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

FORM 10-Q

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

For the quarterly period ended December 31, 2018

or

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

For the transition period from __________ to __________

Commission File Number: 1-37644

VERSUM MATERIALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**47-5632014**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

8555 South River Parkway, Tempe, Arizona 85284
(Address of principal executive offices) (Zip Code)

(602) 282-1000
(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 and posted on its Corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒		Accelerated filer	☐
Non-accelerated filer	☐	(Do not check if a smaller reporting company)	Smaller reporting company	☐
			Emerging Growth Company	☐

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

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

At January 25, 2019, 109,111,147 shares of common stock, par value $1.00 per share, were outstanding.

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PRESENTATION OF INFORMATION

All references in this Quarterly Report on Form 10-Q, unless the context otherwise requires:

- "Versum," "we," "our," "us" and "the company" refer to Versum Materials, Inc. and its consolidated subsidiaries for periods subsequent to the Separation and Distribution completed on October 1, 2016.
- "Air Products" refers to Air Products and Chemicals, Inc. and its consolidated subsidiaries, not including, for all periods following the Separation and Distribution, Versum.
- References to the "Separation" refer to the legal separation resulting in the allocation, transfer and assignment to Versum of the assets, liabilities and operations of Air Products' Electronic Materials business and the creation, as a result of the Distribution, of a separate, publicly traded company, Versum, which holds the Electronic Materials business.
- References to the "Distribution" refer to the distribution by Air Products to its stockholders completed on October 1, 2016, of 100% of the outstanding shares of Versum, as further described herein.

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

Versum Materials, Inc.
CONSOLIDATED INCOME STATEMENTS
(Unaudited)

	Three Months Ended December 31,	
(In millions, except per share data)	**2018**	**2017**
Sales	$ 339.5	$ 330.8
Cost of sales	196.1	191.2
Selling and administrative	35.5	35.3
Research and development	12.9	12.7
Business separation, restructuring and cost reduction actions	1.1	1.8
Other (income) expense, net	(1.9)	0.5
Operating Income	95.8	89.3
Interest expense	12.8	11.3
Write-off of financing costs	—	2.1
Non-service components of net periodic pension cost	0.2	0.2
Income Before Taxes	82.8	75.7
Income tax provision	19.7	55.0
Net Income	63.1	20.7
Less: Net Income Attributable to Non-Controlling Interests	2.0	2.0
Net Income Attributable to Versum	$ 61.1	$ 18.7
Net income attributable to Versum per common share:		
Basic	$ 0.56	$ 0.17
Diluted	$ 0.56	$ 0.17
Shares used in computing per common share amounts:		
Basic	109.1	108.9
Diluted	109.8	109.7

The accompanying notes are an integral part of these statements.

Versum Materials, Inc.
CONSOLIDATED COMPREHENSIVE INCOME STATEMENTS
(Unaudited)

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Net Income	$ 63.1	$ 20.7
Other Comprehensive Income, net of tax		
Translation adjustments	0.9	19.7
Gain from hedging activities	—	0.1
Total Other Comprehensive Income	0.9	19.8
Comprehensive Income	64.0	40.5
Net Income Attributable to Non-controlling Interests	2.0	2.0
Other Comprehensive Income Attributable to Non-controlling Interests	—	0.7
Comprehensive Income Attributable to Versum	$ 62.0	$ 37.8

The accompanying notes are an integral part of these statements.

Versum Materials, Inc.
CONSOLIDATED BALANCE SHEETS
(Unaudited)

(In millions, except share data)	December 31, 2018	September 30, 2018
Assets		
Current Assets		
Cash and cash items	$ 408.0	$ 399.8
Trade receivables, net	188.8	184.4
Inventories	190.0	177.1
Contracts in progress, less progress billings	24.6	20.3
Prepaid expenses	16.1	13.6
Other current assets	18.0	17.9
Total Current Assets	845.5	813.1
Plant and equipment:		
Plant and equipment, at cost	1,089.7	1,072.1
Less: accumulated depreciation	675.2	667.0
Plant and equipment, net	414.5	405.1
Goodwill	183.7	183.0
Intangible assets, net	62.2	63.5
Other noncurrent assets	39.5	40.6
Total Noncurrent Assets	699.9	692.2
Total Assets	$ 1,545.4	$ 1,505.3
Liabilities and Stockholders' Equity		
Current Liabilities		
Payables and accrued liabilities	$ 118.9	$ 138.6
Accrued income taxes	50.6	43.3
Current portion of long-term debt	5.8	5.8
Total Current Liabilities	175.3	187.7
Long-term debt	973.2	974.2
Noncurrent income tax payable	35.7	37.3
Deferred tax liabilities	40.2	41.3
Other noncurrent liabilities	54.2	52.4
Total Noncurrent Liabilities	1,103.3	1,105.2
Total Liabilities	1,278.6	1,292.9
Commitments and Contingencies - See Note 15		
Stockholders' Equity		
Common stock (par value $1 per share; 250,000,000 shares authorized; outstanding 109,110,421 and 108,951,596 at December 31, 2018 and September 30, 2018, respectively)	109.1	109.0
Capital in excess of par	5.2	6.1
Retained earnings	133.9	81.6
Accumulated other comprehensive loss	(17.3)	(18.2)
Total Versum's Stockholders' Equity	230.9	178.5
Non-controlling Interests	35.9	33.9
Total Stockholders' Equity	266.8	212.4
Total Liabilities and Stockholders' Equity	$ 1,545.4	$ 1,505.3

The accompanying notes are an integral part of these statements.

Versum Materials, Inc.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Three Months Ended December 31,	
	2018	**2017**
(In millions)		
Operating Activities		
Net income	$ 63.1	$ 20.7
Less: Net income attributable to non-controlling interests	2.0	2.0
Net income attributable to Versum	61.1	18.7
Adjustments to reconcile income to cash provided by operating activities:		
Depreciation and amortization	13.5	11.6
Deferred income taxes	(0.7)	(7.4)
Gain on sale of assets	—	(0.3)
Share-based compensation	2.6	2.4
Other adjustments	5.7	(4.9)
Working capital changes that provided (used) cash:		
Trade receivables	(4.8)	(10.1)
Inventories	(12.9)	(9.9)
Contracts in progress, less progress billings	(4.3)	(7.6)
Payables and accrued liabilities	(17.0)	(22.4)
Accrued income taxes	4.6	60.2
Other working capital	(1.6)	8.8
Cash Provided by Operating Activities	46.2	39.1
Investing Activities		
Additions to plant and equipment	(22.0)	(28.7)
Proceeds from sale of assets	0.7	0.4
Cash Used for Investing Activities	(21.3)	(28.3)
Financing Activities		
Payments on long-term debt	(1.4)	(1.4)
Dividends paid to shareholders	(8.8)	(5.5)
Other financing activity	(6.4)	(1.6)
Cash Used for Financing Activities	(16.6)	(8.5)
Effect of Exchange Rate Changes on Cash	(0.1)	4.6
Increase in Cash and Cash Items	8.2	6.9
Cash and Cash items-Beginning of Year	399.8	271.4
Cash and Cash items-End of Period	$ 408.0	$ 278.3
Supplemental Disclosure of Cash Flow Information:		
Cash paid for interest on debt	$ 6.5	$ 4.9
Cash paid for taxes	$ 15.7	$ 2.3

The accompanying notes are an integral part of these statements.

Versum Materials, Inc.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Unaudited)

(In millions)	Common Stock	Capital in Excess of Par	Retained Earnings (Accumulated Deficit)	Accumulated Other Comprehensive Income (Loss)	Total Versum's Stockholders' Equity (Deficit)	Non-controlling Interests	Total
Balance, September 30, 2017	$ 108.8	$ 4.8	$ (99.6)	$ (18.4)	$ (4.4)	$ 34.6	$ 30.2
Net income	—	—	18.7	—	18.7	2.0	20.7
Cash dividend paid	—	(4.9)	(0.6)	—	(5.5)	—	(5.5)
Issuance of common stock through shared based compensation plans	0.1	—	—	—	0.1	—	0.1
Other comprehensive income	—	—	—	19.1	19.1	0.7	19.8
Share-based compensation	—	0.1	—	—	0.1	—	0.1
Balance, December 31, 2017	$ 108.9	$ —	$ (81.5)	$ 0.7	$ 28.1	$ 37.3	$ 65.4
Balance, September 30, 2018	$ 109.0	$ 6.1	$ 81.6	$ (18.2)	$ 178.5	$ 33.9	$ 212.4
Net income	—	—	61.1	—	61.1	2.0	63.1
Cash dividend paid	—	—	(8.8)	—	(8.8)	—	(8.8)
Issuance of common stock through shared based compensation plans	0.1	—	—	—	0.1	—	0.1
Other comprehensive income	—	—	—	0.9	0.9	—	0.9
Share-based compensation	—	(0.9)	—	—	(0.9)	—	(0.9)
Balance, December 31, 2018	$ 109.1	$ 5.2	$ 133.9	$ (17.3)	$ 230.9	$ 35.9	$ 266.8

The accompanying notes are an integral part of these statements.

Versum Materials, Inc.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. BASIS OF PRESENTATION AND MAJOR ACCOUNTING POLICIES

Versum is a global business that provides innovative solutions for specific customer applications within niche markets based upon expertise in specialty materials. Our business employs applications technology to provide solutions to the semiconductor industry through chemical synthesis, analytical technology, process engineering, and surface science. We are comprised of two operating segments, Materials and Delivery Systems and Services, under which we manage our operations and assess performance, and a Corporate segment. Versum's common stock is listed under the symbol "VSM" on the New York Stock Exchange.

Basis of Presentation

The accompanying Consolidated Financial Statements are presented on a consolidated basis and include all of the accounts and operations of Versum and its majority-owned subsidiaries. The financial statements reflect the financial position, results of operations and cash flows of Versum in accordance with generally accepted accounting principles in the United States of America ("GAAP") for interim financial information.

The financial statements are unaudited and should be read in conjunction with the Annual Consolidated Financial Statements presented in the Company's Annual Report on Form 10-K for our fiscal year ended September 30, 2018. The financial statements reflect all adjustments that, in the opinion of management, are necessary for a fair statement of the results of the interim periods presented; all adjustments have been included to provide a fair statement of the results for the reporting periods presented. All significant inter-company accounts and transactions have been eliminated. The results of operations for the three months ended December 31, 2018 are not necessarily indicative of the results of operations for the full year.

Accounting Policies

The policies used in preparing the Consolidated Financial Statements are the same as those used in our Annual Report on Form 10-K for our fiscal year ended September 30, 2018. Other than our adoption of a new revenue recognition policy which did not have a material impact on the Consolidated Financial Statements, there have been no significant changes to these accounting policies during the three months ended December 31, 2018. See Note 3, Revenue from Contracts with Customers, for a discussion on the impacts of the new revenue recognition policy on our Consolidated Financial Statements.

Estimates and Assumptions

The Consolidated Financial Statements have been prepared in conformity with GAAP, using management's best estimates and judgments where appropriate. These estimates and judgments affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements. The estimates and judgments will also affect the reported amounts for certain revenues and expenses during the reporting period. Actual results could differ materially from these estimates and judgments.

2. NEW ACCOUNTING GUIDANCE

Accounting Guidance Implemented

Income Taxes

In March 2018, the Financial Accounting Standards Board ("FASB") issued guidance relative to Incomes Taxes (Topic 740) that adds various Securities and Exchange Commission ("SEC") paragraphs pursuant to the issuance of the December 2017 SEC Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118"), which was effective immediately. The SEC issued SAB 118 to address concerns about reporting entities' ability to timely comply with the accounting requirements to recognize all of the effects of the Tax Cuts and Jobs Act (the "Tax Act") in the period of enactment. SAB 118 allows disclosure that timely determination of some or all of the income tax effects from the

Tax Cuts and Jobs Act are incomplete by the due date of the financial statements and if possible to provide a reasonable estimate. Through December 31, 2018, we have accounted for the tax effects of the Tax Act under the guidance of SAB 118, on a provisional basis. Our accounting for income tax effects associated with the Tax Act are complete and recorded in our Consolidated Financial Statements as of December 31, 2018. See Note 8 for further discussion.

Net Periodic Pension Costs

In March 2017, the FASB issued guidance which requires an entity to report the service cost component of pension expense in the same line item as other compensation costs. The other components of net (benefit) cost will be required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. This standard is effective for annual reporting periods beginning after December 15, 2017 and interim periods within those annual periods. The components of the net (benefit) cost are shown in Note 11, Retirement Benefits. The Company adopted the standard effective October 1, 2018. The adoption required us to reclassify amounts out of Operating Income. This resulted in a decrease to Cost of Sales of $0.2 million and an increase to Operating Income of $0.2 million for the three month period ending December 31, 2017. No other financial statement line items were impacted. We do not consider this to be a material impact on the Consolidated Financial Statements.

Business Combinations

In January 2017, the FASB issued guidance on the definition of a business in business combinations. The guidance clarifies the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The definition of a business affects many areas of accounting including acquisitions, disposals, goodwill, and consolidation. The guidance is effective for annual periods beginning after December 15, 2017, including interim periods within those periods. The Company adopted the standard effective October 1, 2018. The adoption did not have a material impact on the Consolidated Financial Statements.

Revenue Recognition

In May 2014, the FASB issued guidance based on the principle that revenue is recognized in an amount expected to be collected and to which the entity expects to be entitled in exchange for the transfer of goods or services. In August 2015, the FASB deferred the effective date by one year, while providing the option to early adopt the standard on the original effective date. In December 2016 there were further updates to the original guidance that did not revise the effective date. The Company adopted the standard effective October 1, 2018. See Note 3, Revenue from Contracts with Customers, for a discussion on the impacts on our Consolidated Financial Statements.

Cash Flow Statement Classification

In August 2016, the FASB issued guidance to reduce diversity in practice on how certain cash receipts and cash payments are classified in the statement of cash flows. The guidance is effective beginning fiscal year 2019, with early adoption permitted, and should be applied retrospectively. The Company adopted the standard effective October 1, 2018. The adoption did not have a material impact on the Consolidated Financial Statements.

New Accounting Guidance to be Implemented

Leases

In February 2016, with updates in July 2018 and January 2019, the FASB issued guidance which requires lessees to recognize a right of use asset and lease liability on the balance sheet for all leases, including operating leases, with a term in excess of 12 months. The guidance also expands the quantitative and qualitative disclosure requirements. The guidance is effective in fiscal year 2020, with early adoption permitted, and originally required to be applied using a modified retrospective approach. The Company is currently the lessee under various agreements for distribution equipment, vehicles and buildings that are currently accounted for as operating leases. The new guidance requires the lessee to record operating leases on the balance sheet with a right-of-use asset and corresponding liability for future payment obligations. The Company will adopt the standard effective October 1, 2019. We are currently evaluating the impact of adopting this new guidance on our Consolidated Financial Statements.

3. REVENUE FROM CONTRACTS WITH CUSTOMERS

The company adopted ASC 606 on October 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption. The reported results for the three months ended December 31, 2018 reflect the application of ASC 606 guidance while the reported results for 2017 were prepared under the guidance of ASC 605, Revenue Recognition (ASC 605). The company has determined the impact of ASC 606 on opening retained earnings was immaterial as of October 1, 2018. The impact to revenues for the quarter ended December 31, 2018 was immaterial as a result of applying ASC 606.

