

OLIN CORP
Form 10-Q
May 02, 2019
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SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 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 1-1070

Olin Corporation
(Exact name of registrant as specified in its charter)

Virginia 13-1872319
(State or other jurisdiction of incorporation or organization) (I.R.S. Employer Identification No.)
190 Carondelet Plaza, Suite 1530, Clayton, MO 63105
(Address of principal executive offices) (Zip Code)

(314) 480-1400
(Registrant's telephone number, including area code)

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, 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 x

As of March 31, 2019, 164,859,571 shares of the registrant's common stock were outstanding.

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Part I — Financial Information

Item 1. Financial Statements.

OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES

Condensed Balance Sheets

(In millions, except per share data)

(Unaudited)

	March 31, 2019	December 31, 2018	March 31, 2018
ASSETS			
Current assets:			
Cash and cash equivalents	\$105.7	\$ 178.8	\$109.1
Receivables, net	808.3	776.3	835.6
Income taxes receivable	6.3	5.9	17.5
Inventories, net	717.5	711.4	675.6
Other current assets	46.7	35.0	61.2
Total current assets	1,684.5	1,707.4	1,699.0
Property, plant and equipment (less accumulated depreciation of \$2,892.4, \$2,781.0 and \$2,444.2)	3,433.5	3,482.1	3,539.4
Operating lease assets, net	275.1	—	—
Deferred income taxes	31.7	26.3	39.4
Other assets	1,131.4	1,150.4	1,197.0
Intangible assets, net	494.2	511.6	565.1
Goodwill	2,119.5	2,119.6	2,120.3
Total assets	\$9,169.9	\$ 8,997.4	\$9,160.2
LIABILITIES AND SHAREHOLDERS' EQUITY			
Current liabilities:			
Current installments of long-term debt	\$126.1	\$ 125.9	\$0.7
Accounts payable	637.0	636.5	698.2
Income taxes payable	13.0	22.6	16.0
Current operating lease liabilities	69.4	—	—
Accrued liabilities	294.4	333.3	256.1
Total current liabilities	1,139.9	1,118.3	971.0
Long-term debt	3,067.2	3,104.4	3,534.7
Operating lease liabilities	206.0	—	—
Accrued pension liability	660.2	674.3	628.7
Deferred income taxes	525.9	518.9	498.4
Other liabilities	733.1	749.3	764.3
Total liabilities	6,332.3	6,165.2	6,397.1
Commitments and contingencies			
Shareholders' equity:			
Common stock, par value \$1 per share: authorized, 240.0 shares; issued and outstanding, 164.9, 165.3 and 167.2 shares	164.9	165.3	167.2
Additional paid-in capital	2,239.2	2,247.4	2,285.0
Accumulated other comprehensive loss	(656.9)	(651.0)	(552.8)
Retained earnings	1,090.4	1,070.5	863.7
Total shareholders' equity	2,837.6	2,832.2	2,763.1
Total liabilities and shareholders' equity	\$9,169.9	\$ 8,997.4	\$9,160.2

The accompanying notes to condensed financial statements are an integral part of the condensed financial statements.

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OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES

Condensed Statements of Operations

(In millions, except per share data)

(Unaudited)

	Three Months Ended March 31,	
	2019	2018
Sales	\$1,553.4	\$1,710.3
Operating expenses:		
Cost of goods sold	1,347.3	1,528.7
Selling and administration	107.0	100.5
Restructuring charges	4.0	4.0
Acquisition-related costs	—	0.3
Other operating income	0.1	8.1
Operating income	95.2	84.9
Earnings of non-consolidated affiliates	—	0.5
Interest expense	57.4	63.7
Interest income	0.2	0.4
Non-operating pension income	3.9	5.4
Other income	11.2	—
Income before taxes	53.1	27.5
Income tax provision	11.4	6.6
Net income	\$41.7	\$20.9
Net income per common share:		
Basic	\$0.25	\$0.13
Diluted	\$0.25	\$0.12
Dividends per common share	\$0.20	\$0.20
Average common shares outstanding:		
Basic	165.0	167.2
Diluted	166.1	169.2

The accompanying notes to condensed financial statements are an integral part of the condensed financial statements.

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OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES

Condensed Statements of Comprehensive Income (Loss)

(In millions)

(Unaudited)

	Three Months Ended March 31,	
	2019	2018
Net income	\$41.7	\$20.9
Other comprehensive (loss) income, net of tax:		
Foreign currency translation adjustments, net	(8.3)	12.4
Unrealized losses on derivative contracts, net	(3.3)	(0.1)
Amortization of prior service costs and actuarial losses, net	5.7	5.4
Total other comprehensive (loss) income, net of tax	(5.9)	17.7
Comprehensive income	\$35.8	\$38.6

The accompanying notes to condensed financial statements are an integral part of the condensed financial statements.

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OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES

Condensed Statements of Shareholders' Equity

(In millions, except per share data)

(Unaudited)

	Common Stock		Additional	Accumulated		Retained	Total
	Shares	Par	Paid-In	Other		Earnings	Shareholders'
	Issued	Value	Capital	Comprehensive			Equity
				Loss			
Balance at January 1, 2018	167.1	\$167.1	\$2,280.9	\$ (484.6	)	\$790.3	\$ 2,753.7
Income tax reclassification adjustment	—	—	—	(85.9	)	85.9	—
Net income	—	—	—	—		20.9	20.9
Other comprehensive income	—	—	—	17.7		—	17.7
Dividends paid:							
Common stock (\$0.20 per share)	—	—	—	—		(33.4	) (33.4
Common stock issued for:							
Stock options exercised	0.1	0.1	0.9	—		—	1.0
Other transactions	—	—	0.5	—		—	0.5
Stock-based compensation	—	—	2.7	—		—	2.7
Balance at March 31, 2018	167.2	\$167.2	\$2,285.0	\$ (552.8	)	\$863.7	\$ 2,763.1
Balance at January 1, 2019	165.3	\$165.3	\$2,247.4	\$ (651.0	)	\$1,070.5	\$ 2,832.2
Lease accounting adoption adjustment	—	—	—	—		11.2	11.2
Net income	—	—	—	—		41.7	41.7
Other comprehensive loss	—	—	—	(5.9	)	—	(5.9
Dividends paid:							
Common stock (\$0.20 per share)	—	—	—	—		(33.0	) (33.0
Common stock repurchased and retired	(0.6	) (0.6	) (12.6	)	—	—	(13.2
Common stock issued for:							
Stock options exercised	0.1	0.1	1.3	—		—	1.4
Other transactions	0.1	0.1	0.3	—		—	0.4
Stock-based compensation	—	—	2.8	—		—	2.8
Balance at March 31, 2019	164.9	\$164.9	\$2,239.2	\$ (656.9	)	\$1,090.4	\$ 2,837.6

The accompanying notes to condensed financial statements are an integral part of the condensed financial statements.

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OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES

Condensed Statements of Cash Flows

(In millions)

(Unaudited)

	Three Months Ended March 31,	
	2019	2018
Operating Activities		
Net income	\$41.7	\$20.9
Adjustments to reconcile net income to net cash and cash equivalents provided by (used for) operating activities:		
Gain on disposition of non-consolidated affiliate	(11.2)	—
Earnings of non-consolidated affiliates	—	(0.5)
Losses on disposition of property, plant and equipment	—	0.1
Stock-based compensation	3.3	3.1
Depreciation and amortization	152.9	146.7
Deferred income taxes	(3.0)	(18.9)
Qualified pension plan contributions	(0.1)	(0.5)
Qualified pension plan income	(2.0)	(3.8)
Change in:		
Receivables	(36.2)	(102.5)
Income taxes receivable/payable	(9.9)	6.0
Inventories	(11.2)	14.9
Other current assets	(12.4)	(16.7)
Accounts payable and accrued liabilities	(17.9)	25.1
Other assets	2.9	3.1
Other noncurrent liabilities	6.4	0.3
Other operating activities	1.0	3.6
Net operating activities	104.3	80.9
Investing Activities		
Capital expenditures	(102.2)	(89.5)
Proceeds from disposition of property, plant and equipment	—	0.1
Proceeds from disposition of non-consolidated affiliate	20.0	—
Net investing activities	(82.2)	(89.4)
Financing Activities		
Long-term debt:		
Borrowings	—	550.3
Repayments	(50.2)	(609.9)
Common stock repurchased and retired	(13.2)	—
Stock options exercised	1.4	1.0
Dividends paid	(33.0)	(33.4)
Debt issuance costs	—	(8.5)
Net financing activities	(95.0)	(100.5)
Effect of exchange rate changes on cash and cash equivalents	(0.2)	(0.3)
Net decrease in cash and cash equivalents	(73.1)	(109.3)
Cash and cash equivalents, beginning of period	178.8	218.4
Cash and cash equivalents, end of period	\$105.7	\$109.1
Cash paid for interest and income taxes:		
Interest, net	\$52.3	\$41.4

Income taxes, net of refunds	\$17.8	\$14.5
Non-cash investing activities:		
Decrease in capital expenditures included in accounts payable and accrued liabilities	\$20.6	\$12.1

The accompanying notes to condensed financial statements are an integral part of the condensed financial statements.

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OLIN CORPORATION AND CONSOLIDATED SUBSIDIARIES

Notes to Condensed Financial Statements
(Unaudited)

NOTE 1. DESCRIPTION OF BUSINESS

Olin Corporation (Olin) is a Virginia corporation, incorporated in 1892, having its principal executive offices in Clayton, MO. We are a manufacturer concentrated in three business segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. The Chlor Alkali Products and Vinyls segment manufactures and sells chlorine and caustic soda, ethylene dichloride (EDC) and vinyl chloride monomer, methyl chloride, methylene chloride, chloroform, carbon tetrachloride, perchloroethylene, trichloroethylene and vinylidene chloride, hydrochloric acid, hydrogen, bleach products and potassium hydroxide. The Epoxy segment produces and sells a full range of epoxy materials, including allyl chloride, epichlorohydrin, liquid epoxy resins, solid epoxy resins and downstream products such as differentiated epoxy resins and additives. The Winchester segment produces and sells sporting ammunition, reloading components, small caliber military ammunition and components, and industrial cartridges.

We have prepared the condensed financial statements included herein, without audit, pursuant to the rules and regulations of the U.S. Securities and Exchange Commission (SEC). The preparation of the financial statements requires estimates and assumptions that affect amounts reported and disclosed in the financial statements and related notes. In our opinion, these financial statements reflect all adjustments (consisting only of normal accruals), which are necessary to present fairly the results for interim periods. Certain information and footnote disclosures normally included in financial statements prepared in accordance with generally accepted accounting principles have been condensed or omitted pursuant to such rules and regulations; however, we believe that the disclosures are appropriate. We recommend that you read these condensed financial statements in conjunction with the financial statements, accounting policies and the notes thereto and Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2018. Certain reclassifications were made to prior year amounts to conform to the 2019 presentation.

NOTE 2. ACCOUNTING POLICIES

Leases

In February 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-02 "Leases," (ASU 2016-02) which supersedes Accounting Standards Codification (ASC) 840 "Leases" and creates a new topic, ASC 842 "Leases" (ASC 842). Subsequent to the issuance of ASU 2016-02, ASC 842 was amended by various updates that amend and clarify the impact and implementation of the aforementioned update. Upon initial application, the provisions of these updates are required to be applied using the modified retrospective method which requires retrospective adoption to each prior reporting period presented with the cumulative effect of adoption recorded to the earliest reporting period presented. An optional transition method can be utilized which requires application of these updates beginning on the date of adoption with the cumulative effect of initially applying these updates recognized at the date of initial adoption. We adopted these updates on January 1, 2019 using the optional transition method. Consequently, our comparative periods have not been retrospectively adjusted for the new lease requirements. In addition, we elected the following practical expedients:

We elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to carry forward the historical lease classification.

We elected the practical expedient related to land easements, allowing us to carry forward our accounting treatment for land easements on existing agreements.

—

We elected the short-term practical expedient for all classes of lease assets, which allows us to not record leases with an initial term of 12 months or less on the balance sheet, and instead recognize the expense straight-line over the lease term.

We elected the practical expedient to not separate lease components from non-lease components for all asset classes.

Adoption of these updates resulted in the recording of operating lease assets and lease liabilities on our condensed balance sheet of \$291.9 million as of January 1, 2019. Our assets and liabilities for finance leases remained unchanged. We also recognized the cumulative effect of applying these updates as an adjustment to retained earnings of \$11.2 million, net of tax, which was primarily related to the recognition of previously deferred sale/leaseback gains. Our condensed statements of operations and cash flows, along with our compliance with all covenants and restrictions under all our outstanding credit agreements, were not impacted by this adoption.

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We determine if an arrangement is a lease at inception of the contract. Operating lease 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. Operating lease assets and liabilities are recognized at commencement date based on the present value of fixed lease payments over the lease term. Our lease commitments are primarily for railcars, but also include logistics, manufacturing, storage, real estate and information technology assets. Leases with an initial term of 12 months or less are not recorded on the balance sheet; instead, we recognize lease expense for these leases on a straight-line basis over the lease term. We do not account for lease components (e.g., fixed payments to use the underlying lease asset) separately from the non-lease components (e.g., fixed payments for common-area maintenance costs and other items that transfer a good or service). Some of our leases include variable lease payments, which primarily result from changes in consumer price and other market-based indices, which are generally updated annually, and maintenance and usage charges. These variable payments are excluded from the calculation of our lease assets and liabilities.

Most leases include one or more options to renew, with renewal terms that can extend the lease term from one to many years. The exercise of lease renewal options is typically at our sole discretion. Certain leases also include options to purchase the leased asset. We do not include options to renew or purchase leased assets in the measurement of lease liabilities unless those options are highly certain of exercise. The depreciable life of assets and leasehold improvements are limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise. We have operating leases with terms that require us to guarantee a portion of the residual value of the leased assets upon termination of the lease as well as other guarantees. These residual value guarantees consist primarily of leases for railcars. Residual value guarantee payments that become probable and estimable are accrued as part of the lease liability and recognized over the remaining life of the applicable lease. Our current expectation is that the likelihood of material residual guarantee payments is remote. We utilize the interest rate implicit in the lease to determine the lease liability when the interest rate can be determined. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments. We estimate the incremental borrowing rate based on the geographic region for which we would borrow, on a secured basis of the lease asset, at an amount equal to the lease payments over a similar time period as the lease term. We have no additional restrictions or covenants imposed by our lease contracts.

NOTE 3. ACQUISITION

On October 5, 2015 (the Closing Date), we completed the acquisition (the Acquisition) from The Dow Chemical Company (Dow) (a wholly owned subsidiary of Dow Inc., which was separated from DowDupont Inc. on April 1, 2019) of its U.S. Chlor Alkali and Vinyl, Global Chlorinated Organics and Global Epoxy businesses (collectively, the Acquired Business), whose operating results are included in the accompanying financial statements since the Closing Date.

We incurred costs related to the integration of the Acquired Business of \$0.3 million for the three months ended March 31, 2018.

NOTE 4. RESTRUCTURING CHARGES

On December 10, 2018, we announced that we had made the decision to permanently close the ammunition assembly operations at our Winchester facility in Geelong, Australia. Subsequent to the facility's closure, product for customers in the region will be sourced from Winchester manufacturing facilities located in the United States. For the three months ended March 31, 2019, we recorded pretax restructuring charges of \$0.1 million for lease and other contract termination costs related to this action. We expect to incur additional restructuring charges through 2019 of approximately \$1 million related to this closure. For the three months ended March 31, 2019, we recorded additional pretax restructuring charges of \$1.4 million for employee severance and related benefit costs related to our Winchester

operations.

On March 21, 2016, we announced that we had made the decision to close a combined total of 433,000 tons of chlor alkali capacity across three separate locations. Associated with this action, we have permanently closed our Henderson, NV chlor alkali plant with 153,000 tons of capacity and have reconfigured the site to manufacture bleach and distribute caustic soda and hydrochloric acid. Also, the capacity of our Niagara Falls, NY chlor alkali plant has been reduced from 300,000 tons to 240,000 tons and the chlor alkali capacity at our Freeport, TX facility was reduced by 220,000 tons. This 220,000 ton reduction was entirely from diaphragm cell capacity. For the three months ended March 31, 2019 and 2018, we recorded pretax restructuring charges of \$2.5 million and \$3.0 million, respectively, for facility exit costs and lease and other contract termination costs related to these actions. We expect to incur additional restructuring charges through 2019 of approximately \$8 million related to these capacity reductions.

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For the three months ended March 31, 2018, we recorded pretax restructuring charges of \$1.0 million for facility exit costs related to our permanent reduction in capacity at our Becancour, Canada chlor alkali facility in 2014. We expect to incur additional restructuring charges through 2019 of less than \$1 million related to this action.

