$120.7</b>	<b>\$132.1</b>
<b>Income Before Taxes</b>	<b>\$609.6</b>	<b>\$489.1</b>
<b>Effective Tax Rate</b>	<b>19.8%</b>	<b>27.0%</b>
Income Tax Provision	\$120.7	\$132.1
Facility closure	—	6.9
Tax reform repatriation	—	15.6
Tax reform adjustment related to deemed foreign dividends	—	(56.2)
<b>Adjusted Income Tax Provision</b>	<b>\$120.7</b>	<b>\$98.4</b>
Income Before Taxes	\$609.6	\$489.1
Facility closure	—	29.0
<b>Adjusted Income Before Taxes</b>	<b>\$609.6</b>	<b>\$518.1</b>
<b>Adjusted Effective Tax Rate</b>	<b>19.8%</b>	<b>19.0%</b>

## 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 31 December 2019, we had \$1,240.1 of foreign cash and cash items compared to total cash and cash items of \$2,406.1. 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 U.S. 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. However, since we have significant current investment plans outside the U.S., it is our intent to permanently reinvest the majority of our foreign cash and cash items that would be subject to additional taxes outside the U.S.

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

	Three Months Ended 31 December	
	2019	2018
<b>Cash provided by (used for)</b>		
Operating activities	<b>\$667.0</b>	\$655.2
Investing activities	<b>(260.7)</b>	(226.5)
Financing activities	<b>(270.3)</b>	(289.8)

**Operating Activities**

For the first three months of fiscal year 2020, cash provided by operating activities was \$667.0. Income from continuing operations of \$475.6 was adjusted for items including depreciation and amortization, deferred income taxes, undistributed earnings of unconsolidated affiliates, gains on sale of assets and investments, share-based compensation, and noncurrent lease receivables. The working capital accounts were a use of cash of \$163.1, primarily driven by \$115.4 from payables and accrued liabilities and \$41.6 from other working capital. The use of cash within "Payables and accrued liabilities" was primarily driven by a \$45.2 decrease in accrued incentive compensation due to payments on the 2019 annual incentive compensation plan and \$24.9 from the maturity of a forward exchange contract that hedged a foreign currency exposure. The use of other working capital was primarily due to an increase in contract assets and contract fulfillment costs associated with revenue generating project activity.

For the first three months of fiscal year 2019, cash provided by operating activities was \$655.2 which included income from continuing operations of \$347.5. The final adjustments to our estimates of the impacts of the Tax Act is included within "Tax reform repatriation" and "Deferred income taxes." See Note 15, *Income Taxes*, to the consolidated financial statements for additional information. The working capital accounts were a use of cash of \$71.6, primarily driven by \$73.6 from trade receivables.

Cash paid for income taxes, net of cash refunds, was \$66.2 and \$28.7 for the three months ended 31 December 2019 and 2018, respectively.

**Investing Activities**

For the first three months of fiscal year 2020, cash used for investing activities was \$260.7. Capital expenditures for plant and equipment were \$447.7. Proceeds from investments of \$177.0 resulted from maturities of time deposits with original terms greater than three months but less than one year.

For the first three months of fiscal year 2019, cash used for investing activities was \$226.5. Capital expenditures for plant and equipment were \$403.4. Proceeds from investments of \$178.0 resulted from maturities of time deposits with original terms greater than three months but less than one year.

Capital expenditures is a non-GAAP measure that we define as cash flows for additions to plant and equipment, acquisitions (less cash acquired), and investment in and advances to unconsolidated affiliates. A reconciliation of cash used for investing activities to our reported capital expenditures is provided below:

	Three Months Ended 31 December	
	2019	2018
Cash used for investing activities	\$260.7	\$226.5
Proceeds from sale of assets and investments	15.2	1.1
Purchases of investments	—	(5.3)
Proceeds from investments	177.0	178.0
Other investing activities	1.9	3.1
Capital Expenditures	\$454.8	\$403.4

The components of our capital expenditures are detailed in the table below:

	Three Months Ended 31 December	
	2019	2018
Additions to plant and equipment	\$447.7	\$403.4
Acquisitions, less cash acquired	—	—
Investment in and advances to unconsolidated affiliates	7.1	—
Capital Expenditures	\$454.8	\$403.4

Capital expenditures in fiscal year 2020 are expected to be approximately \$4 billion to \$4.5 billion, which primarily includes our initial expected equity affiliate investment in the Jazan gas and power project as well as new plants that are currently under construction or expected to start construction. It is not possible, without unreasonable efforts, to reconcile our forecasted capital expenditures to future cash used for investing activities because we are unable to identify the timing or occurrence of our future investment activity, which is driven by our assessment of competing opportunities at the time we enter into transactions. These decisions, either individually or in the aggregate, could have a significant effect on our cash used for investing activities.

### **Financing Activities**

For the first three months of fiscal year 2020, cash used for financing activities was \$270.3 and primarily included dividend payments to shareholders of \$255.7.

For the first three months of fiscal year 2019, cash used for financing activities was \$289.8. This consisted primarily of dividend payments to shareholders of \$241.5 and repayment on short term borrowings of \$38.0.

### **Financing and Capital Structure**

Capital needs for the first three months of fiscal year 2020 were satisfied primarily with cash from operations. Total debt as of 31 December 2019 and 30 September 2019, expressed as a percentage of total capitalization (total debt plus total equity), was 21.9% and 22.6%, respectively. Total debt increased from \$3,326.0 at 30 September 2019 to \$3,341.2 at 31 December 2019. The current year total debt balance includes \$367.4 of related party debt associated with the Lu'An joint venture.

We have a \$2,300.0 revolving credit agreement with a syndicate of banks (the "Credit Agreement") maturing 31 March 2022. Under the Credit Agreement, senior unsecured debt is available to both the Company and certain of its subsidiaries. The 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 Credit Agreement as of 31 December 2019 or 30 September 2019.

There were no outstanding commitments maintained by our foreign subsidiaries as of 31 December 2019.

As of 31 December 2019, 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 three months of fiscal year 2020, we did not purchase any of our outstanding shares. At 31 December 2019, \$485.3 in share repurchase authorization remained.

### **Dividends**

On 23 January 2019, the Board of Directors declared the second quarter dividend of \$1.34 per share. The dividend is payable on 11 May 2020 to shareholders of record at the close of business on 1 April 2020.

### **CONTRACTUAL OBLIGATIONS**

We are obligated to make future payments under various contracts, such as debt agreements, lease agreements, unconditional purchase obligations, and other long-term obligations. There have been no material changes to our contractual obligations since 30 September 2019.

### **PENSION BENEFITS**

For the three months ended 31 December 2019 and 2018, net periodic pension cost was \$0.4 and \$6.9, respectively. We recognized service-related costs of \$11.9 and \$10.6, respectively, on our consolidated income statements within operating income. The non-service benefits of \$11.5 and \$3.7 were included in "Other non-operating income (expense), net" for the three months ended 31 December 2019 and 2018, respectively. The decrease in pension expense in fiscal year 2020 resulted from lower interest cost and higher expected return on assets, partially offset by higher loss amortization, primarily due to the impact of lower discount rates. The amount of service costs capitalized in the first three months of fiscal years 2020 and 2019 were not material.

For the three months ended 31 December 2018, we recognized pension settlement losses of \$1.0 to accelerate recognition of a portion of actuarial gains and losses deferred in accumulated other comprehensive loss. These losses are included within "Other non-operating income (expense), net" on our consolidated income statements. Pension settlement losses in fiscal year 2019 were primarily associated with the U.S. supplementary pension plan. We expect total pension settlement losses of approximately \$5 to \$10 in fiscal year 2020.

Management considers various factors when making pension funding decisions, including tax, cash flow, and regulatory implications. For the three months ended 31 December 2019 and 2018, our cash contributions to funded pension plans and benefit payments for unfunded pension plans were \$8.3 and \$19.5, respectively. Total contributions for fiscal 2020 are expected to be approximately \$30 to \$40. During fiscal year 2019, total contributions were \$40.2.

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

#### **COMMITMENTS AND CONTINGENCIES**

Refer to Note 11, *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 2019. 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**

We have related party sales to some of our equity affiliates and joint venture partners as well as other income primarily from fees charged for use of Air Products' patents and technology. Sales to and other income from related parties totaled approximately \$90 and \$100 for the three months ended 31 December 2019 and 2018, respectively. Sales agreements with related parties include terms that are consistent with those that we believe would have been negotiated at an arm's length with an independent party.

In addition, we have related party liabilities with the partner of our Air Products Lu An (Changzhi) Co., Ltd. joint venture. Refer to Note 16, *Supplemental Information*, 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.

Judgments and estimates of uncertainties are required in applying our accounting policies in many areas. However, application of policies that management has identified as critical places significant importance on management's judgment, often as the result of the need to make estimates of matters that are inherently uncertain. If actual results were to differ materially from these estimates, the reported results could be materially affected. A description of our major accounting policies, including those identified as critical, is included in our 2019 Form 10-K.

There have been no changes to our accounting policies or estimates during the first three months of fiscal year 2020 that had a significant impact on our financial condition, change in financial condition, liquidity, or results of operations.

#### **NEW ACCOUNTING GUIDANCE**

See Note 2, *New Accounting Guidance*, and Note 7, *Leases*, to the consolidated financial statements for information concerning the implementation and impact of new accounting guidance.

### **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 2019 Form 10-K.

Our net financial instrument position decreased from a liability of \$3,239.1 at 30 September 2019 to a liability of \$3,235.1 at 31 December 2019.

#### **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 31 December 2019, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of \$72 and \$75 in the net liability position of financial instruments at 31 December 2019 and 30 September 2019, respectively. A 100 bp decrease in market interest rates would result in an increase of \$76 and \$80 in the net liability position of financial instruments at 31 December 2019 and 30 September 2019.

There were no material changes to the sensitivity analysis related to the variable portion of our debt portfolio since 30 September 2019.

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

The sensitivity analysis related to foreign currency exchange rates assumes an instantaneous 10% change in foreign currency exchange rates from their levels at 31 December 2019, 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 \$322 and \$326 in the net liability position of financial instruments at 31 December 2019 and 30 September 2019, 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 31 December 2019. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of 31 December 2019, 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 31 December 2019 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
(3)	Articles of Incorporation and Bylaws.
3.1	<a href="#">Amended and Restated Bylaws of the Company effective 26 November 2019.</a>
(10)	Material Contracts
10.1	<a href="#">Amended and Restated Deferred Compensation Program for Directors effective 7 October 2019.</a>
10.2	<a href="#">Compensation Program for Non-Employee Directors effective 26 November 2019.</a>
(31)	Rule 13a-14(a)/15d-14(a) Certifications
31.1	<a href="#">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.</a>
31.2	<a href="#">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.</a>
(32)	Section 1350 Certifications
32.1	<a href="#">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.</a> †
(101)	Interactive Data Files
101.INS	Inline 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	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.
104	Cover Page Interactive Data File, formatted in Inline XBRL (included in Exhibit 101).

† 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: 24 January 2020

By:

/s/ M. Scott Crocco

\_\_\_\_\_  
M. Scott Crocco

Executive Vice President and Chief Financial Officer



AIR PRODUCTS AND CHEMICALS, INC.

BYLAWS

AS AMENDED AND RESTATED

Effective November 26, 2019

ARTICLE I

MEETINGS OF STOCKHOLDERS

SECTION 1. Annual Meetings. (a) The annual meeting of the stockholders of Air Products and Chemicals, Inc. (hereinafter called the Corporation) for the election of directors and for the transaction of any other business as may be properly brought before the meeting, shall be held at such place, on such date, and at such time as the Board of Directors (hereinafter called the Board) shall each year fix, which date shall be within 13 months subsequent to the last annual meeting of stockholders. The Board may, in its sole discretion, determine that stockholder meetings shall not be held at any place, but may instead be held solely by means of remote communication in accordance with Section 211(a)(2) of the Delaware General Corporation Law. If authorized by the Board in its sole discretion, and subject to such guidelines and procedures as the Board may adopt, stockholders and proxy holders not physically present at a meeting of stockholders may, to the extent authorized by Section 211(a)(2) of the Delaware General Corporation Law, by means of remote communication (a) participate in a meeting of stockholders, and (b) be deemed present in person and vote at a meeting of stockholders whether such meeting is to be held at a designated place or solely by means of remote communication.

(b) To be properly brought before an annual meeting, business must be (i) specified in the notice of the meeting (or any supplement thereto) given by or at the direction of the Board, (ii) otherwise properly

brought before the meeting by or at the direction of the Board, or (iii) otherwise properly brought before the meeting by a stockholder.

