2019 Annual Report

MARKET LEADING INNOVATION

Element Solutions' customers participate in dynamic markets driven by innovation, which means that we too must place a strong emphasis on innovation. We work right alongside our customers to develop leading edge products based on our significant intellectual property portfolio, experience-driven know how, and technical expertise. Building on our core competencies in product innovation, applications development, and technical service should help drive organic growth. Innovation helps enable new high-growth markets and technologies and expand upon our existing portfolio with new products for current and adjacent markets.

element solutions

THE PILLARS OF **OUR STRATEGY**

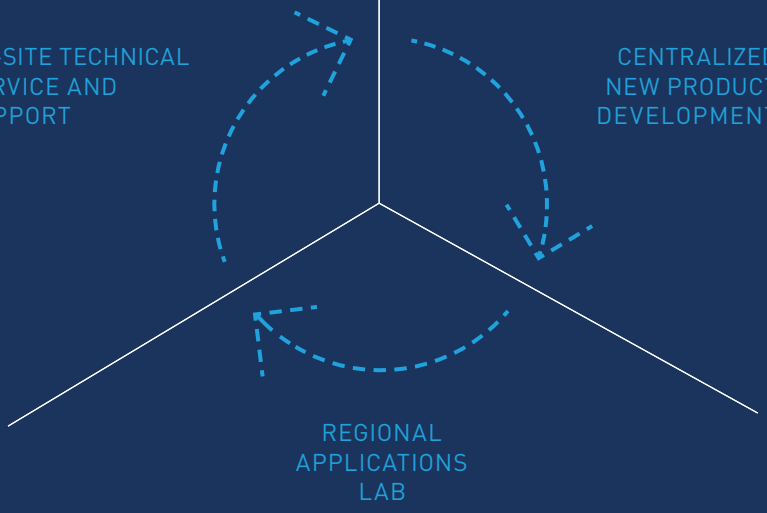
As a results-orientated company focused on innovation and service, our strategic pillars serve as foundational behaviors for long-term success and continuous high performance.

COMMERCIAL EXCELLENCE

CUSTOMER-LED INNOVATION

Technical service teams embedded in customer facilities to ensure quality and troubleshoot; provide feedback on customer needs to inform new product development

New product development and innovation centralized with key competency centers of excellence



Formulations tested and modified locally in applications development centers around the world that replicate customer specific operating conditions

ENABLING SUSTAINABILITY

DECISIVENESS & ACTION ORIENTATION

RECRUITMENT & TALENT DEVELOPMENT

Element Solutions has a company-wide contest for designs of our Annual Report cover. This year's winner was Emine Ertug. Runners up were Lori Orser, Sathish Kumar and Deanna Cullen.

THE ELEMENTS OF **OUR CULTURE**

Our employees embody the 5 C's of our culture in their interactions with customers, colleagues and other counterparties to drive sustainable financial performance and create a rewarding environment.

CHALLENGE

WE ESTABLISH AMBITIOUS GOALS, TAKE CALCULATED RISKS, MAINTAIN HIGH STANDARDS AND SEEK TO EXCEED EXPECTATIONS.

CHOOSE

WE EMPOWER OUR EMPLOYEES TO MAKE CHOICES AND TAKE CALCULATED RISKS; WE CHOOSE TO HIRE, RECOGNIZE AND REWARD PEOPLE WHO DEMONSTRATE GOOD JUDGMENT AND CHOOSE TO HAVE GOOD ATTITUDES AND STRONG WORK ETHICS.

COMMIT

WE MAKE COMMITMENTS AND HOLD OURSELVES ACCOUNTABLE, INDIVIDUALLY AND AS TEAMS, TO DELIVER ON THEM.

CARE

WE CARE ABOUT OUR CUSTOMERS, OUR COLLEAGUES, OUR ENVIRONMENT AND OUR PLACE IN THE WORLD AT LARGE.

COLLABORATE

WE VALUE TEAMWORK, WITH OUR CUSTOMERS AND OUR COLLEAGUES, IN PURSUIT OF EXCELLENCE AND IMPROVEMENT IN EVERYTHING WE DO.