The following table summarizes the 2019 and 2018 activities by major component of these restructuring actions and the remaining balances of accrued restructuring costs as of March 31, 2019 and 2018:

	Employee severance and related benefit costs	Lease and other contract termination costs	Facility exit costs	Total
	(\$ in millions)			
Balance at January 1, 2018	\$1.8	\$ 3.3	\$ —	\$5.1
Restructuring charges	—	0.4	3.6	4.0
Amounts utilized	(0.5)	(0.8)	(1.5)	(2.8)
Balance at March 31, 2018	\$1.3	\$ 2.9	\$ 2.1	\$6.3
Balance at January 1, 2019	\$1.5	\$ 6.0	\$ 0.7	\$8.2
Restructuring charges	1.4	0.1	2.5	4.0
Amounts utilized	(0.7)	(0.6)	(2.4)	(3.7)
Balance at March 31, 2019	\$2.2	\$ 5.5	\$ 0.8	\$8.5

The following table summarizes the cumulative restructuring charges of these 2018, 2016 and 2014 restructuring actions by major component through March 31, 2019:

	Chlor Alkali Products and Vinyls Becancour Capacity Reductions	Winchester	Total	
	(\$ in millions)			
Write-off of equipment and facility	\$3.5	\$ 78.1	\$ 2.6	\$84.2
Employee severance and related benefit costs	2.7	5.9	2.7	11.3
Facility exit costs	5.9	36.3	—	42.2
Employee relocation costs	—	1.7	—	1.7
Lease and other contract termination costs	6.1	40.2	0.3	46.6
Total cumulative restructuring charges	\$18.2	\$ 162.2	\$ 5.6	\$186.0

As of March 31, 2019, we have incurred cash expenditures of \$92.9 million and non-cash charges of \$84.6 million related to these restructuring actions. The remaining balance of \$8.5 million is expected to be paid out through 2020.

NOTE 5. ACCOUNTS RECEIVABLES

On December 20, 2016, we entered into a three-year, \$250.0 million Receivables Financing Agreement with PNC Bank, National Association, as administrative agent (Receivables Financing Agreement). Under the Receivables Financing Agreement, our eligible trade receivables are used for collateralized borrowings and continue to be serviced by us. In addition, the Receivables Financing Agreement incorporates the leverage and coverage covenants that are contained in the senior revolving credit facility. As of March 31, 2019, \$352.8 million of our trade receivables were pledged as collateral and we had \$125.0 million drawn under the agreement. As of March 31, 2019, we had \$125.0 million additional borrowing capacity under the Receivables Financing Agreement. As of December 31, 2018, \$360.4

million of our trade receivables were pledged as collateral and \$125.0 million was drawn under the agreement and as of March 31, 2018, \$382.7 million of our trade receivables were pledged as collateral and we had \$230.3 million drawn under the agreement.

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Olin also has trade accounts receivable factoring arrangements (AR Facilities) and pursuant to the terms of the AR Facilities, certain of our subsidiaries may sell their accounts receivable up to a maximum of \$315.0 million. We will continue to service the outstanding accounts sold. These receivables qualify for sales treatment under ASC 860 “Transfers and Servicing” and, accordingly, the proceeds are included in net cash provided by operating activities in the condensed statements of cash flows. The following table summarizes the AR Facilities activity:

	March 31,	
	2019	2018
	(\$ in millions)	
Balance at beginning of year	\$132.4	\$182.3
Gross receivables sold	134.9	413.1
Payments received from customers on sold accounts	(170.5)	(416.5)
Balance at end of period	\$96.8	\$178.9

The factoring discount paid under the AR Facilities is recorded as interest expense on the condensed statements of operations. The factoring discount was \$0.5 million and \$1.2 million for the three months ended March 31, 2019 and 2018, respectively. The agreements are without recourse and therefore no recourse liability had been recorded as of March 31, 2019, December 31, 2018, or March 31, 2018.

NOTE 6. ALLOWANCE FOR DOUBTFUL ACCOUNTS RECEIVABLES

We evaluate the collectibility of accounts receivable based on a combination of factors. We estimate an allowance for doubtful accounts as a percentage of net sales based on historical bad debt experience. This estimate is periodically adjusted when we become aware of a specific customer’s inability to meet its financial obligations (e.g., bankruptcy filing) or as a result of changes in the overall aging of accounts receivable. While we have a large number of customers that operate in diverse businesses and are geographically dispersed, a general economic downturn in any of the industry segments in which we operate could result in higher than expected defaults, and, therefore, the need to revise estimates for the provision for doubtful accounts could occur.

Allowance for doubtful accounts receivable consisted of the following:

	March 31,	
	2019	2018
	(\$ in millions)	
Balance at beginning of year	\$12.9	\$12.3
Provisions charged	0.5	1.1
Write-offs, net of recoveries	(0.1)	—
Foreign currency translation adjustment	(0.1)	—
Balance at end of period	\$13.2	\$13.4

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NOTE 7. INVENTORIES

Inventories consisted of the following:

	March 31,	December 31,	March 31,
	2019	2018	2018
	(\$ in millions)		
Supplies	\$70.3	\$ 66.4	\$ 65.7
Raw materials	73.5	66.7	75.3
Work in process	145.6	139.6	139.8
Finished goods	498.7	488.5	440.8
	788.1	761.2	721.6
LIFO reserve	(70.6)	(49.8)	(46.0)
Inventories, net	\$717.5	\$ 711.4	\$ 675.6

Inventories are valued at the lower of cost and net realizable value. For U.S. inventories, inventory costs are determined principally by the last-in, first-out (LIFO) method of inventory accounting while for international inventories, inventory costs are determined principally by the first-in, first-out (FIFO) method of inventory accounting. Cost for other inventories has been determined principally by the average-cost method (primarily operating supplies, spare parts and maintenance parts). Elements of costs in inventories included raw materials, direct labor and manufacturing overhead. Inventories under the LIFO method are based on annual estimates of quantities and costs as of year-end; therefore, the condensed financial statements at March 31, 2019 reflect certain estimates relating to inventory quantities and costs at December 31, 2019. The replacement cost of our inventories would have been approximately \$70.6 million, \$49.8 million and \$46.0 million higher than reported at March 31, 2019, December 31, 2018 and March 31, 2018, respectively.

NOTE 8. OTHER ASSETS

Included in other assets were the following:

	March 31,	December 31,	March 31,
	2019	2018	2018
	(\$ in millions)		
Supply contracts	\$1,090.1	\$ 1,099.5	\$ 1,127.7
Investments in non-consolidated affiliates	—	8.8	29.0
Other	41.3	42.1	40.3
Other assets	\$1,131.4	\$ 1,150.4	\$ 1,197.0

On January 1, 2019, we sold our 9.1% limited partnership interest in Bay Gas Storage Company, Ltd. (Bay Gas) for \$20.0 million. The sale closed on February 7, 2019 which resulted in a gain of \$11.2 million for the three months ended March 31, 2019 which was recorded to other income in the condensed statements of operations. During the second quarter of 2018, we recorded a \$21.5 million non-cash impairment charge related to an adjustment to the value of our interest in Bay Gas. Bay Gas owns, leases and operates underground gas storage and related pipeline facilities which are used to provide storage in the McIntosh, AL area and delivery of natural gas. The general partner, Sempra Energy (Sempra), announced in the second quarter of 2018 its plan to sell several assets including its 90.9% interest in Bay Gas. In connection with this decision, Sempra recorded an impairment charge related to Bay Gas adjusting the related assets' carrying values to an estimated fair value. We recorded a reduction in our investment in the non-consolidated affiliate for the proportionate share of the non-cash impairment charge. Olin has no other non-consolidated affiliates.

In connection with the Acquisition, Olin and Dow entered into arrangements for the long-term supply of ethylene by Dow to Olin, pursuant to which, among other things, Olin made upfront payments in order to receive ethylene at producer economics and for certain reservation fees and for the option to obtain additional ethylene at producer economics. During 2016, we exercised one of the options to reserve additional ethylene at producer economics. During 2017, a payment of \$209.4 million was made in connection with this option which increased the value of the long-term asset.

On February 27, 2017, we exercised the remaining option to reserve additional ethylene at producer economics from Dow. In connection with the exercise of this option, we also secured a long-term customer arrangement. As a result, an

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additional payment will be made to Dow of between \$440 million and \$465 million on or about the fourth quarter of 2020. During 2017, as a result of Dow's Texas 9 ethylene cracker becoming operational, Olin recognized a long-term asset and other liabilities of \$389.2 million, which represented the present value of the additional estimated payment. The discounted amount of \$51.8 million will be recorded as interest expense through the fourth quarter of 2020. For the three months ended March 31, 2019 and 2018, interest expense of \$4.0 million and \$3.9 million, respectively, was recorded for accretion on the 2020 payment discount.

Amortization expense of \$9.4 million for both the three months ended March 31, 2019 and 2018 was recognized within cost of goods sold related to these supply contracts and is reflected in depreciation and amortization on the condensed statements of cash flows. The long-term supply contracts are monitored for impairment each reporting period.

NOTE 9. GOODWILL AND INTANGIBLE ASSETS

Changes in the carrying value of goodwill were as follows:

	Chlor Alkali Products and Vinyls (\$ in millions)	Epoxy	Total
Balance at January 1, 2018	\$1,832.9	\$287.1	\$2,120.0
Foreign currency translation adjustment	0.2	0.1	0.3
Balance at March 31, 2018	\$1,833.1	\$287.2	\$2,120.3
Balance at January 1, 2019	\$1,832.6	\$287.0	2,119.6
Foreign currency translation adjustment	(0.1)	—	(0.1)
Balance at March 31, 2019	\$1,832.5	\$287.0	\$2,119.5

Intangible assets consisted of the following:

	March 31, 2019			December 31, 2018			March 31, 2018		
	Gross Amount	Accumulated Amortization	Net	Gross Amount	Accumulated Amortization	Net	Gross Amount	Accumulated Amortization	Net
Customers, customer contracts and relationships	\$673.3	\$ (223.9)	\$449.4	\$675.2	\$ (211.9)	\$463.3	\$682.0	\$ (176.3)	\$505.7
Trade name	7.0	(4.9)	2.1	7.0	(4.6)	2.4	7.1	(3.6)	3.5
Acquired technology	85.1	(42.5)	42.6	85.4	(39.6)	45.8	86.5	(30.9)	55.6
Other	0.7	(0.6)	0.1	0.7	(0.6)	0.1	2.3	(2.0)	0.3
Total intangible assets	\$766.1	\$ (271.9)	\$494.2	\$768.3	\$ (256.7)	\$511.6	\$777.9	\$ (212.8)	\$565.1

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NOTE 10. EARNINGS PER SHARE

Basic and diluted net income per share are computed by dividing net income by the weighted-average number of common shares outstanding. Diluted net income per share reflects the dilutive effect of stock-based compensation.

	Three Months Ended March 31, 2019 2018 (In millions, except per share data)	
Computation of Income per Share		
Net income	\$41.7	\$20.9
Basic shares	165.0	167.2
Basic net income per share	\$0.25	\$0.13
Diluted shares:		
Basic shares	165.0	167.2
Stock-based compensation	1.1	2.0
Diluted shares	166.1	169.2
Diluted net income per share	\$0.25	\$0.12

The computation of dilutive shares from stock-based compensation does not include 5.6 million shares and 2.5 million shares for the three months ended March 31, 2019 and 2018, respectively, as their effect would have been anti-dilutive.

NOTE 11. ENVIRONMENTAL

We are party to various government and private environmental actions associated with past manufacturing facilities and former waste disposal sites. The condensed balance sheets included reserves for future environmental expenditures to investigate and remediate known sites amounting to \$125.5 million, \$125.6 million and \$131.2 million at March 31, 2019, December 31, 2018 and March 31, 2018, respectively, of which \$108.5 million, \$108.6 million and \$111.2 million, respectively, were classified as other noncurrent liabilities.

Environmental provisions charged to income, which are included in cost of goods sold, were \$1.8 million and \$2.3 million for the three months ended March 31, 2019 and 2018, respectively.

Environmental exposures are difficult to assess for numerous reasons, including the identification of new sites, developments at sites resulting from investigatory studies, advances in technology, changes in environmental laws and regulations and their application, changes in regulatory authorities, the scarcity of reliable data pertaining to identified sites, the difficulty in assessing the involvement and financial capability of other Potentially Responsible Parties (PRPs), our ability to obtain contributions from other parties and the lengthy time periods over which site remediation occurs. It is possible that some of these matters (the outcomes of which are subject to various uncertainties) may be resolved unfavorably to us, which could materially adversely affect our financial position or results of operations.

In connection with the October 5, 2015 acquisition of Dow's U.S. Chlor Alkali and Vinyl, Global Chlorinated Organics and Global Epoxy businesses, the prior owner of the businesses retained liabilities relating to releases of hazardous materials and violations of environmental law to the extent arising prior to October 5, 2015.

NOTE 12. LEASES

Our lease commitments are primarily for railcars, but also include logistics, manufacturing, storage, real estate and information technology assets. Our leases have remaining lease terms of up to 96 years, some of which may include options to extend the leases for up to five years, and some of which may include options to terminate the leases within one year.

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The amounts for leases included in our condensed balance sheet include:

		March 31, 2019 (\$ in millions)
Assets:	Balance sheet location:	
Operating	Operating lease assets, net	\$ 275.1
Finance	Property, plant and equipment, less accumulated depreciation ⁽¹⁾	5.9
Total lease assets		\$ 281.0
Liabilities:		
Current		
Operating	Current operating lease liabilities	\$ 69.4
Finance	Current installments of long-term debt	1.1
Long-term		
Operating	Operating lease liabilities	206.0
Finance	Long-term debt	4.7
Total lease liabilities		\$ 281.2

(1) As of March 31, 2019, assets recorded under finance leases were \$9.4 million and accumulated depreciation associated with finance leases was \$3.5 million.

The components of lease expense are recorded to cost of goods sold and selling and administration expenses in the condensed statement of operations, excluding interest on finance lease liabilities which is recorded to interest expense.

The components of lease expense were as follows:

	Three Months Ended March 31, 2019 (\$ in millions)
Lease expense:	
Operating	\$ 22.2
Other operating lease expense ⁽¹⁾	6.9
Finance:	
Depreciation of leased assets	0.3
Interest on lease liabilities	0.1
Total lease expense	\$ 29.5

(1) Includes costs associated with short-term leases and variable lease expenses.

The maturities of lease liabilities were as follows:

	March 31, 2019		
	Operating leases	Finance leases	Total
	(\$ in millions)		
2019	\$59.7	\$ 1.0	\$60.7
2020	62.9	2.1	65.0
2021	45.6	0.8	46.4
2022	32.3	0.8	33.1
2023	23.8	0.6	24.4
Thereafter	101.1	1.0	102.1
Total lease payments	325.4	6.3	331.7

Less: Imputed interest⁽¹⁾ (50.0) (0.5) (50.5)
Present value of lease liabilities \$275.4 \$ 5.8 \$281.2

(1) Calculated using the discount rate for each lease.

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As previously disclosed in our 2018 Annual Report on Form 10-K and under ASC 840, the previous lease accounting standard, future minimum lease payments for non-cancelable operating leases were expected to be as follows:

	December 31, 2018 (\$ in millions)
2019	\$ 82.2
2020	61.4
2021	44.2
2022	31.8
2023	23.2
Thereafter	102.6
Total lease payments	\$ 345.4

Other information related to leases was as follows:

	Three Months Ended March 31, 2019 (\$ in millions)
Supplemental cash flows information:	
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	\$ 22.0
Operating cash flows from finance leases	0.1
Financing cash flows from finance leases	0.2
Non-cash increase in lease assets and lease liabilities:	
Operating leases	\$ 3.6
Finance leases	1.9
Weighted-average remaining lease term:	March 31, 2019
Operating leases	9.3 years
Finance leases	3.8 years
Weighted-average discount rate:	
Operating leases	3.33 %
Finance leases	3.34 %

As of March 31, 2019, we have additional operating leases for office space that have not yet commenced of approximately \$20 million which are expected to commence during the second and third quarters of 2019 with lease terms of approximately 10 years. We also have additional operating leases for railcars that have not yet commenced of approximately \$9 million which are expected to commence during the second quarter of 2019 with lease terms between 5 years and 12 years.

NOTE 13. COMMITMENTS AND CONTINGENCIES

We are party to a dispute relating to a contract at our Plaquemine, LA facility. The other party to the contract filed a demand for arbitration alleging, among other things, that Olin breached the contract, and claims damages in excess of

the amount Olin believes it is obligated to pay under the contract. The arbitration hearing is scheduled for the fourth quarter 2019. Any additional losses related to this contract dispute are not currently estimable because of unresolved questions of fact and law but, if resolved unfavorably to Olin, they could have a material adverse effect on our financial position, cash flows or results of operations.

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Olin, K.A. Steel Chemicals (a wholly owned subsidiary of Olin) and other caustic soda producers were named as defendants in six purported class action civil lawsuits filed March 22, 25 and 26, 2019 and April 12, 2019 in the U.S. District Court for the Western District of New York. The lawsuits allege the defendants conspired to fix, raise, maintain and stabilize the price of caustic soda, restrict domestic (U.S.) supply of caustic soda and allocate caustic soda customers. The other defendants named in the lawsuits are Occidental Petroleum Corporation, Occidental Chemical Corporation d/b/a OxyChem, Westlake Chemical Corporation, Shin-Etsu Chemical Co., Ltd., Shintech Incorporated, Formosa Plastics Corporation, and Formosa Plastics Corporation, U.S.A. The lawsuits are filed on behalf of the respective named plaintiffs and a putative class comprised of all persons and entities who purchased caustic soda in the U.S. directly from one or more of the defendants, their parents, predecessors, subsidiaries or affiliates at any time between October 1, 2015 and the present. Plaintiffs seek an unspecified amount of damages and injunctive relief. We believe we have meritorious legal positions and will continue to represent our interests vigorously in this matter. Any losses related to this matter are not currently estimable because of unresolved questions of fact and law which, if resolved unfavorably to Olin, could have a material adverse effect on our financial position, cash flows or results of operations.