(c) For business to be properly brought before an annual meeting by a stockholder, the stockholder must have given written notice thereof, either by personal delivery or by United States mail, postage prepaid, to the Secretary at the principal executive offices of the Corporation, not more than 120 calendar days or fewer than 90 calendar days in advance of the anniversary date of the immediately preceding annual meeting; provided, however, that in the event that the date of the annual meeting is more than 30 calendar days before or more than 60 calendar days after such anniversary date, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the 120th calendar day prior to such annual meeting and not later than the close of business on the later of the 90th calendar day prior to such annual meeting or the 10th calendar day following the day on which public announcement of the date of such annual meeting is first made. In no event shall any adjournment or postponement of an annual meeting or the announcement of such adjournment or postponement commence a new time period (or change the existing time period) for the giving of a stockholder's notice as described above. Any such notice by the stockholder shall include: (1) a brief description of each item of business proposed to be brought before the meeting and the reasons for conducting such business at the meeting, and, in the event that such business includes a proposal to amend the Bylaws of the Corporation, the language of the proposed amendment; (2) the name and address of the stockholder proposing such business and each other Covered Person (as defined below); (3) a representation that the stockholder is a holder of record of stock of the Corporation entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to propose such business; (4) the name of each person with whom such stockholder or any other Covered Person (as defined below) has any agreement, arrangement or understanding (whether written or oral) for the purpose of acquiring, holding, voting (except pursuant to a revocable proxy given to such person in response to a public proxy or consent solicitation made generally by such person to all holders of shares

of capital stock of the Corporation), or disposing of any shares of capital stock of the Corporation, or to cooperate in obtaining, changing, or influencing the control of the Corporation (except independent financial, legal and other advisors acting in the ordinary course of their respective businesses) or related to any item of business described pursuant to clause (1) above, and a description of each such agreement, arrangement, or understanding; (5) a description of the material interest of the stockholder, each affiliate (as defined under the rules and regulations promulgated under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) of such stockholder, each person described under clause (4) above and each person (if any) nominated by such stockholder in accordance with Article II, Section 2 of these Bylaws for election as a director to the Board (each person described in this clause (5), a “Covered Person”) in each item of business described pursuant to clause (1) above; (6) a list of the class or series and number of shares of capital stock of the Corporation that are owned of record or beneficially by each Covered Person and documentary evidence of such record or beneficial ownership; (7) a list of all derivative securities (as defined under Rule 16a-1 under the Exchange Act) and other derivatives or similar arrangements to which any Covered Person is a counterparty and which relate to any shares of capital stock of the Corporation, a description of all economic terms of each such derivative securities and other derivatives or similar arrangements, and copies of all agreements and other documents relating to each such derivative securities and other derivatives or similar arrangements; (8) a list of all transactions by any Covered Person involving any shares of capital stock of the Corporation or any derivative securities (as defined under Rule 16a-1 under the Exchange Act) or other derivatives or similar arrangements related to any shares of capital stock of the Corporation occurring within 60 calendar days of the date of the notice; (9) all other information that, as of the date of the notice, would be required to be (a) filed on Schedule 13D (including the exhibits thereto) under the Exchange Act by any Covered Person, regardless of whether such Covered Person has publicly filed or is required to file a Schedule 13D containing such information or (b) disclosed in a proxy statement or other filing required to be made in connection with solicitations of proxies by any Covered

Person in support of any item of business described pursuant to clause (1) above pursuant to Section 14(a) of the Exchange Act; (10) a description of any direct or indirect interest of any Covered Person in any contract with the Corporation, any affiliate of the Corporation or any principal competitor of the Corporation (including, in any such case, any employment agreement, collective bargaining agreement, or consulting agreement); (11) a list of any equity interest held by any Covered Person in any principal competitor of the Corporation or any derivative securities (as defined under Rule 16a-1 under the Exchange Act) held by any Covered Person and other derivatives or similar arrangements to which any Covered Person is a counterparty and which relate to any shares of capital stock of any principal competitor of the Corporation, a description of all economic terms of all such derivative securities and other derivatives or similar arrangements, and copies of all agreements and other documents relating to each such derivative securities and other derivatives or similar arrangements; (12) a description of any pending or threatened litigation in which any Covered Person is a party or material participant involving the Corporation or any of its officers or directors, or any affiliate of the Corporation; and (13) if the stockholder intends to solicit proxies in support of any of such stockholder's proposals, a representation to that effect. If, after the stockholder has delivered such notice, any information required to be contained in such notice as described in clauses (1) through (13) above changes prior to the date of the relevant annual meeting, such notice shall be deemed to be not in compliance with this Section 1(c) and not effective unless such stockholder, within three New York Stock Exchange business days of the date of the event causing such change in information, delivers to the Secretary an updated notice containing such change. No business shall be conducted at an annual meeting of stockholders except in accordance with this Section 1(c), and the Chairman of any annual meeting of stockholders may refuse to permit any business to be brought before an annual meeting without compliance with the foregoing procedures or if the stockholder solicits proxies in support of such stockholder's proposal without such stockholder having made the representation required by clause (13) of the second preceding sentence.

SECTION 2. Special Meetings. Special meetings of the stockholders for any purpose or purposes prescribed in the notice of the meeting, may be called at any time by the Chairman of the Board or a majority of the whole Board and shall be held at such place, on such date, and at such time as shall be designated in the notice thereof. At any special meeting of the stockholders, only such business shall be conducted or considered as shall have been specified in the Corporation's notice of meeting (or any supplement thereto). Stockholders shall not be permitted to propose business to be brought before a special meeting of the stockholders, except that any stockholder may seek to nominate a person for election to the Board at a special meeting of stockholders called for the purpose of electing directors as set forth in the Corporation's notice of such special meeting in compliance with Article II, Section 2 of these Bylaws.

SECTION 3. Notice of Meetings. Each stockholder of record shall be given written notice of each meeting of stockholders, which notice shall state the place, if any, date and time of the meeting; the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting; and in the case of a special meeting, the purpose or purposes for which the meeting is called. Except as otherwise provided by law, the notice of any meeting shall be given not less than 10 or more than 60 calendar days before the date of the meeting to each stockholder entitled to vote at such meeting. Notice shall be deemed to have been given to all stockholders of record who share an address if notice is given in accordance with the "householding" rules set forth in Rule 14a-3(e) under the Exchange Act.

When a meeting of stockholders is adjourned to another place, date, or time, written notice need not be given of the adjourned meeting if the place, date, and time thereof are announced at the meeting at which the adjournment is taken; provided, however, that if the date of any adjourned meeting is more than 30 calendar days after the date for which the meeting was originally noticed, or if a new record date is fixed for the adjourned meeting, written notice of the place, date, and time of the adjourned meeting

shall be given in conformity herewith. At any adjourned meeting, any business may be transacted which might have been transacted at the meeting as originally noticed.

SECTION 4. List of Stockholders. The officer who has charge of the stock ledger of the Corporation shall prepare and make, at least 10 calendar days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, for a period of at least 10 calendar days prior to the meeting, at the principal place of business of the Corporation during normal business hours. The list shall be produced and kept at the time and place of the meeting during the whole time thereof, and be subject to the inspection of any stockholder who may be present. The list shall presumptively determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them.

SECTION 5. Quorum; Adjournment. The holders of a majority of all of the shares of the stock entitled to vote at the meeting, present in person or represented by proxy, shall constitute a quorum for all purposes at all meetings of the stockholders for the transaction of business unless and except that the presence of a larger number may be required by law. Where a separate vote by a class or classes is required, a majority of the shares of such class or classes present in person or represented by proxy shall constitute a quorum entitled to take action with respect to that vote on that matter. The chairman of the meeting or the holders of a majority of the votes entitled to be cast by the stockholders who are present in person or by proxy may adjourn the meeting from time to time whether or not a quorum is present. At any such adjourned meeting at which a quorum may be present, any business may be transacted which might have been transacted at the meeting as originally called. If the adjournment is for more than 30 calendar days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned

meeting shall be given to each stockholder entitled to vote at the meeting not less than 10 nor more than 60 calendar days before the date of the meeting, unless a different period is prescribed by applicable law.

SECTION 6. Organization. Meetings of stockholders shall be presided over by the Chairman of the Board; or, in the absence of the Chairman, by the Chief Executive Officer if separate from the Chairman; or, in the absence of both the Chairman and the Chief Executive Officer, by the lead director, if any; or, in the absence of the foregoing persons, by a chairman designated by the Board. The Secretary shall act as secretary of the meeting; or, in the absence of the Secretary, an assistant secretary shall so act; or, in their absence, the chairman of the meeting may appoint any person to act as secretary of the meeting.

SECTION 7. Conduct of Business. The chairman of any meeting of stockholders shall determine the order of business and the procedure at the meeting, including such regulation of the manner of voting and the conduct of discussion as seem to him or her in order.

SECTION 8. Voting and Proxies. Subject to the provisions of the Certificate of Incorporation, at every meeting of the stockholders each stockholder shall be entitled to one vote in person or by proxy for each share of the capital stock having voting power held by such stockholder. No proxy shall be voted on after three years from its date, unless the proxy provides for a longer period. All voting, except on the election of directors and where otherwise required by law, may be by a voice vote; provided, however, that upon demand therefor by a stockholder entitled to vote or the holder of a proxy of such person, a stock vote shall be taken. Every stock vote shall be taken by ballots, each of which shall state the name of the stockholder or proxy voting and such other information as may be required under the procedure established for the meeting.

Unless a greater number of affirmative votes is required by the Certificate of Incorporation, elsewhere in these Bylaws, or by the rules or regulations of any stock exchange applicable to the Corporation, or as otherwise required by law or pursuant to any regulation applicable to the Corporation, if a quorum exists at any meeting of stockholders, stockholders shall have approved any matter, other

than the election of directors, if the votes cast by stockholders present in person or represented by proxy at the meeting and entitled to vote on the matter in favor of such matter exceed the votes cast by such stockholders against such matter. A nominee for director shall be elected to the Board only upon the vote of a majority of the votes cast at a meeting at which a quorum is present, except that a nominee for director shall be elected by a plurality of the votes cast at any meeting of stockholders for which the Secretary determines, as of the record date for such meeting, that the number of nominees exceeds the number of directors to be elected. For purposes of the foregoing sentence, a majority of the votes cast means that votes cast for such nominee's election exceed the votes cast against such nominee's election.

SECTION 9. Inspectors of Election. The Corporation may, and shall if required by law, in advance of any meeting of stockholders, appoint one or more inspectors of election, who may be employees of the Corporation, to act at the meeting or any adjournment thereof and to make a written report thereof. The Corporation may designate one or more persons as alternate inspectors to replace any inspector who fails to act. In the event that no inspector so appointed or designated is able to act at a meeting of stockholders, the chairman of the meeting shall appoint one or more inspectors to act at the meeting. Each inspector, before entering upon the discharge of his or her duties, shall take and sign an oath to execute faithfully the duties of inspector with strict impartiality and according to the best of his or her ability. The inspector or inspectors so appointed or designated shall (i) ascertain the number of shares of capital stock of the Corporation outstanding and the voting power of each such share, (ii) determine the shares of capital stock of the Corporation represented at the meeting and the validity of proxies and ballots, (iii) count all votes and ballots, (iv) determine and retain for a reasonable period a record of the disposition of any challenges made to any determination by the inspectors, and (v) certify their determination of the number of shares of capital stock of the Corporation represented at the meeting and such inspectors' count of all votes and ballots. Such certification and report shall specify such other information as may be required by law. In determining the validity and counting of proxies and ballots cast at any meeting of stockholders of the



Corporation, the inspectors may consider such information as is permitted by applicable law. No person who is a candidate for an office at an election may serve as an inspector at such election.

## ARTICLE II

### BOARD OF DIRECTORS

SECTION 1. General Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board, which may exercise all such powers of the Corporation and do all such lawful acts and things as are not by law or by the Certificate directed or required to be exercised or done by the stockholders.

SECTION 2. Number; Nomination; Qualifications.

(a) Number of Directors. The number of directors which shall constitute the whole Board shall be fixed from time to time by a vote of the majority of the whole Board. (The term “whole Board” as used in these Bylaws shall mean the total number of authorized directors, whether or not there exist any vacancies or unfilled previously authorized directorships.)

(b) Nomination of Director Candidates. Nominations of persons for election as directors at any annual meeting of stockholders, or at any special meeting of stockholders called for the purpose of electing directors as set forth in the Corporation’s notice of such special meeting may be made by the Board or by any stockholder who is a stockholder of record at the time of giving of the notice of nomination and who complies with the procedures for such nomination specified in this Section 2. Any stockholder of record entitled to vote for the election of directors may nominate a person or persons for election as directors (i) if written notice of such stockholder’s intent to make such nomination is given in accordance with the procedures for bringing business before an annual meeting set forth in Article I, Section 1(c) of these Bylaws, or (ii) if such Eligible Stockholder submits one or more Stockholder Nominees pursuant to the proxy access requirements of Section 3 of this Article II.

Each notice of stockholder nomination pursuant to Article I, Section 1(c) of these Bylaws must include, in addition to all of the information required under such section: (a) the name and address of the person or persons to be nominated for election as directors by the stockholder; (b) a representation that the stockholder is a holder of record of stock of the Corporation entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice; (c) a description of all agreements, arrangements, or understandings (whether written or oral) between any Covered Person, each nominee and any other person or persons (naming such person or persons) related to the nomination of each nominee that is to be made by the stockholder and all direct and indirect material relationships or other compensation and other material monetary agreements, arrangements and understandings during the past three years between any Covered Person, each nominee and any other such person or persons (naming such person or persons); (d) all information that would be reasonably relevant to a determination by the Board as to whether each nominee proposed by such stockholder is “independent” within the meaning of all applicable securities law and stock exchange requirements; (e) all information that would be relevant to a determination by the Board (or any relevant committee thereof) as to whether each nominee proposed by such stockholder meets any standards for Board membership set forth by the Board (or any committee thereof) in any publicly available documents; (f) such other information regarding each nominee proposed by such stockholder as would have been required to be included in a proxy statement had such nominee been nominated, or intended to be nominated, by the Board; (g) the consent of each nominee to serve as a director if so elected; and (h) a completed and signed questionnaire, representation and agreement for each nominee as required by the immediately succeeding paragraph. If, after the stockholder has delivered such notice, any information required to be contained in such notice as described in clauses (a) through (h) above changes prior to the date of the relevant meeting of stockholders, such notice shall be deemed to be not in compliance with this Section 2 and not effective unless such stockholder, within three New York Stock Exchange business days of the date of the event causing such change in

information, delivers to the Secretary an updated notice containing such change. The Chairman of any meeting of stockholders to elect directors may refuse to acknowledge the nomination of any person if not made in compliance with the foregoing procedure or if the stockholder solicits proxies in support of such stockholder's nominee(s) without such stockholder having made the representation required by clause (13) of Article 1, Section 1(c) of these Bylaws.