The adoption of ASC 606 represents a change in accounting principle that will more closely align revenue recognition with the delivery of the company's goods or services and will provide financial statement readers with enhanced disclosures. To achieve this core principle, the company applies the following five steps:

- *Identify the contract with a customer*
- *Identify the performance obligations in the contract*
- *Determine the transaction price*
- *Allocate the transaction price to performance obligations in the contract*
- *Recognize revenue when or as the Company satisfies a performance obligation*

Revenue under ASC 606 is recognized when or as obligations under the terms of a contract with the company's customer have been satisfied and control has transferred to the customer. The majority of the company's performance obligations, and associated revenue, are transferred to customers at a point in time, generally upon shipment of a product to the customer or receipt of the product by the customer and without significant judgments. Installation services are not significant and are usually completed in a short period of time and therefore, recorded at a point in time when the installation services are completed, rather than over time as they are not material. Service contracts, which are transferred to the customer over time, are recorded as revenue as the services are performed. Customized equipment with no alternative future use to the company, and that have an enforceable right to payment for performance completed to date, are also recorded over time. The company considers this to be a faithful depiction of the transfer to the customer of revenue over time as the work or service is performed.

Revenue is measured as the amount of consideration the company expects to receive in exchange for transferring goods or providing services. Performance obligations promised in a contract are identified based on the products or services that will be transferred to the customer that are both capable of being distinct, whereby the customer can benefit from the product or service either on its own or together with other resources that are readily available from third parties or from the company, and are distinct in the context of the contract, whereby the transfer of the product or service is separately identifiable from other promises in the contract. Sales, value add, and other taxes the company collects concurrent with revenue-producing activities are excluded from revenue. The company's normal payment terms vary by the type and location of its customers and the products or services offered. The time between invoicing and when payment is due is not significant. None of the company's contracts as of December 31, 2018 contain a significant financing component.

The company does not disclose information about remaining performance obligations that have original expected durations of one year or less.

Costs to Obtain and Fulfill a Contract

The company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets that the company otherwise would have recognized is one year or less. The incremental costs to obtain contracts was not material.

In most transactions, we have no obligations to our customers after the date products are shipped, other than pursuant to warranty obligations. Our standard warranties provide assurance to customers that the goods as delivered are free from defect or within their provided specifications. Shipping and handling fees billed to customers, if any, are recognized as revenue. The related shipping and handling costs are recognized in cost of sales. Based on the nature of our business returns are not material.

Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of sales.

The company estimates its allowance for doubtful accounts. The company continuously monitors collections and payments from its customers and maintains a provision for estimated credit losses based upon its historical experience and any specific customer collection issues that it has identified.

Disaggregation of Revenue

We are comprised of two primary operating segments, Materials and Delivery Systems and Services ("DS&S"), under which we manage our operations and assess performance, and a Corporate segment. Our segments are differentiated by the types of product groups they sell.

Materials

The Materials operating segment is an integrated provider of specialty materials for the high-growth electronics industry, focusing on the integrated circuit and flat-panel display markets. This segment provides the global semiconductor industry with high purity process materials for deposition, metallization, chamber cleaning and etching, chemicals mechanical planarization slurries, organosilanes, organometallics and liquid dopants for thin film deposition, and formulated chemical products for post-etch cleaning primarily for the manufacture of silicon and compound semiconductors and thin film transistor liquid crystal displays. The Materials segment is further divided into two main product groups.

- Advanced Materials ("AM")- AM supplies products and services through three key product platforms that are employed in the fabrication of ICs. Advanced deposition materials products include high purity specialty gases and chemicals, such as organosilane and organometallic precursors that are used to deposit thin films which comprise an IC. Planarization products include chemical mechanical planarization ("CMP") slurries and post CMP cleans that are used to prepare chips with deposited thin films for the next stage of fabrication. Surface prep and clean formulated products are designed to selectively etch and remove debris and contamination during multiple stages of the wafer fabrication process including advanced packaging.

- Process Materials ("PM") - PM supplies products such as high-purity gases and chemicals utilized in the processes of cleaning, etching, doping, and film deposition for our semiconductor, displays and light emitting diode customers.

Given the nature of the Materials segment the majority of revenue is recognized at a point in time.

DS&S

The DS&S operating segment designs, manufactures, installs, operates, and maintains chemical and gas delivery and distribution systems for specialty gases and chemicals delivered directly to our customers' manufacturing tools. In addition, the business provides turnkey installation services during facility construction and startup as well as onsite operating services. Below are the two product groups for DS&S.

- Equipment and installation (Gas, chemical and slurry delivery systems) - DS&S develops, designs, manufactures and sells bulk gas, specialty gas and specialty chemical cabinets and systems that are critical to managing the delivery of key materials into the semiconductor manufacturing process. DS&S also offers resources to assist both new and refurbished semiconductor fabs in the design, installation, startup, and commissioning of the gases and specialty materials delivery systems and quality assurance. The scope of installation services includes project management for installation and startup of the gas and chemical delivery systems, and inventory management. Given the nature of equipment and installation services for DS&S the majority of the revenue is recognized at a point in time.

- On-Site Services (MEGASYS): DS&S offers on-site contract services to assist customers in managing their inventory of gases and chemicals, including ordering, product changes and monitoring, quality assurance, operating our delivery systems, and managing the bulk gas and specialty gas operations. These services are typically performed on the customer site. Given the nature of the site services for DS&S the revenue is recognized over time.

Corporate

The Corporate segment includes certain administrative costs such as information technology, general services, human resources, legal, accounting, and other services, as well as foreign exchange gains and losses, and other income and expense that cannot be directly associated with operating segments.

The company disaggregates its revenue from contracts with customers by product group, which it believes best depicts how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors.

The following table summarizes revenue from contracts with customers disaggregated by product group:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Materials		
Advanced Materials	$ 123.6	$ 111.9
Process Materials	98.1	102.7
Total Materials	221.7	214.6
DS&S		
Equipment and Installations	100.9	100.4
Site Services	16.3	14.9
Total DS&S	117.2	115.3
Corporate	0.6	0.9
Total	$ 339.5	$ 330.8

The following table summarizes revenue from contracts with customers related to the geographic area in which the company operates:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Sales to External Customers		
United States	$ 100.1	$ 95.0
Taiwan	64.6	59.3
South Korea	116.0	118.5
China	19.2	21.0
Europe	15.7	15.5
Asia, excluding China, Taiwan, and South Korea	23.9	21.5
Total	$ 339.5	$ 330.8

Contract Balances

The following tables provide information about contract assets and contract liabilities from contracts with customers. The contract assets primarily relate to our rights to consideration for products produced but not billed at the reporting date on contracts with certain customers. The contract assets are recognized as accounts receivables when the rights become unconditional and the customer has been billed. Contract liabilities represent obligations to transfer goods to a customer for which we have received consideration from our customer.

A roll-forward of the company’s contracts in progress, less progress billings is as follows:

(In millions)		Three Months Ended December 31, 2018
Beginning balance [1]	$	20.3
Change related to revenue in excess of billings		4.3
Ending balance [1]	$	24.6

[1] Beginning and ending balances are current

A roll-forward of the company’s deferred revenue is as follows:

(In millions)		Three Months Ended December 31, 2018
Beginning balance [1]	$	18.7
Amount of deferred revenue recognized in income		(11.7)
Additions to deferred revenue		9.5
Ending balance [1]	$	16.5

[1] Beginning and ending balances are current

4. BUSINESS SEPARATION, RESTRUCTURING AND COST REDUCTION ACTIONS

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

During the three months ended December 31, 2018, we recognized a net charge of $1.1 million. The net charge primarily consisted of additional costs as a result of the relocation of assets from a former acquisition.

During the three months ended December 31, 2017, we recognized a net charge of $1.8 million. The net charge primarily consisted of additional costs as a result of the relocation of certain research and development activities and our headquarters and set up of the stand-alone organization and infrastructure.

The following table summarizes the carrying amount of the accrual for the business separation, restructuring and cost reduction actions at December 31, 2018:

(In millions)		Severance and Other Benefits
Balance, September 30, 2018	$	3.2
Current Period Charge		0.2
Cash Payments		(0.6)
Balance, December 31, 2018	$	2.8

5. INVENTORIES

The components of inventories are as follows:

(In millions)	December 31, 2018	September 30, 2018
Inventories at FIFO cost		
Finished goods	$ 112.2	$ 104.3
Work in process	14.9	15.1
Raw materials, supplies and other	62.9	57.7
Inventories	$ 190.0	$ 177.1

The September 30, 2018 inventory amounts have been adjusted for the company's election to change its inventory valuation method of accounting for its U.S. inventories from the last-in, first-out ("LIFO") method to the first-in, first-out ("FIFO") method effective the fourth quarter of fiscal 2018. The cost for FIFO inventory approximates replacement cost.

6. GOODWILL

Changes to the carrying amount of goodwill by segment are as follows:

(In millions)	Materials	Delivery Systems and Services	Total
Balance, September 30, 2018	$ 165.6	$ 17.4	$ 183.0
Currency translation adjustment	0.7	—	0.7
Balance, December 31, 2018	$ 166.3	$ 17.4	$ 183.7

Goodwill is subject to impairment testing in the fourth quarter of each fiscal year and whenever events and changes in circumstances indicate that the carrying value of goodwill might not be recoverable. There were no events or circumstances indicating that goodwill might be impaired at December 31, 2018.

7. DEBT

Components of Debt

(In millions)	December 31, 2018	September 30, 2018
Short-term borrowings(A)	$ —	$ —
Current portion of long-term debt	5.8	5.8
Long-term debt	973.2	974.2
Total Debt	$ 979.0	$ 980.0

(A) Represents borrowing under foreign lines of credit by non-U.S. subsidiaries which are short term in nature. Availability under these lines of credit at December 31, 2018 was $20.3 million.

Long-term debt

(In millions)	December 31, 2018	September 30, 2018
Term loan facility under Credit Agreement	$ 562.1	$ 563.5
Revolving facility under Credit Agreement	—	—
5.5% Senior Notes due 2024	425.0	425.0
Total debt	987.1	988.5
Less debt discount	1.7	1.8
Less deferred debt costs	6.4	6.7
Less current portion of long-term debt	5.8	5.8
Long-term debt payable after one year	$ 973.2	$ 974.2

Credit Agreement

On September 30, 2016, Versum entered into a credit agreement (the "Credit Agreement") providing for a senior secured first lien term loan B facility of $575 million (the "Term Facility") and a senior secured first lien revolving credit facility of $200 million (the "Revolving Facility" and, together with the Term Facility, the "Senior Credit Facilities"). The Senior Credit Facilities are guaranteed by Versum's material direct and indirect wholly-owned domestic restricted subsidiaries and secured by substantially all of the assets of Versum and its subsidiary guarantors.

Borrowings under the Term Facility bore interest at a rate of either LIBOR (adjusted for statutory reserve requirements), subject to a minimum floor of 0.75%, plus a margin of 2.50% or an alternate base rate, subject to a minimum floor of 1.75%, plus a margin of 1.50%. On October 10, 2017, Versum amended its Credit Agreement. The amendment decreased the interest rate on borrowings under the Term Facility to LIBOR plus a margin of 2.00%, or an alternate base rate plus a margin of 1.00% (effective rate of 4.80% as of December 31, 2018). The amendment removed the minimum floor on LIBOR and the alternate base rate. If our total leverage ratio is equal to or less than 2.00:1.00 (calculated without any netting of cash on hand) the interest rate will decrease further to LIBOR plus a margin of 1.75%, or an alternate base rate plus a margin of 0.75%. The Term Facility matures on September 30, 2023, and will amortize in equal quarterly installments in aggregate annual amounts equal to 1.00% of the original principal amount of the Term Facility, with the balance payable on September 30, 2023.

Borrowings under the Revolving Facility bear interest initially at a rate of either LIBOR (adjusted for statutory reserve requirements) plus a margin of 2.00% or an alternate base rate plus a margin of 1.00%, subject to a 0.25% margin reduction based on achieving a first lien net leverage ratio of 1.00:1.00. A commitment fee of 0.375% initially, subject to a reduction to 0.25% based on achieving a first lien net leverage ratio of 1.00:1.00, on the unused portion of the Revolving Facility is payable quarterly in arrears. Letter of credit fees are payable on outstanding letters of credit under the Revolving Facility, and fronting fees equal to a percentage to be agreed with each issuing bank (not to exceed 0.125%) are payable to the issuing banks. The Revolving Facility matures on September 30, 2021. A maximum first lien net leverage ratio covenant (total debt net of cash on hand to total adjusted EBITDA) of 3.25:1.00 will apply if we draw upon the Revolving Facility. As of December 31, 2018, we had availability of $200 million under the Revolving Facility.

The Credit Agreement, as amended, provides that, commencing with Versum's fiscal year ending on September 30, 2017, a percentage of excess cash flow ranging from 0% to 50%, depending on the first lien net leverage ratio, is required to be used to prepay the Term Facility. As of December 31, 2018, there was no requirement to prepay due to excess cash flows.

Senior Notes

On September 30, 2016, Versum issued $425 million of 5.5% Senior Notes due 2024. The Notes are unsecured senior obligations of Versum, guaranteed by each of Versum's subsidiaries that is a guarantor under the Senior Credit Facilities. The Notes bear interest at a rate of 5.5% per annum payable semiannually on March 15 and September 15 of each year, commencing on March 15, 2017. The Notes will mature on September 30, 2024.

Versum may, at its option, redeem some or all of the Notes during such times and at such prices as described in the Indenture governing the Senior Notes, plus accrued and unpaid interest, if any, to the date of redemption.

The agreements governing our indebtedness contain a number of affirmative and negative covenants. We were in compliance with all of our covenants at December 31, 2018.

8. INCOME TAXES

For fiscal year 2019, Versum's statutory income tax rate increased in non-U.S. jurisdictions including Taiwan and Korea, which increased Versum's global effective tax rate by 1.6%. The statutory tax rate in Taiwan increased to 20.0% in fiscal year 2019. This is an increase from fiscal year 2018's statutory tax rate of 17.0%. Korea had unfavorable changes in their tax laws that effectively increased Versum's tax rate in Korea by approximately 2.0%.

In fiscal 2019, Versum became subject to additional provisions in accordance with the effective dates in the U.S. Tax Act, which was enacted into law on December 22, 2017. The statutory U.S. federal income tax rate is 21.0% for the fiscal year 2019. This is a decrease from fiscal year 2018's U.S. federal tax rate of 24.5% which represented a blending of the 35.0% statutory rate under prior law and the new 21.0% statutory rate effective January 1, 2018. Additionally, Versum became subject to other new U.S. provisions including the Global Intangible Low Taxed Income (GILTI), Foreign Derived Intangible Income (FDII) deduction, Base Erosion and Anti-Abuse Tax (BEAT) and expanded business interest limitation provisions. The Company is electing to treat changes to the GILTI inclusion as a period cost in the period incurred. The income tax effect of all U.S. Tax Act provisions has been considered in the current period tax expense and their net impact on the global effective tax rate for fiscal year 2019 was minor. The Company will continue to actively monitor and analyze legal developments and new guidance throughout the year and adjust applicable calculations as necessary.