OFFICE OF THE CHAIRMAN

From left:

SIR MARTIN E. FRANKLIN
Executive Chairman

BENJAMIN GLIKLICH
Chief Executive Officer

SCOT R. BENSON
President and Chief Operating Officer

LETTER FROM THE **EXECUTIVE CHAIRMAN**

DEAR FELLOW SHAREHOLDERS,

In 2019, Element Solutions completed its first year as a standalone company demonstrating many aspects of why it is such an attractive business. Despite challenging end-markets, we demonstrated the resilience of our businesses, driving margins, and generating significant free cash flow, and we found value-creating ways to invest those proceeds for the benefit of all shareholders. The path to arrive at this stage has been winding, but we could not be more enthusiastic and optimistic about how we are positioned right now.

As Executive Chairman, I have focused on three primary areas: culture, people and capital allocation. The most important is our people. Ours is a business whose ultimate performance is a direct reflection of its people and how it chooses to incentivize and motivate them. Before we became Element Solutions, our senior leadership team was more focused on capital allocation and our balance sheet as a holding company. This has changed with Element Solutions becoming an operating company. One of our first accomplishments was to clearly articulate our vision, culture and strategy which you can read more about in other parts of this Annual Report. I have been delighted to see our 5Cs, described on page 2 of our Annual Report, proudly presented on the walls of our facilities and reinforced in our communications and recognition ceremonies for our people.

The single most compelling attribute of Element Solutions is its best-in-class free cash flow characteristics. Since the separation in January 2019, free cash flow per share has more than doubled to nearly a dollar per share and is expected to continue to grow from here. In this context, deploying that capital has opened the door to value creating opportunities. Making a highly attractive acquisition in December 2019 and repurchasing approximately 45 million shares throughout the year all while keeping our leverage below 3.5x net debt to adjusted EBITDA has positioned Element Solutions very well for 2020 and beyond. There are more opportunities out there, and we are looking forward to executing against them.

Reflecting on our first year as Element Solutions, we have a lot to be excited about, and looking ahead, we have even more to look forward to. What we have accomplished and aim to continue to deliver is a product of our excellent leaders and the high-quality teams supporting them. In 30 years building businesses, I have learned repeatedly the power of great people. We have them throughout Element Solutions. I would like to thank the entire family of employees for their efforts this year and feel we have an organization positioned to win in 2020 and beyond. In Element Solutions we have a terrific business, a terrific management team and terrific markets. That is a recipe that I believe will drive significant value for all our stakeholders.

Faithfully yours,

Sir Martin E. Franklin

For definitions and reconciliations of non-GAAP measures, see pages 7–8 of this 2019 Annual Report

LETTER FROM THE **CEO**

DEAR FELLOW SHAREHOLDERS,

This past year tested our oft-repeated statement that Element Solutions is well positioned to outperform its end-markets in tough as well as good times and generate strong cash flows in both. We have always said that while our end-markets are cyclical, the high-value add and consumable nature of our solutions allows for more stable pricing and insulates us from the full impact of market troughs. Combined with our low fixed cost manufacturing, this allows us to maintain consistent margins. In fact, our margins often expand despite volume declines due to stable prices and a highly variable cost structure. A weak topline releases cash from working capital, so our cash flow should remain robust in down markets. This was very much in evidence in 2019.

Last year, the majority of our end markets were the worst they had been in a decade. We suffered from the impact of geo-political tension on Asian investment and a significant decline in global industrial activity, particularly in electronics and automotive. But this difficult environment afforded us the opportunity to demonstrate the quality of our businesses and our leadership team. Operating with pace and purpose, we were able to deliver a strong overall performance for our shareholders, customers and other stakeholders.

In the face of a greater than 5% decline in our overall blended end-markets, we outperformed by several percentage points. Our organic net sales decline was 4% from last year, while we expanded our adjusted EBITDA margins by 120 basis points and generated more than $235 million of free cash flow on an adjusted basis. In 2019, through disciplined cost control and restructuring, we reduced our operating expense by more than $50 million year-over-year and improved our return on tangible assets for the Element Solutions businesses from 29% to 32%.