(c) Qualification of Director Nominees. To be eligible to be a nominee for election or reelection as a director of the Corporation, a proposed nominee must deliver to the Secretary at the principal executive offices of the Corporation a written questionnaire with respect to the background and qualification of such proposed nominee (which questionnaire shall be provided by the Secretary upon written request), and a written representation and agreement (in form provided by the Secretary upon written request) that such proposed nominee (a) is not and will not become a party to (i) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person as to how such proposed nominee, if elected as a director of the Corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been fully disclosed to the Corporation or (ii) any Voting Commitment that could limit or interfere with such proposed nominee's ability to comply, if elected as a director of the Corporation, with such proposed nominee's fiduciary duties under applicable law; (b) is not, and will not become a party to, any agreement, arrangement or understanding with any person other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a director of the Corporation that has not been fully disclosed to the Corporation; and (c) in such proposed nominee's individual capacity and on behalf of any person on whose behalf the nomination is made, would be in compliance, if elected as a director of the Corporation, and will comply, with the Corporation's Corporate Governance Guidelines and Code of Conduct and Business Ethics, and all other applicable, publicly disclosed conflict of interest, confidentiality, stock ownership and insider trading policies and guidelines of the Corporation.

SECTION 3. Proxy Access for Director Nominations.

(a) Eligibility. Subject to the terms and conditions of these Bylaws, in connection with an annual meeting of stockholders at which directors are to be elected, the Corporation shall include in its proxy materials the name(s) and “Additional Information” (as defined below) relating to nominees for election to the Board submitted pursuant to this Section 3 (each, a “Stockholder Nominee”), if:

(i) the Stockholder Nominee satisfies the eligibility requirements in this Section 3;

(ii) the Stockholder Nominee is identified in a timely notice (the “Stockholder Notice”) that satisfies this Section 3 and is delivered by a stockholder that qualifies as, or is acting on behalf of, an Eligible Stockholder (as defined below); and

(iii) the Eligible Stockholder satisfies the requirements in this Section 3 and expressly elects at the time of the delivery of the Stockholder Notice to have the Stockholder Nominee included in the Corporation’s proxy materials.

(b) Certain Definitions.

(i) The maximum number of Stockholder Nominees appearing in the Corporation’s proxy materials with respect to an annual meeting of stockholders (the “Authorized Number”) shall not exceed the greater of (A) two or (B) 20% of the number of directors in office as of the last day on which a Stockholder Notice may be delivered pursuant to this Section 3 with respect to the annual meeting, or if such amount is not a whole number, the closest whole number (rounding down) below 20% (the “Authorized Number”); provided that the Authorized Number shall be reduced by (A) the number of individuals (if any) included in the Corporation’s proxy materials as nominees recommended by the Board pursuant to an agreement, arrangement or other understanding with a stockholder or group of stockholders (other than any such agreement, arrangement or other understanding entered into in connection with an acquisition of stock from the Corporation by such stockholder or group of stockholders) and (B) the number of nominees (if any) who were previously elected to the Board as Stockholder Nominees at any of the

preceding two annual meetings and who are nominated for election at the annual meeting by the Board as a Board nominee. For purposes of determining when the Authorized Number has been reached, any individual nominated by an Eligible Stockholder for inclusion in the Corporation's proxy materials pursuant to this Section 3 whose nomination is subsequently withdrawn or whom the Board decides to nominate for election to the Board shall be counted as one of the Stockholder Nominees. In the event that one or more vacancies for any reason occurs after the date of the Stockholder Notice but before the annual meeting and the Board resolves to reduce the size of the Board in connection therewith, the Authorized Number shall be calculated based on the number of directors in office as so reduced.

(ii) To qualify as an "Eligible Stockholder," a stockholder or a group as described in this Section 3 must:

(A) as of the date of the Stockholder Notice, have continuously Owned (as defined below) for at least three years a number of shares (as adjusted to account for any stock dividend, stock split, subdivision, combination, reclassification or recapitalization of shares of the Corporation that are entitled to vote in the election of directors) that represents at least three percent of the outstanding shares of the Corporation that are entitled to vote in the election of directors as of the date of the Stockholder Notice (the "Required Shares"), and

(B) thereafter continue to Own the Required Shares through such annual meeting of stockholders.

For purposes of satisfying the ownership requirements of this Section 3(b)(ii), a group of not more than 20 stockholders may aggregate the number of shares of the Corporation that are entitled to vote in the election of directors that each group member, as of the date of the Stockholder Notice, has individually Owned continuously for at least three years if all of the other requirements and obligations for an Eligible Stockholder set forth in this Section 3 are satisfied by and as to each stockholder comprising the group whose shares are aggregated. No shares may be attributed to more than one Eligible Stockholder,

and no stockholder, alone or together with any of its affiliates, may individually or as a member of a group qualify as or constitute more than one Eligible Stockholder under this Section 3. A group of any two or more funds shall be treated as one stockholder for this purpose if they are (A) under common management and investment control, (B) under common management and funded primarily by a single employer or (C) part of a family of funds, meaning a group of publicly offered investment companies (whether organized in the U.S. or outside the U.S.) that hold themselves out to investors as related companies for purposes of investment and investor services. For purposes of this Section 3, the term “affiliate” or “affiliates” shall have the meanings ascribed thereto under the rules and regulations promulgated under the Exchange Act.

(iii) For purposes of this Section 3:

(A) A stockholder is deemed to “Own” only those outstanding shares of the Corporation that are entitled to vote in the election of directors as to which the person possesses both (1) the full voting and investment rights pertaining to the shares and (2) the full economic interest in (including the opportunity for profit and risk of loss on) such shares, except that the number of shares calculated in accordance with clauses (1) and (2) shall not include any shares (a) sold by such person in any transaction that has not been settled or closed, (b) borrowed by the person for any purposes or purchased by the person pursuant to an agreement to resell, or (c) subject to any option, warrant, forward contract, swap, contract of sale, or other derivative or similar agreement entered into by the person, whether the instrument or agreement is to be settled with shares or with cash based on the notional amount or value of outstanding shares of the Corporation that are entitled to vote in the election of directors, if the instrument or agreement has, or is intended to have, or if exercised would have, the purpose or effect of (i) reducing in any manner, to any extent or at any time in the future, the person’s full right to vote or direct the voting of the shares, and/or (ii) hedging, offsetting or altering to any degree any gain or loss arising from the full economic ownership of the shares by the person. The terms “Owned,” “Owning” and other variations of the word

“Own,” when used with respect to a stockholder, have correlative meanings. For purposes of clauses (a) through (c), the term “person” includes its affiliates.

(B) A stockholder is deemed to “Own” shares held in the name of a nominee or other intermediary so long as the person retains both (1) the full voting and investment rights pertaining to the shares and (2) the full economic interest in the shares. The person’s Ownership of shares is deemed to continue during any period in which the person has delegated any voting power by means of a proxy, power of attorney, or other instrument or arrangement that is revocable at any time by the stockholder.

(C) A stockholder’s Ownership of shares shall be deemed to continue during any period in which the person has loaned the shares if the person has the power to recall the loaned shares on not more than five business days’ notice.

(iv) For purposes of this Section 3, the “Additional Information” referred to in Section 3(a) that the Corporation will include in its proxy statement is:

(A) the information set forth in the Schedule 14N provided with the Stockholder Notice concerning each Stockholder Nominee and the Eligible Stockholder that is required to be disclosed in the Corporation’s proxy statement by the applicable requirements of the Exchange Act and the rules and regulations thereunder; and

(B) if the Eligible Stockholder so elects, a written statement of the Eligible Stockholder (or, in the case of a group, a written statement of the group), not to exceed 500 words, in support of its Stockholder Nominee(s), which must be provided at the same time as the Stockholder Notice for inclusion in the Corporation’s proxy statement for the annual meeting of stockholders.

Notwithstanding anything to the contrary contained in this Section 3(b)(iv), the Corporation may omit from its proxy materials any information that it, in good faith, believes is untrue in any material respect (or omits a material fact necessary in order to make the statements made, in light of the circumstances under which they are made, not misleading) or would violate any applicable law, rule,

regulation or listing standard. Furthermore, nothing in this Section 3 shall limit the Corporation's ability to solicit against and include in its proxy materials its own statements relating to any Eligible Stockholder or Stockholder Nominee.

(c) Stockholder Notice and Other Informational Requirements.

(i) The Stockholder Notice shall set forth all information, representations and agreements required under Article I, Section 1(c) and Article II, Section 2(b) of these Bylaws, including the information required with respect to (i) any nominee for election as a director, (ii) any stockholder giving notice of an intent to nominate a candidate for election, and (iii) any stockholder on whose behalf the nomination is made under this Section 3. In addition, such Stockholder Notice shall include:

(A) a copy of the Schedule 14N that has been or concurrently is filed with the U.S. Securities and Exchange Commission (the "Commission") under the Exchange Act;

(B) a written statement of the Eligible Stockholder (and in the case of a group, the written statement of each stockholder whose shares are aggregated for purposes of constituting an Eligible Stockholder), which statement(s) shall also be included in the Schedule 14N filed with the Commission, (i) setting forth and certifying to the number of shares of the Corporation entitled to vote in the election of directors that the Eligible Stockholder has Owned (as defined in Section 3(b)(iii) of these Bylaws) continuously for at least three years as of the date of the Stockholder Notice, (ii) agreeing to continue to Own such shares through the annual meeting of stockholders and (iii) indicating whether it intends to continue to Own such shares for at least one year following the annual meeting;

(C) the written agreement of the Eligible Stockholder (and in the case of a group, the written agreement of each stockholder or whose shares are aggregated for purposes of constituting an Eligible Stockholder) addressed to the Corporation, setting forth the following additional agreements, representations and warranties:



(1) the Eligible Stockholder shall provide (a) within five business days after the date of the Stockholder Notice, one or more written statements from the record holder(s) of the Required Shares and from each intermediary through which the Required Shares are or have been held, in each case during the requisite three-year holding period, specifying the number of shares that it has Owned continuously in compliance with this Section 3, (b) within five business days after the record date for the annual meeting of stockholders both the information required under Article I, Section 1(c) of these Bylaws and notification in writing verifying its continuous Ownership of the Required Shares, in each case, as of such date, and (c) immediate notice to the Corporation if it ceases to own any of the Required Shares prior to the annual meeting;

(2) the Eligible Stockholder (a) acquired the Required Shares in the ordinary course of business and not with the intent to change or influence control of the Corporation, and does not presently intend to change or influence control of the Corporation, (b) has not nominated and shall not nominate for election to the Board at the annual meeting of stockholders any person other than the Stockholder Nominee(s) being nominated pursuant to this Section 3, (c) has not engaged and shall not engage in, and has not been and shall not be a participant (as defined in Item 4 of Exchange Act Schedule 14A) in, a solicitation within the meaning of Exchange Act Rule 14a-1(l), in support of the election of any individual as a director at the annual meeting other than its Stockholder Nominee(s) or any Board nominee, and (d) shall not distribute to any stockholder any form of proxy for the annual meeting of stockholders other than the form of proxy distributed by the Corporation; and

(3) the Eligible Stockholder will (a) assume all liability stemming from any legal or regulatory violation arising out of its communications with the Corporation's stockholders or out of the information that it provided to the Corporation, (b) indemnify and hold harmless the Corporation and each of its directors, officers and employees individually against any liability, loss or damages in connection with any threatened or pending action, suit or proceeding, whether legal,

administrative or investigative, against the Corporation or any of its directors, officers or employees arising out of its communications with the Corporation's stockholders or out of the information that it provided to the Corporation, (c) comply with all laws, rules, regulations and listing standards applicable to its nomination or any solicitation in connection with the annual meeting of stockholders, (d) file with the Commission any solicitation or other communication by or on behalf of the Eligible Stockholder relating to the Corporation's annual meeting, one or more of the Corporation's directors or director nominees or any Stockholder Nominee, regardless of whether the filing is required under Exchange Act Regulation 14A, or whether any exemption from filing is available for the materials under Exchange Act Regulation 14A, and (e) at the request of the Corporation, promptly, but in any event within five business days after such request (or by the day prior to the date of the annual meeting, if earlier), provide to the Corporation such additional information as reasonably requested by the Corporation; and

(D) in the case of a nomination by a group, the designation by all group members of one group member that is authorized to act on behalf of all members of the group with respect to the nomination and matters related thereto, including withdrawal of the nomination, and the written agreement, representation, and warranty of the Eligible Stockholder that it shall provide, within five business days after the date of the Stockholder Notice, documentation reasonably satisfactory to the Corporation demonstrating that the number of stockholders within such group does not exceed 20, including whether a group of funds qualifies as one stockholder within the meaning of Section 3(b)(ii) of these Bylaws.

All information provided pursuant to this Section 3(c)(i) shall be deemed part of the Stockholder Notice for purposes of Section 3.

(ii) To be timely under this Section 3, the Stockholder Notice must be delivered to, or mailed to and received by, the Secretary at the principal executive offices of the Corporation not earlier than the close of business on the 150th calendar day prior to the anniversary date on which the Corporation first distributed its definitive proxy materials for the prior year's annual meeting of stockholders and not

later than the close of business on the 120th calendar day prior to such anniversary date; provided, however, that in the event that the date of the annual meeting is more than 30 calendar days before or more than 60 calendar days after such anniversary date, notice by the stockholder to be timely must be so delivered to, or mailed and received by, not earlier than the close of business on the 150th calendar day prior to such annual meeting and not later than the close of business on the later of the 120th calendar day prior to such annual meeting or the 10th calendar day following the date on which public announcement of the date of such annual meeting is first made. In no event shall the adjournment or a postponement of an annual meeting commence a new time period (or extend any time period) for the giving of the Stockholder Notice as described above.