In accordance with the SEC's Staff Accounting Bulletin No. 118, the three months ended December 31, 2018 was the final measurement period available for the Company for recording provisional adjustments related to the U.S. Tax Act. As of December 31, 2018, the accounting for the income tax effects of the U.S. Tax Act have been completed and recorded in the Company's financial statements. The final measurement period adjustment of $1.7 million is the only provisional adjustment made in fiscal year 2019 related to the U.S. Tax Act and no further provisional measurement period adjustments will be made.

The measurement period adjustment recorded in the current quarter was a benefit related to federal and state taxes on the mandatory deemed repatriation of certain of the Company's foreign accumulated earnings and reduces the Company's tax on the mandatory deemed repatriation to $52.1 million. The measurement period adjustment is non-recurring and it reduced our U.S. GAAP effective tax rate by 2.1% for the three months ended December 31, 2018. We expect to elect to pay the federal portion of the resulting liability, net of available tax credits, over the eight-year period provided in the U.S. Tax Act, with $3.1 million of the federal liability and $1.2 million of the state liability payable in January 2019.

Versum records U.S. income and foreign withholding taxes on the undistributed earnings of our foreign subsidiaries and corporate joint ventures unless those earnings are indefinitely reinvested. For the three months ended December 31, 2018, the accrued expense related to withholding taxes on undistributed earnings is $0.7 million.

9. FINANCIAL INSTRUMENTS

We enter into forward exchange contracts to hedge the fair value exposure on inter-company loans. During the three months ended December 31, 2018 and 2017, this portfolio of forward exchange contracts consisted primarily of Japanese Yen and U.S. Dollars as well as Euros and U.S. Dollars. The maximum remaining term of any forward exchange contract currently outstanding at December 31, 2018 and 2017 was approximately 9 months. At December 31, 2018 and September 30, 2018, the total notional principal amount of our outstanding hedge contracts was $33.7 million and $36.1 million, respectively.

As of December 31, 2018 and September 30, 2018, there were no derivatives designated as hedging instruments. The tables below summarize the fair values of our derivatives not designated as hedging instruments and balance sheet location of these outstanding derivatives:

	December 31, 2018			
(In millions)	**Balance Sheet Location**	**Amount**	**Balance Sheet Location**	**Amount**
Forward exchange contracts	Other current assets	$ 0.1	Payables and accrued liabilities	$ 0.4

	September 30, 2018			
(In millions)	**Balance Sheet Location**	**Amount**	**Balance Sheet Location**	**Amount**
Forward exchange contracts	Other current assets	$ 0.4	Payables and accrued liabilities	$ —

Refer to Note 10, Fair Value, which defines fair value, describes the method for measuring fair value, and provides additional disclosures regarding fair value measurements.

The table below summarizes the gain or loss related to our forward contracts:

	Three Months Ended December 31,	
(In millions)	**2018**	**2017**
Forward Exchange Contracts, net of tax:		
Net loss recognized in other (income) expense, net(A)	$ 0.9	$ —

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

The cash flows related to all derivative contracts are reported in the operating activities section of the consolidated statements of cash flows.

10. FAIR VALUE

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

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

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

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

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

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

Derivatives

The fair value of our forward exchange contracts is quantified using the income approach and are based on estimates using standard pricing models. These models take into account the value of future cash flows as of the balance sheet date, discounted to a present value using discount factors that match both the time to maturity and currency of the underlying instruments. The computation of the fair values of these instruments is generally performed by the company. These standard pricing models utilize inputs which are derived from or corroborated by observable market data such as interest rate yield curves and currency spot and forward rates. Therefore, the fair value of our derivatives is classified as a level 2 measurement.

Refer to Note 9, Financial Instruments, for a description of derivative instruments, including details on the balance sheet line classifications.

Long-term Debt

The fair value of our Senior Notes is based primarily on quoted market prices reported on or near the respective balance sheet date and is therefore level 1. The fair value of our Term Facility debt is based on estimates using standard pricing models that take into account the value of future cash flows as of the balance sheet date, discounted to a present value using market based assumptions including published interest rates. This standard valuation model utilizes observable market data. Therefore, the fair value of our debt is classified as a level 2 measurement.

The carrying values and fair values of our derivatives and debt are as follows:

	December 31, 2018		September 30, 2018	
	Fair Value	Carrying Value	Fair Value	Carrying Value
(In millions)				
Assets				
Forward Exchange Contracts	$ 0.1	$ 0.1	$ 0.4	$ 0.4
Liabilities				
Forward Exchange Contracts	$ 0.4	$ 0.4	$ —	$ —
Long-term Debt				
Senior Notes	$ 422.9	$ 425.0	$ 435.6	$ 425.0
Term Facility	553.6	562.1	567.0	563.5
Total Long-term Debt	$ 976.5	$ 987.1	$ 1,002.6	$ 988.5

The carrying amounts reported in the consolidated balance sheet for cash and cash items, trade receivables, payables and accrued liabilities, and accrued income taxes approximate fair value due to the short-term nature of these instruments. Accordingly, these items have been excluded from the above table.

11. RETIREMENT BENEFITS

Defined Benefit Pensions

Our plans provide certain international employees in Germany, Korea and Taiwan various pension benefits. Charges to expense are based upon actuarial analysis.

The components of net periodic pension costs for Versum's defined benefit pension plans are as follows:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Service cost	$ 0.5	$ 0.5
Interest cost	0.2	0.2
Net periodic pension cost	$ 0.7	$ 0.7

Defined Contribution Plan

Versum provides benefits for all U.S. employees and certain non-U.S. employees under a Versum defined contribution plan.

The following table summarizes our defined contribution expense:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Defined contribution expense	$ 2.2	$ 2.1

12. SHARE-BASED COMPENSATION

We have the following outstanding share-based compensation awards: (a) stock options; (b) time-based restricted stock units; and (c) market-based restricted stock units.

During the three months ended December 31, 2018, under the Versum Long-Term Incentive Plan we granted annual awards of time-based restricted stock units and market-based restricted stock units, consisting of performance-based restricted stock units. In addition, during the three months ended December 31, 2017 we granted annual awards of market-based restricted stock units, consisting of performance-based restricted stock units and performance-based market stock units. Under all programs, the terms of the awards are fixed at the grant date. Generally we issue new shares upon the payout of restricted stock units and the exercise of stock options. For our Korean employees we pay cash in lieu of issuing shares with respect to restricted stock units. As of December 31, 2018, there were 4.5 million shares available for future grant under the Versum Long-Term Incentive Plan.

Total after-tax share-based compensation awards cost recognized in the consolidated income statement is summarized below:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Before-Tax Share-Based Compensation Award Cost	$ 2.6	$ 2.4
Income Tax Benefit	0.5	0.6
After-Tax Share-Based Compensation Award Cost	$ 2.1	$ 1.8

Before-tax share-based compensation award cost is primarily included in selling and administrative expense on our consolidated income statements.

Total before-tax share-based compensation award cost by type of program was as follows:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Restricted stock units	$ 2.4	$ 2.3
Director awards	0.2	0.1
Before-Tax Share-Based Compensation Cost	$ 2.6	$ 2.4

Restricted Stock Units

New share-based compensation awards

During the three months ended December 31, 2018, under its Long-Term Incentive Plan Versum granted 270,861 time-based restricted stock units and market based restricted stock units, consisting of performance-based restricted stock units. The time-based restricted stock units were granted at a weighted-average grant-date fair value of $31.83 per unit which vest on September 30, 2021, subject to the holder's continued employment with the Company. The performance-based restricted stock units are earned at the end of a performance period beginning October 1, 2018 and ending September 30, 2021, conditioned on the level of Versum's total shareholder return in relation to a defined peer group over the three-year performance period.

In addition, during the three months ended December 31, 2017, under its Long-Term Incentive Plan Versum granted 200,088 market-based restricted stock units, consisting of performance-based restricted stock units and performance-based market stock units. The performance-based restricted stock units are earned at the end of a performance period beginning October 1, 2017 and ending September 30, 2020, conditioned on the level of Versum's total shareholder return in relation to a defined peer group over the three-year performance period. The performance-based market stock units are earned based on the percentage change in the price of Versum's common stock over the performance period beginning October 1, 2017 and ending September 30, 2020.

Subject to the recipient's continued employment, these market-based restricted stock units granted during the three months ended December 31, 2018 and 2017 generally vest on the date that the Versum Compensation Committee certifies the payout determination under the performance goals, which date must be within 90 days after the end of the performance period. Under GAAP, both the performance-based restricted stock units and performance-based market stock units are considered market-based awards.

Vesting for time-based restricted stock units and market based restricted stock units is subject to certain exceptions in the event of involuntary termination by Versum, death, disability or retirement. Upon vesting, restricted stock units represent the right to receive shares of our common stock with the exception of our Korean employees. Our Korean employees are paid in cash based on the fair value of their vested units. Dividend equivalent rights accrue for these awards, but do not vest unless the underlying awards vest.

The time-based restricted stock units awarded during the three months ended December 31, 2018 had an estimated grant-date fair value of $31.83 per unit. The market based restricted stock units awarded during the three months ended December 31, 2018 and 2017 had an estimated grant-date fair value of $40.86 and $50.18, respectively, per unit for the performance-based restricted stock units. The market based restricted stock units awarded during the three months ended December 31, 2017 had an estimated grant-date fair value of $45.71 per unit for the performance-based market stock units. The fair value of market-based restricted stock units was estimated using a Monte Carlo simulation model as these equity awards are tied to a market condition. The model utilizes multiple input variables that determine the probability of satisfying the market condition stipulated in the grant and calculates the fair value of the awards.

We generally expense the grant-date fair value of these awards on a straight-line basis over the vesting period; however, expense recognition is accelerated for retirement eligible individuals who meet the requirements for vesting upon retirement.

The calculation of the fair value of market-based restricted stock units during the three months ended December 31, 2018 and 2017 used the following assumptions:

	Three Months Ended December 31,	
	2018	**2017**
(In percentages)		
Expected volatility	29.0%	28.0%
Risk-free interest rate	2.8%	1.9%
Expected dividend yield	0.7%	0.5%

A summary of restricted stock unit activity is presented below:

	Shares	Weighted Average Grant-Date Fair Value
(In millions, except weighted average)		
Outstanding, September 30, 2018	1.1	$ 29.47
Granted	0.3	36.58
Paid out	(0.3)	23.62
Outstanding, December 31, 2018	1.1	$ 32.58

	Shares	Weighted Average Grant-Date Fair Value
(In millions, except weighted average)		
Outstanding, September 30, 2017	1.1	$ 25.30
Granted	0.2	48.39
Paid out	(0.2)	29.68
Outstanding, December 31, 2017	1.1	$ 29.31

Cash payments of $0.2 million for the three months ended December 31, 2018 and 2017 were made for restricted stock units paid out of Korea. As of December 31, 2018 and 2017, there was $20.6 million and $21.2 million, respectively, of unrecognized compensation cost related to restricted stock units. The cost is expected to be recognized over a weighted average period of 2.3 and 2.6 years, respectively. The total fair value of restricted stock units paid out during the three months ended December 31, 2018 and 2017 was $5.8 million and $4.8 million, respectively.

Stock Options

We may grant awards of options to purchase common stock to executive officers and selected employees. All of our outstanding stock options are a result of the conversion in connection with the Separation. The exercise price of stock options equals the market price of our stock on the date of the grant. Options generally vest incrementally over three years and remain exercisable for ten years from the date of grant.

During the three months ended December 31, 2018 and 2017, no stock options were granted.

A summary of stock option activity is presented below:

(In millions, except weighted average)	Shares	Weighted Average Exercise Price
Outstanding, September 30, 2018	0.5	$ 18.66
Granted	—	—
Exercised	—	—
Outstanding, December 31, 2018	0.5	$ 18.66

(In millions, except weighted average)	Shares	Weighted Average Exercise Price
Outstanding, September 30, 2017	0.5	$ 18.55
Granted	—	—
Exercised	—	—
Outstanding, December 31, 2017	0.5	$ 18.56

(In millions, except years)	Weighted Average Remaining Contractual Terms (In years)	Aggregate Intrinsic Value
Outstanding, December 31, 2018	4.5	$ 4.1
Exercisable, December 31, 2018	4.5	4.1

(In millions, except years)	Weighted Average Remaining Contractual Terms (In years)	Aggregate Intrinsic Value
Outstanding, December 31, 2017	5.4	$ 9.1
Exercisable, December 31, 2017	5.4	9.1

The aggregate intrinsic value represents the amount by which our closing stock price of $27.72 and $37.85 as of December 31, 2018 and 2017 exceeds the exercise price multiplied by the number of in-the-money options outstanding or exercisable.

The total intrinsic value of stock options exercised was zero during the three months ended December 31, 2018 and 2017.

Compensation cost is generally recognized over the stated vesting period consistent with the terms of the arrangement (i.e., either on a straight-line or graded-vesting basis). Expense recognition is accelerated for retirement-eligible individuals who would meet the requirements for vesting of awards upon their retirement. As of December 31, 2018, the stock options were fully expensed.

Director Awards

Non-employee directors were granted equity awards under the Versum Long-Term Incentive Plan, with a grant date fair value of $100,000 annually. In the second quarter 2018 non-employee directors were granted restricted stock units for service on our Board of Directors through the 2019 annual meeting of stockholders. Subject to continued service on the Board of Directors, the restricted stock units vest on the earlier of February 8, 2019, and the date immediately prior to Versum's next annual meeting of stockholders, and will be settled in common stock upon vesting. The grant date fair value per share is equal to the closing sales price of our common stock as reported on the New York Stock Exchange on the date of grant.

During the three months ended December 31, 2018 and 2017, $0.2 million and $0.1 million, respectively, in share-based compensation expense was recognized related to these awards.

13. STOCKHOLDERS' EQUITY

Accumulated Other Comprehensive Income (Loss)

The table below summarizes changes in accumulated other comprehensive income (loss) ("AOCL"), net of tax:

(In millions)	Net income on derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance, September 30, 2018	$ —	$ (14.8)	$ (3.4)	$ (18.2)
Other comprehensive income before reclassifications	—	0.9	—	0.9
Amounts reclassified from AOCL	—	—	—	—
Net current period other comprehensive income	—	0.9	—	0.9
Other comprehensive income attributable to non-controlling interest	—	—	—	—
Balance, December 31, 2018	$ —	$ (13.9)	$ (3.4)	$ (17.3)

(In millions)	Net income on derivatives qualifying as hedges	Foreign currency translation adjustments	Pension and postretirement benefits	Total
Balance, September 30, 2017	$ (0.2)	$ (16.0)	$ (2.2)	$ (18.4)
Other comprehensive income before reclassifications	0.1	19.7	—	19.8
Amounts reclassified from AOCL	—	—	—	—
Net current period other comprehensive income	0.1	19.7	—	19.8
Other comprehensive income attributable to non-controlling interest	—	0.7	—	0.7
Balance, December 31, 2017	$ (0.1)	$ 3.0	$ (2.2)	$ 0.7

The amounts reclassified out of accumulated other comprehensive income (loss) for the three months ended December 31, 2018 and 2017 were zero.

Cash Dividend

On October 31, 2018, the company's Board of Directors declared a quarterly cash dividend of $0.08 per share, totaling $8.8 million, which was paid on November 27, 2018 to shareholders of record as of November 13, 2018.

Future dividend declarations, if any, as well as the record and payment dates for such dividends, are subject to the final determination of the company's Board of Directors.