We, and our subsidiaries, are defendants in various other legal actions (including proceedings based on alleged exposures to asbestos) incidental to our past and current business activities. As of March 31, 2019, December 31, 2018 and March 31, 2018, our condensed balance sheets included accrued liabilities for these legal actions of \$15.8 million, \$15.6 million and \$13.3 million, respectively. These liabilities do not include costs associated with legal representation. Based on our analysis, and considering the inherent uncertainties associated with litigation, we do not believe that it is reasonably possible that these legal actions will materially adversely affect our financial position, cash flows or results of operations. In connection with the October 5, 2015 acquisition of Dow's U.S. Chlor Alkali and Vinyl, Global Chlorinated Organics and Global Epoxy businesses, the prior owner of the businesses retained liabilities related to litigation to the extent arising prior to October 5, 2015.

During the ordinary course of our business, contingencies arise resulting from an existing condition, situation or set of circumstances involving an uncertainty as to the realization of a possible gain contingency. In certain instances such as environmental projects, we are responsible for managing the cleanup and remediation of an environmental site. There exists the possibility of recovering a portion of these costs from other parties. We account for gain contingencies in accordance with the provisions of ASC 450 "Contingencies" and, therefore, do not record gain contingencies and recognize income until it is earned and realizable.

NOTE 14. SHAREHOLDERS' EQUITY

On April 26, 2018, our board of directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to \$500.0 million. This program will terminate upon the purchase of \$500.0 million of our common stock. For the three months ended March 31, 2019, 0.6 million shares were repurchased and retired at a cost of \$13.2 million. As of March 31, 2019, we had repurchased a total of \$63.3 million of our common stock, representing 2.7 million shares, and \$436.7 million of common stock remained authorized to be repurchased.

We issued 0.1 million shares representing stock options exercised for both the three months ended March 31, 2019 and 2018, with a total value of \$1.4 million and \$1.0 million, respectively.

In February 2018, the FASB issued ASU 2018-02, "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income" (ASU 2018-02) which amends ASC 220 "Income Statement—Reporting Comprehensive Income." This update allows a reclassification from accumulated other comprehensive loss to retained earnings for the stranded tax effects resulting from the U.S. Tax Cuts and Jobs Act (the 2017 Tax Act) during each fiscal year or quarter in which the effect of the lower tax rate is recorded. We adopted this update in March 2018 and reclassified

\$85.9 million related to the deferred gain resulting from the 2017 Tax Act from accumulated other comprehensive loss to retained earnings.

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The following table represents the activity included in accumulated other comprehensive loss:

	Unrealized			Accumulated Other Comprehensive Loss
	Foreign Currency Translation Adjustment (net of taxes)	Gains (Losses) on Derivative Contracts (net of taxes)	Pension and Other Postretirement Benefits (net of taxes)	
	(\$ in millions)			
Balance at January 1, 2018	\$7.6	\$ 11.1	\$ (503.3)	\$ (484.6)
Unrealized gains	12.4	2.1	—	14.5
Reclassification adjustments of (gains) losses into income	—	(2.3)	9.4	7.1
Tax benefit (provision)	—	0.1	(4.0)	(3.9)
Net change	12.4	(0.1)	5.4	17.7
Income tax reclassification adjustment	15.3	2.4	(103.6)	(85.9)
Balance at March 31, 2018	\$35.3	\$ 13.4	\$ (601.5)	\$ (552.8)
Balance at January 1, 2019	\$0.7	\$ 1.8	\$ (653.5)	\$ (651.0)
Unrealized losses	(8.3)	(6.6)	—	(14.9)
Reclassification adjustments of losses into income	—	2.2	7.4	9.6
Tax benefit (provision)	—	1.1	(1.7)	(0.6)
Net change	(8.3)	(3.3)	5.7	(5.9)
Balance at March 31, 2019	\$(7.6)	\$(1.5)	\$ (647.8)	\$ (656.9)

Net income, interest expense and cost of goods sold included reclassification adjustments for realized gains and losses on derivative contracts from accumulated other comprehensive loss.

Net income and non-operating pension income included the amortization of prior service costs and actuarial losses from accumulated other comprehensive loss.

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NOTE 15. SEGMENT INFORMATION

We define segment results as income (loss) before interest expense, interest income, other operating income (expense), non-operating pension income, other income and income taxes, and includes the operating results of non-consolidated affiliates. Consistent with the guidance in ASC 280 "Segment Reporting," we have determined it is appropriate to include the operating results of non-consolidated affiliates in the relevant segment financial results. We have three operating segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. The three operating segments reflect the organization used by our management for purposes of allocating resources and assessing performance. Chlorine used in our Epoxy segment is transferred at cost from the Chlor Alkali Products and Vinyls segment. Sales and profits are recognized in the Chlor Alkali Products and Vinyls segment for all caustic soda generated and sold by Olin. Sales are attributed to geographic areas based on customer location.

	Three Months Ended March 31,	
	2019	2018
Sales:	(\$ in millions)	
Chlor Alkali Products and Vinyls	\$872.2	\$936.1
Epoxy	524.0	603.3
Winchester	157.2	170.9
Total sales	\$1,553.4	\$1,710.3
Income (loss) before taxes:		
Chlor Alkali Products and Vinyls	\$120.4	\$130.5
Epoxy	10.5	(22.1)
Winchester	9.1	12.0
Corporate/other:		
Environmental expense	(1.8)	(2.3)
Other corporate and unallocated costs	(39.1)	(36.5)
Restructuring charges	(4.0)	(4.0)
Acquisition-related costs	—	(0.3)
Other operating income	0.1	8.1
Interest expense	(57.4)	(63.7)
Interest income	0.2	0.4
Non-operating pension income	3.9	5.4
Other income	11.2	—
Income before taxes	\$53.1	\$27.5

For the three months ended March 31, 2019, other income included a gain of \$11.2 million on the sale of our equity interest in a non-consolidated affiliate.

For the three months ended March 31, 2018, we recognized an insurance recovery of \$8.0 million in other operating income for a second quarter 2017 business interruption at our Freeport, TX vinyl chloride monomer facility.

	Three Months Ended March 31, 2019			
	Chlor Alkali Products and Vinyls	Epoxy	Winchester	Total
Sales:	(\$ in millions)			

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United States	\$604.0	\$164.1	\$ 141.3	\$909.4
Europe	38.6	235.4	2.8	276.8
Other foreign	229.6	124.5	13.1	367.2
Total Sales	\$872.2	\$524.0	\$ 157.2	\$1,553.4

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Three Months Ended March 31, 2018				
	Chlor Alkali Products and Vinyls	Epoxy	Winchester	Total
Sales:	(\$ in millions)			
United States	\$608.1	\$180.4	\$158.6	\$947.1
Europe	45.8	278.5	1.0	325.3
Other foreign	282.2	144.4	11.3	437.9
Total Sales	\$936.1	\$603.3	\$170.9	\$1,710.3

	Three Months Ended March 31, 2019		2018
Sales:	(\$ in millions)		
Chlor Alkali Products and Vinyls			
Caustic soda	\$462.1		\$536.9
Chlorine, chlorine-derivatives and other co-products	410.1		399.2
Total Chlor Alkali Products and Vinyls	872.2		936.1
Epoxy			
Aromatics and allylics	243.8		308.4
Epoxy resins	280.2		294.9
Total Epoxy	524.0		603.3
Winchester			
Commercial	106.4		111.2
Military and law enforcement	50.8		59.7
Total Winchester	157.2		170.9
Total Sales	\$1,553.4		\$1,710.3

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NOTE 16. STOCK-BASED COMPENSATION

Stock-based compensation granted includes stock options, performance stock awards, restricted stock awards and deferred directors' compensation. Stock-based compensation expense was as follows:

	Three Months Ended March 31, 2019 2018 (\$ in millions)	
Stock-based compensation	\$5.6	\$6.5
Mark-to-market adjustments	1.3	(3.2)
Total expense	\$6.9	\$3.3

The fair value of each stock option granted, which typically vests ratably over three years, but not less than one year, was estimated on the date of grant, using the Black-Scholes option-pricing model with the following weighted-average assumptions:

Grant date	2019	2018
Dividend yield	3.05 %	2.43 %
Risk-free interest rate	2.51 %	2.72 %
Expected volatility	34 %	32 %
Expected life (years)	6.0	6.0
Weighted-average grant fair value (per option)	\$6.76	\$8.89
Weighted-average exercise price	\$26.26	\$32.94
Shares granted	1,575,900	927,000

Dividend yield was based on our current dividend yield as of the option grant date. Risk-free interest rate was based on zero coupon U.S. Treasury securities rates for the expected life of the options. Expected volatility was based on our historical stock price movements, as we believe that historical experience is the best available indicator of the expected volatility. Expected life of the option grant was based on historical exercise and cancellation patterns, as we believe that historical experience is the best estimate of future exercise patterns.

NOTE 17. DEBT

On January 19, 2018, Olin issued \$550.0 million aggregate principal amount of 5.00% senior notes due February 1, 2030 (2030 Notes), which were registered under the Securities Act of 1933, as amended. Interest on the 2030 Notes began accruing from January 19, 2018 and is paid semi-annually beginning on August 1, 2018. Proceeds from the 2030 Notes were used to redeem \$550.0 million of debt under the \$1,375.0 million term loan facility (Term Loan Facility).

For the three months ended March 31, 2018, we recognized interest expense of \$2.6 million for the write-off of unamortized deferred debt issuance costs related to the redemption of \$550.0 million of debt under the Term Loan Facility. For the three months ended March 31, 2018, we paid debt issuance costs of \$8.5 million for the issuance of the 2030 Notes.

NOTE 18. CONTRIBUTING EMPLOYEE OWNERSHIP PLAN

The Contributing Employee Ownership Plan (CEOP) is a defined contribution plan available to essentially all domestic employees. We provide a contribution to an individual retirement contribution account maintained with the CEOP equal to an amount of between 5.0% and 7.5% of the employee's eligible compensation. The defined contribution plan expense for the three months ended March 31, 2019 and 2018 was \$9.4 million and \$8.6 million, respectively.

Company matching contributions are invested in the same investment allocation as the employee's contribution. Our matching contributions for eligible employees for the three months ended March 31, 2019 and 2018 were \$3.9 million and \$3.7 million, respectively.

NOTE 19. PENSION PLANS AND RETIREMENT BENEFITS

We sponsor domestic and foreign defined benefit pension plans for eligible employees and retirees. Most of our domestic employees participate in defined contribution plans. However, a portion of our bargaining hourly employees continue

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to participate in our domestic qualified defined benefit pension plans under a flat-benefit formula. Our funding policy for the qualified defined benefit pension plans is consistent with the requirements of federal laws and regulations. Our foreign subsidiaries maintain pension and other benefit plans, which are consistent with local statutory practices.

Our domestic qualified defined benefit pension plan provides that if, within three years following a change of control of Olin, any corporate action is taken or filing made in contemplation of, among other things, a plan termination or merger or other transfer of assets or liabilities of the plan, and such termination, merger, or transfer thereafter takes place, plan benefits would automatically be increased for affected participants (and retired participants) to absorb any plan surplus (subject to applicable collective bargaining requirements).

We also provide certain postretirement healthcare (medical) and life insurance benefits for eligible active and retired domestic employees. The healthcare plans are contributory with participants' contributions adjusted annually based on medical rates of inflation and plan experience.

	Pension Benefits		Other Postretirement Benefits	
	Three Months Ended March 31,		Three Months Ended March 31,	
	2019	2018	2019	2018
Components of Net Periodic Benefit (Income) Cost	(\$ in millions)			
Service cost	\$3.1	\$2.7	\$ 0.3	\$ 0.3
Interest cost	23.6	21.6	0.4	0.4
Expected return on plans' assets	(35.3)	(36.8)	—	—
Recognized actuarial loss	6.8	8.8	0.6	0.6
Net periodic benefit (income) cost	\$(1.8)	\$(3.7)	\$ 1.3	\$ 1.3

We made cash contributions to our international qualified defined benefit pension plans of \$0.1 million and \$0.5 million for the three months ended March 31, 2019 and 2018, respectively.

NOTE 20. INCOME TAXES

The effective tax rate for the three months ended March 31, 2019 included a benefit associated with stock-based compensation, a benefit associated with prior year tax positions and a benefit from a net decrease in the valuation allowance related to state deferred tax assets. These factors resulted in a net \$0.8 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended March 31, 2019 of 23.0% was higher than the 21% U.S. federal statutory rate, primarily due to state and foreign income taxes, foreign income inclusions and a net increase in the valuation allowance related to losses in foreign jurisdictions, partially offset by favorable permanent salt depletion deductions. The effective tax rate for the three months ended March 31, 2018 included a benefit associated with stock-based compensation, a benefit associated with the estimated reduction of the one-time 2017 Tax Act transition tax and a benefit related to a foreign dividend payment. These factors resulted in a net \$0.8 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended March 31, 2018 of 26.9% was higher than the 21% U.S. federal statutory rate, primarily due to state and foreign income taxes, partially offset by favorable permanent salt depletion deductions.

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As of March 31, 2019, we had \$34.4 million of gross unrecognized tax benefits, which would have a net \$33.5 million impact on the effective tax rate, if recognized. As of March 31, 2018, we had \$36.8 million of gross unrecognized tax benefits, of which \$35.9 million would have impacted the effective tax rate, if recognized. The amount of unrecognized tax benefits was as follows:

	March 31,	
	2019	2018
	(\$ in millions)	
Balance at beginning of year	\$33.8	\$36.3
Increases for current year tax positions	0.6	0.5
Balance at end of period	\$34.4	\$36.8

As of March 31, 2019, we believe it is reasonably possible that our total amount of unrecognized tax benefits will decrease by approximately \$14.7 million over the next twelve months. The anticipated reduction primarily relates to settlements with taxing authorities and the expiration of federal, state and foreign statutes of limitation.

We operate globally and file income tax returns in numerous jurisdictions. Our tax returns are subject to examination by various federal, state and local tax authorities. None of our U.S. federal income tax returns are currently under examination by the Internal Revenue Service. We believe we have adequately provided for all tax positions; however, amounts asserted by taxing authorities could be greater than our accrued position. For our primary tax jurisdictions, the tax years that remain subject to examination are as follows:

	Tax Years
U.S. federal income tax	2013 - 2018
U.S. state income tax	2006 - 2018
Canadian federal income tax	2012 - 2018
Brazil	2014 - 2018
Germany	2015 - 2018
China	2014 - 2018
The Netherlands	2014 - 2018

NOTE 21. DERIVATIVE FINANCIAL INSTRUMENTS

We are exposed to market risk in the normal course of our business operations due to our purchases of certain commodities, our ongoing investing and financing activities and our operations that use foreign currencies. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. We have established policies and procedures governing our management of market risks and the use of financial instruments to manage exposure to such risks. ASC 815 "Derivatives and Hedging" (ASC 815) requires an entity to recognize all derivatives as either assets or liabilities in the condensed balance sheets and measure those instruments at fair value. In accordance with ASC 815, we designate derivative contracts as cash flow hedges of forecasted purchases of commodities and forecasted interest payments related to variable-rate borrowings and designate certain interest rate swaps as fair value hedges of fixed-rate borrowings. We do not enter into any derivative instruments for trading or speculative purposes.

Energy costs, including electricity and natural gas, and certain raw materials used in our production processes are subject to price volatility. Depending on market conditions, we may enter into futures contracts, forward contracts, commodity swaps and put and call option contracts in order to reduce the impact of commodity price fluctuations. The majority of our commodity derivatives expire within one year.

We actively manage currency exposures that are associated with net monetary asset positions, currency purchases and sales commitments denominated in foreign currencies and foreign currency denominated assets and liabilities created in the normal course of business. We enter into forward sales and purchase contracts to manage currency risk to offset our net exposures, by currency, related to the foreign currency denominated monetary assets and liabilities of our operations. At March 31, 2019, we had outstanding forward contracts to buy foreign currency with a notional value of \$110.5 million and to sell foreign currency with a notional value of \$89.7 million. All of the currency derivatives expire within one year and are for

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U.S. dollar (USD) equivalents. The counterparties to the forward contracts are large financial institutions; however, the risk of loss to us in the event of nonperformance by a counterparty could be significant to our financial position or results of operations. At December 31, 2018, we had outstanding forward contracts to buy foreign currency with a notional value of \$123.7 million and to sell foreign currency with a notional value of \$82.6 million. At March 31, 2018, we had outstanding forward contracts to buy foreign currency with a notional value of \$98.0 million and to sell foreign currency with a notional value of \$132.3 million.

Cash Flow Hedges

For derivative instruments that are designated and qualify as a cash flow hedge, the change in fair value of the derivative is recognized as a component of other comprehensive income (loss) until the hedged item is recognized in earnings.

We had the following notional amounts of outstanding commodity contracts that were entered into to hedge forecasted purchases:

	March 31, 2019	December 31, 2018	March 31, 2018
	(\$ in millions)		
Natural gas	\$75.7	\$58.4	\$68.9
Other commodities	92.9	58.1	59.5
Total notional	\$168.6	\$116.5	\$128.4

As of March 31, 2019, the counterparties to these commodity contracts were Wells Fargo Bank, N.A. (Wells Fargo), Citibank, JPMorgan Chase Bank, National Association and The Bank of Nova Scotia, all of which are major financial institutions.