(iii) Within the time period for delivery of the Stockholder Notice, a written representation and agreement of each Stockholder Nominee shall be delivered to the Secretary at the principal executive offices of the Corporation, which shall be signed by each Stockholder Nominee and shall represent and agree (A) as to the matters set forth in Section 2(b) of this Article II, and (B) that such Stockholder Nominee consents to being named in the Corporation's proxy materials as a nominee and to serving as a director if elected. At the request of the Corporation, the Stockholder Nominee must promptly, but in any event within five business days after such request, submit the information required by Section 2(c) of this Article II. The Corporation may request such additional information as the Secretary determines may be necessary to permit the Board to determine if each Stockholder Nominee satisfies the requirements of this Section 3.

(iv) In the event that any information or communications provided by the Eligible Stockholder or any Stockholder Nominees to the Corporation or its stockholders is not, when provided, or thereafter ceases to be, true, correct and complete in all material respects (including omitting a material fact necessary to make the statements made, in light of the circumstances under which they were made, not misleading), such Eligible Stockholder or Stockholder Nominee, as the case may be, shall promptly

notify the Secretary and provide the information that is required to make such information or communication true, correct, complete and not misleading; it being understood that providing any such notification shall not be deemed to cure any defect or limit the Corporation's right to omit a Stockholder Nominee from its proxy materials as provided in this Section 3.

(d) Proxy Access Procedures.

(i) Notwithstanding anything to the contrary contained in this Section 3, the Corporation may omit from its proxy materials any Stockholder Nominee, and such nomination shall be disregarded and no vote on such Stockholder Nominee shall occur, notwithstanding that proxies in respect of such vote may have been received by the Corporation, if:

(A) the Eligible Stockholder or Stockholder Nominee breaches any of its agreements, representations or warranties set forth in the Stockholder Notice or otherwise submitted pursuant to this Section 3, any of the information in the Stockholder Notice or otherwise submitted pursuant to this Section 3 was not, when provided, true, correct and complete (or omitted a material fact necessary to make the statements made, in light of the circumstances under which they were made, not misleading), or the Eligible Stockholder or applicable Stockholder Nominee otherwise fails to comply with its obligations pursuant to these Bylaws, including, but not limited to, its obligations under this Section 3;

(B) the Stockholder Nominee (1) is not independent under any applicable listing standards, any applicable rules of the Commission or any publicly disclosed standards used by the Board in determining and disclosing the independence of the Corporation's directors, (2) is or has been, within the past three years, an officer or director of a competitor, as defined in Section 8 of the Clayton Antitrust Act of 1914, as amended, (3) is a named subject of a pending criminal proceeding (excluding traffic violations and other minor offenses) or has been convicted in a criminal proceeding (excluding traffic violations and other minor offenses) within the past 10 years, (4) is subject to any order of the type specified in Rule 506(d) of Regulation D promulgated under the Securities Act of 1933, as amended (the "Securities

Act”) or (5) shall have provided any information to the Corporation or its stockholders that was untrue in any material respect or that omitted to state a material fact necessary to make the statements made, in light of the circumstances in which they were made, not misleading;

(C) the Corporation has received a notice (whether or not subsequently withdrawn) that a stockholder intends to nominate any candidate for election to the Board pursuant to the advance notice requirements for stockholder nominees for director in Article I, Section 1(c) of these Bylaws; or

(D) the election of the Stockholder Nominee to the Board would cause the Corporation to violate the Certificate of Incorporation of the Corporation, these Bylaws, or any applicable law, rule, regulation or listing standard.

(ii) An Eligible Stockholder submitting more than one Stockholder Nominee for inclusion in the Corporation’s proxy materials pursuant to this Section 3 shall rank such Stockholder Nominees based on the order that the Eligible Stockholder desires such Stockholder Nominees to be selected for inclusion in the Corporation’s proxy materials and include such assigned rank in its Stockholder Notice submitted to the Corporation. In the event that the number of Stockholder Nominees submitted by Eligible Stockholders pursuant to this Section 3 exceeds the Authorized Number, the Stockholder Nominees to be included in the Corporation’s proxy materials shall be determined in accordance with the following provisions: one Stockholder Nominee who satisfies the eligibility requirements in this Section 3 shall be selected from each Eligible Stockholder for inclusion in the Corporation’s proxy materials until the Authorized Number is reached, going in order of the number (most to fewest) of shares of the Corporation each Eligible Stockholder disclosed as Owned in its Stockholder Notice submitted to the Corporation and going in the order of the rank (highest to lowest) assigned to each Stockholder Nominee by such Eligible Stockholder. If the Authorized Number is not reached after one Stockholder Nominee who satisfies the eligibility requirements in this Section 3 has been selected from each Eligible Stockholder,

this selection process shall continue as many times as necessary, following the same order each time, until the Authorized Number is reached. Following such determination, if any Stockholder Nominee who satisfies the eligibility requirements in this Section 3 thereafter is nominated by the Board, thereafter is not included in the Corporation's proxy materials or thereafter is not submitted for director election for any reason (including the Eligible Stockholder's or Stockholder Nominee's failure to comply with this Section 3), no other nominee or nominees shall be included in the Corporation's proxy materials or otherwise submitted for election as a director at the applicable annual meeting of stockholders in substitution for such Stockholder Nominee.

(iii) Any Stockholder Nominee who is included in the Corporation's proxy materials for a particular annual meeting of stockholders but either (A) withdraws from or becomes ineligible or unavailable for election at the annual meeting for any reason, including for the failure to comply with any provision of these Bylaws (provided that in no event shall any such withdrawal, ineligibility or unavailability commence a new time period (or extend any time period) for the giving of a Stockholder Notice) or (B) does not receive in favor of such Stockholder Nominee's election at least 25% of the votes cast with respect to such Stockholder Nominee's election, shall be ineligible to be a Stockholder Nominee pursuant to this Section 3 for the next two annual meetings.

(iv) Notwithstanding the foregoing provisions of this Section 3, unless otherwise required by law or otherwise determined by the Chairman of the meeting or the Board, if the stockholder delivering the Stockholder Notice (or a qualified representative of the stockholder, as defined in Article I, Section 1(c) of these Bylaws) does not appear at the annual meeting of stockholders of the Corporation to present its Stockholder Nominee or Stockholder Nominees, such nomination or nominations shall be disregarded, notwithstanding that proxies in respect of the election of the Stockholder Nominee or Stockholder Nominees may have been received by the Corporation.

(v) The Board (and any other person or body authorized by the Board) shall have the power and authority to interpret this Section 3 and to make any and all determinations necessary or advisable to apply this Section 3 to any persons, facts or circumstances, including, without limitation, the power to determine (1) whether one or more stockholders qualifies as an Eligible Stockholder, (2) whether a Stockholder Notice complies with this Section 3 and has otherwise met the requirements of this Section 3, (3) whether a Stockholder Nominee satisfies the qualifications and requirements in this Section 3, and (4) whether any and all requirements of this Section 3 (or any applicable requirements of Article I, Section 1(c) of these Bylaws have been satisfied. Any such interpretation or determination adopted in good faith by the Board (or any other person or body authorized by the Board) shall be binding on all persons, including, without limitation, the Corporation and its stockholders.

(vi) For the avoidance of doubt, nothing in this Section 3 shall limit the Corporation's ability to solicit against any Stockholder Nominee or include in its proxy materials the Corporation's own statements or other information relating to any Eligible Stockholder or Stockholder Nominee, including any information provided to the Corporation pursuant to this Section 3.

(vii) This Section 3 shall be the exclusive method for stockholders to include director nominees for election in the Corporation's proxy materials.

SECTION 4. Resignation. Any director may resign at any time by giving written notice of his or her resignation to the Board, the Chairman of the Board, the Chief Executive Officer, or the Secretary. Any such resignation shall take effect at the time specified therein, or, if the time when it is to become effective shall not be specified therein, then it shall take effect when received.

SECTION 5. Newly-Created Directorships and Vacancies. Newly-created directorships resulting from any increase in the number of directors and any vacancies on the Board resulting from death, resignation, removal, or other cause shall only be filled as provided in the Certificate of Incorporation of the Corporation.

## MEETINGS OF THE BOARD

SECTION 6. Regular Meetings. Regular meetings of the Board shall be held at such place or places, on such date or dates, and at such time or times as shall have been established by the Board and publicized among all directors. A further notice of each regular meeting shall not be required.

SECTION 7. Special Meetings. Special meetings of the Board may be called by the Chairman of the Board, by one-third of the directors then in office, or by the lead director, if any; and shall be held at such place, on such date, and at such time as they or he or she shall fix. Notice of the place, date, and time of each such special meeting shall be given to each director by whom it is not waived by providing written notice not less than four hours before the scheduled time of such meeting. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

SECTION 8. Telephonic Meetings Permitted. Members of the Board, or any committee designated by the Board, may participate in a meeting thereof by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting pursuant to this Bylaw shall constitute presence in person at such meeting.

SECTION 9. Quorum. At all meetings of the Board one-third of the total number of the whole Board, but not less than two, shall constitute a quorum for the transaction of business and the act of a majority of the directors present at any meeting at which there is a quorum shall be the act of the Board, except as may be otherwise provided herein or be required by law. If a quorum shall not be present at any meeting of the Board, the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

SECTION 10. Organization and Order of Business. At each meeting of the Board, the Chairman of the Board shall act as chairman of and preside at the meeting. If the Chairman is not present, the lead director shall act as chairman of and preside at the meeting. If the Chairman of the Board is not the Chief



Executive Officer, in the absence of the Chairman and the lead director, the Chief Executive Officer shall act as chairman of and preside at the meeting. If the Chairman of the Board, the lead director, and the Chief Executive Officer are not present, any director chosen by majority of the directors present shall act as chairman of and preside at the meeting. The Secretary or, if he or she shall be absent from such meeting, any person whom the chairman of such meeting shall appoint, shall act as secretary of such meeting and keep the minutes thereof. The order of business at each meeting shall be determined by the chairman of such meeting.

SECTION 11. Director Consent in Lieu of Meeting. Any action required or permitted to be taken at any meeting of the Board or of any committee thereof may be taken without a meeting, if all members of the Board or of such committee as the case may be, consent thereto in writing, or by electronic transmission, and such writing or transmission is filed with the minutes of proceedings of the Board or committee.

#### COMMITTEES OF DIRECTORS

SECTION 12. Committees of the Board. The Board may, by resolution passed by a majority of the whole Board, create one or more committees (including, but not limited to, an Executive Committee which, to the extent provided in the resolution or a committee charter adopted by the Board, shall have and may exercise all of the delegable powers of the Board in the management of the business and affairs of the Corporation. Such committee or committees shall have such name or names as may be determined from time to time by resolution adopted by the Board. The Board shall also determine the membership of each such committee.

SECTION 13. Executive Committee. There shall be an Executive Committee, whose membership shall include the Chairman of the Board and, if separate, the Chief Executive Officer, which during the intervals between meetings of the Board shall have all the delegable powers and duties of the Board, except with respect to matters delegated to another committee and except as shall have been otherwise

provided by the Board. All action taken by the Executive Committee since the last meeting of the Board shall be reported to the Board at its next meeting.

SECTION 14. Conduct of Business. Each committee may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith, except as otherwise provided herein, required by law, or provided in the resolution creating such Committee. Adequate provision shall be made for notice to members of all meetings; one-third of the members, but not less than two, shall constitute a quorum; and all matters shall be determined by a majority vote of the members present.

SECTION 15. Emergency Bylaws.

(a) This Section 15 shall be applicable during any emergency condition as a result of which a quorum of the Board cannot readily be convened in accordance with the procedures prescribed therefore above. To the extent not in conflict with this Section 15, the remaining provisions of these Bylaws shall remain in effect during the emergency.

(b) In the event of such an emergency, a special meeting of the Board may be called by any officer or director by any means feasible at the time. In the event a quorum of the Board cannot be obtained for such a meeting, an emergency committee of the Board may be convened.

(c) An emergency committee of the Board shall consist of any members of the Board who are available and able to act and, in the event less than three members of the Board are available and able to act, one or more persons standing highest on the following list who are available and able to act, but not to exceed the number of persons needed to comprise an emergency committee of three:

- (i) President, if not a member of the Board;
- (ii) Chief Financial Officer;
- (iii) General Counsel; and
- (iv) Any other Executive Officer in order of seniority.

Each member of the emergency committee thus constituted who is not a director shall continue to act in such capacity until a director or an individual standing higher on the list is available to replace them. The emergency committee shall continue to act until a quorum of the Board is available and able to act. If, at the conclusion of the emergency, the Corporation has less than three directors able to act, the emergency committee shall cause a special meeting of stockholders for the election of directors to be called and held as soon as practicable.

(d) The emergency committee shall have and may exercise all of the powers and authority of the Board, including the power to implement any emergency succession plan for the Chief Executive Officer previously adopted by the Board, to fill a vacancy in any other office of the Corporation or to designate a temporary replacement for any officer of the Corporation who is unavailable, but shall not have the power to fill vacancies in the Board.

(e) A majority of the members of the emergency committee shall constitute a quorum.

(f) Each member of the emergency committee who is not a director shall, during his or her service as such, be entitled to the rights and immunities conferred by the Delaware General Corporation Law, the Corporation's Certificate of Incorporation, and these Bylaws upon directors of the Corporation.