14. EARNINGS PER SHARE

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

	Three Months Ended December 31,	
(In millions, except per share data)	2018	2017
Numerator		
Net Income Attributable to Versum	$ 61.1	$ 18.7
Denominator		
Weighted average number of common shares - Basic	109.1	108.9
Effect of dilutive securities		
Employee stock option and other award plans	0.7	0.8
Weighted average number of common shares - Diluted	109.8	109.7
Earnings Per Common Share Attributable to Versum		
Net Income Attributable to Versum - Basic	$ 0.56	$ 0.17
Net Income Attributable to Versum - Diluted	0.56	0.17

For the three months ended December 31, 2018 and 2017, outstanding share-based awards of 0.2 million and 0.1 million shares were anti-dilutive and therefore excluded from the computation of diluted earnings per share.

15. COMMITMENTS AND CONTINGENCIES

Litigation

In the normal course of business, Versum may be involved in various legal proceedings, including commercial, environmental, health, safety, and product liability matters. Although litigation with respect to these matters is routine and incidental to the conduct of our business, such litigation may result in large monetary awards for compensatory and punitive damages. Versum does not currently believe that there are any legal proceedings, individually or in the aggregate, that are reasonably possible to have a material impact on its financial condition, results of operations, or cash flows. While Versum cannot predict the outcome of any litigation, environmental, or regulatory matter or the potential for future litigation or regulatory action, we have evaluated all litigation, environmental and regulatory proceedings, claims and assessments in which Versum is involved, and do not believe that any of these matters, individually or in the aggregate, will result in losses that are materially in excess of amounts already recognized, if any.

Refer to Note 21 of "Notes to the Annual Consolidated Financial Statements" in Item 8 of Part II of our Annual Report on Form 10-K for the fiscal year ended September 30, 2018, for additional information regarding commitments and contingencies.

16. SEGMENT INFORMATION

We are comprised of two primary operating segments, Materials and Delivery Systems and Services, under which we manage our operations and assess performance, and a Corporate segment. Our segments are differentiated by the types of products sold.

Segment

(In millions)	Three Months Ended December 31, 2018	Three Months Ended December 31, 2017
Sales		
Materials	$ 221.7	$ 214.6
Delivery Systems and Services	117.2	115.3
Corporate	0.6	0.9
Total	$ 339.5	$ 330.8
Operating Income (Loss)		
Materials	$ 67.6	$ 66.1
Delivery Systems and Services	34.7	33.5
Corporate	(5.4)	(8.5)
Segment Total	$ 96.9	$ 91.1
Business separation, restructuring and cost reduction actions	(1.1)	(1.8)
Total	$ 95.8	$ 89.3

(In millions)	December 31, 2018	September 30, 2018
Total Assets		
Materials	$ 876.0	$ 862.5
Delivery Systems and Services	160.3	144.9
Corporate	509.1	497.9
Total	$ 1,545.4	$ 1,505.3

17. SUBSEQUENT EVENT

Cash Dividend

On January 29, 2019, the Company's Board of Directors declared a quarterly cash dividend of $0.08 per share, to be paid on February 26, 2019 to all shareholders of record as of February 12, 2019.

Merger

On January 28, 2019, the company announced its entry into an agreement and plan of merger with Entegris, Inc. ("Entegris"). Under the terms of the agreement, which was unanimously approved by the Boards of Directors of both companies, Versum stockholders will receive 1.120 shares of Entegris for each existing Versum share. Upon completion of the merger, Entegris stockholders will own approximately 52.5% and Versum stockholders will own approximately 47.5% of the combined company (based on fully diluted shares outstanding including exercisable options only). The transaction is expected to close in the second half of 2019, subject to the satisfaction of customary closing conditions, including receipt of U.S. and international regulatory approvals and approval by the stockholders of each company.

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

The following discussion should be read in conjunction with, and is qualified in its entirety by reference to, the financial statements and notes thereto included in Part I, Item 1 of this Quarterly Report on Form 10-Q and our Management's Discussion and Analysis of Financial Condition and Results of Operations for the year ended September 30, 2018, included in our Annual Report on Form 10-K. This Quarterly Report on Form 10-Q contains certain "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements may be identified by references to future periods, and include statements about our business strategies, operating plans, anticipated growth rates, and prospects, anticipated profitability and margins, sales expectations, future operating income and Adjusted EBITDA; our ability to continue successfully providing innovative solutions to customers through technology; estimates regarding future capital requirements; estimates of expenses and cost reduction efforts; estimates of future tax liability and effective tax rates; our ability to execute on our strategy, including our ability to enhance our portfolio positions through future organic and inorganic investments; our ability to meet customer demand; estimates of the size of the market for our products; forecasted industry capital spending and anticipated demand for our products; our ability to compete successfully as a leading materials supplier to the semiconductor industry and obtain next generation node opportunities; our successful and timely completion of various capital projects; and other matters. The words "believe," "expect," "anticipate," "project," "estimate," "budget," "continue," "could," "intend," "may," "plan," "potential," "predict," "seek," "should," "will," "would," "objective," "forecast," "goal," "guidance," "outlook," "target," "opportunity" and similar expressions, among others, generally identify forward-looking statements, which are based on management's reasonable expectations and assumptions as of the date the statements were made. Actual results and the outcomes of future events may differ materially from those expressed or implied in the forward-looking statements because of a number of risks and uncertainties, including, without limitation, the occurrence of any event, change or other circumstances that could give rise to the right of one or both of the parties to terminate any definitive merger agreement between us and Entegris, Inc.; the outcome of any legal proceedings that may be instituted against us or Entegris, Inc.; the ability to obtain regulatory approvals and meet other closing conditions to the merger, including approval by our and Entegris, Inc. stockholders on the expected terms and schedule, including the risk that regulatory approvals required for the merger are not obtained or are obtained subject to conditions that are not anticipated; delay in closing the merger; difficulties and delays in integrating our business with Entegris, Inc. or fully realizing cost savings and other benefits; business disruption following the merger; our ability or the ability of Entegris, Inc. to retain and hire key personnel; potential adverse reactions or changes to business relationships resulting from the announcement or completion of the merger; uncertainty as to the long-term value of the common stock of Entegris, Inc. following the merger; legislative, regulatory and economic developments; potential business uncertainty, including changes to existing business relationships, during the pendency of the merger that could affect our or Entegris, Inc.'s financial performance; certain restrictions during the pendency of the merger that may impact our or Entegris, Inc.'s ability to pursue certain business opportunities or strategic transactions; the business, economic and political conditions in the markets in which we and Entegris, Inc. operate; events beyond our control such as acts of terrorism; product supply versus demand imbalances in the semiconductor industry or in certain geographic markets may decrease the demand for our goods and services; our concentrated customer base; our dependence upon the capital expenditure cycles of our customers; our ability to continue technological innovation and successfully introduce new products to meet the evolving needs of our customers; our ability to protect and enforce our intellectual property rights and to avoid violating any third party intellectual property or technology rights; unexpected interruption of or shortages in our raw material supply; inability of sole source, limited source or qualified suppliers to deliver to us in a timely manner or at all; hazards associated with specialty chemical manufacturing, such as fires, explosions and accidents, could disrupt our operations or the operations of our suppliers or customers; increased competition and new product development by our competitors, changing customer needs and price changes in materials and components could result in declining demand for our products; operational, political and legal risks of our international operations, including government actions such as trade wars; recent changes in U.S. tax laws; the impact of changes in environmental and health and safety regulations, anticorruption enforcement, sanctions, import/export controls, tax and other legislation and regulations in jurisdictions in which Versum Materials and its affiliates operate; our available cash and access to additional capital may be limited by substantial leverage and debt service obligations; uncertainty regarding the availability of financing to us in the future and the terms of such financing; agreements governing our indebtedness may restrict our current and future operations, and hamper our ability to respond to changes or to take certain actions; government regulation of raw materials, products and facilities may impact our product manufacturing processes, handling, storage, transportation, uses and applications; possible liability for contamination, personal injury or third party impacts if hazardous materials are released into the environment; cyber security threats may compromise our data or disrupt our information technology applications or services; fluctuation of *currency exchange rates; costs and outcomes of litigation or regulatory investigations; the timing, impact, and other uncertainties of future acquisitions or divestitures; restrictions in our governing documents and of Delaware law may prevent or delay an acquisition of us; tax and other potential liabilities to Air Products assumed in connection with the separation and spin-off; potential conflicts of interest between us and Air Products by our directors and officers; potential liabilities arising out of state and federal fraudulent conveyance laws and legal dividend requirements with respect to the separation and spin-off and related internal reorganization transactions; and other risk factors described in our most recent Annual Report on Form 10-K and in any of our subsequently filed Quarterly Reports on Form 10-Q, each as filed with the Securities and Exchange Commission ("SEC") and available on the Internet at www.sec.gov. Versum disclaims any obligation or undertaking to disseminate any updates or revisions to any forward-looking statements contained in this document to reflect any change in assumptions, beliefs or expectations or any change in circumstances upon which any such forward-looking statements are based.*

The discussion that follows includes comparisons to non-GAAP financial measures. The presentation of non-GAAP measures is intended to enhance the usefulness of financial information by providing measures which, when viewed together with our financial results reported in accordance with GAAP, provide a more complete understanding of the factors and trends affecting our historical financial performance and projected future results. The reconciliation of reported GAAP results to non-GAAP measures is presented in this Management's Discussion and Analysis of Financial Condition and Results of Operations.

OVERVIEW

Description of the Company

Versum is a global business that provides innovative solutions for specific customer applications based on our expertise in specialty materials for the semiconductor industry. Versum is comprised of two operating segments, Materials and Delivery Systems and Services ("DS&S"), under which we manage our operations and assess performance, and a Corporate segment. Strong customer relationships, collaborative development, technology leadership, unique product positioning and a strong global infrastructure with in-region flexible manufacturing capabilities are fundamental to our business.

Versum is a leading global producer of critical materials, including high purity process materials, cleaners and etchants, slurries, organosilanes and organometallics, and equipment which we sell to the semiconductor and display industries. Through our global network, our business positions its research, manufacturing and technical support close to its customer facilities, enabling supply chain optimization and rapid response times to the product and service needs of our customers. Many of our products have undergone rigorous product performance and quality reviews by our customers to be qualified for use in their products or manufacturing processes. Once these qualification processes are completed and our products are designated by our customers for use in their processes or products, it is often time consuming and costly for our customers to change suppliers. Our products perform critical tasks in customers' products or manufacturing processes, yet typically represent a very small portion of the cost of the end product. Over the last 20 plus years, we have developed strong relationships with the majority of the industry-leading Integrated Device Manufacturers, Foundries and Original Equipment Manufacturers through on-site service and technical personnel at these customers' facilities.

In addition to our two operating segments, our Corporate segment includes certain administrative costs associated with operating a public company, foreign exchange gains and losses and other income and expense that cannot be directly associated with operating segments. Assets in the Corporate segment include cash and deferred tax assets.

Our Markets

Our business is driven primarily by the demand for semiconductors for both logic and memory and to a lower extent, displays. Growth in mobile devices, cloud computing, connectivity and data monitoring and storage are driving increasing demand for semiconductors and displays into durable goods and other devices. This has resulted in increased correlation between semiconductor demand and global gross domestic product ("GDP"). In our Materials segment, demand for our products is correlated to the level of semiconductor production which in turn is correlated to general GDP. Demand for our products is further enhanced by participation in the advanced technologies and changing architecture of semiconductor devices. In our DS&S segment, product demand more closely follows the amount of capital investment for equipment and manufacturing capacity in the semiconductor industry and sales are impacted by our customers' investment in new fabrication facilities or in refurbishing existing fabrication facilities.

In fiscal 2018, we experienced growth in our business due to favorable trends in the underlying semiconductor market. This included strong VNAND memory demand fueled by the industry's move to more vertical layers and the transition to 10 NM and below production in advanced logic devices. Capital spending by the semiconductor industry was at historically high levels, driving demand for equipment in our DS&S segment. In addition, increasing semiconductor output levels fueled demand for our products in the Materials segment.

Longer term semiconductor industry growth is expected to remain attractive, growing at a multiple of GDP driven by the broadening use of technology into many market segments including automotive, industrial, medical, data analytic and consumer applications.

For 2019, we expect semiconductor growth to be in the low single digits as measured by MSI (millions of square inches of silicon produced) and semiconductor capital spending, measured by WFE (wafer fab equipment spending) to be down mid teens as the industry absorbs a temporary pause in underlying market growth and expansion.

We believe semiconductor growth will continue to translate into strong demand for both new and legacy material products in our Materials segment. To take advantage of the strong market we expect to continue to innovate and increase manufacturing capability for our new products in our Advanced Materials product line. We expect to increase our investment to support organic growth to enhance our positions in key geographies such as Korea and China and improve our cost and capacity positions for key products in our Materials segment. We expect lessening headwinds from pricing and continued capacity constraints for certain products in our Process Materials product line.

We expect our DS&S segment to continue to benefit from the continued high level of industry capital spending on a historical basis, our position with key customers and the further development of the semiconductor market in China.

Subsequent Event

On January 28, 2019, the company announced its entry into an agreement and plan of merger with Entegris. Under the terms of the agreement, which was unanimously approved by the Boards of Directors of both companies, Versum stockholders will receive 1.120 shares of Entegris for each existing Versum share. Upon completion of the merger, Entegris stockholders will own approximately 52.5 percent and Versum stockholders will own approximately 47.5 percent of the combined company (based on fully diluted shares outstanding including exercisable options only). The transaction is expected to close in the second half of 2019, subject to the satisfaction of customary closing conditions, including receipt of U.S. and international regulatory approvals, and approval by the stockholders of each company.

Performance Summary

First Quarter 2019 vs First Quarter 2018

- Sales of $339.5 million increased $8.7 million, or 2.6%. Sales increased due to higher volumes of 5% partially offset by unfavorable price/mix of 1%. The increase in sales was driven by strong volumes in Advanced Materials with more modest volume growth in Process Materials and DS&S. Currency changes had an unfavorable impact on sales of 1%.

- Operating income of $95.8 million increased $6.5 million, or 7.3%, due to higher volumes of $9.7 million, favorable Selling & Administrative and Research & Development ("SARD") and other costs of $1.8 million and favorable separation, restructuring and cost reduction actions of $0.7 million, partially offset by unfavorable gross profit impacts of $5.7 million primarily due to price/mix in Process Materials and higher plant spending. Operating income margin was 28.2%, up 120 basis points ("bp").

- Adjusted EBITDA of $110.4 million increased $7.7 million, or 7.5%, primarily due to higher volumes of $9.7 million and favorable SARD and other costs of $2.6 million, partially offset by unfavorable gross profit impacts of $4.6 million. The major driver of the improved performance was the strong volumes in Advanced Materials. These were partially offset by unfavorable gross profit impacts in Process Materials, including price/mix and higher plant spending. Adjusted EBITDA margin was 32.5%, up 150 bp.

- Cash flows from operations for the three months ended December 31, 2018 was $46.2 million, with cash used for capital spending of $22.0 million.