We use cash flow hedges for certain raw material and energy costs such as copper, zinc, lead, ethane, electricity and natural gas to provide a measure of stability in managing our exposure to price fluctuations associated with forecasted purchases of raw materials and energy used in our manufacturing process. At March 31, 2019, we had open derivative contract positions through 2022. If all open futures contracts had been settled on March 31, 2019, we would have recognized a pretax loss of \$5.4 million.

If commodity prices were to remain at March 31, 2019 levels, approximately \$4.6 million of deferred losses, net of tax, would be reclassified into earnings during the next twelve months. The actual effect on earnings will be dependent on actual commodity prices when the forecasted transactions occur.

We use interest rate swaps as a means of minimizing cash flow fluctuations that may arise from volatility in interest rates of our variable-rate borrowings. In April 2016, we entered into three tranches of forward starting interest rate swaps whereby we agreed to pay fixed rates to the counterparties who, in turn, pay us floating rates on \$1,100.0 million, \$900.0 million, and \$400.0 million of our underlying floating-rate debt obligations. Each tranche's term length is for twelve months beginning on December 31, 2016, December 31, 2017 and December 31, 2018, respectively. The counterparties to the agreements are SMBC Capital Markets, Inc., Wells Fargo, PNC Bank, National Association and Toronto-Dominion Bank. These counterparties are large financial institutions; however, the risk of loss to us in the event of nonperformance by a counterparty could be significant to our financial position or results of operations. We have designated the swaps as cash flow hedges of the risk of changes in interest payments associated with our variable-rate borrowings. Accordingly, the remaining swap agreement has been recorded at its fair market value of \$3.6 million and is included in other current assets on the accompanying condensed balance sheet as of March 31, 2019, with the corresponding gain deferred as a component of other comprehensive loss. For both the three months ended March 31, 2019 and 2018, \$1.3 million of income was recorded to interest expense on the accompanying

condensed statements of operations related to these swap agreements.

At March 31, 2019, we had open interest rate swaps designated as cash flow hedges with maximum terms through 2019. If all open interest rate swap contracts had been settled on March 31, 2019, we would have recognized a pretax gain of \$3.6 million.

If interest rates were to remain at March 31, 2019 levels, \$2.8 million of deferred gains, net of tax, would be reclassified into earnings during the next twelve months. The actual effect on earnings will be dependent on actual interest rates when the forecasted transactions occur.

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Fair Value Hedges

We use interest rate swaps as a means of managing interest expense and floating interest rate exposure to optimal levels. For derivative instruments that are designated and qualify as a fair value hedge, the gain or loss on the derivative as well as the offsetting loss or gain on the hedged item attributable to the hedged risk are recognized in current earnings. We include the gain or loss on the hedged items (fixed-rate borrowings) in the same line item, interest expense, as the offsetting loss or gain on the related interest rate swaps. As of March 31, 2019, December 31, 2018 and March 31, 2018, the total notional amounts of our interest rate swaps designated as fair value hedges were \$500.0 million.

In April 2016, we entered into interest rate swaps on \$250.0 million of our underlying fixed-rate debt obligations, whereby we agreed to pay variable rates to the counterparties who, in turn, pay us fixed rates. The counterparties to these agreements are Toronto-Dominion Bank and SMBC Capital Markets, Inc., both of which are major financial institutions.

In October 2016, we entered into interest rate swaps on an additional \$250.0 million of our underlying fixed-rate debt obligations, whereby we agreed to pay variable rates to the counterparties who, in turn, pay us fixed rates. The counterparties to these agreements are PNC Bank, National Association and Wells Fargo, both of which are major financial institutions.

We have designated the April 2016 and October 2016 interest rate swap agreements as fair value hedges of the risk of changes in the value of fixed-rate debt due to changes in interest rates for a portion of our fixed-rate borrowings. Accordingly, the swap agreements have been recorded at their fair market value of \$23.5 million and are included in other long-term liabilities on the accompanying condensed balance sheet as of March 31, 2019, with a corresponding decrease in the carrying amount of the related debt. For the three months ended March 31, 2019 and 2018, \$0.7 million of expense and \$0.2 million of income, respectively, was recorded to interest expense on the accompanying condensed statements of operations related to these swap agreements.

Financial Statement Impacts

We present our derivative assets and liabilities in our condensed balance sheets on a net basis whenever we have a legally enforceable master netting agreement with the counterparty to our derivative contracts. We use these agreements to manage and substantially reduce our potential counterparty credit risk.

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The following table summarizes the location and fair value of the derivative instruments on our condensed balance sheets. The table disaggregates our net derivative assets and liabilities into gross components on a contract-by-contract basis before giving effect to master netting arrangements:

	March 31, 2019	December 31, 2018	March 31, 2018
	(\$ in millions)		
Asset Derivatives:			
Other current assets			
Derivatives designated as hedging instruments:			
Interest rate contracts - gains	\$3.6	\$ 5.3	\$ 8.5
Commodity contracts - gains	3.2	—	7.2
Commodity contracts - losses	(0.6)	—	(1.2)
Derivatives not designated as hedging instruments:			
Foreign exchange contracts - gains	0.6	0.9	1.1
Foreign exchange contracts - losses	(0.3)	(0.5)	(0.6)
Total other current assets	6.5	5.7	15.0
Other assets			
Derivatives designated as hedging instruments:			
Interest rate contracts - gains	—	—	3.7
Commodity contracts - gains	2.2	0.9	0.4
Commodity contracts - losses	(0.1)	(0.2)	(0.1)
Total other assets	2.1	0.7	4.0
Total Asset Derivatives ⁽¹⁾	\$8.6	\$ 6.4	\$ 19.0
Liability Derivatives:			
Accrued liabilities			
Derivatives designated as hedging instruments:			
Commodity contracts - losses	\$9.8	\$ 4.9	\$ 1.0
Commodity contracts - gains	(0.6)	(1.9)	(0.2)
Derivatives not designated as hedging instruments:			
Foreign exchange contracts - losses	0.2	0.6	—
Foreign exchange contracts - gains	—	(0.1)	—
Total accrued liabilities	9.4	3.5	0.8
Other liabilities			
Derivatives designated as hedging instruments:			
Interest rate contracts - losses	23.5	33.7	40.3
Commodity contracts - losses	0.9	0.5	—
Commodity contracts - gains	—	(0.1)	—
Total other liabilities	24.4	34.1	40.3
Total Liability Derivatives ⁽¹⁾	\$33.8	\$ 37.6	\$ 41.1

(1) Does not include the impact of cash collateral received from or provided to counterparties.

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The following table summarizes the effects of derivative instruments on our condensed statements of operations:

Location of (Loss) Gain		Amount of (Loss) Gain Three Months Ended March 31,	
		2019	2018
Derivatives – Cash Flow Hedges		(\$ in millions)	
Recognized in other comprehensive income:			
Commodity contracts	————	\$ (6.2)	\$ (1.0)
Interest rate contracts	————	(0.4)	3.1
		\$ (6.6)	\$ 2.1
Reclassified from accumulated other comprehensive loss into income:			
Interest rate contracts	Interest expense	\$ 1.3	\$ 1.3
Commodity contracts	Cost of goods sold	(3.5)	1.0
		\$ (2.2)	\$ 2.3
Derivatives – Fair Value Hedges			
Interest rate contracts	Interest expense	\$ (0.7)	\$ 0.2
Derivatives Not Designated as Hedging Instruments			
Foreign exchange contracts	Selling and administration	\$ (2.4)	\$ 0.5

Credit Risk and Collateral

By using derivative instruments, we are exposed to credit and market risk. If a counterparty fails to fulfill its performance obligations under a derivative contract, our credit risk will equal the fair value gain in a derivative. Generally, when the fair value of a derivative contract is positive, this indicates that the counterparty owes us, thus creating a repayment risk for us. When the fair value of a derivative contract is negative, we owe the counterparty and, therefore, assume no repayment risk. We minimize the credit (or repayment) risk in derivative instruments by entering into transactions with high-quality counterparties. We monitor our positions and the credit ratings of our counterparties, and we do not anticipate non-performance by the counterparties.

Based on the agreements with our various counterparties, cash collateral is required to be provided when the net fair value of the derivatives, with the counterparty, exceeds a specific threshold. If the threshold is exceeded, cash is either provided by the counterparty to us if the value of the derivatives is our asset, or cash is provided by us to the counterparty if the value of the derivatives is our liability. As of March 31, 2019, December 31, 2018 and March 31, 2018, this threshold was not exceeded. In all instances where we are party to a master netting agreement, we offset the receivable or payable recognized upon payment of cash collateral against the fair value amounts recognized for derivative instruments that have also been offset under such master netting agreements.

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NOTE 22. FAIR VALUE MEASUREMENTS

Fair value is defined as the price at which an asset could be exchanged in a current transaction between knowledgeable, willing parties or the amount that would be paid to transfer a liability to a new obligor, not the amount that would be paid to settle the liability with the creditor. Where available, fair value is based on observable market prices or parameters or derived from such prices or parameters. Where observable prices or inputs are not available, valuation models are applied. These valuation techniques involve some level of management estimation and judgment, the degree of which is dependent on the price transparency for the instruments or market and the instruments' complexity.

Assets and liabilities recorded at fair value in the condensed balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair value. Hierarchical levels, defined by ASC 820 "Fair Value Measurements and Disclosures" (ASC 820) are directly related to the amount of subjectivity associated with the inputs to fair valuation of these assets and liabilities, and are as follows:

Level 1 — Inputs were unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2 — Inputs (other than quoted prices included in Level 1) were either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.

Level 3 — Inputs reflected management's best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration was given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

We are required to separately disclose assets and liabilities measured at fair value on a recurring basis, from those measured at fair value on a nonrecurring basis. Nonfinancial assets measured at fair value on a nonrecurring basis are intangible assets and goodwill, which are reviewed for impairment annually in the fourth quarter and/or when circumstances or other events indicate that impairment may have occurred.

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Determining which hierarchical level an asset or liability falls within requires significant judgment. We evaluate our hierarchy disclosures each quarter. The following table summarizes the assets and liabilities measured at fair value in the condensed balance sheets:

	Fair Value Measurements			Total
	Level 1	Level 2	Level 3	
Balance at March 31, 2019				
Assets	(\$ in millions)			
Interest rate swaps	\$-3.6	\$	-\$3.6	
Commodity contracts	-4.7	—	4.7	
Foreign exchange contracts	-0.3	—	0.3	
Total Assets	\$-8.6	\$	-\$8.6	
Liabilities				
Interest rate swaps	\$-23.5	\$	-\$23.5	
Commodity contracts	-10.1	—	10.1	
Foreign exchange contracts	-0.2	—	0.2	
Total Liabilities	\$-33.8	\$	-\$33.8	
Balance at December 31, 2018				
Assets				
Interest rate swaps	\$-5.3	\$	-\$5.3	
Commodity contracts	-0.7	—	0.7	
Foreign exchange contracts	-0.4	—	0.4	
Total Assets	\$-6.4	\$	-\$6.4	
Liabilities				
Interest rate swaps	\$-33.7	\$	-\$33.7	
Commodity contracts	-3.4	—	3.4	
Foreign exchange contracts	-0.5	—	0.5	
Total Liabilities	\$-37.6	\$	-\$37.6	
Balance at March 31, 2018				
Assets				
Interest rate swaps	\$-12.2	\$	-\$12.2	
Commodity contracts	-6.3	—	6.3	
Foreign exchange contracts	-0.5	—	0.5	
Total Assets	\$-19.0	\$	-\$19.0	
Liabilities				
Interest rate swaps	\$-40.3	\$	-\$40.3	
Commodity contracts	-0.8	—	0.8	
Total Liabilities	\$-41.1	\$	-\$41.1	

Interest Rate Swaps

Interest rate swap financial instruments were valued using the “income approach” valuation technique. This method used valuation techniques to convert future amounts to a single present amount. The measurement was based on the value indicated by current market expectations about those future amounts. We use interest rate swaps as a means of managing interest expense and floating interest rate exposure to optimal levels.

Commodity Forward Contracts

Commodity contract financial instruments were valued primarily based on prices and other relevant information observable in market transactions involving identical or comparable assets or liabilities including both forward and spot prices for commodities. We use commodity derivative contracts for certain raw materials and energy costs such as copper, zinc, lead, electricity and natural gas to provide a measure of stability in managing our exposure to price fluctuations.

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Foreign Currency Contracts

Foreign currency contract financial instruments were valued primarily based on relevant information observable in market transactions involving identical or comparable assets or liabilities including both forward and spot prices for currencies. We enter into forward sales and purchase contracts to manage currency risk resulting from purchase and sale commitments denominated in foreign currencies.

Financial Instruments

The carrying values of cash and cash equivalents, accounts receivable and accounts payable approximated fair values due to the short-term maturities of these instruments. The fair value of our long-term debt was determined based on current market rates for debt of similar risk and maturities. The following table summarizes the fair value measurements of debt and the actual debt recorded on our condensed balance sheets:

	Fair Value Measurements			Amount recorded on balance sheets
	Level 1	Level 2	Level 3		Total
	(\$ in millions)			
Balance at March 31, 2019	\$-3,221.9	\$153.0	\$3,374.9	\$3,193.3
Balance at December 31, 2018	—3,137.2	153.0	3,290.2	3,230.3
Balance at March 31, 2018	—3,583.9	153.0	3,736.9	3,535.4

Nonrecurring Fair Value Measurements

In addition to assets and liabilities that are recorded at fair value on a recurring basis, we record assets and liabilities at fair value on a nonrecurring basis as required by ASC 820. There were no assets measured at fair value on a nonrecurring basis as of March 31, 2019, December 31, 2018 and March 31, 2018.

NOTE 23. SUPPLEMENTAL GUARANTOR FINANCIAL INFORMATION

In October 2015, Blue Cube Spinco LLC (the Issuer) issued \$720.0 million aggregate principal amount of 9.75% senior notes due October 15, 2023 (2023 Notes) and \$500.0 million aggregate principal amount of 10.00% senior notes due October 15, 2025 (2025 Notes and, together with the 2023 Notes, the Notes). During 2016, the Notes were registered under the Securities Act of 1933, as amended. The Issuer was formed on March 13, 2015 as a wholly owned subsidiary of Dow and upon closing of the Acquisition became a 100% owned subsidiary of Olin (the Parent Guarantor). The Notes are fully and unconditionally guaranteed by the Parent Guarantor.

The following condensed consolidating financial information presents the condensed consolidating balance sheets as of March 31, 2019, December 31, 2018 and March 31, 2018, the related condensed consolidating statements of operations, comprehensive income (loss) and cash flows for each of the three months ended March 31, 2019 and 2018, of (a) the Parent Guarantor, (b) the Issuer, (c) the non-guarantor subsidiaries, (d) elimination entries necessary to consolidate the Parent Guarantor with the Issuer and the non-guarantor subsidiaries and (e) Olin on a consolidated basis. Investments in consolidated subsidiaries are presented under the equity method of accounting.