#### COMPENSATION OF DIRECTORS

SECTION 16. Compensation. The directors may be reimbursed for their expenses, if any, of attendance at each meeting of the Board, of special and standing committees thereof and in connection with other business of the Corporation, and may be paid for their services as directors and as members of such committees as may be determined by resolutions adopted by the Board from time to time. No such payment shall preclude any director from serving the Corporation in any other capacity and receiving compensation therefor.

#### ARTICLE III

## NOTICES

SECTION 1. Notices. Whenever notice is required to be given to any stockholder, director, officer, or agent, such requirement shall not be construed to mean personal notice.

Whenever notice is required to be given to any stockholder, such notice may in every instance be effectively given by regular or expedited United States mail, recognized courier service for overnight delivery, telegram, cable, telex, or telecopier, facsimile transmission, or by electronic mail or other electronic transmission (if such stockholder has consented to such form of electronic transmission) addressed to such stockholder at his or her address as the same appears on the books of the Corporation, including an electronic mail address at which the stockholder has consented to receive notice. Notice shall be deemed given (i) if by facsimile telecommunication, when directed to the number at which the stockholder has consented to receive notice, (ii) if by electronic mail, when directed to an electronic mail address at which the stockholder has consented to receive notice, (iii) if by a posting on an electronic network together with separate notice to the stockholder of such specific posting, upon the later of (a) such posting and (b) the giving of such separate notice, and (iv) in all other instances, when such notice is dispatched.

Any notice required to be given to any director may be given by any of the methods in the foregoing paragraph. Any such notice, other than one which is delivered personally, shall be sent to such post office address, facsimile number, or electronic mail address as such director shall have filed in writing with the Secretary, or, in the absence of such filing, to the last known such address or number of such director. It shall not be necessary that the same method of giving notice be employed in respect of all directors, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

SECTION 2. Waivers. A written waiver of any notice, signed by a stockholder, director, officer, or agent, whether before or after the time of the event for which notice is to be given, shall be deemed

equivalent to the notice required to be given to such stockholder, director, officer, or agent. Neither the business nor the purpose of any meeting need be specified in such a waiver.

## ARTICLE IV

### OFFICERS

#### SECTION 1. Officers.

(a) The officers of the Corporation shall be a Chairman of the Board, who shall be a member of the Board; a Chief Executive Officer, who shall be a member of the Board; a President; a Chief Financial Officer; one (1) or more Vice Presidents including Executive Vice Presidents; a Secretary; a General Counsel; a Treasurer; and such other officers as the Board or the Chief Executive Officer may deem expedient. Any one person may hold any number of offices of the Corporation at any one time unless specifically prohibited therefrom by law. Any office of the Corporation may be left vacant from time to time at the discretion of the Board.

Any officer who is subject to Section 16 of the Exchange Act (an “Executive Officer”) must be elected by the Board and shall hold office for such term as the Board may prescribe. All other officers designated by this Section 1(a) may be appointed by the Chief Executive Officer and shall hold office for such term as the Chief Executive Officer may prescribe. The Chief Executive Officer may, from time to time, in his or her discretion, assign titles, powers, duties, and reporting arrangements for any officer.

(b) In addition to the officers designated in Section 1(a) of this Article IV, the Corporation may have one or more appointed Vice Presidents and Executive Vice Presidents, Assistant Secretaries, Assistant Treasurers, or other officers, who shall also be officers of the Corporation (each an “Appointed Officer”). Any Appointed Officer may be appointed by the Chief Executive Officer. The Chief Executive Officer may from time to time, in his or her discretion, assign titles, powers, duties, scope of job responsibilities, and reporting arrangements for any Appointed Officer. Appointed Officers shall hold office for such term as the Chief Executive Officer shall prescribe.

(c) Any Executive Officer may be removed at any time by the Board. If the office of any such Executive Officer becomes vacant for any reason, the vacancy may be left vacant or be filled by the Board. Any other officer, including any Appointed Officer, may be removed at any time by the Chief Executive Officer. If the office of any such officer becomes vacant for any reason, the vacancy may be left vacant or be filled by the Chief Executive Officer. Nothing in these Bylaws shall be construed as creating any kind of contractual right to employment with the Corporation.

SECTION 2. Chairman of the Board. The Chairman of the Board may be, but need not be, a person other than the Chief Executive Officer of the Corporation. The Chairman of the Board may be, but need not be, an officer or employee of the corporation. The Chairman of the Board shall preside at meetings of the Board and shall establish and oversee preparation of agendas for such meetings, in consultation with the Chief Executive Officer, if separate. The Chairman of the Board shall be an ex-officio member of each of the standing committees of the Board, except for the Executive Committee, of which he or she shall be a member. The Chairman of the Board shall perform such other duties as shall be determined by the Board.

SECTION 3. Chief Executive Officer. Subject to the provisions of these Bylaws and to the direction of the Board, the Chief Executive Officer shall have the responsibility for the general management and control of the business and affairs of the Corporation and shall have such other powers and perform such other duties as are incident to his or her office or as may be properly required of him or her by the Board. He or she may sign, execute, and deliver in the name of the Corporation, certificates for shares of the capital stock of the Corporation any deeds, mortgages, bonds, contracts, or other instruments which the Board shall have authorized to be executed, except in cases where the signing and execution thereof shall be expressly delegated by the Board or by these Bylaws to some other officer or agent of the Corporation or shall be required by law otherwise to be signed or executed. He or she may delegate his or her powers to the President of the Corporation, if any, or otherwise to the extent determined by the Board. He or she

may from time to time appoint, remove, or change members of and discharge one or more advisory committees, each of which shall consist of such number of persons (who may, but need not, be directors or officers of the Corporation), and have such advisory duties as he or she shall determine.

SECTION 4. President. The President shall be the chief operating officer of the Corporation and, as such, shall be responsible for the principal line operating functions of the Corporation and shall assist the Chief Executive Officer in the discharge of the duties of that office. He or she shall perform such other duties as shall be assigned to him or her by the Chief Executive Officer and have such other powers as may be prescribed from time to time by the Board or the Chief Executive Officer.

SECTION 5. Chief Financial Officer. The Chief Financial Officer shall be the head of the finance functions of the Corporation and shall consider the adequacy of, and make recommendations to the Board and the Chief Executive Officer concerning, the capital resources available to the Corporation to meet its projected obligations and business plans; report to the Board and the Chief Executive Officer on financial results and trends affecting the business; and have such other powers and perform such other duties as may from time to time be granted or assigned to him or her by the Board or the Chief Executive Officer.

SECTION 6. Vice Presidents. The Vice Presidents including Executive Vice Presidents shall perform such duties as from time to time shall be assigned by the Chief Executive Officer and have such powers as may be prescribed from time to time by the Board or the Chief Executive Officer.

SECTION 7. General Counsel. The General Counsel shall be the chief legal officer of the Corporation and the head of its legal department. He or she shall, in general, perform the duties incident to the office of General Counsel and all such other duties as from time to time may be assigned to him or her by the Chief Executive Officer. In case one or more Associate or Assistant General Counsels shall be appointed, the General Counsel may delegate to them authority to perform such of his or her duties as he or she may determine.

SECTION 8. Secretary. The Secretary shall keep records of all of the meetings of the Corporation and of the Board and shall perform like duties for the standing committees when required. He or she shall give, or cause to be given, notice of all meetings of the stockholders and special meetings of the Board, and shall perform all the duties incident to the office of Secretary and all such other duties as may be assigned to him or her by the Chief Executive Officer. He or she shall keep, or cause to be kept, at the principal office or at the office of the Corporation's transfer agent or registrar, a share register, or a duplicate share register, showing the names of all stockholders and their addresses, the number and classes of shares held by each, the number and date of certificates issued for the same, and the number and date of cancellation of every certificate surrendered for cancellation. He or she shall have custody of the corporate seal of the Corporation and he, or an Assistant Secretary, shall have authority to affix the same to any instrument requiring it and when so affixed, it may be attested by his or her signature or by the signature of such Assistant Secretary. In case one or more Assistant Secretaries shall be appointed, the Secretary may delegate to them authority to perform such of his or her duties as he or she may determine.

SECTION 9. Treasurer. The Treasurer shall have custody of the funds and securities of the Corporation and shall keep regular accounts of receipts and disbursements. He or she shall deposit all moneys and other valuable effects belonging to the Corporation in accounts established in such depositories as may be designated by the Corporation pursuant to authority granted by the Board. He or she shall make such disbursement of the funds of the Corporation as are proper and shall render to the Chairman of the Board and the Board, at its regular meetings, or when the Board so requires, an account of all his or her transactions as Treasurer and of the financial condition of the Corporation. He or she shall perform all the duties incident to the office of Treasurer and all such other duties as may be assigned to him or her by the Chief Executive Officer. In case one or more Assistant Treasurers shall be appointed, the Treasurer may delegate to them authority to perform such of his or her duties as he or she may determine.

## ARTICLE V



## INDEMNIFICATION OF DIRECTORS AND OFFICERS

SECTION 1. Interpretation, Amendment, and Survival of this Article. The indemnification and advancement rights provided by this Article V shall each be enforceable by each present and former officer and director of the Corporation (hereinafter, an “indemnitee”), shall vest as of the date an indemnitee first performs or performed service as an officer or director, and are contract rights upon which the indemnitee shall be presumed to have relied in determining to serve or continuing to serve in his or her capacity with the Corporation. Neither the amendment or repeal of the indemnification and/or the advancement rights, nor the adoption of any new provision of the Corporation’s Certification of Incorporation or these Bylaws, nor, to the fullest extent permitted by Delaware law, any modification of law, shall eliminate or reduce the effect of the indemnification and/or advancement rights in respect of any acts or omissions occurring prior to such amendment, repeal, adoption or modification.

SECTION 2. Power to Indemnify in Actions, Suits, or Proceedings Other Than Those by or in the Right of the Corporation. Subject to Section 4 of this Article V, the Corporation shall indemnify, to the fullest extent authorized by the Delaware General Corporation Law, any indemnitee who was or is a party or is threatened to be made a party to any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative (other than an action by or in the right of the Corporation) by reason of the fact that he or she is or was a director or officer of the Corporation, or is or was a director or officer of the Corporation serving at the request of the Corporation as a director or officer, or agent of another corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise, against expenses (including attorneys’ fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit, or proceeding if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. The termination of any action, suit, or proceeding by

judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the indemnitee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Corporation, or, with respect to any criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

SECTION 3. Power to Indemnify in Actions, Suits, or Proceedings by or in the Right of the Corporation. Subject to Section 4 of this Article V, the Corporation shall indemnify any indemnitee who was or is a party or is threatened to be made a party to any threatened, pending, or completed action or suit by or in the right of the Corporation to procure a judgment in its favor by reason of the fact that he or she is or was a director or officer of the Corporation, or is or was a director or officer of the Corporation serving at the request of the Corporation as a director or officer, or agent of another corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection with the defense or settlement of such action or suit if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Corporation; except that no indemnification shall be made in respect of any claim, issue, or matter as to which such indemnitee shall have been adjudged to be liable to the Corporation unless the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity, and only to the extent of such expenses which the Court of Chancery or such other court shall deem proper.

SECTION 4. Authorization of Indemnification. Any indemnification under this Article V (unless ordered by a court) shall be made by the Corporation only as authorized in the specific case upon a determination that indemnification of the director or officer is proper in the circumstances because he or she has met the applicable standard of conduct set forth in Section 2 or Section 3 of this Article V, as the case may be. Such determination shall be made (i) by the Board by a majority vote of directors who were

not parties to such action, suit, or proceeding (“disinterested directors”), or (ii) if there are no disinterested directors or if such disinterested directors so direct, by independent legal counsel in a written opinion, or (iii) by the stockholders; provided that in the event of a Change in Control of the Corporation, any such determination made with respect to conduct occurring before the Change in Control shall be made by independent legal counsel. Notwithstanding the above, to the extent that an indemnitee has been successful on the merits or otherwise in defense of any action, suit, or proceeding described above, or in defense of any claim, issue, or matter therein, he or she shall be indemnified against expenses (including attorneys’ fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by him or her in connection therewith, without the necessity of authorization in the specific case.

SECTION 5. Indemnification by a Court. Notwithstanding any contrary determination in the specific case under Section 4 of this Article V, and notwithstanding the absence of any determination thereunder, any director or officer may apply to the Court of Chancery in the State of Delaware for indemnification to the extent otherwise permissible under Sections 2 and 3 of this Article V. The basis of such indemnification by a court shall be a determination by such court that indemnification of the indemnitee is proper in the circumstances because such indemnitee has met the applicable standards of conduct set forth in Section 2 or 3 of this Article V, as the case may be. Neither a contrary determination in the specific case under Section 4 of this Article V nor the absence of any determination thereunder shall be a defense to such application or create a presumption that the indemnitee seeking indemnification has not met any applicable standard of conduct. Notice of any application for indemnification pursuant to this Section 5 shall be given to the Corporation promptly upon the filing of such application. If successful, in whole or in part, the director or officer seeking indemnification shall also be entitled to be paid the expense of prosecuting such application.

SECTION 6. Successful Defense; Partial Indemnification. If any action, suit or proceeding is disposed of, on the merits or otherwise (including a disposition without prejudice), without (i) the

disposition being adverse to an indemnitee, (ii) an adjudication that the indemnitee was liable to the Corporation, (iii) a plea of guilty or nolo contendere by the indemnitee, (iv) an adjudication that the indemnitee did not act in good faith and in a manner the indemnitee reasonably believed to be in or not opposed to the best interests of the Corporation, or (v) with respect to any criminal proceeding, an adjudication that the indemnitee had reasonable cause to believe his or her conduct was unlawful, the indemnitee shall be considered for the purposes of this Article V to have been successful with respect thereto.