From a personal perspective, it would have been far easier to launch Element Solutions into more docile seas, but the choppy environment allowed us to demonstrate who we are and what we are capable of. Our performance in 2019 will pay dividends for years to come in the form of a stronger, more cohesive team and the credibility we have built—internally and externally—through our strong results. We are focused on long-term value creation, and our work in 2019 advanced that goal.

Considering the strength of Element Solutions today, it is hard to believe that we only started on this journey in January 2019. When we compare ourselves to where we came from, we are pleased—though never satisfied—with our progress. Two aspects of that progress are worth highlighting here.

First, we have unified into one company coalescing around a shared vision, strategy and culture. That vision is simple—to be the best-in-class specialty chemicals company. We measure that on three vectors: (1) value delivered to customers, (2) opportunities provided to employees and (3) value created for shareholders. If we deliver best-in-class value to customers, we believe we will outpace the market in growth and expand our margins, so we measure ourselves against those metrics as demonstrated in 2019. We provide

"AND WHILE OUR PAST HAS FADED INTO THE BACKGROUND, THE LESSONS WE LEARNED PERSIST: MAINTAIN A SENSIBLE BALANCE SHEET. DEPLOY CAPITAL PRUDENTLY. FOCUS ON CUSTOMERS, CORE COMPETENCIES AND PEOPLE. DELIVER ON COMMITMENTS."

opportunities to employees by creating a dynamic, challenging and meritocratic workplace that fosters learning and growth. We measure this by benchmarks such as our internal fill-rate (the percentage of open positions we fill with internal candidates) and employee satisfaction. We are a people-based business, so a talented and motivated workforce will differentiate us. If we succeed along the first two vectors, the third will take care of itself.

The "Elements of our Culture" and the "Pillars of our Strategy" highlighted in this Annual Report align with and support this vision. And while our past has faded into the background, the lessons we learned persist: Maintain a sensible balance sheet. Deploy capital prudently. Focus on customers, core competencies and people. Deliver on commitments.

The second aspect worth highlighting is cash flow. Our north star at Element Solutions is free cash flow per share. We know the true value of a company is in the sustainability and growth of that metric. In the Platform days, the strong cash flow characteristics of underlying businesses were diminished by the level of debt service and the working capital intensity associated with the agricultural chemicals business. Platform average free cash flow from 2016 to 2018 was approximately $130 million per year or ~43 cents per share. In 2019, adjusting for the impact of the Arysta business prior to its sale at the end of January, Element Solutions more than doubled its free cash flow per share, generating more than $235 million of free cash flow or 92 cents per share.

We deployed about $735 million in cash in 2019, of which ~$475 million came from the Arysta sale proceeds and $260 million came from cash flow and balance sheet cash. This cash flow was deployed primarily into three buckets—capex, buybacks and acquisitions.

With $25 million of net capex, about $11 million went into maintenance, facility improvement and equipment purchases to support our businesses. The balance largely went into upgrades to our semiconductor manufacturing capabilities, investment in our new, state-of-the-art applications lab in Taiwan and IT systems upgrades which will enable further efficiency. We believe our growth opportunity in the semiconductor space is very compelling and, on the back of our investments, we have made recent inroads with several large market participants. These are very sticky customers with above-average margins. Technology centers help support new innovation and commercial opportunities locally. Our new tech center in Taiwan attracted the attention of many large target customers, a step in the right direction in a market in which we have historically been undersized. We focus our capex on our highest returning projects and do as many as we can justify without sacrificing quality execution.

Over the course of the year, our share price was consistently below our view of intrinsic value. In these circumstances, we preferred to repurchase shares as the risk adjusted returns associated with stock buybacks exceeded other non-organic areas for investment. We repurchased nearly 45 million shares during 2019 for approximately $507 million, or an average share price of $11.33, below the year end stock price of $11.68 and well below the stock price as I write today.