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CONDENSED CONSOLIDATING BALANCE SHEETS

March 31, 2019

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Assets					
Current assets:					
Cash and cash equivalents	\$ 6.0	\$—	\$ 99.7	\$—	\$ 105.7
Receivables, net	99.0	—	709.3	—	808.3
Intercompany receivables	—	—	2,664.7	(2,664.7)	—
Income taxes receivable	0.3	—	6.0	—	6.3
Inventories, net	172.3	—	545.2	—	717.5
Other current assets	235.7	—	3.5	(192.5)	46.7
Total current assets	513.3	—	4,028.4	(2,857.2)	1,684.5
Property, plant and equipment, net	674.0	—	2,759.5	—	3,433.5
Operating lease assets, net	48.9	—	226.2	—	275.1
Investment in subsidiaries	7,024.5	4,339.5	—	(11,364.0)	—
Deferred income taxes	3.2	—	31.9	(3.4)	31.7
Other assets	17.0	—	1,114.4	—	1,131.4
Long-term receivables—affiliates	—	1,169.9	—	(1,169.9)	—
Intangible assets, net	0.3	—	493.9	—	494.2
Goodwill	—	966.3	1,153.2	—	2,119.5
Total assets	\$ 8,281.2	\$ 6,475.7	\$ 9,807.5	\$(15,394.5)	\$ 9,169.9
Liabilities and Shareholders' Equity					
Current liabilities:					
Current installments of long-term debt	\$ 1.1	\$—	\$ 125.0	\$—	\$ 126.1
Accounts payable	75.8	—	566.8	(5.6)	637.0
Intercompany payables	2,664.7	—	—	(2,664.7)	—
Income taxes payable	3.7	—	9.3	—	13.0
Current operating lease liabilities	8.0	—	61.4	—	69.4
Accrued liabilities	138.3	—	345.9	(189.8)	294.4
Total current liabilities	2,891.6	—	1,108.4	(2,860.1)	1,139.9
Long-term debt	1,370.3	1,696.9	—	—	3,067.2
Operating lease liabilities	42.0	—	164.0	—	206.0
Accrued pension liability	427.0	—	233.2	—	660.2
Deferred income taxes	—	6.1	523.2	(3.4)	525.9
Long-term payables—affiliates	419.6	—	750.3	(1,169.9)	—
Other liabilities	293.1	5.5	434.5	—	733.1
Total liabilities	5,443.6	1,708.5	3,213.6	(4,033.4)	6,332.3
Commitments and contingencies					
Shareholders' equity:					
Common stock	164.9	—	14.6	(14.6)	164.9
Additional paid-in capital	2,239.2	4,125.7	4,808.2	(8,933.9)	2,239.2
Accumulated other comprehensive loss	(656.9)	—	(8.1)	8.1)	(656.9)
Retained earnings	1,090.4	641.5	1,779.2	(2,420.7)	1,090.4
Total shareholders' equity	2,837.6	4,767.2	6,593.9	(11,361.1)	2,837.6
Total liabilities and shareholders' equity	\$ 8,281.2	\$ 6,475.7	\$ 9,807.5	\$(15,394.5)	\$ 9,169.9

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CONDENSED CONSOLIDATING BALANCE SHEETS

December 31, 2018

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Assets					
Current assets:					
Cash and cash equivalents	\$92.0	\$—	\$ 86.8	\$—	\$178.8
Receivables, net	99.7	—	676.6	—	776.3
Intercompany receivables	—	—	2,558.2	(2,558.2)	—
Income taxes receivable	2.6	—	3.3	—	5.9
Inventories, net	161.4	—	550.0	—	711.4
Other current assets	220.2	—	1.8	(187.0)	35.0
Total current assets	575.9	—	3,876.7	(2,745.2)	1,707.4
Property, plant and equipment, net	651.4	—	2,830.7	—	3,482.1
Investment in subsidiaries	6,943.3	4,286.9	—	(11,230.2)	—
Deferred income taxes	7.3	—	27.4	(8.4)	26.3
Other assets	24.3	—	1,126.1	—	1,150.4
Long-term receivables—affiliates	—	1,247.2	—	(1,247.2)	—
Intangible assets, net	0.3	—	511.3	—	511.6
Goodwill	—	966.3	1,153.3	—	2,119.6
Total assets	\$8,202.5	\$6,500.4	\$ 9,525.5	\$(15,231.0)	\$8,997.4
Liabilities and Shareholders' Equity					
Current liabilities:					
Current installments of long-term debt	\$0.9	\$—	\$ 125.0	\$—	\$125.9
Accounts payable	90.1	—	549.4	(3.0)	636.5
Intercompany payables	2,558.2	—	—	(2,558.2)	—
Income taxes payable	3.9	—	18.7	—	22.6
Accrued liabilities	150.3	—	367.5	(184.5)	333.3
Total current liabilities	2,803.4	—	1,060.6	(2,745.7)	1,118.3
Long-term debt	1,357.5	1,746.9	—	—	3,104.4
Accrued pension liability	439.1	—	235.2	—	674.3
Deferred income taxes	—	6.0	521.3	(8.4)	518.9
Long-term payables—affiliates	469.6	—	777.6	(1,247.2)	—
Other liabilities	300.7	5.5	443.1	—	749.3
Total liabilities	5,370.3	1,758.4	3,037.8	(4,001.3)	6,165.2
Commitments and contingencies					
Shareholders' equity:					
Common stock	165.3	—	14.6	(14.6)	165.3
Additional paid-in capital	2,247.4	4,125.7	4,808.2	(8,933.9)	2,247.4
Accumulated other comprehensive loss	(651.0)	—	(6.9)	6.9)	(651.0)
Retained earnings	1,070.5	616.3	1,671.8	(2,288.1)	1,070.5
Total shareholders' equity	2,832.2	4,742.0	6,487.7	(11,229.7)	2,832.2
Total liabilities and shareholders' equity	\$8,202.5	\$6,500.4	\$ 9,525.5	\$(15,231.0)	\$8,997.4

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CONDENSED CONSOLIDATING BALANCE SHEETS

March 31, 2018

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Assets					
Current assets:					
Cash and cash equivalents	\$ 3.6	\$—	\$ 105.5	\$—	\$ 109.1
Receivables, net	119.6	—	716.0	—	835.6
Intercompany receivables	—	—	2,191.7	(2,191.7)	—
Income taxes receivable	11.4	—	6.1	—	17.5
Inventories, net	160.2	—	515.4	—	675.6
Other current assets	223.7	—	7.3	(169.8)	61.2
Total current assets	518.5	—	3,542.0	(2,361.5)	1,699.0
Property, plant and equipment, net	551.8	—	2,987.6	—	3,539.4
Investment in subsidiaries	6,720.1	4,114.5	—	(10,834.6)	—
Deferred income taxes	43.7	—	42.5	(46.8)	39.4
Other assets	47.3	—	1,149.7	—	1,197.0
Long-term receivables—affiliates	—	1,537.5	—	(1,537.5)	—
Intangible assets, net	0.3	—	564.8	—	565.1
Goodwill	—	966.3	1,154.0	—	2,120.3
Total assets	\$ 7,881.7	\$ 6,618.3	\$ 9,440.6	\$(14,780.4)	\$ 9,160.2
Liabilities and Shareholders' Equity					
Current liabilities:					
Current installments of long-term debt	\$ 0.7	\$—	\$ —	\$—	\$ 0.7
Accounts payable	62.0	—	639.7	(3.5)	698.2
Intercompany payables	2,191.7	—	—	(2,191.7)	—
Income taxes payable	2.3	—	13.7	—	16.0
Accrued liabilities	115.0	—	308.7	(167.6)	256.1
Total current liabilities	2,371.7	—	962.1	(2,362.8)	971.0
Long-term debt	1,352.2	1,952.2	230.3	—	3,534.7
Accrued pension liability	391.4	—	237.3	—	628.7
Deferred income taxes	—	4.1	541.1	(46.8)	498.4
Long-term payables—affiliates	680.0	—	857.5	(1,537.5)	—
Other liabilities	323.3	5.6	435.4	—	764.3
Total liabilities	5,118.6	1,961.9	3,263.7	(3,947.1)	6,397.1
Commitments and contingencies					
Shareholders' equity:					
Common stock	167.2	—	14.6	(14.6)	167.2
Additional paid-in capital	2,285.0	4,125.7	4,808.2	(8,933.9)	2,285.0
Accumulated other comprehensive loss	(552.8)	—	(4.8)	4.8)	(552.8)
Retained earnings	863.7	530.7	1,358.9	(1,889.6)	863.7
Total shareholders' equity	2,763.1	4,656.4	6,176.9	(10,833.3)	2,763.1
Total liabilities and shareholders' equity	\$ 7,881.7	\$ 6,618.3	\$ 9,440.6	\$(14,780.4)	\$ 9,160.2

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CONDENSED CONSOLIDATING STATEMENTS OF OPERATIONS

Three Months Ended March 31, 2019

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Sales	\$ 332.8	\$—	\$ 1,327.7	\$ (107.1)	\$ 1,553.4
Operating expenses:					
Cost of goods sold	304.1	—	1,150.3	(107.1)	1,347.3
Selling and administration	51.8	—	55.2	—	107.0
Restructuring charges	1.4	—	2.6	—	4.0
Acquisition-related costs	—	—	—	—	—
Other operating (loss) income	(2.1)	—	2.2	—	0.1
Operating (loss) income	(26.6)	—	121.8	—	95.2
Equity income in subsidiaries	62.6	52.6	—	(115.2)	—
Interest expense	17.4	36.1	5.2	(1.3)	57.4
Interest income	0.6	—	0.9	(1.3)	0.2
Non-operating pension income (expense)	5.4	—	(1.5)	—	3.9
Other income	11.2	—	—	—	11.2
Income before taxes	35.8	16.5	116.0	(115.2)	53.1
Income tax (benefit) provision	(5.9)	(8.7)	26.0	—	11.4
Net income	\$ 41.7	\$ 25.2	\$ 90.0	\$ (115.2)	\$ 41.7

CONDENSED CONSOLIDATING STATEMENTS OF OPERATIONS

Three Months Ended March 31, 2018

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Sales	\$ 352.7	\$—	\$ 1,467.0	\$ (109.4)	\$ 1,710.3
Operating expenses:					
Cost of goods sold	312.0	—	1,326.1	(109.4)	1,528.7
Selling and administration	47.1	—	53.4	—	100.5
Restructuring charges	—	—	4.0	—	4.0
Acquisition-related costs	0.3	—	—	—	0.3
Other operating income	5.8	—	2.3	—	8.1
Operating (loss) income	(0.9)	—	85.8	—	84.9
Earnings of non-consolidated affiliates	0.5	—	—	—	0.5
Equity income in subsidiaries	28.4	22.2	—	(50.6)	—
Interest expense	17.0	41.3	6.9	(1.5)	63.7
Interest income	1.0	—	0.9	(1.5)	0.4
Non-operating pension income (expense)	6.7	—	(1.3)	—	5.4
Income (loss) before taxes	18.7	(19.1)	78.5	(50.6)	27.5
Income tax (benefit) provision	(2.2)	(9.9)	18.7	—	6.6
Net income (loss)	\$ 20.9	\$ (9.2)	\$ 59.8	\$ (50.6)	\$ 20.9

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CONDENSED CONSOLIDATING STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

Three Months Ended March 31, 2019

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Net income	\$ 41.7	\$25.2	\$ 90.0	\$ (115.2)	\$41.7
Other comprehensive income (loss), net of tax:					
Foreign currency translation adjustments, net	—	—	(8.3)	—	(8.3)
Unrealized losses on derivative contracts, net	(3.3)	—	—	—	(3.3)
Amortization of prior service costs and actuarial losses, net	5.1	—	0.6	—	5.7
Total other comprehensive income (loss), net of tax	1.8	—	(7.7)	—	(5.9)
Comprehensive income	\$ 43.5	\$25.2	\$ 82.3	\$ (115.2)	\$35.8

CONDENSED CONSOLIDATING STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

Three Months Ended March 31, 2018

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Net income (loss)	\$ 20.9	\$(9.2)	\$ 59.8	\$ (50.6)	\$20.9
Other comprehensive income, net of tax:					
Foreign currency translation adjustments, net	—	—	12.4	—	12.4
Unrealized losses on derivative contracts, net	(0.1)	—	—	—	(0.1)
Amortization of prior service costs and actuarial losses, net	5.4	—	—	—	5.4
Total other comprehensive income, net of tax	5.3	—	12.4	—	17.7
Comprehensive income (loss)	\$ 26.2	\$(9.2)	\$ 72.2	\$ (50.6)	\$38.6

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CONDENSED CONSOLIDATING STATEMENTS OF CASH FLOWS

Three Months Ended March 31, 2019

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Net operating activities	\$ 39.7	\$ —	\$ 64.6	\$	—\$104.3
Investing Activities					
Capital expenditures	(50.7)	—	(51.5)	—	(102.2)
Proceeds from disposition of non-consolidated affiliate	20.0	—	—	—	20.0
Net investing activities	(30.7)	—	(51.5)	—	(82.2)
Financing Activities					
Long-term debt repayments	(0.2)	(50.0)	—	—	(50.2)
Common stock repurchased and retired	(13.2)	—	—	—	(13.2)
Stock options exercised	1.4	—	—	—	1.4
Dividends paid	(33.0)	—	—	—	(33.0)
Intercompany financing activities	(50.0)	50.0	—	—	—
Net financing activities	(95.0)	—	—	—	(95.0)
Effect of exchange rate changes on cash and cash equivalents	—	—	(0.2)	—	(0.2)
Net (decrease) increase in cash and cash equivalents	(86.0)	—	12.9	—	(73.1)
Cash and cash equivalents, beginning of period	92.0	—	86.8	—	178.8
Cash and cash equivalents, end of period	\$ 6.0	\$ —	\$ 99.7	\$	—\$105.7

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CONDENSED CONSOLIDATING STATEMENTS OF CASH FLOWS

Three Months Ended March 31, 2018

(In millions)

(Unaudited)

	Parent Guarantor	Issuer	Subsidiary Non-Guarantor	Eliminations	Total
Net operating activities	\$ 69.3	\$ —	\$ 11.6	\$	—\$80.9
Investing Activities					
Capital expenditures	(41.7)	—	(47.8)	—	(89.5)
Proceeds from disposition of property, plant and equipment	—	—	0.1	—	0.1
Net investing activities	(41.7)	—	(47.7)	—	(89.4)
Financing Activities					
Long-term debt:					
Borrowings	550.0	—	0.3	—	550.3
Repayments	(20.2)	(570.0)	(19.7)	—	(609.9)
Stock options exercised	1.0	—	—	—	1.0
Dividends paid	(33.4)	—	—	—	(33.4)
Debt issuance costs	(8.5)	—	—	—	(8.5)
Intercompany financing activities	(570.0)	570.0	—	—	—
Net financing activities	(81.1)	—	(19.4)	—	(100.5)
Effect of exchange rate changes on cash and cash equivalents	—	—	(0.3)	—	(0.3)
Net decrease in cash and cash equivalents	(53.5)	—	(55.8)	—	(109.3)
Cash and cash equivalents, beginning of period	57.1	—	161.3	—	218.4
Cash and cash equivalents, end of period	\$ 3.6	\$ —	\$ 105.5	\$	—\$109.1

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

Business Background

We are a leading vertically-integrated global manufacturer and distributor of chemical products and a leading U.S. manufacturer of ammunition. Our operations are concentrated in three business segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. All of our business segments are capital intensive manufacturing businesses. Chlor Alkali Products and Vinyls operating rates are closely tied to the general economy. Each segment has a commodity element to it, and therefore, our ability to influence pricing is quite limited on the portion of the segment's business that is strictly commodity.

Our Chlor Alkali Products and Vinyls segment is a commodity business where all supplier products are similar and price is the major supplier selection criterion. We have little or no ability to influence prices in the large, global commodity markets. Our Chlor Alkali Products and Vinyls segment produces some of the most widely used chemicals in the world that can be upgraded into a wide variety of downstream chemical products used in many end-markets. Cyclical price swings, driven by changes in supply/demand, can be abrupt and significant and, given capacity in our Chlor Alkali Products and Vinyls segment, can lead to very significant changes in our overall profitability.

The Epoxy segment consumes products manufactured by the Chlor Alkali Products and Vinyls segment. The Epoxy segment's upstream and midstream products are predominately commodity markets. We have little or no ability to influence prices in these large, global commodity markets. While competitive differentiation exists through downstream customization and product development opportunities, pricing is extremely competitive with a broad range of competitors across the globe.

Winchester also has a commodity element to its business, but a majority of Winchester ammunition is sold as a branded consumer product where there are opportunities to differentiate certain offerings through innovative new product development and enhanced product performance. While competitive pricing versus other branded ammunition products is important, it is not the only factor in product selection.

Executive Summary

2019 Overview

Net income was \$41.7 million for the three months ended March 31, 2019 compared to net income of \$20.9 million for the comparable prior year period. The increase in results from the prior year was due to improved Epoxy segment results, primarily due to lower maintenance costs and unabsorbed fixed manufacturing costs associated with maintenance turnarounds. Net income for the three months ended March 31, 2019 also included a pretax gain of \$11.2 million on the sale of our equity interest in a non-consolidated affiliate. These increases were partially offset by lower Chlor Alkali Products and Vinyls and Winchester segment results and increased costs associated with the Information Technology Project. In 2017, we began a multi-year implementation of new enterprise resource planning, manufacturing and engineering systems, and related infrastructure (collectively, the Information Technology Project).

Chlor Alkali Products and Vinyls generated segment income of \$120.4 million for the three months ended March 31, 2019. Chlor Alkali Products and Vinyls segment income was lower than in the comparable prior year period primarily due to lower caustic soda pricing partially offset by higher ethylene dichloride (EDC), chlorine and other chlorine-derivatives pricing and lower raw material and maintenance turnaround costs. The lower raw material costs were primarily due to lower electricity costs, driven by lower natural gas prices, partially offset by increased ethylene costs, driven by higher ethane prices. Chlor Alkali Products and Vinyls segment income included depreciation and amortization expense of \$119.8 million and \$113.7 million for the three months ended March 31, 2019 and 2018,

respectively.

During 2018, North America caustic soda price contract indices increased \$40 per ton while the caustic soda export price indices decreased approximately \$270 per metric ton. However, during the second half of 2018 both domestic and export price indices experienced declines. In the first quarter of 2019, North America caustic soda price contract indices decreased an additional \$35 per ton and caustic soda export price indices decreased an additional \$73 per metric ton. During February 2019, a caustic soda price increase of \$50 per ton was announced. This price increase is in the process of being implemented and while the extent to which this price increase is achieved is uncertain, the majority of the benefits, if realized, would impact second and third quarter 2019 results.

Epoxy reported segment income of \$10.5 million for the three months ended March 31, 2019. Epoxy segment results were higher than in the comparable prior year period primarily due to lower maintenance costs and unabsorbed fixed

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manufacturing costs associated with maintenance turnarounds. Epoxy segment results for the three months ended March 31, 2018 were negatively impacted by an approximately two-month planned maintenance turnaround at our production facilities in Freeport, TX. The three months ended March 31, 2019 also included lower product prices offset by lower raw material costs, primarily benzene and propylene, compared to the prior year. Epoxy segment income included depreciation and amortization expense of \$26.5 million and \$26.7 million for the three months ended March 31, 2019 and 2018, respectively.

Winchester reported segment income of \$9.1 million for the three months ended March 31, 2019. Winchester segment income declined from the comparable prior year period primarily due to lower sales volumes, a less favorable product mix and lower product prices. These decreases were partially offset by lower costs, primarily commodity and other material costs. Winchester segment income included depreciation and amortization expense of \$4.9 million and \$5.1 million for the three months ended March 31, 2019 and 2018, respectively.