If an indemnitee is entitled under any provision of this Article V to indemnification by the Corporation for a portion of the expenses (including attorneys' fees), judgments, fines or amounts paid in settlement actually and reasonably incurred by the indemnitee or on the indemnitee's behalf in connection with any action, suit, proceeding or investigation, or in defense of any claim, issue or matter therein, and any appeal therefrom but not for the total amount thereof, the Corporation shall nevertheless indemnify the indemnitee for the portion of such expenses (including attorneys' fees), judgments, fines, or amounts paid in settlement actually and reasonably incurred to which the indemnitee is entitled.

SECTION 7. Advance Payment of Expenses. Expenses (including attorneys' fees) reasonably incurred by the indemnitee in defending a threatened or pending civil, criminal, administrative or investigative action, suit, or proceeding, or in connection with an enforcement action pursuant to Section 8(b) of this Article V, shall be paid by the Corporation in advance of the final disposition of such action, suit or proceeding within 10 calendar days after receipt by the Corporation of (i) the statement or statements described in Section 8(a) from the indemnitee requesting such advance or advances from time to time, and (ii) an undertaking by or on behalf of the indemnitee to repay such amount or amounts, only if, and to the extent that, it shall ultimately be determined that he or she is not entitled to be indemnified by the Corporation or, in the case of an enforcement action pursuant to Section 8(b) of this Article V, the indemnitee is not successful in such action. Such undertaking shall be accepted without reference to the financial

ability of the indemnitee to make such repayment. Advances shall be made without regard to whether a determination that indemnification is proper has been made in accordance with Section 4. Advances shall be unsecured and interest-free.

SECTION 8. Procedure.

(a) To obtain an advance or final indemnification, an indemnitee shall promptly submit to the Secretary a written request, including therein or therewith such documentation and information as is reasonably available to the indemnitee and is reasonably necessary to determine whether and to what extent the indemnitee is entitled to indemnification. The Secretary shall, promptly upon receipt of such a request for indemnification, advise the Board in writing that the indemnitee has requested indemnification.

(b) The Corporation's determination whether to grant the indemnitee's advance or final indemnification request shall be made promptly, and in any event within 10 calendar days following receipt of a request for advancement pursuant to Section 7 of this Article V or within 30 calendar days of any other indemnification request. The rights to indemnification and advancement as granted by Section 2, 3, or 7 of this Article V shall be enforceable by the indemnitee in any court of competent jurisdiction if the Corporation denies such request, in whole or in part, or fails to respond within such 10-day period or 30-day period, respectively. It shall be a defense to any such action (other than an action brought to enforce a claim for the advance of costs, charges, and expenses under Section 7 of this Article V) that the indemnitee has not met the standard of conduct set forth in Section 2 or 3 of this Article V, as applicable, but the burden of proving such defense shall be on the Corporation. Neither the failure of the Corporation (including its Board or one of its committees, its independent legal counsel, and its stockholders) to have made a determination prior to the commencement of such action that indemnification of the indemnitee is proper in the circumstances because the indemnitee has met the applicable standard of conduct set forth in Section 2 or 3 of this Article V, nor the fact that there has been an actual determination by the Corporation (including its Board or one of its committees, its independent legal counsel, or its stockholders) that the

indemnitee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that the indemnitee has or has not met the applicable standard of conduct. An indemnitee's expenses (including attorneys' fees) reasonably incurred in connection with successfully establishing the indemnitee's rights to indemnification and advancement, in whole or in part, in any such proceeding or otherwise shall also be indemnified by the Corporation.

SECTION 9. Insurance. The Corporation may purchase and maintain insurance on behalf of any person who is or was a director or officer of the Corporation, or is or was a director or officer of the Corporation serving at the request of the Corporation as a director or officer or agent of another corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the Corporation would have the power or the obligation to indemnify such person against such liability under the provisions of this Article V.

SECTION 10. Certain Definitions. For purposes of this Article V, the following definitions shall apply:

(a) The term "action, suit or proceeding" shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed claim, action, suit, or proceeding, whether civil, criminal, administrative, or investigative.

(b) The term "by reason of the fact that the he or she is or was a director or officer of the Corporation," shall be broadly construed and shall include, without limitation, any actual or alleged act or omission to act.

(c) The term "expenses" shall be broadly and reasonably construed and shall include, without limitation, all direct and indirect costs of any type or nature whatsoever including, without limitation, all attorneys' fees and related disbursements, appeal bonds, and other out-of-pocket costs actually and

reasonably incurred by the indemnitee in connection with either the investigation, defense or appeal of an action, suit or proceeding or establishing or enforcing a right to indemnification under this Article V, Section 145 of the General Corporation Law of the State of Delaware, or otherwise.

(d) The term “judgments, fines and amounts paid in settlement” shall be broadly construed and shall include, without limitation, all direct and indirect payments of any type or nature whatsoever (including, without limitation, all penalties and amounts required to be forfeited or reimbursed to the Corporation), as well as any penalties or excise taxes assessed on a person with respect to an employee benefit plan).

(e) The term “Corporation” shall include, without limitation and in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors or officers or agents, so that any person who is or was a director or officer or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director or officer or agent of another corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise, shall stand in the same position under the provisions of this Article V with respect to the resulting or surviving corporation as he or she would have with respect to such constituent corporation if its separate existence had continued.

(f) The term “other enterprises” shall include, without limitation, employee benefit plans.

(g) The term “serving at the request of the Corporation” shall include, without limitation, any service as a director or officer of the Corporation which imposes duties on, or involves services by, such director or officer with respect to an employee benefit plan, its participants or beneficiaries.

(h) The term “Change in Control” of the Corporation shall mean any event or series of events which results in individuals who were members of the Corporation’s Board at the beginning of a two-year period no longer constituting the majority of the Board at the end of the two-year period.

SECTION 11. Limitation on Indemnification. Notwithstanding any other provision herein to the contrary, the Corporation shall not be obligated pursuant to this Article V:

(a) To indemnify or advance expenses to an indemnitee with respect to an action, suit or proceeding (or part thereof) initiated by the indemnitee, except with respect to an action, suit or proceeding brought to establish or enforce a right to indemnification (which shall be governed by the provisions of Sections 8(b) and 11(b) of this Article V), unless such action, suit, or proceeding (or part thereof) was authorized or consented to by the Board of the Corporation.

(b) To indemnify an indemnitee for any expenses incurred by the indemnitee with respect to any action, suit, or proceeding instituted by the indemnitee to enforce or interpret this Article V or any other right to indemnification, unless the indemnitee is successful in establishing the indemnitee’s right to indemnification in such action, suit or proceeding, in whole or in part, or unless and to the extent that the court in such action, suit or proceeding shall determine that, despite the indemnitee’s failure to establish their right to indemnification, the indemnitee is entitled to indemnity for such expenses; provided, however, that nothing in this Section 11(b) is intended to limit the Corporation’s obligation with respect to the advancement of expenses to an indemnitee in connection with any such action, suit, or proceeding.

(c) To indemnify an indemnitee on account of any proceeding with respect to which final judgment is rendered against the indemnitee for payment or an accounting of profits arising from the purchase or sale by the indemnitee of securities in violation of Section 16(b) of the Securities Exchange Act of 1934, as amended, or any similar successor statute.

(d) To indemnify or to advance expenses to any indemnitee with respect to service at the request of the Corporation as a director, officer, employee, or agent of another corporation, partnership,



joint venture, trust, or other enterprise to the extent of any amount the indemnitee receives as indemnification or advancement of expenses from such other corporation, partnership, joint venture, trust, or other enterprise.

SECTION 12. Certain Settlement Provisions. The Corporation shall have no obligation to indemnify an indemnitee under this Article V for amounts paid in settlement of any action, suit or proceeding without the Corporation's prior written consent, which shall not be unreasonably withheld. The Corporation shall not settle any action, suit or proceeding in any manner that would impose any fine or other obligation on the indemnitee without the indemnitee's prior written consent, which shall not be unreasonably withheld.

SECTION 13. Nonexclusivity. The provisions for indemnification and advancement of expenses set forth in this Article V shall not be deemed exclusive of any other rights which an indemnitee may have under any provision of law, the Corporation's Certificate of Incorporation, in any court in which a proceeding is brought, the vote of the Corporation's stockholders or disinterested directors, agreements, or otherwise, and the indemnitee's rights hereunder shall continue after the indemnitee has ceased acting as a director or officer of the Corporation and shall inure to the benefit of the heirs, executors, and administrators of the indemnitee.

## ARTICLE VI

### DELEGATION OF AUTHORITY

SECTION 1. Execution of Documents. The Board shall designate the officers, employees, and agents of the Corporation who shall have power to execute and deliver deeds, contracts, mortgages, bonds, debentures, checks, drafts, and other orders for the payment of money and other documents for and in the name of the Corporation and may authorize such officers, employees, and agents to delegate such power (including authority to redelegate) by written instrument to other officers, employees, or agents

of the Corporation. Such designation may be by resolution or otherwise, and the authority granted may be general or confined to specific instances, all as the Board may determine.

SECTION 2. Proxies in Respect of Stock or Other Securities of Other Corporations. The Board shall designate the officers of the Corporation who shall have authority to appoint from time to time an agent or agents of the Corporation to exercise in the name and on behalf of the Corporation the powers and rights which the Corporation may have as the holder of stock or other securities or interests in any other corporation or business entity and to vote or consent in respect of such stock securities or interests; such designated officers may instruct the person or persons so appointed as to the manner of exercising such powers and rights; and such designated officers may execute or cause to be executed in the name and on behalf of the Corporation and under its corporate seal, or otherwise, such written proxies, powers of attorney, or other instruments as they may deem necessary or proper in order that the Corporation may exercise such powers and rights.

## ARTICLE VII

### STOCK

SECTION 1. Certificates of Stock. Every holder of stock in the Corporation shall be entitled to have a certificate signed by, or in the name of the Corporation by, the Chairman of the Board, Chief Executive Officer, President, or a Vice President and the Treasurer and/or Assistant Treasurer, or the Secretary or an Assistant Secretary, certifying the number of shares owned by him or her in the Corporation. Where a certificate is countersigned (1) by a transfer agent other than the Corporation or its employee or (2) by a registrar other than the Corporation or its employee, any other signature on the certificate may be a facsimile. In case an officer, transfer agent, or registrar who has signed, or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar, whether because of death, resignation, or otherwise, before such certificate has been issued or delivered by the Corporation, such certificate may nevertheless be issued and delivered by

the Corporation as though the person or persons who signed such certificate or whose facsimile signature has been used thereon had not ceased to be such officer, transfer agent, or registrar. Notwithstanding the foregoing provisions regarding share certificates, the Corporation may provide that, subject to the rights of stockholders under applicable law, some or all of any or all classes or series of the stock may be uncertificated shares.

SECTION 2. Lost, Stolen, or Destroyed Certificates. In the event of loss, theft, or destruction of any certificate of stock, another may be issued in its place pursuant to such regulations as the Board may establish concerning proof of such loss, theft, or destruction and concerning the giving of a satisfactory bond or bonds of indemnity.

SECTION 3. Transfers of Stock. Transfers of stock shall be made only upon the transfer books of the Corporation kept at an office of the Corporation or by transfer agents designated to transfer shares of the stock of the Corporation. Except where a certificate is issued in accordance with Section 2 of this Article VII, an outstanding certificate for the number of shares involved shall be surrendered for cancellation before a new certificate is issued therefore.

SECTION 4. Record Date. In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders, or to receive payment of any dividend or other distribution or allotment of any rights or to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board may fix a record date, which record date shall not precede the date on which the resolution fixing the record date is adopted and which record date shall not be more than 60 nor fewer than 10 calendar days before the date of any meeting of stockholders, nor more than 60 calendar days prior to the time for such other action as hereinbefore described; provided, however, that if no record date is fixed by the Board, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given; and, for determining stockholders entitled to

receive payment of any dividend or other distribution or allotment of rights or to exercise any rights of change, conversion, or exchange of stock or for any other purpose, the record date shall be at the close of business on the day on which the Board adopts a resolution relating thereto.

SECTION 5. Registered Stockholders. The Corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

## ARTICLE VIII

### GENERAL PROVISIONS

SECTION 1. Dividends. Dividends upon the capital stock of the Corporation, subject to the provisions, if any, of the Certificate of Incorporation, may be declared by the Board at any regular or special meeting, pursuant to law. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation. Before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation, or for such other purpose as the directors shall think conducive to the interest of the Corporation, and the directors may modify or abolish any such reserve in the manner in which it was created.

SECTION 2. Reliance Upon Books, Reports, and Records. Each director, each member of any committee designated by the Board, and each officer of the Corporation shall, in the performance of his or her duties, be fully protected in relying in good faith upon the books of account or other records of the Corporation and upon such information, opinions, reports, or statements presented to the Corporation by any of its officers or employees, or committees of the Board so designated, or by any other person as to matters which such director or committee member reasonably believes are within such other person's

professional or expert competence and who has been selected with reasonable care by or on behalf of the Corporation.

SECTION 3. Checks. All checks or demands for money and notes of the Corporation shall be signed by such officer or officers or such other person or persons as the Board may from time to time designate.

SECTION 4. Fiscal Year. The fiscal year of the Corporation shall be fixed by resolution of the Board.