RESULTS OF OPERATIONS

Discussion of Consolidated Results - Three Months Ended December 31, 2018 vs. Three Months Ended December 31, 2017

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Sales	$ 339.5	$ 330.8
Cost of sales	196.1	191.2
Selling and administrative	35.5	35.3
Research and development	12.9	12.7
Business separation, restructuring and cost reduction actions	1.1	1.8
Other (income) expense, net	(1.9)	0.5
Operating income	95.8	89.3
Interest expense	12.8	11.3
Write-off of financing costs	—	2.1
Non-service components of periodic pension cost	0.2	0.2
Income Before Taxes	82.8	75.7
Income tax provision	19.7	55.0
Net Income	63.1	20.7
Less: Net Income Attributable to Non-controlling Interests	2.0	2.0
Net Income Attributable to Versum	$ 61.1	$ 18.7
Non-GAAP Basis		
Adjusted EBITDA	$ 110.4	$ 102.7

Three Months Ended December 31, 2018 vs. 2017

	% Change from Prior Period
	Three Months Ended December 31, 2018
Sales	
Volume	5 %
Price/mix	(1)%
Currency	(1)%
Total Versum Change	3 %

Sales of $339.5 million increased $8.7 million, or 2.6%. Sales increased due to higher volumes of 5% partially offset by unfavorable price/mix of 1%. Currency changes had an unfavorable impact on sales of 1%. The Materials segment's sales increased 3% from double digit volume growth in Advanced Materials and modest growth in Process Materials. The DS&S segment's sales increased 2% primarily driven by continued equipment and installation sales growth.

Operating Income and Operating Margin

Operating income of $95.8 million increased $6.5 million, or 7.3%, due to higher volumes of $9.7 million, favorable SARD and other costs of $1.8 million and favorable separation, restructuring and cost reduction actions of $0.7 million partially offset by unfavorable gross profit impacts of $5.7 million primarily due to price/mix in Process Materials and higher plant spending. Operating margin increased 120 bp.

Cost of Sales and Gross Profit Margin

Cost of sales of $196.1 million increased $4.9 million, or 2.6%, as a result of higher raw materials cost of $4.9 million primarily due to higher volumes. Gross profit margin of 42.2% remained flat.

Selling and Administrative Expense

Selling and administrative expense of $35.5 million increased by $0.2 million. There were no significant items driving the change. Selling and administrative expense as a percent of sales decreased to 10.5% from 10.7%.

Research and Development

Research and development expense of $12.9 million increased $0.2 million. There were no significant items driving the change. Research and development expense as a percent of sales remained flat at 3.8%.

Business Separation, Restructuring and Cost Reduction Actions

During the three months ended December 31, 2018, we recognized a net charge of $1.1 million. The net charge primarily consisted of additional costs as a result of the relocation of assets from a former acquisition.

Other (Income) Expense, Net

Items recorded to other (income) expense, net arise from transactions and events not directly related to our principal income earning activities.

Other income, net was $1.9 million for the three months ended December 31, 2018 compared to $0.5 million for the three months ended December 31, 2017. This change was primarily due to foreign exchange impacts and interest income.

Interest Expense

Interest incurred increased $1.5 million due to interest rate fluctuations.

Effective Tax Rate

The effective tax rate equals the income tax provision divided by income before taxes. The effective tax rate was 23.8% for the three months ended December 31, 2018 compared to 72.7% for the three months ended December 31, 2017. The decrease in effective tax rate was attributable primarily to (1) a non-recurring benefit related to the fiscal year 2018 deemed mandatory repatriation of certain accumulated foreign earnings and revaluation of deferred tax assets charge as a result of the U.S. Tax Act, offset by (2) a charge related to changes in global pretax mix and statutory tax rates in certain jurisdictions, (3) a charge for the tax impact of decreases in foreign exchange losses in various foreign jurisdictions, and (4) a net charge for additional provisions applicable in fiscal year 2019 in connection with the U.S. Tax Act, namely GILTI, BEAT and FDII.

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

The discussion of our results includes comparisons to non-GAAP financial measures, including Adjusted EBITDA and Adjusted EBITDA Margin. The presentation of non-GAAP measures is intended to enhance the usefulness of financial information by providing measures which management uses internally to evaluate our operating performance.

We use non-GAAP measures to assess our operating performance by excluding certain disclosed items that we believe are not representative of our underlying business. Management may use these non-GAAP measures to evaluate our performance period over period and relative to competitors in our industry, to analyze underlying trends in our business, to establish operational budgets and forecasts or for incentive compensation purposes. We use Adjusted EBITDA to calculate performance-based cash bonuses. We use Segment Adjusted EBITDA as the primary measure to evaluate the ongoing performance of our business segments. We believe non-GAAP financial measures provide security analysts, investors and other interested parties with meaningful information to understand our underlying operating results and to analyze financial and business trends. Non-GAAP financial measures, including Adjusted EBITDA, should not be viewed in isolation, are not a substitute for GAAP measures, and have limitations which include but are not limited to:

- Our measures exclude (1) expenses related to business separation, restructuring and cost reduction actions, as detailed in Note 4, “Business Separation, Restructuring and Cost Reduction Actions”, to our Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q, and (2) the write-off of financing costs, each of which we do not consider to be representative of our underlying business operations. However, these disclosed items represent costs to Versum.

- Though not business operating costs, interest expense, non-service components of net periodic pensions costs and income tax provision represent ongoing costs of Versum.

- Depreciation and amortization charges represent the wear and tear or reduction in value of the plant, equipment, and intangible assets which permit us to manufacture and market our products.

- Other companies may define non-GAAP measures differently than we do, limiting their usefulness as comparative measures.

A reader may find any one or all of these items important in evaluating our performance. Management compensates for the limitations of using non-GAAP financial measures by using them only to supplement our GAAP results to provide a more complete understanding of the factors and trends affecting our business. In evaluating these non-GAAP financial measures, the reader should be aware that we may incur expenses similar to those eliminated in this presentation in the future.

Presented below is a reconciliation of the reported GAAP results to the non-GAAP measure:

Adjusted EBITDA and EBITDA Margin

We define Adjusted EBITDA as net income excluding certain disclosed items, which we do not believe to be indicative of underlying business trends, before interest expense, write-off of financing costs, non-service components of net periodic pension costs, income tax provision, depreciation and amortization expense, non-controlling interest and business separation, restructuring, and cost reduction actions. Adjusted EBITDA provides a useful metric for management to assess operating performance. Adjusted EBITDA margin is calculated by dividing Adjusted EBITDA by sales.

Three Months Ended December 31, 2018 vs. 2017

Below is a reconciliation of net income to Adjusted EBITDA:

	Three Months Ended December 31,	
(In millions, except percentages)	2018	2017
Net Income Attributable to Versum	$ 61.1	$ 18.7
Add: Interest expense	12.8	11.3
Add: Write-off of financing costs	—	2.1
Add: Non-service components of net periodic pension cost	0.2	0.2
Add: Income tax provision	19.7	55.0
Add: Depreciation and amortization	13.5	11.6
Add: Non-controlling interests	2.0	2.0
Add: Business separation, restructuring and cost reduction actions	1.1	1.8
Adjusted EBITDA	$ 110.4	$ 102.7
Adjusted EBITDA Margin	32.5%	31.0%
Change from prior year	$ 7.7	
% change from prior year	7.5%	

Adjusted EBITDA of $110.4 million increased $7.7 million, or 7.5%, primarily due to higher volumes of $9.7 million and favorable SARD and other costs of $2.6 million, partially offset by unfavorable gross profit impacts of $4.6 million.

SEGMENT LEVEL FINANCIAL RESULTS

Sales

	Three Months Ended December 31,	
(In millions)	2018	2017
Materials	$ 221.7	$ 214.6
DS&S	117.2	115.3
Corporate	0.6	0.9
Total Company Sales	$ 339.5	$ 330.8

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

(In millions, except percentages)	Three Months Ended December 31, 2018	2017
Materials		
Operating income	$ 67.6	$ 66.1
Add: Depreciation and amortization	12.6	11.0
Segment Adjusted EBITDA	$ 80.2	$ 77.1
Segment Adjusted EBITDA margin[(A)]	36.2%	35.9%
DS&S		
Operating income	$ 34.7	$ 33.5
Add: Depreciation and amortization	0.7	0.3
Segment Adjusted EBITDA	$ 35.4	$ 33.8
Segment Adjusted EBITDA margin[(A)]	30.2%	29.3%
Corporate		
Operating loss	$ (5.4)	$ (8.5)
Add: Depreciation and amortization	0.2	0.3
Segment Adjusted EBITDA	$ (5.2)	$ (8.2)
Total Versum Adjusted EBITDA	$ 110.4	$ 102.7

(A) Segment adjusted EBITDA margin is calculated by dividing segment Adjusted EBITDA by segment sales.

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

(In millions)	Three Months Ended December 31, 2018	2017
Operating Income		
Segment total	$ 96.9	$ 91.1
Business separation, restructuring and cost reduction actions	(1.1)	(1.8)
Combined Total	$ 95.8	$ 89.3

Materials

	% Change from Prior Period Three Months Ended December 31, 2018
Sales	
Volume	6 %
Price/mix	(2)%
Currency	(1)%
Total Materials Sales Change	3 %

Sales of $221.7 million increased $7.1 million, or 3.3%, primarily due to higher volumes of 6%. The higher volumes of 6% were driven by double digit volume growth in Advanced Materials and low single digit volume growth in Process Materials. The volume increase was partially offset by unfavorable price/mix of 2% and unfavorable currency impacts of 1%. Growth was broad based from new and legacy products in both memory and logic.

Operating income of $67.6 million increased $1.5 million, or 2.3%, due to higher volumes of $8.8 million partially offset by unfavorable gross profit impacts of $6.7 million primarily from Process Materials price/mix and higher plant spending in addition to higher SARD costs of $0.6 million.

Adjusted EBITDA of $80.2 million increased $3.1 million, or 4.0%, due to higher volumes of $8.8 million and favorable SARD costs of $0.2 million partially offset by unfavorable gross profit impacts of $5.9 million primarily from Process Materials price/mix and higher plant spending. Adjusted EBITDA margin remained flat at 36.2%.

Delivery Systems and Services

	% Change from Prior Period
	Three Months Ended December 31, 2018
Sales	
Volume	3 %
Price/mix	— %
Currency	(1)%
Total DS&S Sales Change	2 %

Sales of $117.2 million increased $1.9 million, or 1.6%, driven by equipment and installation growth.

Operating income of $34.7 million increased $1.2 million, or 3.6%, due to favorable gross profit impacts of $1.1 million and higher volumes of $1.0 million partially offset by unfavorable SARD and other costs of $0.9 million.

Adjusted EBITDA of $35.4 million increased $1.6 million, or 4.7%, due to favorable gross profit impacts of $1.5 million and higher volumes of $1.0 million partially offset by unfavorable SARD and other costs of $0.9 million. Adjusted EBITDA margin of 30.2% increased 90 bp.

Corporate

Operating loss of $5.4 million improved by $3.1 million, or 36.5%. The improvement was driven by foreign exchange impacts and interest income.

Adjusted EBITDA loss of $5.2 million improved by $3.0 million, or 36.6%. The improvement was driven by foreign exchange impacts and interest income.

LIQUIDITY AND CAPITAL RESOURCES

Historically, a significant portion of our cash balances are generated by operating activities. Our primary sources of liquidity are cash on hand, which was $408.0 million at December 31, 2018, our cash flows from operations, our Revolving Facility and various non-U.S. credit facilities. We anticipate that our primary uses of cash will be for working capital, debt service, capital expenditures for expansion, productivity and maintenance, potential dividends, acquisitions and general corporate purposes. Our ability to fund these uses of liquidity also will often depend upon where we generate cash, our ability to reinvest in such countries and our ability to repatriate cash into the U.S. Our ability to fund operations and capital needs will depend upon our ongoing ability to generate cash from operations and access the capital markets. We believe that future cash from operations, our Revolving Facility, and access to capital markets will provide adequate resources to meet working capital needs, potential dividends, capital expenditures and strategic investments.

As of December 31, 2018, the majority of our cash and cash items of $408.0 million were held outside the U.S. If we elect to repatriate the foreign cash, we may be required to accrue and pay withholding taxes on a portion of these amounts.

As of December 31, 2018, we had availability of $200.0 million under our Revolving Facility and approximately $20.3 million under our various non-US credit facilities.

As of December 31, 2018, we had $987.1 million of total debt. Our scheduled principal repayments on debt for our fiscal years include $4.3 million due in 2019, $5.8 million due in 2020, $5.8 million due in 2021, $5.8 million due in 2022, $540.4 million due in 2023 and $425.0 million due thereafter. We were in compliance with all of our debt covenants at December 31, 2018, and we expect to remain in compliance with these covenants for at least the next twelve months.

For a summary of our Senior Credit Facilities and the Notes, see Note 7, “Debt”, to our Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q.

To take advantage of the continued strong market demand and the opportunity to drive organic growth, we anticipate increasing our capital expenditures in fiscal year 2019. This includes enhancing our research and manufacturing capabilities in key geographies such as Korea and China and improving our cost and capacity positions in certain Materials products.

Additionally, in support of finalizing our transition to an independent company, we expect to spend an additional $3-5 million of additional capital for establishing our own IT systems during fiscal year 2019.

In connection with the U.S. Tax Act, we recorded a liability of $52.1 million for the Federal and State taxes on the mandatory deemed repatriation of certain foreign accumulated earnings. Due to taxes on the mandatory deemed repatriation, less certain foreign tax credits, we expect our Federal and State cash taxes for our fiscal years to increase $4.3 million for 2019, $3.1 million for 2020, $3.1 million for 2021, $3.1 million for 2022, $3.1 million for 2023 and $23.3 million thereafter.

CASH FLOWS

Our cash flows provided by (used in) operating, investing, and financing activities as reflected in the consolidated statements of cash flows, are summarized in the following table:

	Three Months Ended December 31,	
	2018	2017
(In millions)		
Operating activities	$ 46.2	$ 39.1
Investing activities	(21.3)	(28.3)
Financing activities	(16.6)	(8.5)

Operating Activities

For the three months ended December 31, 2018, cash provided by operating activities was $46.2 million. Net income attributable to Versum of $61.1 million is adjusted for reconciling items that include depreciation and amortization, deferred income taxes and share-based compensation expense. Working capital was a use of cash of $36.0 million. The change in working capital was primarily a result of a decrease in payables and accrued liabilities due to year-end payment of incentive compensation as well as an increase in trade receivables, inventory and contracts in progress less progress billings due to increased sales activity and period over period timing differences related to collections.

For the three months ended December 31, 2017, cash provided by operating activities was $39.1 million. Net income attributable to Versum of $18.7 million is adjusted for reconciling items that include depreciation and amortization, deferred income taxes, gain on sale of assets and share-based compensation expense. Working capital was a source of cash of $19.0 million. The change in working capital was primarily a result of an increase in accrued income taxes of $60.2 million largely attributable to a charge as a result of the Tax Act partially offset by a decrease in payables and accrued liabilities due to year-end payment of incentive compensation and an increase in trade receivables due to increased sales activity and period over period timing differences related to collections.

Investing Activities

For the three months ended December 31, 2018, cash used by investing activities was $21.3 million primarily due to spending for plant and equipment. For the three months ended December 31, 2017, cash used in investing activities was $28.3 million primarily due to spending for plant and equipment.