As we hope our share price will continue to rise to achieve at least a multiple comparable to our peer group, our appetite for growth-oriented tuck-in acquisitions rather than buybacks may increase. In 2019, we made one such tuck-in acquisition that represented a terrific opportunity and is a case study for future transactions. We were excited to welcome Kester into the Element Solutions family. It is an excellent business that overlaps nicely with our existing assembly solutions products and services while adding interesting adjacent technology and end-markets, as well as a great management team. Kester is a business that we knew well, could acquire at a compelling valuation, and is better as part of Element Solutions. This represents the type of transaction we intend to pursue in the future.

We expect a long runway of opportunities ahead of us to deploy capital at high rates of return and have many reasons to be optimistic about the long-term potential of our business. We believe we have highly defensible positions in high-value, secularly growing markets. Innovation is a constant in our markets, and a tidal-wave of it is coming soon. Enabled by our technologies, solutions and service, the arrival and adoption of 5G technologies, electric vehicles and an overall increasingly connected world should drive a wave of investment in which our solutions will be critical.

As we look back on all that has happened in 2019, I would like to thank our stakeholders who have supported our successful transformation. Most importantly, I would like to thank my colleagues around the world. We would not be where we are without their incredible efforts. Our best assets go home every night, and in Element Solutions we have created an environment where an exceptional effort on any given day by any of our people can impact our overall performance. The corollary is that our success depends on the everyday efforts of each of our people, and our culture recognizes and values their immense contributions. I am enthusiastic about how that environment will translate into terrific long-term results and look forward to reporting on our progress in 2020.

Benjamin Gliklich
February 18, 2020

For definitions and reconciliations of non-GAAP measures, see pages 7–8 of this 2019 Annual Report

2019 HIGHLIGHTS
KEY FACTS & FIGURES

// DEVELOPED AND REINFORCED INTERNAL AND EXTERNAL IDENTITY WITH CONSISTENT COMMUNICATION OF VISION, STRATEGY AND CULTURE

// DELIVERED ON FINANCIAL COMMITMENTS AND STRATEGIC INITIATIVES

// COMPELLING FREE CASH FLOW GROWTH

// PRUDENT CAPITAL ALLOCATION TO COMPOUND LONG-TERM SHAREHOLDER VALUE

$1,836M
NET SALES

$417M
ADJ. EBITDA

OUTPERFORMANCE
AGAINST UNIT GROWTH IN KEY END-MARKETS

$238M
FREE CASH FLOW

120bps
ADJ. EBITDA MARGIN EXPANSION

3%
CONSTANT CURRENCY ADJ. EBITDA GROWTH

NET SALES BY SEGMENT

59% ELECTRONICS
41% INDUSTRIAL & SPECIALTY

NET SALES BY REGION

29% AMERICAS
29% EMEA
42% ASIA

NET SALES BY VERTICAL
ELECTRONICS

50% ASSEMBLY
35% CIRCUITRY
15% SEMICONDUCTOR

NET SALES BY VERTICAL
INDUSTRIAL & SPECIALTY

70% INDUSTRIAL
20% GRAPHICS
10% ENERGY

kester®
STRATEGIC ACQUISITION

23%
ADJ. EBITDA MARGIN

50+
COUNTRIES

~40
GLOBAL MANUFACTURING FACILITIES

~2,500
PATENTS

~15%
OF OUTSTANDING COMMON STOCK REPURCHASED

43%
GROSS MARGIN

~4,400
PEOPLE

15+
TECHNICAL & R&D CENTERS

~14,000
CUSTOMERS

For definitions and reconciliations of non-GAAP measures, see pages 7–8 of this 2019 Annual Report

2019 ANNUAL REPORT
ON FORM 10-K

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

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _____ to _____

Commission file number: 001-36272

Element Solutions Inc
(Exact name of Registrant as specified in its charter)

Delaware		**37-1744899**
(State or other jurisdiction of incorporation or organization)		(I.R.S. Employer Identification No.)
500 East Broward Boulevard,	**Suite 1860**	**33394**
Fort Lauderdale, Florida		(Zip Code)
(Address of principal executive offices)		