SECTION 5. Seal. The corporate seal shall have inscribed thereon the name of the Corporation, the year of its organization, and the words "Corporate Seal, Delaware." The Board may give general authority to any officer to affix the seal of the Corporation and to attest the affixing by his or her signature. The seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

SECTION 6. Forum for Adjudication of Disputes. Unless the Corporation consents in writing to the selection of an alternative forum, the sole and exclusive forum for (a) any derivative action or proceeding brought on behalf of the Corporation; (b) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders; (c) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, the Certificate of Incorporation or the Bylaws of the Corporation; or (d) any action asserting a claim governed by the internal affairs doctrine shall be the Court of Chancery of the State of Delaware, or, if the Court of Chancery of the State of Delaware does not have jurisdiction, the Superior Court of the State of Delaware, or, if the Superior Court of the State of Delaware does not have jurisdiction, the United States District Court for the District of Delaware, in each case, subject to said court having personal jurisdiction over the indispensable parties named defendants therein. If any action the subject matter of which is within the scope of this Section 6 is filed in a court other than a

court located within the State of Delaware (a "Foreign Action") in the name of any stockholder, such stockholder shall be deemed to have consented to: (x) the personal jurisdiction of the state and federal courts located within the State of Delaware in connection with any action brought in any such court to enforce this Section 6 (an "Enforcement Action"), and (y) having service of process made upon such stockholder in any such Enforcement Action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the Corporation shall be deemed to have notice of and consented to the provisions of this Section 6.

## ARTICLE IX

### OFFICES AND RECORDS

SECTION 1. Delaware Office. The registered office of the Corporation in the State of Delaware shall be located in the City of Wilmington, County of New Castle, and the name and address of its registered agent is The Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware 19801.

SECTION 2. Other Offices. The Corporation may have such other offices, either within or without the State of Delaware, as the Board may designate or as the business of the Corporation may from time to time require.

SECTION 3. Books and Records. The books and records of the Corporation may be kept outside the State of Delaware, except as otherwise required by law, at such place or places as may from time to time be designated by the Board.

## ARTICLE X

### AMENDMENTS

SECTION 1. Amendments. These Bylaws may be altered or repealed by the vote of a majority of the whole Board, subject to the power of the stockholders to alter or repeal any Bylaw made by the Board. Unless otherwise provided in the Certificate of Incorporation, these Bylaws may also be repealed, altered,

or amended, and new Bylaws may be adopted, at any meeting of the stockholders, either annual or special, by the affirmative vote of a majority of the stock entitled to vote at such meeting.

***Deferred Compensation Program  
For Directors  
Amended and Restated, Effective October 7, 2019***

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***Deferred Compensation Program  
For Directors  
Amended and Restated, Effective October 7, 2019***

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1. General

The Deferred Compensation Program for Directors (the “Program”) was established by Air Products and Chemicals, Inc. (“Air Products” or the “Company”) to:

- (a) Provide compensation for nonemployee directors in the form of Air Products’ equity securities to align the interests of directors with those of Air Products’ shareholders; and
- (b) Provide nonemployee directors the opportunity to defer compensation earned as a director.

The Program is provided under the Air Products and Chemicals, Inc. Long-Term Incentive Plan (the “Plan”) and is subject to the terms thereof. With respect to amounts deferred under the Program, in the event of a conflict between terms of the Plan and the Program, the terms of the Program shall control.

2. Effective Dates

The Air Products and Chemicals, Inc. Deferred Compensation Plan for Directors was adopted effective as of 1 January 1980 and was thereafter amended from time to time. Effective 23 January 2003, the Plan was combined with the Long-Term Incentive Plan and offered as a program thereunder. Previously, the Program was amended and restated effective as of 20 May 2010 and was subsequently amended effective as of 16 July 2015 and 1 October 2016. This amended and restated Program is adopted effective as of 7 October 2019 and has been amended and restated to reflect the completion of the acquisition of Versum Materials, Inc. (“Versum”) and to make certain other clarifications deemed desirable by the Company.

3. Participants

Any director of the Company who is not an employee of the Company or of a subsidiary of the Company is eligible to participate in the Program.

4. Mandatory Deferrals

There shall be established for each participant an Air Products Stock Account described under section 6 below to which shall be credited all compensation which is required to be paid by the Company in the form of deferred stock units in accordance with the Compensation Program for Nonemployee Directors ("Mandatory Deferrals").

Dollar amounts to be so credited shall be converted into Air Products deferred stock units in the manner described under Section 6(b)(i) below on the date specified in the Compensation Program for Non-Employee Directors.

5. Elective Deferrals

A participant may elect to defer receipt of all or a specified portion of the compensation (exclusive of expense reimbursements) otherwise currently payable to him or her for serving on the Board of Directors of the Company, attending meetings or committee meetings thereof or performing other services in connection with the business of the Company and its subsidiaries. Such electively deferred compensation ("Elective Deferrals") will be credited on the date the compensation is otherwise payable, to one or both of the hypothetical investment accounts ("Accounts") described in Section 6 below, as directed by the participant.

6. Accounts

There shall be two types of Accounts available under the Program:

- (a) An Interest Account which shall be deemed to earn interest at rates established on the first business day of each calendar quarter based upon the published average long-term yields of corporate bonds of "A" rated Industrial Companies appearing in Moody's Bond Survey or an equivalent bond rating service on such day. The Company shall credit the Interest Account with Elective Deferrals which a participant directs to the Interest Account; and
- (b) (i) An Air Products Stock Account which shall be established for each participant and shall be deemed to be invested in Air Products and Chemicals, Inc. common stock. The Company shall credit the Air Products Stock Account with that number of units (including fractions) obtained by dividing the amount of deferred compensation to be credited to such Account by the "Fair Market Value" of a share of Company common stock on the "Valuation Date" (as each term is defined in Section 6(c) below). The units thus calculated are herein referred to as "Air Products deferred stock units."

(ii) Each participant's Air Products Stock Account existing as of October 1, 2016 was credited with a number of "Versum deferred stock units," to reflect the Company's spin off of Versum as of that date and was subsequently credited with dividend equivalents to reflect quarterly dividends paid on Versum's common stock. On October 7, 2019, Versum was acquired by Merck KGaA. Effective on this date, (1) the number of Versum deferred stock units credited in each applicable participant's Air Products Stock Account as of such date was multiplied by the merger consideration to determine the amount of cash that the participant would have received had such Versum deferred stock units been outstanding shares of Versum common stock, and (2) such amount was converted to Air Products deferred stock units based on the Fair Market Value of a share of Company common stock on the date that the merger was consummated. Such converted units are herein referred to as "Converted Air Products Units". Except as otherwise provided in Section 9(d)(ii) below (payments due upon a Change in Control), Converted Air Products Units shall be treated the same as Air Products deferred stock units for all purposes, and references to "Air Products deferred stock units" in the Program shall be read to include Converted Air Products Units.

(c) (i) For purposes of the Program, the "Fair Market Value" of a share of Company common stock on any date shall mean an amount equal to the closing sale price for such date on the New York Stock Exchange, as reported on the composite transaction tape, or on such other exchange as the "Administrator" (as defined in Section 13 below) may determine. If there is no such sale price quotation for the date as of which Fair Market Value is to be determined, the trading date prior to such date for which there are reported sales prices on the composite transaction tape shall be used.

(ii) For purposes of crediting the Air Products Stock Account with Air Products deferred stock units with respect to Mandatory Deferrals, Elective Deferrals to the Air Products Stock Account, and earnings on amounts credited to the Air Products Stock Account, the "Valuation Date" shall mean the trading date before the date the applicable compensation or earnings is credited to the Air Products Stock Account or such other date determined by the Administrator.

## 7. Earnings on Accounts

Each participant's Accounts will be credited with interest on deferred compensation credited to the Interest Account, and with dividend equivalents on deferred compensation credited to the Air Products Stock Account, as provided below, from the date credited until the last day of the month preceding payment, unless payment is made because of death, in which event interest or dividend equivalents will be credited until the date of death.

- (a) Earnings on Interest Account. Interest shall be credited and compounded quarterly.
- (b) Earnings on Air Products Stock Account. Each Air Products deferred stock unit credited to a participant's Account shall be credited with earnings quarterly as of the last date of the quarter in an amount equal to the dividend payable during the quarter with respect to a share of Air Products common stock. The amounts so credited shall then be converted into Air Products deferred stock units in the manner described under Section 6(b)(i) above.

8. Time and Manner of Making Elective Deferrals

An election to defer compensation must be made by a director prior to the calendar year during which such compensation is earned; provided that an initial election by a new director to defer compensation for all future services may be up to 30 days after commencing service as a director to the Company. An election shall continue in effect until payment of the amount subject to such election or until the participant modifies or revokes the election as described below, whichever shall occur first.

A participant may elect, modify, or revoke a prior election to defer compensation by completing Sections I and II of the Election Form attached hereto as Exhibit A (the "Election Form") and returning it to the Corporate Secretary. Such Election Form shall specify:

- (a) The amount or percentage of compensation to be deferred beginning on a future date specified in the notice until such notice is revoked or modified as to future compensation; and
- (b) The percentage of the Elective Deferrals to be credited to the Interest Account and the percentage to be credited to the Air Products Stock Account.

Any modification or revocation of a prior election described in Section 8(a) or 8(b) above shall relate only to future compensation and shall not apply to any amounts previously credited to the participant's account. A participant's election to defer described in 8(a) may not be revoked or modified during the calendar year. Revocation or modification of a prior election to defer for a calendar year must be made no later than the close of the preceding calendar year.

## 9. Payment of Deferred Compensation

No payment may be made from the participant's Accounts in respect of Elective Deferrals or Mandatory Deferrals or earnings thereon (together, "Deferred Compensation Amount") except as provided below.

- (a) Election of Time of Payment. Within 30 days of commencing service as a director to the Company, a participant may make an election to receive distribution of his or her Deferred Compensation Amount in either a lump sum or in a specified number of consecutive annual installments (not to exceed ten), and may elect the date of payment in the case of a lump sum or the date payments commence in the case of installments. All such elections may be made by completing Section III of the Election Form and returning it to the Corporate Secretary. If a participant does not complete an Election Form specifying the timing of payment of his or her Deferred Compensation Amount within the first 30 days of service, such Deferred Compensation Amount will be paid as a lump sum in the first year after the year in which the director's service as a director ends, and the director will be deemed, for purposes of the Program, to have so elected.
- (b) Changes in Election of Timing of Payment. A participant may change his or her election in regard to the timing of payment of his or her Deferred Compensation Amount by completing a new Election Form and returning it to the Corporate Secretary. Such a change in election of timing of payment will apply only to Deferred Compensation Amounts earned in future years, except a director may change the timing of payment for previously accrued Deferred Compensation Amounts only as follows:
  - (i) A completed Election Form reflecting the desired change must be received by the Corporate Secretary's Office no later than one year prior to the first scheduled payment of such Deferred Compensation Amounts under his or her currently effective Election Form(s);
  - (ii) The change must delay the first payment by at least five years from the date the first scheduled payment otherwise would have been made; and
  - (iii) The change will become effective one year from the date the Election Form is received by the Company.
- (c) Payment Following Termination of Service. The value of the Deferred Compensation Amount credited to a Participant's Interest Account shall be paid in cash, and the value of the Air Products deferred stock units credited to a participant's Air Products Stock Account shall be paid by delivery of one share of Company common stock for each unit, in each case in a lump sum or in annual installments, in accordance with the participant's election.

All payments from a participant's Accounts must be completed by the tenth year after the year in which service as a director terminates. All payments will be made in January of the applicable year or as soon thereafter as reasonably possible. If annual installments are to be paid, the amount of the first payment shall be a fraction of the value of the participant's Accounts as of December 31 of the year preceding payment, the numerator of which is one and the denominator of which is the total number of such installments elected. The amount of each subsequent payment shall be a fraction of the value as of the December 31 preceding each subsequent payment, the numerator of which is one and the denominator of which is the total number of installments elected minus the number of installments previously paid. If a participant has more than one payment election in effect, separate calculations shall be made for the portions of the Account to which the different payment elections apply. The number of shares of common stock to be delivered in payment from the Air Products Stock Account shall be equal to the number of Air Products deferred stock units represented by the payment owed, calculated as aforesaid, rounded up to the next whole share of common stock.

- (d) Accelerated Payment. Notwithstanding the deferral period and timing of payment determined in accordance with Sections 9(a) and (b) above, the participant's Accounts shall be paid on an accelerated basis as follows under the circumstances described below:
- (i) *Payment on Death*. In the event of a participant's death, the value of his or her Interest Account shall be paid in cash; the value of his or her Air Products deferred stock units shall be distributed in shares of Air Products stock. Amounts shall be determined as of the date of death and shall be paid in a single payment or distribution to the participant's estate or designated beneficiary as soon as practicable following the date of death. A participant may designate a beneficiary by completing Section IV of the Election Form and returning it to the Corporate Secretary's Office.
  - (ii) *Change in Control*.
    - (A) In the event of a "change in the ownership or effective control of a corporation, or a change in the ownership of a substantial portion of the assets of a corporation" as defined in Treasury Regulation § 1.409A-3(i)(5) (or any successor provision thereto) of the Company (a "Change in Control"), the value of a participant's Air Products deferred stock units (excluding Converted Air Products Units) shall be paid to the participant in cash or Company Stock, at the discretion of the Board of Directors, as soon as practicable, but no later than 30 days after the Change in Control. If a cash payment is made, the amount shall be equal to the "Change in Control Price", as defined by the Plan, multiplied by the number of Air Products deferred stock units credited to the participant's Air Products Stock Account.