Capital expenditures in the three months ended December 31, 2018 totaled $22.0 million, including $0.3 million of capital spending related to one-time restructuring activities, compared to $28.7 million, including $11.5 million of capital spending related to one-time restructuring activities in the three months ended December 31, 2017. The decrease in capital expenditures of $6.7 million for the period was primarily due to lower plant and equipment spending as well as restructuring capital expenditures.

Financing Activities

For the three months ended December 31, 2018, cash used for financing activities was $16.6 million primarily due to the payment of long-term debt and a dividend paid to shareholders. For the three months ended December 31, 2017, cash used for financing activities was $8.5 million primarily due to the payment of long-term debt and a dividend paid to shareholders.

CONTRACTUAL OBLIGATIONS

We are obligated to make future payments under various contracts such as debt agreements, lease agreements, unconditional purchase obligations, and other long-term obligations. There have been no material changes to contractual obligations since September 30, 2018.

LONG-TERM EMPLOYEE BENEFITS

Refer to Note 11, “Retirement Benefits”, to our Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q for further discussion.

OFF-BALANCE SHEET ARRANGEMENTS

As of December 31, 2018, we did not have any off-balance sheet arrangements.

INFLATION

We operate in many countries that experience volatility in inflation and foreign exchange rates. The ability to pass on inflationary cost increases is an uncertainty due to general economic conditions and competitive situations. It is estimated that the cost of replacing our plant and equipment today is greater than its historical cost. Accordingly, depreciation expense would be greater if the expense were stated on a current cost basis.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our critical accounting policies are disclosed in our Annual Report on Form 10-K for our fiscal year ended September 30, 2018. During the three months ended December 31, 2018, there have been no significant changes in our critical accounting policies as reported in our 2018 Annual Report on Form 10-K.

NEW ACCOUNTING GUIDANCE

See Note 2, "New Accounting Guidance", to our Consolidated Financial Statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q for information concerning the implementation and impact of new accounting guidance.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Our earnings, cash flows, and financial position are exposed to market risks relating to fluctuations in interest rates and foreign currency exchange rates. It is our policy to minimize our cash flow exposure to adverse changes in currency exchange rates and to manage the financial risks inherent in funding with debt capital.

We address these financial exposures through a controlled program of risk management that includes the use of derivative financial instruments. Counterparties to all derivative contracts are major financial institutions, thereby minimizing the risk of credit loss. All instruments are entered into for other than trading purposes. For details on the types and use of these derivative instruments, see Note 9, Financial Instruments, to our Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q, for additional information.

Our derivative and other financial instruments consist of foreign exchange-forward contracts and long-term debt (including current portion). The net market value of these financial instruments combined is referred to below as the net financial instrument position and is disclosed in Note 10, Fair Value, to our Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q.

At December 31, 2018, the net financial instrument position was a liability of $976.8 million.

Interest Rate Risk

We have interest rate risk with respect to our long-term debt. Our fixed rate debt consists of senior notes and our variable rate debt consists of term loans under our Term Facility. Changes in interest rates have different impacts on the fixed and variable rate portions of our debt portfolio. A change in interest rates on the fixed portion of the debt portfolio impacts the fair value of the debt instrument but has no impact on interest expense or cash flows. A change in interest rates on the variable portion of the debt portfolio impacts the interest incurred but not the fair value of the instrument.

The sensitivity analysis related to the interest rate risk on the fixed portion of our debt assumes an instantaneous 100 bp move in interest rates from the level at December 31, 2018, with all other variables held constant. A 100 bp increase in market interest rates would result in a decrease of $20.3 million in the fair value of our fixed rate debt at December 31, 2018.

Based on the variable-rate debt balance at December 31, 2018, a 100 bp increase in interest rates would result in an additional $5.6 million of interest incurred per year at the end of December 31, 2018.

Foreign Currency Exchange Rate Risk

Our earnings, cash flows, and financial position are exposed to market risks relating to foreign currency exchange rates. It is our policy to minimize our cash flow exposure to adverse changes in currency exchange rates and to manage the financial risks inherent in funding with debt capital.

We enter into forward exchange contracts to hedge the cash flow exposure on inter-company loans. The primary currency pairs for which we have exchange rate exposure related to these forward contracts are Japanese Yen and U.S. Dollars as well as Euros and U.S. Dollars. There is fair value exposure related to all of the financial instruments in the below sensitivity analysis for which the impact of a movement in exchange rates would be in the opposite direction and materially equal to the impact on the instruments in the analysis.

The sensitivity analysis related to foreign currency exchange rates as they relate to the forward contracts assumes an instantaneous 10% change in the foreign currency exchange rates from their levels at December 31, 2018, with all other variables held constant. A 10% strengthening or weakening of the functional currency of an entity versus all other currencies would result in a decrease or increase, respectively, of $2.9 million in the net asset position of financial instruments at December 31, 2018.

We also have sales denominated in the South Korean Won, New Taiwan Dollar, Chinese Renmibi, Euro and the Japanese Yen. Approximately 56% of Versum's sales are denominated in these currencies. Financial results therefore will be affected by changes in currency exchange rates. If all foreign currencies were to see a 10% reduction versus the U.S. dollar during the three months ended December 31, 2018, the operating income would be negatively impacted by approximately $4.8 million.

Item 4. Controls and Procedures.

Management's Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, our principal executive officer and principal financial officer evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Exchange Act), which are designed to provide reasonable assurance that we are able to record, process, summarize and report the information required to be disclosed in our reports under the Exchange Act within the time periods specified in the rules and forms of the SEC. Based on the evaluation, as of December 31, 2018, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed in reports that we file or submit under the Exchange Act is accumulated and communicated to management, including our principal executive officer and principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosures and to ensure that such information is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Changes in Internal Control over Financial Reporting

During the three months ended December 31, 2018 there were no material changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

Refer to Note 15, "Commitments and Contingencies", to our Consolidated Financial Statements in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Additional information on our commitments and contingencies can be found in our Annual Report on Form 10-K for our fiscal year ended September 30, 2018.

Item 1A. Risk Factors.

In addition to the information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the "Risk Factors" disclosed under "Item 1A. Risk Factors" of our Annual Report on Form 10-K for the fiscal year ended September 30, 2018 filed with the SEC and in any of our subsequently filed Quarterly Reports on Form 10-Q. You should be aware that these risk factors and other information may not describe every risk facing Versum. Other than as set forth below, there have been no material changes to the risk factors set forth in our most recently filed Form 10-K and subsequently filed Form 10-Qs.

There are risks and uncertainties associated with our planned merger with Entegris.

On January 28, 2019, the Company announced its entry into an agreement and plan of merger (the "Merger Agreement") with Entegris. Completion of the proposed merger is subject to various conditions, and the proposed merger may not occur even if we obtain stockholder approval.

The completion of the proposed merger is subject to certain conditions, including, among others, (i) the adoption of the Merger Agreement by our stockholders; (ii) the approval of the issuance of common stock of Entegris pursuant to the Merger Agreement, the adoption of the Merger Agreement and the adoption of an amendment of the charter of Entegris by the stockholders of Entegris; (iii) the approval for listing on the NASDAQ or NYSE of the shares of Entegris common stock to be issued pursuant to the Merger Agreement; (iv) the expiration or earlier termination of any applicable waiting period, and the receipt of approvals under, domestic and certain foreign antitrust and competition laws; (v) the absence of governmental restraints or prohibitions preventing the consummation of the Merger; and (vi) the effectiveness of the registration statement on Form S-4 registering the Entegris common stock issuable in the Merger and absence of any stop order or proceedings by the SEC with respect thereto. The obligation of each of us and Entegris to consummate the proposed merger is also conditioned on, among other things, the receipt from each party's counsel of a tax opinion as to the tax-free nature of the merger, the absence of a material adverse effect on the other party, the truth and correctness of the representations and warranties made by the other party on the date of the Merger Agreement and on the closing date (subject to certain "materiality" and "material adverse effect" qualifiers), and the performance by the other party in all material respects of its obligations under the Merger Agreement. We cannot provide any assurance that these conditions will be met or waived, or that we will be able to successfully consummate the proposed merger as provided for under the Merger Agreement, or at all.

If the proposed merger is not completed, our stock price will likely fall to the extent that the current market price of our common stock reflects an assumption that a transaction will be completed. In addition, we may be required to pay a termination fee of $140 million if the Merger Agreement is terminated under circumstances specified in the Merger Agreement.

In this regard, we face risks and uncertainties due both to the pendency of the proposed merger as well as the potential failure to consummate the proposed merger, including:

- the occurrence of any event, change or other circumstances that could give us or Entegris the right to terminate the Merger Agreement;

- the outcome of any legal proceedings that may be instituted against us, Entegris or our respective directors with respect to the proposed merger;

- the risk that we or Entegris may not obtain the required stockholder approvals on the expected schedule or at all;
- the ability to obtain regulatory approvals and satisfy other closing conditions to the proposed merger in a timely manner or at all, including the risk that regulatory approvals required for the proposed merger are not obtained or are obtained subject to conditions that are not anticipated;
- delay in closing the proposed merger;
- difficulties and delays in integrating our business with Entegris' business or fully realizing any anticipated cost savings or other benefits expected from the proposed merger;
- business disruptions from the proposed merger that may harm our business or Entegris' business, including current plans and operations;
- any announcement relating to the proposed transaction could have adverse effects on our ability or the ability of Entegris to retain and hire key personnel or maintain relationships with suppliers and customers, or on our or Entegris' operating results and businesses generally;
- the risk that the announcement of the proposed transaction could have adverse effects on the market price of our common stock or Entegris' common stock and the uncertainty as to the long-term value of the common stock of the combined company following the proposed merger; and
- certain restrictions during the pendency of the proposed merger that may impact our ability or the ability of Entegris to pursue certain business opportunities or strategic transactions.

In addition, we have incurred, and will continue to incur, significant costs, expenses and fees for professional services and other transaction costs in connection with the proposed merger, and these fees and costs are payable by us regardless of whether the proposed merger is consummated.

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Item 6. Exhibits.

Exhibit No	Exhibit
2.1+	Agreement and Plan of Merger, dated as of January 27, 2019, by and among Versum Materials, Inc. and Entegris, Inc. (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K of Versum Materials, Inc., filed on January 29, 2019)
10.1*	Amended and Restated Short Term Incentive Plan
10.2*	Form of 2019 Restricted Stock Unit Award Agreement for Non-Employee Directors
31.1*	Certification of Chief Executive Officer of Versum Materials, Inc., Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Chief Financial Officer of Versum Materials, Inc., Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1†	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to Rule 13a-14(b) of the Exchange Act and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

+Schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The registrant hereby undertakes to furnish supplementally copies of any of the omitted schedules upon request by the SEC.

*Filed herewith.

†Furnished herewith.

The agreements or other documents referenced as exhibits to this report are not intended to provide factual information or disclosure other than with respect to the terms of the agreements or other documents themselves, and you should not rely on them for that purpose. In particular, any representations and warranties made by us in these agreements or other documents were made solely within the specific context of the relevant agreement or document and may not describe the actual state of affairs as of the date they were made or at any other time.

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.

VERSUM MATERIALS, INC.

By:	/s/ George G. Bitto
	George G. Bitto
	Executive Vice President and Chief Financial Officer
Date:	February 7, 2019
By:	/s/ Jessica Feather-Bowman
	Jessica Feather-Bowman
	Controller and Principal Accounting Officer
Date:	February 7, 2019

Exhibit 10.1

VERSUM MATERIALS, INC.

AMENDED AND RESTATED
SHORT-TERM INCENTIVE PLAN

1. Purpose of the Plan

The purpose of this Versum Materials, Inc. Short-Term Incentive Plan is to enable the Company, its Subsidiaries, Affiliates and any Service Recipient to attract, retain, motivate and reward executive officers and key employees by providing short-term cash incentives and financial rewards to such executive officers and key employees that are intended to be deductible as "performance-based compensation" within the meaning of Section 162(m) of the Code.

2. Definitions

The following capitalized terms used in the Plan have the respective meanings set forth in this Section:

(a) "Affiliate" shall mean, with respect to the Company, any entity directly or indirectly controlling, controlled by, or under common control with, the Company or any other entity designated by the Board in which the Company or an Affiliate has an interest.

(b) "Board" shall mean the Board of Directors of the Company.

(c) "Code" shall mean the Internal Revenue Code of 1986, as amended, or any successor thereto.

(d) "Committee" shall mean the Compensation Committee of the Board (or such other committee or subcommittee thereof as the Board may designate). The Committee administering the Plan shall be composed solely of "outside directors" within the meaning of Section 162(m) of the Code.

(e) "Company" shall mean Versum Materials, Inc., a Delaware corporation.

(f) "Covered Employee" shall have the meaning set forth in Section 162(m) of the Code.

(g) "Disability" or "disabled" shall mean Disability (or disabled) as defined under Section 409A of the Code.

[Approved by the board of directors of Versum Materials, Inc. on September 15, 2016; ratified by Air Products and Chemicals, Inc. as sole stockholder of Versum Materials, Inc. on September 30, 2016; approved by the expanded board of directors of Versum Materials, Inc. on October 1, 2016; approved by the stockholders of Versum Materials, Inc. on January 30, 2018; and amended by the Compensation Committee of Versum Materials, Inc. on January 28, 2019]

(h) "Participant" shall mean each executive officer of the Company and other key employee of the Company, Subsidiary, Affiliate or any other "Service Recipient" (within the meaning of Section 409A of the Code) whom the Committee designates as a participant under the Plan.

(i) "Performance Period" shall mean each fiscal year of the Company, or other partial or multi-year cycle, as determined by the Committee in its discretion.

(j) "Plan" shall mean this Versum Materials, Inc. Short-Term Incentive Plan, as set forth herein and as may be amended from time to time.

(k) "Share" shall mean a share of common stock of the Company.

(l) "Subsidiary" shall mean a subsidiary corporation, as defined in Section 424(f) of the Code (or any successor section thereto).

3. Administration

The Plan shall be administered and interpreted by the Committee; provided, however, that the Board may, in its sole discretion, take any action designated to the Committee under this Plan as it may deem necessary; provided that, to the extent Section 162(m) of the Code is applicable to the Company and the Plan, in no event is the Plan intended to be administered or interpreted in a manner which would cause any award intended to be qualified as "performance-based compensation" under Section 162(m) of the Code to fail to so qualify. Any determination made by the Committee under the Plan shall be final and conclusive and binding upon all parties including the Company, its stockholders, and the Participants. The Committee may employ such legal counsel, consultants and agents (including counsel or agents who are employees of the Company, a Subsidiary or Affiliate or any other Service Recipient) as it may deem desirable for the administration of the Plan and may rely upon any opinion received from any such counsel or consultant or agent and any computation received from such consultant or agent. All expenses incurred in the administration of the Plan, including, without limitation, for the engagement of any counsel, consultant or agent, shall be paid by the Company. No member or former member of the Board or the Committee shall be liable for any act, omission, interpretation, construction or determination made in connection with the Plan other than as a result of such individual's willful misconduct. The Committee may delegate its authority under this Plan; provided that, to the extent Section 162(m) of the Code is applicable to the Company and the Plan, the Committee shall not delegate its authority with respect to any Covered Employee of the Company or any other individual who the Board or Committee reasonably believes may become a Covered Employee, if it would cause any award due to be payable hereunder intended to be qualified as "performance-based compensation" under Section 162(m) of the Code to fail to so qualify; provided, further, that, for purposes of establishing performance objectives as set forth in

Section 4(a) herein, any such delegation must be to a committee comprising solely of two or more "outside directors" (within the meaning of Section 162(m) of the Code).