On January 1, 2019, we sold our 9.1% limited partnership interest in Bay Gas for \$20.0 million. The sale closed on February 7, 2019 which resulted in a pretax gain of \$11.2 million for the three months ended March 31, 2019. For the year ended December 31, 2018, Chlor Alkali Products and Vinyls recorded a \$21.5 million non-cash impairment charge related to an adjustment to the value of our interest in Bay Gas.

Consolidated Results of Operations

	Three Months Ended March 31, 2019 2018 (\$ in millions, except per share data)	
Sales	\$1,553.4	\$1,710.3
Cost of goods sold	1,347.3	1,528.7
Gross margin	206.1	181.6
Selling and administration	107.0	100.5
Restructuring charges	4.0	4.0
Acquisition-related costs	—	0.3
Other operating income	0.1	8.1
Operating income	95.2	84.9
Earnings of non-consolidated affiliates	—	0.5
Interest expense	57.4	63.7
Interest income	0.2	0.4
Non-operating pension income	3.9	5.4
Other income	11.2	—
Income before taxes	53.1	27.5
Income tax provision	11.4	6.6
Net income	\$41.7	\$20.9
Net income per common share:		
Basic	\$0.25	\$0.13
Diluted	\$0.25	\$0.12

Three Months Ended March 31, 2019 Compared to Three Months Ended March 31, 2018

Sales for the three months ended March 31, 2019 were \$1,553.4 million compared to \$1,710.3 million in the same period last year, a decrease of \$156.9 million, or 9%. Epoxy sales decreased by \$79.3 million primarily due to lower

product prices, an unfavorable effect of foreign currency translation and lower volumes. Chlor Alkali Products and Vinyls sales decreased by \$63.9 million, primarily due to due to lower caustic soda pricing, partially offset by higher EDC, chlorine and other chlorine-derivatives pricing. Winchester sales decreased by \$13.7 million primarily due to lower ammunition sales to military customers, law enforcement agencies and commercial customers.

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Gross margin increased \$24.5 million for the three months ended March 31, 2019 compared to the prior year. Epoxy gross margin increased \$33.7 million primarily due to lower maintenance costs and unabsorbed fixed manufacturing costs associated with maintenance turnarounds. Chlor Alkali Products and Vinyls gross margin decreased by \$6.3 million, primarily due to lower caustic soda pricing, partially offset by higher EDC, chlorine and other chlorine-derivatives pricing and lower raw material and maintenance turnaround costs. Winchester gross margin decreased \$3.0 million primarily due to lower sales volumes, a less favorable product mix and lower product prices, partially offset by lower costs, primarily commodity and other material costs. Gross margin as a percentage of sales increased to 13% in 2019 from 11% in 2018.

Selling and administration expenses for the three months ended March 31, 2019 were \$107.0 million, an increase of \$6.5 million from the prior year. The increase was primarily due to higher costs associated with the Information Technology Project of \$7.6 million and higher stock-based compensation expense of \$3.6 million, which includes mark-to-market adjustments, partially offset by lower legal and legal-related settlement expenses of \$6.2 million. Selling and administration expenses as a percentage of sales were 7% in 2019 and 6% in 2018.

Restructuring charges for both the three months ended March 31, 2019 and 2018 of \$4.0 million were primarily associated with the March 2016 closure of 433,000 tons of chlor alkali capacity across three separate locations.

Acquisition-related costs of \$0.3 million for the three months ended March 31, 2018 were related to the integration of the Acquired Business.

Other operating income for the three months ended March 31, 2018 included an \$8.0 million insurance recovery for a second quarter 2017 business interruption at our Freeport, TX vinyl chloride monomer facility.

Interest expense decreased by \$6.3 million for the three months ended March 31, 2019, primarily due to a lower level of debt outstanding partially offset by higher interest rates. Interest expense for the three months ended March 31, 2019 and 2018 included \$4.0 million and \$3.9 million, respectively, of accretion expense related to the 2020 ethylene payment discount. Interest expense for the three months ended March 31, 2018 also included \$2.6 million for the write-off of unamortized deferred debt issuance costs associated with the prepayment of debt.

Non-operating pension income includes all components of pension and other postretirement income (costs) other than service costs.

Other income for the three months ended March 31, 2019 included a gain of \$11.2 million on the sale of our equity interest in a non-consolidated affiliate.

The effective tax rate for the three months ended March 31, 2019 included a benefit associated with stock-based compensation, a benefit associated with prior year tax positions and a benefit from a net decrease in the valuation allowance related to state deferred tax assets. These factors resulted in a net \$0.8 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended March 31, 2019 of 23.0% was higher than the 21% U.S. federal statutory rate, primarily due to state and foreign income taxes, foreign income inclusions and a net increase in the valuation allowance related to losses in foreign jurisdictions, partially offset by favorable permanent salt depletion deductions. The effective tax rate for the three months ended March 31, 2018 included a benefit associated with stock-based compensation, a benefit associated with the estimated reduction of the one-time 2017 Tax Act transition tax and a benefit related to a foreign dividend payment. These factors resulted in a net \$0.8 million tax benefit. After giving consideration to these items, the effective tax rate for the three months ended March 31, 2018 of 26.9% was higher than the 21% U.S. federal statutory rate, primarily due to state and foreign income taxes, partially offset by favorable permanent salt depletion deductions.

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Segment Results

We define segment results as income (loss) before interest expense, interest income, other operating income (expense), non-operating pension income, other income and income taxes, and includes the operating results of non-consolidated affiliates. Consistent with the guidance in Accounting Standards Codification (ASC) 280, "Segment Reporting," we have determined it is appropriate to include the operating results of non-consolidated affiliates in the relevant segment financial results. We have three operating segments: Chlor Alkali Products and Vinyls, Epoxy and Winchester. The three operating segments reflect the organization used by our management for purposes of allocating resources and assessing performance. Chlorine used in our Epoxy segment is transferred at cost from the Chlor Alkali Products and Vinyls segment. Sales and profits are recognized in the Chlor Alkali Products and Vinyls segment for all caustic soda generated and sold by Olin.

	Three Months Ended	
	March 31,	
	2019	2018
Sales:	(\$ in millions)	
Chlor Alkali Products and Vinyls	\$872.2	\$936.1
Epoxy	524.0	603.3
Winchester	157.2	170.9
Total sales	\$1,553.4	\$1,710.3
Income (loss) before taxes:		
Chlor Alkali Products and Vinyls ⁽¹⁾	\$120.4	\$130.5
Epoxy	10.5	(22.1)
Winchester	9.1	12.0
Corporate/other:		
Environmental expense	(1.8)	(2.3)
Other corporate and unallocated costs ⁽²⁾	(39.1)	(36.5)
Restructuring charges	(4.0)	(4.0)
Acquisition-related costs	—	(0.3)
Other operating income ⁽³⁾	0.1	8.1
Interest expense ⁽⁴⁾	(57.4)	(63.7)
Interest income	0.2	0.4
Non-operating pension income	3.9	5.4
Other income ⁽⁵⁾	11.2	—
Income before taxes	\$53.1	\$27.5

Earnings (losses) of non-consolidated affiliates are included in the Chlor Alkali Products and Vinyls segment (1) results consistent with management's monitoring of the operating segments. The earnings of non-consolidated affiliates were \$0.5 million for the three months ended March 31, 2018.

Other corporate and unallocated costs for the three months ended March 31, 2019 and 2018 included costs (2) associated with the implementation of the Information Technology Project of \$14.1 million and \$6.5 million, respectively.

(3) Other operating income for the three months ended March 31, 2018 included an \$8.0 million insurance recovery for a second quarter 2017 business interruption at our Freeport, TX vinyl chloride monomer facility.

(4) Interest expense for the three months ended March 31, 2019 and 2018 included \$4.0 million and \$3.9 million, respectively, of accretion expense related to the 2020 ethylene payment discount. Interest expense for the three

months ended March 31, 2018 also included \$2.6 million for the write-off of unamortized deferred debt issuance costs associated with the prepayment of debt.

- (5) Other income for the three months ended March 31, 2019 included a gain of \$11.2 million on the sale of our equity interest in a non-consolidated affiliate.

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Chlor Alkali Products and Vinyls

Three Months Ended March 31, 2019 Compared to Three Months Ended March 31, 2018

Chlor Alkali Products and Vinyls sales for the three months ended March 31, 2019 were \$872.2 million compared to \$936.1 million for the same period in 2018, a decrease of \$63.9 million, or 7%. The sales decrease was primarily due to lower caustic soda pricing, partially offset by higher EDC, chlorine and other chlorine-derivatives pricing.

Chlor Alkali Products and Vinyls segment income was \$120.4 million for the three months ended March 31, 2019 compared to \$130.5 million for the same period in 2018, a decrease of \$10.1 million, or 8%. The decrease in Chlor Alkali Products and Vinyls segment income was primarily due to lower product prices (\$59.3 million), primarily caustic soda, and increased depreciation and amortization expense (\$6.1 million). Partially offsetting these decreases were lower raw material costs (\$26.7 million), a favorable product mix (\$15.2 million) and lower maintenance turnaround costs (\$13.4 million). The lower raw material costs were primarily due to lower electricity costs, driven by lower natural gas prices, partially offset by increased ethylene costs, driven by higher ethane prices. Chlor Alkali Products and Vinyls segment income included depreciation and amortization expense of \$119.8 million and \$113.7 million for the three months ended March 31, 2019 and 2018, respectively.

Epoxy

Three Months Ended March 31, 2019 Compared to Three Months Ended March 31, 2018

Epoxy sales for the three months ended March 31, 2019 were \$524.0 million compared to \$603.3 million for the same period in 2018, a decrease of \$79.3 million, or 13%. The sales decrease was primarily due to lower product prices (\$37.7 million), an unfavorable effect of foreign currency translation (\$21.0 million) and lower volumes (\$20.6 million).

Epoxy segment income was \$10.5 million for the three months ended March 31, 2019 compared to a segment loss of \$22.1 million for the same period in 2018, an increase of \$32.6 million. The increase in segment results was primarily due to lower maintenance costs and unabsorbed fixed manufacturing costs associated with maintenance turnarounds (\$41.3 million). The first quarter 2018 Epoxy segment earnings reflected \$44.7 million of maintenance costs and unabsorbed fixed manufacturing costs from lower production associated with an approximately two-month planned maintenance turnaround at our production facilities in Freeport, Texas. The three months ended March 31, 2019 also included lower raw material costs (\$41.4 million), primarily benzene and propylene, partially offset by lower product prices (\$37.7 million), higher operating costs (\$6.3 million) and lower volumes (\$6.1 million). A significant percentage of our Euro denominated sales are of products manufactured within Europe. As a result, the impact of foreign currency translation on revenue is primarily offset by the impact of foreign currency translation on raw materials and manufacturing costs also denominated in Euros. Epoxy segment income included depreciation and amortization expense of \$26.5 million and \$26.7 million for the three months ended March 31, 2019 and 2018, respectively.

Winchester

Three Months Ended March 31, 2019 Compared to Three Months Ended March 31, 2018

Winchester sales were \$157.2 million for the three months ended March 31, 2019 compared to \$170.9 million for the same period in 2018, a decrease of \$13.7 million, or 8%. The sales decrease was primarily due to lower ammunition sales to military customers and law enforcement agencies (\$8.9 million) and commercial customers (\$4.8 million).

Winchester segment income was \$9.1 million for the three months ended March 31, 2019 compared to \$12.0 million for the same period in 2018, a decrease of \$2.9 million, or 24%. The decrease in segment income was due to lower sales volumes and a less favorable product mix (\$2.3 million) and lower product prices (\$2.3 million). These decreases were partially offset by lower costs, primarily commodity and other material costs (\$1.7 million). Winchester segment income included depreciation and amortization expense of \$4.9 million and \$5.1 million for the three months ended March 31, 2019 and 2018, respectively.

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Corporate/Other

Three Months Ended March 31, 2019 Compared to Three Months Ended March 31, 2018

For the three months ended March 31, 2019, charges to income for environmental investigatory and remedial activities were \$1.8 million compared with \$2.3 million for the three months ended March 31, 2018. These charges related primarily to expected future investigatory and remedial activities associated with past manufacturing operations and former waste disposal sites.

For the three months ended March 31, 2019, other corporate and unallocated costs were \$39.1 million compared to \$36.5 million for the three months ended March 31, 2018, an increase of \$2.6 million. The increase was primarily due to higher costs associated with the Information Technology Project of \$7.6 million and higher stock-based compensation expense of \$3.6 million, which includes mark-to-market adjustments, partially offset by lower legal and legal-related settlement expenses of \$6.0 million and a favorable foreign currency impact of \$1.6 million.

Outlook

Net income in 2019 is projected to be approximately \$1.60 per diluted share, which includes estimated pretax information technology integration project costs and restructuring costs totaling approximately \$80 million and a pretax gain of \$11.2 million on the sale of our equity interest in a non-consolidated affiliate. Net income in 2018 was \$1.95 per diluted share, which includes pretax insurance recoveries for environmental costs incurred and expensed in prior periods of \$111.0 million, pretax information technology integration project costs and restructuring costs of \$58.4 million and a pretax non-cash impairment charge associated with our investment in a non-consolidated affiliate of \$21.5 million.

Second quarter 2019 earnings are forecast to be lower compared to first quarter 2019 as maintenance turnaround costs are expected to increase approximately \$40 million. The second half of 2019 is expected to be stronger than the first half with the second quarter forecasted to be the weakest quarter of the year. We expect second quarter 2019 Chlor Alkali Products and Vinyls segment earnings to decline sequentially as lower caustic soda pricing and higher planned maintenance turnaround costs are expected to be partially offset by improved pricing for chlorine and chlorine-derivatives. As the second quarter progresses, caustic soda prices are expected to begin to improve, with recovery continuing through the second half of 2019. We expect second quarter 2019 Epoxy segment earnings to be comparable to first quarter 2019 as increased maintenance turnaround costs are forecasted to be offset by higher product prices and increased volumes.

Chlor Alkali Products and Vinyls 2019 segment income is expected to be comparable to 2018 segment income of \$637.1 million reflecting improved chlorine, EDC and other chlorine-derivatives pricing, which are expected to be offset by lower caustic soda pricing, higher freight and logistics costs, and higher ethylene costs, due to increased ethane pricing.

Epoxy 2019 segment results are expected to improve from the 2018 segment income of \$52.8 million as increased volumes, lower raw material costs, primarily benzene and propylene, and lower planned maintenance turnaround costs are expected to more than offset lower product pricing.

Winchester 2019 segment income is expected to be similar to the 2018 segment income of \$38.4 million primarily due to lower commodity and other material costs and lower operating costs offset by declines in commercial demand. Military and other government sales are expected to be consistent with 2018.

Other Corporate and Unallocated costs in 2019 are expected to be higher than 2018 Other Corporate and Unallocated costs of \$158.3 million due to higher costs associated with the Information Technology Project and higher stock based compensation costs partially offset by lower legal and legal-related settlement expenses. Costs associated with the Information Technology Project are estimated to increase approximately \$30 million in 2019 compared to 2018, which reflects duplicative costs incurred to maintain legacy systems while transitioning to new systems.

During 2019, we anticipate environmental expenses in the \$30 million to \$40 million range compared to \$7.3 million, excluding the \$111.0 million of insurance recoveries, in 2018. We do not believe that there will be any recoveries of environmental costs incurred and expensed in prior periods during 2019.

We expect non-operating pension income in 2019 to be in the \$15 million to \$20 million range compared to \$21.7 million in 2018. Based on our plan assumptions and estimates, we will not be required to make any cash contributions to our

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domestic qualified defined benefit pension plan in 2019. We have several international qualified defined benefit pension plans for which we anticipate cash contributions of less than \$5 million in 2019.

In 2019, we currently expect our capital spending to be in the \$375 million to \$425 million range, including the investment associated with the Information Technology Project of approximately \$80 million. We expect 2019 depreciation and amortization expense to be in the \$590 million to \$610 million range. In first quarter 2019, we repaid \$50.2 million of debt outstanding using available cash. We are targeting to repay approximately \$250 million to \$300 million of debt during 2019.

We currently believe that both the 2019 effective tax rate and the cash tax rate will be approximately 25%.

Environmental Matters

Environmental provisions charged to income, which are included in costs of goods sold, were \$1.8 million and \$2.3 million for the three months ended March 31, 2019 and 2018, respectively.

Our liabilities for future environmental expenditures were as follows:

	March 31,	
	2019	2018
	(\$ in millions)	
Balance at beginning of year	\$125.6	\$131.6
Charges to income	1.8	2.3
Remedial and investigatory spending	(2.0)	(2.5)
Foreign currency translation adjustments	0.1	(0.2)
Balance at end of period	\$125.5	\$131.2

Environmental investigatory and remediation activities spending was associated with former waste disposal sites and past manufacturing operations. Spending in 2019 for investigatory and remedial efforts, the timing of which is subject to regulatory approvals and other uncertainties, is estimated to be approximately \$17 million. Cash outlays for remedial and investigatory activities associated with former waste disposal sites and past manufacturing operations were not charged to income, but instead, were charged to reserves established for such costs identified and expensed to income in prior periods. Associated costs of investigatory and remedial activities are provided for in accordance with generally accepted accounting principles governing probability and the ability to reasonably estimate future costs. Our ability to estimate future costs depends on whether our investigatory and remedial activities are in preliminary or advanced stages. With respect to unasserted claims, we accrue liabilities for costs that, in our experience, we expect to incur to protect our interests against those unasserted claims. Our accrued liabilities for unasserted claims amounted to \$8.7 million at March 31, 2019. With respect to asserted claims, we accrue liabilities based on remedial investigation, feasibility study, remedial action and operation, maintenance and monitoring (OM&M) expenses that, in our experience, we expect to incur in connection with the asserted claims. Required site OM&M expenses are estimated and accrued in their entirety for required periods not exceeding 30 years, which reasonably approximates the typical duration of long-term site OM&M. Charges to income for investigatory and remedial efforts could be material to our operating results in 2019.