- (B) In the event of a Change in Control followed by a participant's termination of service as a director of the Company, the value of the participant's Interest Account and the Fair Market Value of his or her Converted Air Products Units, determined as of the date of termination of service as a director following or in connection with the Change in Control, shall be immediately due and payable to the participant in a single lump sum of (i) cash with respect to the participant's Interest Account, and (ii) cash or Company Stock, at the discretion of the Board of Directors, with respect to Converted Air Products Units.
- (iii) *Other Events.* Upon the occurrence of any other event or conditions which permit an acceleration of payments under regulations implementing Section 409A of the Internal Revenue Code ("Section 409A"), the Administrator, in its sole discretion, may direct the Corporate Secretary's Office to distribute the value of applicable participants' accounts in accordance with such regulations.
- (e) Miscellaneous Provisions.
- (i) *Withholding of Taxes.* The right of a participant to payments under this Program shall be subject to the Company's obligations at any time to withhold income or other taxes from such payments including, without limitation, by reducing the number of shares of common stock to be distributed in payment of Air Products deferred stock units by the number of shares equal in value to the amount of such taxes required to be withheld.
- (ii) *Rights as to Common Stock.* No participant with deferred compensation credited to the Air Products Stock Account shall have rights as a Company shareholder with respect thereto unless and until the date as of which shares of common stock are issued in payment of such deferred compensation. No shares of common stock shall be issued and delivered hereunder unless and until all legal requirements applicable to the issuance, delivery or transfer of such shares have been complied with including, without limitation, compliance with the provisions of the Act and of the Securities Act of 1993, as amended, and the applicable requirements of the exchanges on which the Company's common stock is, at the time, listed. Distributions of shares of common stock in payment under this Program may be made either from shares of authorized but unissued common stock reserved for such purpose by the Board of Directors or from shares of authorized and issued common stock reacquired by the Company and held in its treasury, as from time to time determined by, or pursuant to delegations from, the Board of Directors.

- (iii) *Adjustments to Avoid Dilution.* In the event of any change in the common stock of the Company by reason of any stock dividend or split, recapitalization, merger, consolidation, combination or exchange of shares, or a rights offering to purchase common stock at a price substantially below fair market value, or other similar corporate change, including without limitation in connection with a Change in Control of the Company, the value and attributes of each deferred stock unit shall be appropriately adjusted consistent with such change to the same extent as if such deferred stock units were issued and outstanding shares of common stock of the Company, so as to preserve, without increasing, the value of deferred compensation credited to each participant's Air Products Stock Account. Such adjustments shall be made by the Board of Directors and shall be conclusive and binding for all purposes of the Program.

10. Participant's Rights Unsecured

The right of any participant to the payment of deferred compensation and earnings thereon under the Program shall be an unsecured and unfunded claim against the general assets of the Company.

11. Nonassignability

The right of a participant to the payment of deferred compensation and earnings thereon under the Program shall not be assigned, transferred, pledged, or encumbered or be subject in any manner to alienation or anticipation.

12. Statement of Account

Statements will be sent to participants quarterly as to the value of their Accounts as of the end of the previous quarter.



13. Administration

The Administrator of this Program shall be the Corporate Secretary of the Company. The Administrator shall have authority to adopt rules and regulations for carrying out the Program and to interpret, construe, and implement the provisions thereof.

14. Business Days

If any date specified herein falls on a Saturday, Sunday or legal holiday, such date shall be deemed to refer to the next business day thereafter.

15. Amendment and Termination

This Program may at any time be amended, modified or terminated by the Board of Directors of the Company. No amendment, modification, or termination shall, without the consent of a participant, adversely affect such participant's rights with respect to amounts theretofore accrued in his or her deferred compensation account, except as required by law.

16. Notices

All notices to the Company under this Program shall be in writing and shall be given as follows:

Corporate Secretary  
Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195-1501

17. Governing Law; Section 409A

This Program shall be governed in accordance with the laws of the Commonwealth of Pennsylvania for all purposes without giving effect to principles of conflicts of laws. The Program shall be construed and interpreted to comply with, or be exempt from, Section 409A, and all provisions of the Program shall be construed in a manner consistent with the requirements for avoiding taxes or penalties under Section 409A. If the Administrator determines that any provision of the Program is, or might be, inconsistent with the restrictions imposed by Section 409A, the Program shall be construed as if such provision was never included in the Program, and the Program shall be deemed to be amended, in each case to the extent that the Administrator determines it is necessary to bring the Program into compliance with Section 409A. Any such deemed amendment shall be effective as of the earliest date such amendment is necessary under Section 409A.

Notwithstanding the foregoing, nothing in the Program shall be interpreted or construed to transfer any liability for any tax (including a tax or penalty due as a result of a failure to comply with Section 409A) from a participant to the Company or to any other individual or entity. Each installment payment required under this Program shall be considered a separate payment for purposes of Section 409A.

Notwithstanding anything in this Program to the contrary, amounts or benefits payable under this Program upon a termination of service that constitute “nonqualified deferred compensation” within the meaning of Section 409A shall commence when the participant incurs a “separation from service” within the meaning of Treasury Regulation 1.409A-1(h) (“Separation from Service”). In addition, to the extent necessary to avoid taxes or penalties under Section 409A, if at the time of a participant’s Separation from Service the participant is a “specified employee” within the meaning of Section 409A(a)(2)(B)(i) of the Internal Revenue Code, any payment under this Program that is subject to Section 409A and would otherwise be paid within six months after the Executive’s Separation from Service will not be paid until after the earlier of: (i) the first business day of the seventh month following participant’s Separation from Service, or (ii) the date of the participant’s death.

**EXHIBIT A**  
**AIR PRODUCTS AND CHEMICALS, INC. (the "Company")**  
**DEFERRED COMPENSATION PROGRAM FOR DIRECTORS (the "Program")**  
**Election Form**  
*(For deferrals effective after 31 December 2005)*

To: Corporate Secretary  
Air Products and Chemicals, Inc.

**I. Elective Deferred Compensation Amount**

In accordance with the provisions of the Program, I hereby (check one):

- Elect (or modify my prior election) to defer receipt of compensation otherwise payable to me in cash for services as a Director of the Company in the manner described below (fill in one):

\$ \_\_\_\_ (amount per quarter)  
or  
\_\_\_\_ (percentage per quarter)

- Revoke my prior election to defer.

This election, modification, or revocation shall take effect beginning on \_\_\_\_\_ to affect only compensation earned on and after such date. (Must be a date after the date this Election Form is received by the Company.) Revocation or modification of a prior election may be made only for a future calendar year and must be made no later than the close of the calendar year proceeding the year for which it is effective.

**II. Investment Account for Elective Deferred Compensation Amount.**

The Elective Deferred Compensation Amount is to be deemed invested in the following account(s) (enter a whole percentage from 1% to 100% in each blank, with the two percentages totaling 100%):

\_\_\_\_% in the Interest Account to be paid out in the form of cash.

\_\_\_\_% in the Air Products Stock Account to be distributed in the form of Air Products and Chemicals, Inc. Common Stock.

Notes:

An election to change crediting of future elective deferrals to an Interest Account or your Air Products Stock Account will be effective for the next quarter.

Under current federal securities law, it is necessary to report to the Securities and Exchange Commission the number of units credited to the Air Products Stock Account at the end of each fiscal year.

**EXHIBIT A**  
**AIR PRODUCTS AND CHEMICALS, INC.**  
**DEFERRED COMPENSATION PROGRAM FOR DIRECTORS (the “Program”)**  
**Election Form**

(continued)

**III. Timing of Payment of Deferred Compensation Amounts (Elective and Mandatory)**

COMPLETE A OR B, BUT NOT BOTH, AND C.

A. Lump Sum Election

Deferred Compensation Amounts (if any) are to be paid to me in a lump sum (check one):

- In the year my service as a Director ends.
- In the \_\_\_\_ year after the year in which my service as a Director ends (not to exceed tenth).

B. Installment Election

Deferred Compensation Amounts (if any) are to be paid to me in \_\_\_\_\_ (up to 10) consecutive annual installments, the first of which is to be paid in (check one):

- The year in which my service ends.
- \_\_\_\_ year after the year in which my service ends (the last installment must be paid no later than 10 years after the year in which service ends).

C. This election shall apply to:

\_\_\_\_\_ Future year Deferred Compensation Amounts only.

\_\_\_\_\_ All Deferred Compensation Amounts.\*

\* Except for initial elections made within the first 30 days of eligibility, this election will become effective as to previous Deferred Compensation Amounts one year from the date received by the Corporate Secretary's Office. If payouts under a prior election are scheduled to commence before one year, this election is void and the prior election will control. Any modification or revocation of a prior payment election must delay commencement of the payment by five years from the date the payment otherwise would have been made.

**EXHIBIT A**  
**AIR PRODUCTS AND CHEMICALS, INC.**  
**DEFERRED COMPENSATION PROGRAM FOR DIRECTORS (the “Program”)**  
***Election Form***

(continued)

**IV. Beneficiary Designation**

If I die before receiving all the deferred payments due me under the Program, I understand the value of my Deferred Compensation Amounts will be paid to my estate or designated beneficiary, in a single lump sum payment or distribution following the date of my death. I wish to designate \_\_\_\_\_ as my beneficiary. (A beneficiary may be designated by delivering this Election Form to the Corporate Secretary of the Company. Beneficiary designations that are not received by the Corporate Secretary’s Office prior to the participant’s death cannot be honored.)

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This Election is subject to the terms of Air Products and Chemicals, Inc. Deferred Compensation Program for Directors, as amended from time to time.

Received on the day of \_\_\_\_\_  
on behalf of the Company.      Signature of Director

By \_\_\_ Date: \_\_\_  
(Assistant) Corporate Secretary

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***Compensation Program***  
***for Nonemployee Directors***  
**Amended and Restated Effective November 26, 2019**

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- a. Each director shall be paid an annual retainer of \$120,000 for serving as a member of the Board of Directors and any Board Committee(s), which retainer shall be payable in quarterly installments at the end of each quarter. Payment of this retainer may be deferred under the Deferred Compensation Program for Directors.
- b. The chairman of the Audit and Finance Committee shall be paid an additional annual retainer of \$25,000. The chairman of the Corporate Governance and Nominating Committee shall be paid an annual retainer of \$15,000. The chairman of the Management Development and Compensation Committee shall be paid an annual retainer of \$20,000. Such retainers shall be payable in quarterly installments. Payment may be deferred under the Deferred Compensation Program for Directors.
- c. The lead director shall receive an additional annual retainer of \$25,000. Payment may be deferred under the Deferred Compensation Program for Directors.
- d. Deferred stock units with a targeted dollar value of \$150,000 shall be credited annually to the Air Products Stock Account under the Deferred Compensation Program for Directors for each director who is continuing in office after the Annual Meeting of Shareholders, effective as of the day of the Annual Meeting. The number of units to be credited will be determined based on the Fair Market Value of a share of common stock of the Company as determined under the Program.

- e. Deferred stock units shall be credited to the Air Products Stock Account under the Deferred Compensation Program for Directors for each newly-elected director effective as of the date the director first serves on the Board. The targeted dollar value of such units shall be the amount specified in paragraph (d) above multiplied by a fraction, the numerator of which shall be the number of full or partial months remaining until the next Annual Meeting of Shareholders and the denominator of which shall be twelve. The number of units to be credited will be determined based on the Fair Market Value of a share of common stock of the Company as determined under the Program.
- f. Directors shall be reimbursed for out-of-pocket expenses incurred in attending regular and special meetings of the Board and Board Committees and any other business function of the Company at the request of the Chairman of the Board. Expenses will be reimbursed as submitted.<sup>\*/</sup>

<sup>\*/</sup> Directors are reimbursed at the rate of \$.58 per mile or the current rate published by the Internal Revenue Service for use of their personal cars in connection with Company business. Directors using personal aircraft or private carrier will be reimbursed for such expenses at a rate equivalent to first-class airfare of scheduled carriers.

**AIR PRODUCTS AND CHEMICALS, INC.  
NON-EMPLOYEE DIRECTORS  
EXPENSE REPORT**

EVENT(S) AND DATE(S) \_\_\_\_\_

COMMERCIAL AIRFARE \_\_\_\_\_

(Attach Ticket)

HOTEL ACCOMMODATIONS \_\_\_\_\_

MEALS \_\_\_\_\_

MILEAGE \_\_\_\_\_

CHAUFFEUR SERVICE \_\_\_\_\_

TELEPHONE TOLLS \_\_\_\_\_

MISCELLANEOUS \_\_\_\_\_

(Please Specify)

TOTAL \_\_\_\_\_

\_\_\_\_\_

Signature / Date

\_\_\_\_\_

Address

**Please submit this form with attached receipts to Norma L. Visnar, Corporate Secretary's Office**



**PRINCIPAL EXECUTIVE OFFICER'S CERTIFICATION**

I, Seifi Ghasemi, certify that:

1. I have reviewed this Quarterly Report of Air Products and Chemicals, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: 24 January 2020

/s/ Seifi Ghasemi

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Seifi Ghasemi

Chairman, President and Chief Executive Officer

**PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION**

I, M. Scott Crocco, certify that:

1. I have reviewed this Quarterly Report of Air Products and Chemicals, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: 24 January 2020

/s/ M. Scott Crocco

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M. Scott Crocco  
Executive Vice President and Chief Financial Officer

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

In connection with the Quarterly Report of Air Products and Chemicals, Inc. (the "Company") on Form 10-Q for the period ending 31 December 2019, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Seifi Ghasemi, Chairman, President, and Chief Executive Officer of the Company, and M. Scott Crocco, Executive Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: 24 January 2020

/s/ Seifi Ghasemi

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Seifi Ghasemi  
Chairman, President, and Chief Executive Officer

/s/ M. Scott Crocco

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M. Scott Crocco  
Executive Vice President and Chief Financial Officer