4. Bonuses

(a) *Performance Criteria.* Short-term cash incentives under the Plan may be granted in a manner which is intended to be deductible by the Company under Section 162(m) of the Code (or any successor section thereto) ("Performance-Based Awards"). A Participant's Performance-Based Award shall be determined based on the attainment of written performance goals approved by the Committee for a Performance Period established by the Committee (i) while the outcome for that Performance Period is substantially uncertain and (ii) no more than 90 days after the commencement of the Performance Period to which the performance goal relates or, if less, the number of days which is equal to 25 percent of the relevant Performance Period. The performance goals, which must be objective, shall be based upon the absolute, relative or comparative achievement of one or more of the following criteria, as determined by the Committee: (i) consolidated earnings before or after taxes (including earnings before interest, taxes, depreciation and amortization); (ii) net income; (iii) operating income; (iv) earnings per Share; (v) book value per Share; (vi) return on stockholders' equity; (vii) expense management; (viii) return on investment; (ix) improvements in capital structure; (x) profitability of an identifiable business unit or product; (xi) maintenance or improvement of profit margins; (xii) stock price; (xiii) market share; (xiv) revenues or sales; (xv) costs; (xvi) cash flow; (xvii) working capital; (xviii) return on assets (xix) assets under management; (xx) total return and (xxi) strategic initiatives. The foregoing criteria may relate to the Company, one or more of its Subsidiaries or Affiliates or one or more of its or their divisions or units, any other Service Recipient or any combination of the foregoing, and may be applied on an absolute basis and/or be relative to one or more peer group companies or indices, or any combination thereof, all as the Committee shall determine. Without limiting the generality of the foregoing (and to the degree consistent with Section 162(m) of the Code), the Committee shall have the authority to make equitable adjustments in the business criteria in recognition of unusual or non-recurring events affecting the Company or its operating units, in response to changes in applicable laws or regulations, foreign exchange gains and losses, a change in the fiscal year of the Company, acquisitions or dispositions, asset write downs, business interruption events, unbudgeted capital expenditures, unrealized investment gains and losses or impairments, or to account for items of gain, loss or expense determined to be extraordinary or unusual in nature or infrequent in occurrence or related to the disposal of a segment of a business or related to a change in generally accepted accounting principles, or as the Committee determines to be appropriate to reflect measurement of the performance of the Company or its operating units, as applicable and to otherwise satisfy the objectives of the Plan. The Committee shall determine whether, with respect to a Performance Period, the applicable performance goals have been met with respect to a given Participant and, if they have, shall so certify and ascertain the amount of the applicable

Performance-Based Award. No Performance-Based Awards will be paid for such Performance Period until such certification is made by the Committee. The amount of the Performance-Based Award actually paid to a given Participant may be less (but not more) than the amount determined by the applicable performance goal formula, at the discretion of the Committee. The amount of the Performance-Based Award determined by the Committee for a Performance Period shall be paid to the Participant at such time as determined by the Committee in its sole discretion after the end of such Performance Period; provided, however, that a Participant may, if and to the extent permitted by the Committee and consistent with the provisions of Section 409A of the Code, elect to defer payment of a Performance-Based Award.

(b) *Incentive Bonuses.* The Committee shall establish incentive bonus opportunities (whether as a specified target dollar amount, percentage of a bonus pool, or otherwise) for each individual Participant in respect of a Performance Period which can be earned upon the achievement of the performance objective or objectives established for such Performance Period, (i) while the outcome for a Performance Period is substantially uncertain and (ii) no more than 90 days after the commencement of the Performance Period to which the performance goal relates or, if less, the number of days which is equal to 25 percent of the relevant Performance Period.

(c) *Maximum Amount Payable.* As soon as practicable after the Performance Period ends, the Committee shall determine (i) whether and to what extent any of the performance objectives established for the relevant Performance Period under Section 4(a) have been satisfied and (ii) for each Participant who is employed by the Company, one of its Subsidiaries or any other Service Recipient on the last day of the Performance Period for which the bonus is payable, the actual bonus to which such Participant shall be entitled, taking into consideration the extent to which the performance objectives have been met and such other factors as the Committee may deem appropriate. Any provision of this Plan notwithstanding, in no event shall any Participant receive a bonus under this Plan in respect of any one fiscal year of the Company in excess of $5,000,000 (which amount shall be decreased on a pro-rata basis for any Performance Period that is less than one year and increased on a pro-rata basis for any Performance Period that exceeds one year).

(d) *Negative Discretion.* Notwithstanding anything else contained in Section 4(c) to the contrary, the Committee may not increase the amount payable under the Plan or with respect to an Award but shall have the right, in its absolute discretion, (i) to reduce or eliminate the amount otherwise payable to any Participant under Section 4(c) based on individual performance or any other factors that the Committee, in its discretion, shall deem appropriate and (ii) to establish rules or procedures that have the effect of limiting the amount payable to each Participant to an amount that is less than the maximum amount otherwise authorized under Section 4(c).

(e) *Death or Disability.* If a Participant dies or becomes disabled prior to the last day of the Performance Period for which the bonus is payable, such Participant may receive an annual bonus equal to the bonus that would otherwise be payable to such Participant based upon actual achievement of the applicable performance objectives for the applicable Performance Period as determined by the Committee under the terms of this Plan, multiplied by a fraction, the numerator of which is the number of days that have elapsed during the Performance Period in which the Participant's death or Disability occurs (prior to and including the date of the Participant's death or Disability), and the denominator of which is the total number of days in the Performance Period. Payment shall be made at the same time and in the same form as provided under Article 5.

(f) *Other Termination of Employment.* Unless otherwise determined by the Committee and except as may otherwise be provided in Section 4(e) above, no bonuses shall be payable under this Plan to any Participant whose employment terminates (or who has received notice of termination) prior to the date that bonuses are paid in accordance with Section 5(a) except as follows:

(1) In the case of separation from the Company or any Affiliate of the Company due to a reduction in force, restructuring or internal reorganization, affected Participants would receive a bonus prorated through the Participant's termination date, determined in the same manner as determined in connection with the Participant's death or Disability as set forth in Section 4(e); and

(2) In the case of retirement from the Company or any Affiliate of the Company (i.e. having attained the age of 62 and having served for at least five years' combined continuous service with Air Products and Chemicals, Inc. or the Company or their respective Affiliates), retiring Participants would receive a bonus prorated through the Participant's retirement date, determined in the same manner as determined in connection with the Participant's death or Disability as set forth in Section 4(e).

(g) *Change in Control.* The Committee may, in its absolute discretion, provide for bonuses to be payable upon the occurrence of a "change in control" (as such term may be defined by the Committee or the Board), subject to the requirements of Section 409A of the Code.

5. Payment

(a) *In General.* Except as otherwise provided hereunder, payment of any bonus amount determined under Section 4 above shall be made to each Participant as soon as practicable after the Committee certifies in writing that one or more of the applicable performance objectives have been attained or, in the case of any bonus payable under the provisions of Section 4(d), after the Committee determines the amount of any such bonus, unless the Participant has submitted a valid election to defer receipt of the bonus in accordance with the terms and conditions of a deferred compensation plan approved by the Committee. Notwithstanding the foregoing, payment of any bonus shall in all instances either (A) satisfy the conditions of an exception from Section 409A of the Code or (B) comply with the requirements Section 409A of the Code; provided that, in the absence of terms regarding the timing of payments, such payments shall occur no later than the 15th day of the third month of the calendar year following the calendar year in which the Participant's right to payment ceased being subject to a substantial risk of forfeiture.

(b) *Form of Payment.* As established by the Committee, bonus payments shall be made in (i) cash, (ii) Shares or Share units under the Company's Long-Term Incentive Plan (as may be amended, or any successor thereto) or (iii) a combination of (i) and (ii), in each case subject to such restrictions as the Committee shall determine.

6. General Provisions

(a) *Effectiveness of the Plan.* The Plan became effective on September 30, 2016 (the "Effective Date"), subject to the approval of the Company's stockholders. Unless otherwise determined by the Board, the Plan shall be submitted to stockholders of the Company for re-approval no later than the Company's first meeting of stockholders that occurs in the fifth year following the year in which the Company's stockholders previously approved the Plan.

(b) *Section 409A Compliance.* The Plan is intended to comply with Section 409A of the Code and will be interpreted in a manner intended to comply with Section 409A of the Code. In furtherance thereof, no payments may be accelerated under the Plan, other than to the extent permitted under Section 409A of the Code. To the extent that any provision of the Plan violates Section 409A of the Code such that amounts would be taxable to a Participant prior to payment thereof or would otherwise subject a Participant to a penalty tax under Section 409A of the Code, such provision shall be automatically reformed or stricken to preserve the intent hereof. Notwithstanding anything herein to the contrary, (i) if at the time of a Participant's termination of employment the Participant is a "specified employee" as defined in Section 409A of the Code (and any related regulations or other pronouncements thereunder) and the deferral of the commencement of any payments otherwise payable hereunder as a result of such termination of employment is necessary in order to prevent any accelerated or additional tax under Section 409A of the Code, then the Company shall defer the commencement of the payment of any such payments hereunder (without any reduction in such payments ultimately paid or provided to the Participant) until the date that is six months and one day following the Participant's termination of employment (or the earliest date as is permitted under Section 409A of the Code) and (ii) if any other payments due to a Participant hereunder could cause the application of an accelerated or additional tax under Section 409A of the Code, such payments shall be deferred if deferral will make such payment compliant under Section 409A of the Code, or otherwise such payment shall be restructured, to the extent possible, in a manner, determined by the Committee, that does not cause such an accelerated or additional tax. The Committee shall implement the provisions of this section in good faith; provided that neither the Company, the Committee nor any of the employees or representatives of the Company, its Subsidiaries or any other Service Recipient shall have any liability to Participants with respect to this Section 6(b).

(c) *Amendment and Termination.* The Board or the Committee may at any time amend, suspend, discontinue or terminate the Plan; *provided, however*, that no such amendment, suspension, discontinuance or termination shall materially adversely affect the rights of any Participant in respect of any calendar year which has already commenced and, to the extent Section 162(m) of the Code is applicable to the Company and the Plan, no such action shall be effective without approval by the stockholders of the Company to the extent necessary to continue to qualify the amounts payable hereunder to Covered Employees as under Section 162(m) of the Code.

(d) *Designation of Beneficiary.* Each Participant may designate a beneficiary or beneficiaries (which beneficiary may be an entity other than a natural Person) to receive any payments which may be made following the Participant's death. Such designation may be changed or canceled at any time without the consent of any such beneficiary. Any such designation, change or cancellation must be made in a form approved by the Committee and shall not be effective until received by the Company. If no beneficiary has been named, or the designated beneficiary or beneficiaries shall have predeceased the Participant, the beneficiary shall be the Participant's spouse or, if no spouse survives the Participant, the Participant's estate. If a Participant designates more than one beneficiary, the rights of such beneficiaries shall be payable in equal shares, unless the Participant has designated otherwise.

(e) *No Right to Continued Employment or Awards.* Nothing in this Plan shall be construed as conferring upon any Participant any right to continue in the employment of the Company, any of its Subsidiaries or any other Service Recipient. No Participant shall have any claim to be granted any award or bonus, and there is no obligation for uniformity of treatment of Participants or beneficiaries. The terms and conditions of awards and the Committee's determinations and interpretations with respect thereto need not be the same with respect to each Participant (whether or not the Participants are similarly situated).

(f) *No Limitation on Corporate Actions.* Nothing contained in the Plan shall be construed to prevent the Company, any Subsidiary or Affiliate or any other Service Recipient from taking any corporate action which is deemed by it to be appropriate or in its best interest, whether or not such action would have an adverse effect on any awards made under the Plan. No employee, beneficiary or other person shall have any claim against the Company, any Subsidiary or any other Service Recipient as a result of any such action.

Nonalienation of Benefits. Except as expressly provided herein, no Participant or beneficiary shall have the power or right to transfer, anticipate, or otherwise encumber the Participant's interest under the Plan. The Company's obligations under this Plan are not assignable or transferable except to (i) a corporation which acquires all or substantially all of the Company's assets or (ii) any corporation with which the Company may be merged or consolidated. The Company's obligations under this Plan shall be binding on any successor to the

Company. The provisions of the Plan shall inure to the benefit of each Participant and the Participant's beneficiaries, heirs, executors, administrators or successors in interest.

(g) *Withholding.* A Participant may be required to pay to the Company, any Subsidiary or Affiliate or any other Service Recipient, and the Company, any Subsidiary or any other Service Recipient shall have the right and is hereby authorized to withhold from any payment due under this Plan or from any compensation or other amount owing to the Participant, applicable federal, state and local withholding taxes with respect to any payment under this Plan and to take such action as may be necessary in the opinion of the Company to satisfy all obligations for the payment of such withholding taxes.

(h) *Clawback/Repayment*. All awards shall be subject to reduction, cancellation, forfeiture or recoupment to the extent necessary to comply with (i) any clawback, forfeiture or other similar policy adopted by the Board or Committee and as in effect from time to time; and (ii) applicable law. Further, to the extent that the Participant receives any amount in excess of the amount that the Participant should otherwise have received under the terms of the award for any reason (including, without limitation, by reason of a financial restatement, mistake in calculations or other administrative error), the Participant shall be required to repay any such excess amount to the Company.

(i) *Severability.* If any provision of this Plan is held unenforceable, the remainder of the Plan shall continue in full force and effect without regard to such unenforceable provision and shall be applied as though the unenforceable provision were not contained in the Plan.

(j) *No Fund Created*. Neither the Plan nor any bonus shall create or be construed to create a trust or separate fund of any kind or a fiduciary relationship between the

Company and a Participant or any other person. To the extent that any person acquires a right to receive payments from the Company pursuant to an Award, such right shall be no greater than the right of any unsecured general creditor of the Company.

(k) *Non-Exclusivity of the Plan*. Neither the adoption of the Plan by the Board nor any submission of the Plan to stockholders of the Company for approval shall be construed as creating any limitations on the power of the Company, the Board or the Committee to adopt such other incentive arrangements as any of them may deem desirable, including, without limitation, cash or equity-based compensation arrangements, either tied to performance or otherwise.

(l) *Governing Law.* The Plan shall be governed by and construed in accordance with the laws of the State of Delaware without regard to conflicts of laws.

(m) *Headings.* Headings are inserted in this Plan for convenience of reference only and are to be ignored in a construction of the provisions of the Plan.

Exhibit 10.2

VERSUM MATERIALS, INC.

RESTRICTED STOCK UNIT AWARD AGREEMENT
for
NON-EMPLOYEE DIRECTORS

THIS RESTRICTED STOCK UNIT AWARD AGREEMENT FOR NON-EMPLOYEE DIRECTORS (the "*Agreement*") is entered into as of the Grant Date (as defined in Annex A) by and between Versum Materials, Inc. (the "*Company*") and Grantee (as defined in Annex A), a non-employee member of the Company's Board of Directors (the "*Board*").