Our condensed balance sheets included liabilities for future environmental expenditures to investigate and remediate known sites amounting to \$125.5 million at March 31, 2019, \$125.6 million at December 31, 2018 and \$131.2 million at March 31, 2018, of which \$108.5 million, \$108.6 million and \$111.2 million, respectively, were classified as other noncurrent liabilities. These amounts do not take into account any discounting of future expenditures or any consideration of insurance recoveries or advances in technology. These liabilities are reassessed periodically to determine if environmental circumstances have changed and/or remediation efforts and our estimate of related costs

have changed. As a result of these reassessments, future charges to income may be made for additional liabilities.

In connection with the October 5, 2015 acquisition of Dow's U.S. Chlor Alkali and Vinyl, Global Chlorinated Organics and Global Epoxy businesses, the prior owner of the businesses retained liabilities relating to releases of hazardous materials and violations of environmental law to the extent arising prior to October 5, 2015.

Environmental exposures are difficult to assess for numerous reasons, including the identification of new sites, developments at sites resulting from investigatory studies, advances in technology, changes in environmental laws and regulations and their application, changes in regulatory authorities, the scarcity of reliable data pertaining to identified sites, the

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difficulty in assessing the involvement and financial capability of other Potentially Responsible Parties (PRPs), our ability to obtain contributions from other parties and the lengthy time periods over which site remediation occurs. It is possible that some of these matters (the outcomes of which are subject to various uncertainties) may be resolved unfavorably to us, which could materially adversely affect our financial position or results of operations.

Legal Matters and Contingencies

We are party to a dispute relating to a contract at our Plaquemine, LA facility. The other party to the contract filed a demand for arbitration alleging, among other things, that Olin breached the contract, and claims damages in excess of the amount Olin believes it is obligated to pay under the contract. The arbitration hearing is scheduled for the fourth quarter 2019. Any additional losses related to this contract dispute are not currently estimable because of unresolved questions of fact and law but, if resolved unfavorably to Olin, they could have a material adverse effect on our financial position, cash flows or results of operations.

Olin, K.A. Steel Chemicals (a wholly owned subsidiary of Olin) and other caustic soda producers were named as defendants in six purported class action civil lawsuits filed March 22, 25 and 26, 2019 and April 12, 2019 in the U.S. District Court for the Western District of New York. The lawsuits allege the defendants conspired to fix, raise, maintain and stabilize the price of caustic soda, restrict domestic (U.S.) supply of caustic soda and allocate caustic soda customers. The other defendants named in the lawsuits are Occidental Petroleum Corporation, Occidental Chemical Corporation d/b/a OxyChem, Westlake Chemical Corporation, Shin-Etsu Chemical Co., Ltd., Shintech Incorporated, Formosa Plastics Corporation, and Formosa Plastics Corporation, U.S.A. The lawsuits are filed on behalf of the respective named plaintiffs and a putative class comprised of all persons and entities who purchased caustic soda in the U.S. directly from one or more of the defendants, their parents, predecessors, subsidiaries or affiliates at any time between October 1, 2015 and the present. Plaintiffs seek an unspecified amount of damages and injunctive relief. We believe we have meritorious legal positions and will continue to represent our interests vigorously in this matter. Any losses related to this matter are not currently estimable because of unresolved questions of fact and law which, if resolved unfavorably to Olin, could have a material adverse effect on our financial position, cash flows or results of operations.

We, and our subsidiaries, are defendants in various other legal actions (including proceedings based on alleged exposures to asbestos) incidental to our past and current business activities. As of March 31, 2019, December 31, 2018 and March 31, 2018, our condensed balance sheets included accrued liabilities for these legal actions of \$15.8 million, \$15.6 million and \$13.3 million, respectively. These liabilities do not include costs associated with legal representation. Based on our analysis, and considering the inherent uncertainties associated with litigation, we do not believe that it is reasonably possible that these legal actions will materially adversely affect our financial position, cash flows or results of operations. In connection with the October 5, 2015 acquisition of Dow's U.S. Chlor Alkali and Vinyl, Global Chlorinated Organics and Global Epoxy businesses, the prior owner of the businesses retained liabilities related to litigation to the extent arising prior to October 5, 2015.

During the ordinary course of our business, contingencies arise resulting from an existing condition, situation or set of circumstances involving an uncertainty as to the realization of a possible gain contingency. In certain instances such as environmental projects, we are responsible for managing the cleanup and remediation of an environmental site. There exists the possibility of recovering a portion of these costs from other parties. We account for gain contingencies in accordance with the provisions of ASC 450 "Contingencies," and therefore, do not record gain contingencies and recognize income until it is earned and realizable.

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Liquidity, Investment Activity and Other Financial Data

Cash Flow Data

	Three Months Ended March 31,	
	2019	2018
Provided By (Used For)	(\$ in millions)	
Net operating activities	\$104.3	\$80.9
Capital expenditures	(102.2)	(89.5)
Proceeds from disposition of non-consolidated affiliate	20.0	—
Net investing activities	(82.2)	(89.4)
Long-term debt repayments, net	(50.2)	(59.6)
Common stock repurchased and retired	(13.2)	—
Stock options exercised	1.4	1.0
Debt issuance costs	—	(8.5)
Net financing activities	(95.0)	(100.5)

Operating Activities

For the three months ended March 31, 2019, cash provided by operating activities increased by \$23.4 million from the three months ended March 31, 2018, primarily due to an increase in operating results partially offset by an increase in working capital. For the three months ended March 31, 2019, working capital increased \$87.6 million compared to an increase of \$73.2 million for the three months ended March 31, 2018. Receivables increased by \$36.2 million from December 31, 2018 as a result of a decrease in receivables sold under the accounts receivable factoring arrangement. Lower selling prices were offset by higher volumes in the first quarter of 2019 compared to the fourth quarter of 2018.

Investing Activities

Capital spending of \$102.2 million for the three months ended March 31, 2019 was \$12.7 million higher than the corresponding period in 2018, primarily due to capital spending related to the Information Technology Project. For the total year 2019, we expect our capital spending to be in the \$375 million to \$425 million range, which is expected to include \$80 million for the Information Technology Project. For the total year 2019, depreciation and amortization expense is forecast to be in the \$590 million to \$610 million range.

During 2017, we began a multi-year implementation of the Information Technology Project. The project is planned to standardize business processes across the chemicals businesses with the objective of maximizing cost effectiveness, efficiency and control across our global operations. The project is anticipated to be completed during 2020. Total capital spending is forecast to be \$250 million and associated expenses are forecast to be \$100 million. Our results for the three months ended March 31, 2019 included \$22.1 million of capital spending and \$14.1 million of expenses associated with this project. Our results for the three months ended March 31, 2018 included \$10.1 million of capital spending and \$6.5 million of expenses associated with this project.

On January 1, 2019, we sold our 9.1% limited partnership interest in Bay Gas for \$20.0 million. The sale closed on February 7, 2019 which resulted in a gain of \$11.2 million.

Financing Activities

For the three months ended March 31, 2019, we made long-term debt repayments of \$50.2 million, primarily related to the \$1,375.0 term loan facility (Term Loan Facility).

On January 19, 2018, Olin issued \$550.0 million aggregate principal amount of 5.00% senior notes due February 1, 2030 (2030 Notes), which were registered under the Securities Act of 1933, as amended. Interest on the 2030 Notes began accruing from January 19, 2018 and is paid semi-annually beginning on August 1, 2018. Proceeds from the 2030 Notes were used to redeem \$550.0 million of debt under the Term Loan Facility.

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For the three months ended March 31, 2018, we made long-term debt repayments of \$609.9 million including \$570.0 million related to the Term Loan Facility, \$20.0 million related to the \$600.0 million senior revolving credit facility (Senior Revolving Credit Facility), and \$19.7 million related to the Receivables Financing Agreement.

For the three months ended March 31, 2018, we paid debt issuance costs of \$8.5 million for the issuance of the 2030 Notes.

For the three months ended March 31, 2019, we repurchased and retired 0.6 million shares with a total cost of \$13.2 million.

We issued 0.1 million shares representing stock options exercised for both the three months ended March 31, 2019 and 2018, with a total value of \$1.4 million and \$1.0 million, respectively.

The percent of total debt to total capitalization decreased to 52.9% as of March 31, 2019 from 53.3% as of December 31, 2018 as a result of a lower level of debt outstanding.

In the first quarter of 2019 and 2018, we paid a quarterly dividend of \$0.20 per share. Dividends paid for the three months ended March 31, 2019 and 2018, were \$33.0 million and \$33.4 million, respectively. On April 25, 2019, our board of directors declared a dividend of \$0.20 per share on our common stock, payable on June 10, 2019 to shareholders of record on May 10, 2019.

The payment of cash dividends is subject to the discretion of our board of directors and will be determined in light of then-current conditions, including our earnings, our operations, our financial condition, our capital requirements and other factors deemed relevant by our board of directors. In the future, our board of directors may change our dividend policy, including the frequency or amount of any dividend, in light of then-existing conditions.

Liquidity and Other Financing Arrangements

Our principal sources of liquidity are from cash and cash equivalents, cash flow from operations and short-term borrowings under our Senior Revolving Credit Facility, accounts receivable factoring arrangement and Receivables Financing Agreement. Additionally, we believe that we have access to the debt and equity markets.

The overall decrease in cash for the three months ended March 31, 2019 primarily reflects our long-term debt repayments and capital spending, partially offset by our operating results. We believe, based on current and projected levels of cash flow from our operations, together with our cash and cash equivalents on hand and the availability to borrow under our Senior Revolving Credit Facility and Receivables Financing Agreement, we have sufficient liquidity to meet our short-term and long-term needs to make required payments of interest on our debt, fund our operating needs, fund working capital and capital expenditure requirements and comply with the financial ratios in our debt agreements.

On April 26, 2018, our board of directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to \$500.0 million. This program will terminate upon the purchase of \$500.0 million of our common stock. For the three months ended March 31, 2019, 0.6 million shares were repurchased and retired at a cost of \$13.2 million. As of March 31, 2019, we had repurchased a total of \$63.3 million of our common stock, representing 2.7 million shares, and \$436.7 million of common stock remained authorized to be repurchased.

On January 19, 2018, Olin issued \$550.0 million aggregate principal amount of 5.00% senior notes due February 1, 2030, which were registered under the Securities Act of 1933, as amended. Interest on the 2030 Notes began accruing from January 19, 2018 and is paid semi-annually beginning on August 1, 2018. Proceeds from the 2030 Notes were

used to redeem \$550.0 million of debt under the Term Loan Facility.

On March 9, 2017, we entered into the \$1,975.0 million Senior Credit Facility, consisting of a \$1,375.0 million Term Loan Facility and a \$600.0 million Senior Revolving Credit Facility. At March 31, 2019, we had \$596.5 million available under our Senior Revolving Credit Facility because we had issued \$3.5 million of letters of credit.

The Senior Revolving Credit Facility includes a \$100.0 million letter of credit subfacility. At March 31, 2019, \$493.0 million of the Term Loan Facility remained outstanding. In connection with the \$550.0 million prepayment of the Term Loan Facility in January 2018, the required quarterly installments of the Term Loan Facility were eliminated.

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Under the Senior Credit Facility, we may select various floating-rate borrowing options. The actual interest rate paid on borrowings under the Senior Credit Facility is based on a pricing grid which is dependent upon the leverage ratio as calculated under the terms of the applicable facility for the prior fiscal quarter. The facility includes various customary restrictive covenants, including restrictions related to the ratio of debt to earnings before interest expense, taxes, depreciation and amortization (leverage ratio) and the ratio of earnings before interest expense, taxes, depreciation and amortization to interest expense (coverage ratio). Compliance with these covenants is determined quarterly based on the operating cash flows. We were in compliance with all covenants and restrictions under all our outstanding credit agreements as of March 31, 2019, and no event of default had occurred that would permit the lenders under our outstanding credit agreements to accelerate the debt if not cured. In the future, our ability to generate sufficient operating cash flows, among other factors, will determine the amounts available to be borrowed under these facilities. As of March 31, 2019, there were no covenants or other restrictions that would have limited our ability to borrow under these facilities.

In connection with the Acquisition, Olin and Dow entered into arrangements for the long-term supply of ethylene by Dow to Olin, pursuant to which, among other things, Olin made upfront payments in order to receive ethylene at producer economics and for certain reservation fees and for the option to obtain additional future ethylene supply at producer economics. On February 27, 2017, we exercised the remaining option to reserve additional ethylene at producer economics from Dow. In connection with the exercise of this option, we also secured a long-term customer arrangement. As a result, an additional payment will be made to Dow of between \$440 million and \$465 million on or about the fourth quarter of 2020.

On December 20, 2016, we entered into a three-year, \$250.0 million Receivables Financing Agreement with PNC Bank, National Association, as administrative agent (Receivables Financing Agreement). Under the Receivables Financing Agreement, our eligible trade receivables are used for collateralized borrowings and continue to be serviced by us. In addition, the Receivables Financing Agreement incorporates the leverage and coverage covenants that are contained in the Senior Revolving Credit Facility. As of March 31, 2019, \$352.8 million of our trade receivables were pledged as collateral and we had \$125.0 million drawn under the agreement. As of March 31, 2019, we had \$125.0 million additional borrowing capacity under the Receivables Financing Agreement. As of December 31, 2018, \$360.4 million of our trade receivables were pledged as collateral and \$125.0 million was drawn under the agreement and as of March 31, 2018, \$382.7 million of our trade receivables were pledged as collateral and we had \$230.3 million drawn under the agreement.

Olin also has trade accounts receivable factoring arrangements (AR Facilities) and pursuant to the terms of the AR Facilities, certain of our subsidiaries may sell their accounts receivable up to a maximum of \$315.0 million. We will continue to service the outstanding accounts sold. These receivables qualify for sales treatment under ASC 860 and, accordingly, the proceeds are included in net cash provided by operating activities in the condensed statements of cash flows. The gross amount of receivables sold for the three months ended March 31, 2019 and 2018 totaled \$134.9 million and \$413.1 million, respectively. The agreements are without recourse and therefore no recourse liability has been recorded as of March 31, 2019, December 31, 2018 and March 31, 2018. As of March 31, 2019, December 31, 2018 and March 31, 2018, \$96.8 million, \$132.4 million and \$178.9 million, respectively, of receivables qualifying for sales treatment were outstanding and will continue to be serviced by us.

Cash flow from operations is variable as a result of both the seasonal and the cyclical nature of our operating results, which have been affected by seasonal and economic cycles in many of the industries we serve, such as the vinyls, urethanes, bleach, ammunition and pulp and paper. Cash flow from operations is affected by changes in chlorine, caustic soda and EDC selling prices caused by the changes in the supply/demand balance of these products, resulting in the Chlor Alkali Products and Vinyls segment having significant leverage on our earnings and cash flow. For example, assuming all other costs remain constant, internal consumption remains approximately the same and we are operating at full capacity, a \$10 selling price change per ton of chlorine equates to an approximate \$10 million annual

change in our revenues and pretax profit, a \$10 selling price change per ton of caustic soda equates to an approximate \$30 million annual change in our revenues and pretax profit, and a \$0.01 selling price change per pound of EDC equates to an approximate \$20 million annual change in our revenues and pretax profit.

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For the three months ended March 31, 2019, cash provided by operating activities increased by \$23.4 million from the three months ended March 31, 2018, primarily due to an increase in operating results partially offset by an increase in working capital. For the three months ended March 31, 2019, working capital increased \$87.6 million compared to an increase of \$73.2 million for the three months ended March 31, 2018. Receivables increased by \$36.2 million from December 31, 2018 as a result of a decrease in receivables sold under the accounts receivable factoring arrangement. Lower selling prices were offset by higher volumes in the first quarter of 2019 compared to the fourth quarter of 2018.

Capital spending of \$102.2 million for the three months ended March 31, 2019 was \$12.7 million higher than the corresponding period in 2018, primarily due to capital spending related to the Information Technology Project. For the total year 2019, we expect our capital spending to be in the \$375 million to \$425 million range, which is expected to include \$80 million for the Information Technology Project. For the total year 2019, depreciation and amortization expense is forecast to be in the \$590 million to \$610 million range.

During 2017, we began a multi-year implementation of the Information Technology Project. The project is planned to standardize business processes across the chemicals businesses with the objective of maximizing cost effectiveness, efficiency and control across our global operations. The project is anticipated to be completed during 2020. Total capital spending is forecast to be \$250 million and associated expenses are forecast to be \$100 million. Our results for the three months ended March 31, 2019 included \$22.1 million of capital spending and \$14.1 million of expenses associated with this project. Our results for the three months ended March 31, 2018 included \$10.1 million of capital spending and \$6.5 million of expenses associated with this project.