WHEREAS, the Company has adopted and the stockholders have approved the Versum Materials Inc. Amended and Restated Long-Term Incentive Plan (the "*Plan*"), the terms of which are hereby incorporated by reference; and

WHEREAS, the Board has determined that it would be to the advantage and in the best interests of the Company and its stockholders to grant to the Grantee, as compensation for service on the Board, time-based restricted stock units as provided for hereunder (the "*RSUs*"), payable in Shares of common stock of the Company, par value $1.00 per share (the "*Common Stock*"), pursuant to the Plan.

NOW, THEREFORE, in consideration of the mutual covenants herein contained and other good and valuable consideration, receipt of which is hereby acknowledged, the parties hereto do hereby agree as follows:

1. Notice of Grant. Subject to the terms and conditions of the Plan and the additional terms and conditions set forth in this Agreement, the Company hereby grants to the Grantee the number of RSUs indicated on a Notice of Grant in the form attached hereto as Annex A, which Notice of Grant is incorporated herein by reference. For purposes of this Agreement, capitalized terms not otherwise defined in this Agreement or in the Notice of Grant have the meanings set forth in the Plan. This Agreement is subject to the terms of the Plan, as the Plan may be amended from time to time. The RSUs granted herein constitute an Award within the meaning of the Plan. Each RSU represents the right to receive one Share of Common Stock.

2. Vesting and Settlement.

(a) RSUs. The vesting of the RSUs shall be subject to the conditions set forth in this Section 2(a):

(i) Vesting.

(A) Unless otherwise provided in this Agreement, provided that the Grantee remains on the Board Company through the applicable Vesting Date (as defined below), the Grantee shall vest in the RSUs on the earlier of (i) one year following the Grant Date and (ii) the date immediately prior to the Company's next regular annual meeting of Stockholders (such date, the "*Vesting Date*").

(B) Unless otherwise determined by the Committee, if, prior to a Vesting Date (and absent the occurrence of a Change in Control), the Grantee's service on the Board ends for any reason other than due to the Grantee's death or Disability, then a number of RSUs (rounded down to the nearest whole number) shall immediately vest on a pro rata basis equal to the total number of RSUs granted on the Grant Date multiplied by a fraction the numerator of which is equal to the number of full months that have elapsed from the Grant Date and the denominator of which is 12, and any remaining portion of the RSUs shall be forfeited. The date of termination of Board service shall be deemed to be the Vesting Date for such pro-rata portion for the purposes of Section 2(a)(ii).

(C) If, prior to a Vesting Date (and absent the occurrence of a Change in Control), the Grantee's service on the Board ends due to the Grantee's death or Disability, then any outstanding unvested RSUs shall immediately vest and the date of such termination of Board service shall be deemed to be the Vesting Date for the purposes of Section 2(a)(ii).

(ii) Settlement. If no deferral election is in effect under the Versum Materials, Inc. Deferred Compensation Program for Directors ("*Director DCP*"), promptly after the Vesting Date (and in all cases on or prior to the earlier of (x) the date 60 days following the Vesting Date and (y) March 15 following the year of the Grant Date) the Company shall distribute to the Grantee the number of Shares of Common Stock equal to the number of RSUs that vested in accordance with Section 2(a). If a deferral election is in effect under the Director DCP, the Company shall distribute to the Grantee the number of Shares of Common Stock equal to the number of vested RSUs subject to such deferral election in accordance with the terms of the Director DCP and the Grantee's election form. Any RSUs that do not vest in accordance with Section 2(a) shall be forfeited by the Grantee without consideration and this Agreement shall terminate without payment in respect thereof.

(b) Change in Control. Notwithstanding anything set forth in Section 2(a), in the event of a Change in Control, the following rules shall apply with respect to the RSUs granted hereunder in lieu of the provisions of Section 2(a):

(i) Unless otherwise determined by the Committee, if a Change in Control occurs prior to the Vesting Date and the Grantee remains on the Board of the Company or acquirer thereof following the completion of such Change in Control, then the RSUs shall be converted into a right to receive a cash payment equal to the sum of (x) the product of (1) the number of RSUs outstanding and (2) the CIC Per Share Price (such product, the "*CIC Cash Value*") and (y) an amount equal to the interest on the CIC Cash Value at a rate equal to LIBOR plus 2.0% per annum, computed on the basis of a year of 364 days, calculated daily for each day following the closing date of the Change in Control transaction through the date immediately preceding the date on which such cash payment becomes vested (the sum of clauses (x) and (y), the "*CIC Settlement Amount*"). Subject to the provisions of Section 2(b)(ii) below, the CIC Settlement Amount shall vest and settle as described in Section 2(a)(i), so long as the Grantee continues on the Board of the Company or acquirer thereof in the Change in Control through the Vesting Date.

(ii) Notwithstanding anything in this Agreement to the contrary, if the Grantee's service on the Board of the Company or acquirer thereof ends for any reason on or following a Change in Control and prior to the Vesting Date (a "*Qualifying Termination*"), the Grantee shall immediately vest in the remaining unvested CIC Settlement Amount, and the CIC Settlement Amount shall be paid to the Grantee within ten business days following such termination date. In the event that, pursuant to Section 2(b)(i), the Committee determines that, upon a Change in Control, the RSUs shall remain outstanding as the right to receive Shares or be converted into a right to receive shares of the successor corporation or an affiliate, then, upon a Qualifying Termination, the Grantee's RSUs or replacement units outstanding on such date will be cancelled in exchange for a cash payment equal to the product of (x) the total number of shares of common stock underlying such outstanding RSUs or replacement units and (y) the per share fair market value of such common stock on the date of the Qualifying Termination.

3. Dividend Equivalents. With respect to each cash dividend or distribution (if any) paid with respect to Common Stock to holders of record on and after the Grant Date, an additional number of RSUs shall be accrued on the books and records of the Company, in an amount equal to the quotient of (a) the product of (i) the amount of such dividend or distribution paid with respect to one share of Common Stock, multiplied by (ii) the number of RSUs granted hereunder then held by the Grantee divided by (b) the Fair Market Value on the applicable dividend record date. At such time(s) thereafter as the Grantee receives a distribution of Shares of Common Stock in respect of his or her vested RSUs granted hereunder pursuant to the applicable provision of Section 2, the Company shall also distribute to the Grantee a number of Shares of Common Stock equal to the additional number of RSUs accrued under this Section 3 that relate to the vested RSUs in respect of which such distribution of Shares is otherwise being made. In the event of any stock dividend, the provisions of Section 10 of the Plan shall apply to the RSUs.

4. Limitation on Obligations. The Company's obligation with respect to the RSUs granted hereunder is limited solely to the delivery to the Grantee of Shares of Common Stock on the date when such Shares are due to be delivered hereunder, and in no way shall the Company become obligated to pay cash in respect of such obligation, except as otherwise expressly provided for herein. The RSUs shall not be secured by any specific assets of the Company or any of its subsidiaries, nor shall any assets of the Company or any of its subsidiaries be designated as attributable or allocated to the satisfaction of the Company's obligations under this Agreement.

5. Rights as a Stockholder. The Grantee shall not have any rights of a common stockholder of the Company unless and until the Grantee receives the Shares of Common Stock pursuant to Section 2. As soon as practicable following the date that the Grantee becomes entitled to receive the Shares of Common Stock pursuant to Section 2, certificates for such shares (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company) shall be issued to the Grantee or to the Grantee's legal guardian or representative.

6. Transferability. The RSUs may not at any time be transferred, sold, assigned, pledged, hypothecated or otherwise disposed of, and shall not be subject to alienation, garnishment, execution or levy of any kind, and any attempt to cause any such awards to be so subjected shall not be recognized. The Shares of Common Stock acquired by the Grantee pursuant to Section 2 of this Agreement may not at any time be transferred, sold, assigned, pledged, hypothecated or otherwise disposed of unless such transfer, sale, assignment, pledge, hypothecation or other disposition complies with applicable securities laws.

7. No Right to Continued Service as a Director. Nothing contained in this Agreement shall be deemed to confer upon the Grantee any right to continue to serve as a member of the Board.

8. Change in Capitalization. Except as provided in Section 2(b), in the event of any change in the outstanding Common Stock by reason of a stock split, spin-off, stock dividend, stock combination or reclassification, recapitalization or merger, Change in Control, or similar event, the provisions of Section 10 of the Plan shall govern the treatment of the RSUs.

9. Securities Laws. Upon the delivery of any Common Stock to the Grantee, the Company may require the Grantee to make or enter into such written representations, warranties and agreements as the Committee may

reasonably request in order to comply with applicable securities laws or with this Agreement. The delivery of the Common Stock hereunder shall be subject to all applicable laws, rules and regulations and to such approvals of any governmental agencies as may be required.

10. Clawback; Forfeiture on Violation of Code of Ethics.

(a) The Committee in its sole discretion may impose on the RSUs provided for in this Agreement, either through an amendment to the Plan or through a policy that upon adoption by the Committee will be incorporated into this Agreement by reference effective as of the date of such adoption, that the Grantee's rights, payments, and benefits with respect to this Agreement shall be subject to reduction, cancellation, forfeiture or recoupment upon the occurrence of certain specified events, in addition to any otherwise applicable vesting or performance conditions provided in this Agreement, as required by applicable law.

(b) In the event that the Grantee fails to satisfy the Code of Ethics Requirement, all RSUs granted hereunder (to the extent not already previously forfeited) may be immediately forfeited by the Grantee without consideration based upon a determination by the Committee, and this Agreement shall terminate without payment in respect thereof.

11. Section 409A of the Code. It is the Company's intent that payments and benefits under this Agreement comply with Section 409A, to the extent subject thereto, and accordingly, to the maximum extent permitted, this Agreement shall be interpreted and administered to be in compliance therewith. In the event that it is reasonably determined by the Company that, as a result of the deferred compensation tax rules under Section 409A of the Code (and any related regulations or other pronouncements thereunder) (the "*Deferred Compensation Tax Rules*"), benefits that the Grantee is entitled to receive under the terms of this Agreement may not be made at the time contemplated by the terms hereof without causing Grantee to be subject to tax under the Deferred Compensation Tax Rules, (i) the Grantee shall not be considered to have terminated Board service for purposes hereof until the Grantee would be considered to have incurred a "separation from service" within the meaning of Section 409A and (ii) the Company shall, in lieu of providing such benefit when otherwise due under this Agreement, instead provide such benefit on the first day on which such provision would not result in the Grantee incurring any tax liability under the Deferred Compensation Tax Rules; which day, if the Grantee is a "specified Grantee" (within the meaning of the Deferred Compensation Tax Rules), shall, in the event the benefit to be provided is due to the Grantee's "separation from service" (within the meaning of the Deferred Compensation Tax Rules) with the Company and its subsidiaries, be the first day following the six-month period beginning on the date of such separation from Board service. Each amount to be paid or benefit to be provided under this Agreement shall be construed as a separately identified payment for purposes of the Deferred Compensation Tax Rules, and any payments described in this Agreement that are due within the "short term deferral period" as defined in the Deferred Compensation Tax Rules shall not be treated as deferred compensation unless applicable law requires otherwise.

12. Notices. Any notice to be given under the terms of this Agreement to the Company shall be addressed to the Company in care of its Secretary, and any notice to be given to the Grantee shall be addressed to him at the address given beneath his signature hereto. By a notice given pursuant to this Section 13, either party may hereafter designate a different address for notices to be given to him. Any notice which is required to be given to the Grantee shall, if the Grantee is then deceased, be given to the Grantee's personal representative if such representative has

previously informed the Company of his status and address by written notice under this Section 13. Any notice shall be deemed properly given or made if personally delivered or, if mailed, when mailed by registered or certified mail, postage prepaid.

13. Governing Law. The laws of the State of Delaware (or if the Company reincorporates in another state, the laws of that state) shall govern the interpretation, validity and performance of the terms of this Agreement regardless of the law that might be applied under principles of conflicts of laws.

14. RSUs Subject to Plan. The RSUs shall be subject to all applicable terms and provisions of the Plan. In the event of any conflict between this Agreement and the Plan, the terms of the Plan control.

15. Signature in Counterparts. This Agreement may be signed in counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

16. Taxes and Additional Matters. The Grantee, as a Non-Employee Director, is solely responsible for the satisfaction of all taxes and penalties that may arise in connection with the RSUs, and as such the Company has no withholding obligation associated with the RSUs. This Restricted Stock Unit Agreement for Non-Employee Directors is intended to comply with the applicable laws of any country or jurisdiction where RSUs are granted under the Plan, and all provisions hereof shall be construed in a manner to so comply.

17. Definitions.

(a) "**CIC Per Share Price**" means the price paid for one Share of Common Stock in the Change in Control transaction (with the value of any security that is paid as consideration in the Change in Control determined by the Committee as of the date of such Change in Control).

(b) "**Code of Ethics Requirement**" means the Grantee complies with the Company's Code of Conduct as in effect from time to time.

(c) "**Confidential Information**" means all non-public information concerning trade secret, know-how, software, developments, inventions, processes, technology, designs, the financial data, strategic business plans or any proprietary or confidential information, documents or materials in any form or media, including any of the foregoing relating to research, operations, finances, current and proposed products and services, vendors, customers, advertising and marketing, and other non-public proprietary and confidential information of the Company, its affiliates, subsidiaries, successors or assigns.

(d) "**Disability**" means the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than 12 months. A Grantee shall be deemed to have suffered a Disability if determined to be totally disabled by the Social Security Administration.

(e) "**LIBOR**" means the three-month London interbank offered rate as published in the Wall Street Journal on the business day following the closing date of the Change in Control transaction and each anniversary thereafter.

Appendix A

Notice of Grant
Restricted Stock Unit Agreement
for
Non-Employee Directors

The following member of the Board of Directors of Versum Materials, Inc. has been granted Restricted Stock Units in accordance with this Notice of Grant and the Restricted Stock Unit Agreement for Non-Employee Directors to which this Notice of Grant is attached.

The terms below have the meanings ascribed to them below when used in the Restricted Stock Unit Agreement for Non-Employee Directors.

Grantee: __________________________

Grant Date: ________________________

Aggregate Number of RSUs Granted: ________________________

IN WITNESS WHEREOF, the parties hereby agree to the terms of this Notice of Grant and the Restricted Stock Unit Agreement for Non-Employee Directors to which this Notice of Grant is attached, and execute this Notice of Grant and Restricted Stock Unit Agreement for Non-Employee Directors as of the Grant Date.

____________________________________ VERSUM MATERIALS, INC.
Grantee

By:
____

Name:

Title:

Exhibit 31.1

PRINCIPAL EXECUTIVE OFFICER'S CERTIFICATION

I, Guillermo Novo, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Versum Materials, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: February 7, 2019

/s/ Guillermo Novo

Guillermo Novo

President and Chief Executive Officer

Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER'S CERTIFICATION

I, George G. Bitto, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Versum Materials, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: February 7, 2019

/s/ George G. Bitto

George G. Bitto
Executive Vice President and Chief Financial Officer

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of Versum Materials, Inc. (the “Company”) for the period ended December 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Guillermo Novo, President and Chief Executive Officer of the Company, and George G. Bitto, Senior Vice President and Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

Dated:	February 7, 2019	/s/ Guillermo Novo
		Guillermo Novo President and Chief Executive Officer
		/s/ George G. Bitto
		George G. Bitto Executive Vice President and Chief Financial Officer

This statement is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and it is not to be incorporated by reference into any filing of the Company, regardless of any general incorporation language in such filing. A signed original of this written statement required by Section 906 will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.