At March 31, 2019, we had total letters of credit of \$75.0 million outstanding, of which \$3.5 million were issued under our Senior Revolving Credit Facility. The letters of credit were used to support certain long-term debt, certain workers compensation insurance policies, certain plant closure and post-closure obligations and certain international pension funding requirements.

Our current debt structure is used to fund our business operations. As of March 31, 2019, we had long-term borrowings, including the current installment and capital lease obligations, of \$3,193.3 million, of which \$773.9 million was at variable rates. Included within long-term borrowings on the condensed balance sheets were deferred debt issuance costs and deferred losses on fair value interest rate swaps. Commitments from banks under our Senior Revolving Credit Facility, Receivables Financing Agreement and AR Facilities are additional sources of liquidity.

In April 2016, we entered into three tranches of forward starting interest rate swaps whereby we agreed to pay fixed rates to the counterparties who, in turn, pay us floating rates on \$1,100.0 million, \$900.0 million, and \$400.0 million of our underlying floating-rate debt obligations. Each tranche's term length is for twelve months beginning on December 31, 2016, December 31, 2017, and December 31, 2018, respectively. The counterparties to the agreements are SMBC Capital Markets, Inc., Wells Fargo, PNC Bank, National Association and Toronto-Dominion Bank. These counterparties are large financial institutions; however, the risk of loss to us in the event of nonperformance by a counterparty could be significant to our financial position or results of operations. We have designated the swaps as cash flow hedges of the risk of changes in interest payments associated with our variable-rate borrowings. Accordingly, the remaining swap agreement has been recorded at its fair market value of \$3.6 million and is included in other current assets on the accompanying condensed balance sheet as of March 31, 2019, with the corresponding gain deferred as a component of other comprehensive loss. For both the three months ended March 31, 2019 and 2018, \$1.3 million of income was recorded to interest expense on the accompanying condensed statements of operations related to these swap agreements.

In April 2016, we entered into interest rate swaps on \$250.0 million of our underlying fixed-rate debt obligations, whereby we agreed to pay variable rates to the counterparties who, in turn, pay us fixed rates. The counterparties to these agreements are Toronto-Dominion Bank and SMBC Capital Markets, Inc., both of which are major financial

institutions.

In October 2016, we entered into interest rate swaps on an additional \$250.0 million of our underlying fixed-rate debt obligations, whereby we agreed to pay variable rates to the counterparties who, in turn, pay us fixed rates. The counterparties to these agreements are PNC Bank, National Association and Wells Fargo, both of which are major financial institutions.

We have designated the April 2016 and October 2016 interest rate swap agreements as fair value hedges of the risk of changes in the value of fixed-rate debt due to changes in interest rates for a portion of our fixed-rate borrowings. Accordingly, the swap agreements have been recorded at their fair market value of \$23.5 million and are included in other long-term liabilities on the accompanying condensed balance sheet as of March 31, 2019, with a corresponding decrease in the carrying amount of the related debt. For the three months ended March 31, 2019 and 2018, \$0.7 million of expense and \$0.2 million of

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income, respectively, was recorded to interest expense on the accompanying condensed statements of operations related to these swap agreements.

Off-Balance Sheet Arrangements

Purchasing commitments are utilized in our normal course of business for our projected needs. We have supply contracts with various third parties for certain raw materials including ethylene, electricity, propylene and benzene. These agreements are maintained through long-term cost based contracts that provide us with a reliable supply of key raw materials.

New Accounting Standards

In January 2017, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2017-04, "Simplifying the Test for Goodwill Impairment" which amends ASC 350 "Intangibles—Goodwill and Other." This update will simplify the measurement of goodwill impairment by eliminating Step 2 from the goodwill impairment test. This update will require an entity to perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value. The update does not modify the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. This update is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. The guidance in this update is applied on a prospective basis with earlier application permitted. We plan to adopt this update on January 1, 2020 and do not expect the update to have a material impact on our consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02 "Leases," (ASU 2016-02) which supersedes ASC 840 "Leases" and creates a new topic, ASC 842 "Leases" (ASC 842). Subsequent to the issuance of ASU 2016-02, ASC 842 was amended by various updates that amend and clarify the impact and implementation of the aforementioned update. These updates require lessees to recognize a lease liability and a lease asset for all leases, including operating leases, with a term greater than 12 months on its balance sheet. Upon initial application, the provisions of these updates are required to be applied using the modified retrospective method which requires retrospective adoption to each prior reporting period presented with the cumulative effect of adoption recorded to the earliest reporting period presented. An optional transition method can be utilized which requires application of these updates beginning on the date of adoption with the cumulative effect of initially applying these updates recognized at the date of initial adoption. These updates also expand the required quantitative and qualitative disclosures surrounding leases. These updates are effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years, with earlier application permitted. We adopted these updates on January 1, 2019 using the optional transition method. Accordingly, prior periods were not retrospectively adjusted. Adoption of these updates resulted in the recording of operating lease assets and lease liabilities on our condensed balance sheet of \$291.9 million as of January 1, 2019. Our assets and liabilities for finance leases remained unchanged. We also recognized the cumulative effect of applying these updates as an adjustment to retained earnings of \$11.2 million, net of tax, which was primarily related to the recognition of previously deferred sale/leaseback gains. Our condensed statements of operations and cash flows, along with our compliance with all covenants and restrictions under all our outstanding credit agreements, were not impacted by this adoption. These updates also impacted our accounting policies, internal controls and disclosures related to leases. Expanded disclosures regarding leases are included in Note 12 "Leases" in the notes to the consolidated financial statements.

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Item 3. Quantitative and Qualitative Disclosures about Market Risk.

We are exposed to market risk in the normal course of our business operations due to our purchases of certain commodities, our ongoing investing and financing activities and our operations that use foreign currencies. The risk of loss can be assessed from the perspective of adverse changes in fair values, cash flows and future earnings. We have established policies and procedures governing our management of market risks and the use of financial instruments to manage exposure to such risks.

Energy costs, including electricity and natural gas, and certain raw materials used in our production processes are subject to price volatility. Depending on market conditions, we may enter into futures contracts, forward contracts, commodity swaps and put and call option contracts in order to reduce the impact of commodity price fluctuations. As of March 31, 2019, we maintained open positions on commodity contracts with a notional value totaling \$168.6 million (\$116.5 million at December 31, 2018 and \$128.4 million at March 31, 2018). Assuming a hypothetical 10% increase in commodity prices which are currently hedged, as of March 31, 2019, we would experience a \$16.9 million (\$11.7 million at December 31, 2018 and \$12.8 million at March 31, 2018) increase in our cost of inventory purchased, which would be substantially offset by a corresponding increase in the value of related hedging instruments.

We transact business in various foreign currencies other than the USD which exposes us to movements in exchange rates which may impact revenue and expenses, assets and liabilities and cash flows. Our significant foreign currency exposure is denominated with European currencies, primarily the Euro, although exposures also exist in other currencies of Asia Pacific, Latin America, Middle East and Africa. For all derivative positions, we evaluated the effects of a 10% shift in exchange rates between those currencies and the USD, holding all other assumptions constant. Unfavorable currency movements of 10% would negatively affect the fair values of the derivatives held to hedge currency exposures by \$17.7 million. These unfavorable changes would generally have been offset by favorable changes in the values of the underlying exposures.

We are exposed to changes in interest rates primarily as a result of our investing and financing activities. Our current debt structure is used to fund business operations, and commitments from banks under our Senior Revolving Credit Facility, Receivables Financing Agreement and AR Facilities are additional sources of liquidity. As of March 31, 2019, December 31, 2018 and March 31, 2018, we had long-term borrowings, including current installments and capital lease obligations, of \$3,193.3 million, \$3,230.3 million and \$3,535.4 million, respectively, of which \$773.9 million, \$823.9 million and \$1,139.6 million at March 31, 2019, December 31, 2018 and March 31, 2018, respectively, were issued at variable rates. Included within long-term borrowings on the condensed balance sheets were deferred debt issuance costs and deferred losses on fair value interest rate swaps.

In April 2016, we entered into three tranches of forward starting interest rate swaps whereby we agreed to pay fixed rates to the counterparties who, in turn, pay us floating rates on \$1,100.0 million, \$900.0 million, and \$400.0 million of our underlying floating-rate debt obligations. Each tranche's term length is for twelve months beginning on December 31, 2016, December 31, 2017 and December 31, 2018, respectively. The counterparties to the agreements are SMBC Capital Markets, Inc., Wells Fargo, PNC Bank, National Association and Toronto-Dominion Bank. These counterparties are large financial institutions; however, the risk of loss to us in the event of nonperformance by a counterparty could be significant to our financial position or results of operations.

In April 2016, we entered into interest rate swaps on \$250.0 million of our underlying fixed-rate debt obligations, whereby we agreed to pay variable rates to the counterparties who, in turn, pay us fixed rates. The counterparties to these agreements are Toronto-Dominion Bank and SMBC Capital Markets, Inc., both of which are major financial institutions.

In October 2016, we entered into interest rate swaps on an additional \$250.0 million of our underlying fixed-rate debt obligations, whereby we agreed to pay variable rates to the counterparties who, in turn, pay us fixed rates. The counterparties to these agreements are PNC Bank, National Association and Wells Fargo, both of which are major financial institutions.

Assuming no changes in the \$773.9 million of variable-rate debt levels from March 31, 2019, we estimate that a hypothetical change of 100-basis points in the LIBOR interest rates would impact annual interest expense by \$7.7 million. A portion of this hypothetical change would be offset by our interest rate swaps.

Our interest rate swaps reduced interest expense by \$0.6 million and \$1.5 million for the three months ended March 31, 2019 and 2018, respectively.

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If the actual changes in commodities, foreign currency, or interest pricing is substantially different than expected, the net impact of commodity risk, foreign currency risk, or interest rate risk on our cash flow may be materially different than that disclosed above.

We do not enter into any derivative financial instruments for speculative purposes.

Item 4. Controls and Procedures.

Our chief executive officer and our chief financial officer evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2019. Based on that evaluation, our chief executive officer and chief financial officer have concluded that, as of such date, our disclosure controls and procedures were effective to ensure that information Olin is required to disclose in the reports that it files or submits with the SEC under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, and to ensure that information we are required to disclose in such reports is accumulated and communicated to our management, including our chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

There have been no changes in our internal control over financial reporting that occurred during the quarter ended March 31, 2019, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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Cautionary Statement Regarding Forward-Looking Statements

This quarterly report on Form 10-Q includes forward-looking statements. These statements relate to analyses and other information that are based on management's beliefs, certain assumptions made by management, forecasts of future results, and current expectations, estimates and projections about the markets and economy in which we and our various segments operate. The statements contained in this quarterly report on Form 10-Q that are not statements of historical fact may include forward-looking statements that involve a number of risks and uncertainties.

We have used the words "anticipate," "intend," "may," "expect," "believe," "should," "plan," "project," "estimate," "forecast," and variations of such words and similar expressions in this quarterly report to identify such forward-looking statements. These statements are not guarantees of future performance and involve certain risks, uncertainties and assumptions, which are difficult to predict and many of which are beyond our control. Therefore, actual outcomes and results may differ materially from those matters expressed or implied in such forward-looking statements. We undertake no obligation to update publicly any forward-looking statements, whether as a result of future events, new information or otherwise. The payment of cash dividends is subject to the discretion of our board of directors and will be determined in light of then-current conditions, including our earnings, our operations, our financial conditions, our capital requirements and other factors deemed relevant by our board of directors. In the future, our board of directors may change our dividend policy, including the frequency or amount of any dividend, in light of then-existing conditions.

The risks, uncertainties and assumptions involved in our forward-looking statements, many of which are discussed in more detail in our filings with the SEC, including without limitation the "Risk Factors" section of our Annual Report on Form 10-K for the year ended December 31, 2018, include, but are not limited to the following:

sensitivity to economic, business and market conditions in the United States and overseas, including economic instability or a downturn in the sectors served by us, such as ammunition, vinyls, urethanes, and pulp and paper, and the migration by United States customers to foreign locations;

the cyclical nature of our operating results, particularly declines in average selling prices in the chlor alkali industry and the supply/demand balance for our products, including the impact of excess industry capacity or an imbalance in demand for our chlor alkali products;

our reliance on a limited number of suppliers for specified feedstock and services and our reliance on third-party transportation;

higher-than-expected raw material, energy, transportation and/or logistics costs;

failure to control costs or to achieve targeted cost reductions;

new regulations or public policy changes regarding the transportation of hazardous chemicals and the security of chemical manufacturing facilities;

the occurrence of unexpected manufacturing interruptions and outages, including those occurring as a result of labor disruptions and production hazards;

complications resulting from our multiple enterprise resource planning systems and the conversion to a new system;

changes in, or failure to comply with, legislation or government regulations or policies;

the failure or an interruption of our information technology systems;

economic and industry downturns that result in diminished product demand and excess manufacturing capacity in any of our segments and that, in many cases, result in lower selling prices and profits;

the effects of any declines in global equity markets on asset values and any declines in interest rates used to value the liabilities in our pension plan;

unexpected litigation outcomes;

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- adverse changes in international markets, including economic, political or regulatory changes;
- weak industry conditions affecting our ability to comply with the financial maintenance covenants in our senior credit facility;
- failure to attract, retain and motivate key employees;
- our substantial amount of indebtedness and significant debt service obligations;
- costs and other expenditures in excess of those projected for environmental investigation and remediation or other legal proceedings;
- our long range plan assumptions not being realized causing a non-cash impairment charge of long-lived assets; and
- adverse conditions in the credit and capital markets, limiting or preventing our ability to borrow or raise capital.

All of our forward-looking statements should be considered in light of these factors. In addition, other risks and uncertainties not presently known to us or that we consider immaterial could affect the accuracy of our forward-looking statements.

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Part II — Other Information

Item 1. Legal Proceedings.

Olin, K.A. Steel Chemicals (a wholly owned subsidiary of Olin) and other caustic soda producers were named as defendants in six purported class action civil lawsuits filed March 22, 25 and 26, 2019 and April 12, 2019 in the U.S. District Court for the Western District of New York. The lawsuits allege the defendants conspired to fix, raise, maintain and stabilize the price of caustic soda, restrict domestic (U.S.) supply of caustic soda and allocate caustic soda customers. The other defendants named in the lawsuits are Occidental Petroleum Corporation, Occidental Chemical Corporation d/b/a OxyChem, Westlake Chemical Corporation, Shin-Etsu Chemical Co., Ltd., Shintech Incorporated, Formosa Plastics Corporation, and Formosa Plastics Corporation, U.S.A. The lawsuits are filed on behalf of the respective named plaintiffs and a putative class comprised of all persons and entities who purchased caustic soda in the U.S. directly from one or more of the defendants, their parents, predecessors, subsidiaries or affiliates at any time between October 1, 2015 and the present. Plaintiffs seek an unspecified amount of damages and injunctive relief. We believe we have meritorious legal positions and will continue to represent our interests vigorously in this matter. Any losses related to this matter are not currently estimable because of unresolved questions of fact and law which, if resolved unfavorably to Olin, could have a material adverse effect on our financial position, cash flows or results of operations.

Item 1A. Risk Factors.

Not Applicable.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

(a) Not Applicable.

(b) Not Applicable.

(c)

Issuer Purchases of Equity Securities

Period	Total Number of Shares (or Units) Purchased ⁽¹⁾	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
January 1-31, 2019	470,466	21.69	470,466	
February 1-28, 2019	71,109	25.89	71,109	
March 1-31, 2019	47,262	24.58	47,262	
Total				436,742,225 ⁽¹⁾

(1) On April 26, 2018, our board of directors authorized a share repurchase program for the purchase of shares of common stock at an aggregate price of up to \$500.0 million. This program will terminate upon the purchase of

\$500.0 million of our common stock. Through March 31, 2019, 2,726,940 shares had been repurchased at a total value of \$63,257,775 and \$436,742,225 of common stock remained available for purchase under the program.

Item 3. Defaults Upon Senior Securities.

Not Applicable.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

Not Applicable.

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Item 6. Exhibits.

- 10.1 Olin Corporation Performance Share Program as amended through January 24, 2019
- 10.2 Olin Corporation Short Term Incentive Program dated February 18, 2019—Exhibit 10.1 to Olin’s Form 8-K dated February 22, 2019*
- 11 Computation of Per Share Earnings (included in Note 10 “Earnings Per Share” to Notes to Condensed Financial Statements in Item 1)
- 31.1 Section 302 Certification Statement of Chief Executive Officer
- 31.2 Section 302 Certification Statement of Chief Financial Officer
- 32 Section 906 Certification Statement of Chief Executive Officer and Chief Financial Officer
- 101.INS XBRL Instance Document
- 101.SCHXBRL Taxonomy Extension Schema Document
- 101.CALXBRL Taxonomy Extension Calculation Linkbase Document
- 101.DEF XBRL Taxonomy Extension Definition Linkbase Document
- 101.LABXBRL Taxonomy Extension Label Linkbase Document
- 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

* Previously filed as indicated and incorporated herein by reference. Exhibits incorporated by reference are located in SEC file No. 1-1070 unless otherwise indicated.

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SIGNATURES

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

OLIN CORPORATION
(Registrant)

By: /s/ Todd A. Slater
Vice President and Chief Financial Officer
(Authorized Officer)

Date: May 1, 2019