Registrant's telephone number, including area code: (561) 207-9600

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

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	ESI	New York Stock Exchange

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

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☒

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).Yes ☒ No ☐

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

Large accelerated filer ☒ Accelerated filer ☐ Non-Accelerated filer ☐ Smaller reporting company ☐
Emerging growth company ☐

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

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

The number of shares of common stock outstanding as of February 25, 2020 was 252,440,957. The aggregate market value of the common stock held by non-affiliates as of June 30, 2019 was approximately $2.32 billion, based upon the last reported sales price for such date on the NYSE. All (i) executive officers and directors of the registrant and (ii) all persons who hold 10% or more of the registrant's outstanding common stock have been deemed, solely for the purpose of the foregoing calculation, to be "affiliates" of the registrant.

Documents Incorporated By Reference

Portions of the Company's definitive 2020 Proxy Statement are incorporated by reference into Part III of this 2019 Annual Report.

Element Solutions Inc

ANNUAL REPORT ON FORM 10-K

For the year ended December 31, 2019

Table of Contents

Glossary			Page
	Glossary of Defined Terms		1
	Discontinued Operations, Forward-Looking Statements, Non-GAAP Financial Measures		3
Part I			
	Item 1.	**Business**	1
	Item 1A.	**Risk Factors**	10
	Item 1B.	**Unresolved Staff Comments**	22
	Item 2.	**Properties**	22
	Item 3.	**Legal Proceedings**	22
	Item 4.	**Mine Safety Disclosures**	22
Part II			
	Item 5.	**Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities**	23
	Item 6.	**Selected Financial Data**	25
	Item 7.	**Management's Discussion and Analysis of Financial Condition and Results of Operations**	28
	Item 7A.	**Quantitative and Qualitative Disclosures about Market Risk**	40
	Item 8.	**Financial Statements and Supplementary Data**	41
	Item 9.	**Changes in and Disagreements with Accountants on Accounting and Financial Disclosure**	41
	Item 9A.	**Controls and Procedures**	42
	Item 9B.	**Other Information**	42
Part III			
	Item 10.	**Directors, Executive Officers and Corporate Governance**	43
	Item 11.	**Executive Compensation**	43
	Item 12.	**Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters**	43
	Item 13.	**Certain Relationships and Related Transactions, and Director Independence**	43
	Item 14.	**Principal Accounting Fees and Services**	43
Part IV			
	Item 15.	**Exhibits, Financial Statement Schedules**	44
	Signatures		47

Terms	Definitions
Element Solutions; We; Us; Our; the Company	Element Solutions Inc, a Delaware corporation, and where the context requires, its subsidiaries or operating businesses.
Acquisitions	Alent Acquisition, Arysta Acquisition, Kester Acquisition, MacDermid Acquisition, OMG Acquisition and OMG Malaysia Acquisition, collectively.
Alent	Alent plc, a formerly public limited company registered in England and Wales.
Alent Acquisition	Acquisition of a 100% interest in Alent, completed on December 1, 2015 under the U.K. Companies Act 2006, as amended.
Arysta	Arysta LifeScience Limited, formerly an Irish private limited company.
Arysta Acquisition	Acquisition of a 100% interest in Arysta, completed on February 13, 2015.
Arysta Sale	Sale of 100% of the issued and outstanding shares of common stock of Arysta and its subsidiaries to UPL on January 31, 2019 for an aggregate purchase price of $4.28 billion in cash, after post-closing adjustments.
Arysta Sale Agreement	Stock Purchase Agreement, dated July 20, 2018, as amended by Amendment Number One to Stock Purchase Agreement, dated as of January 25, 2019, related to the Arysta Sale.
ASU	Accounting Standards Update.
Board	Element Solutions' board of directors.
Bribery Act	The United Kingdom Bribery Act 2010.
Credit Agreement	Credit Agreement, dated as of January 31, 2019, as amended on November 26, 2019, among, inter alia, Element Solutions and MacDermid, as borrowers, certain subsidiaries of Element Solutions and the lenders from time to time parties thereto, and Barclays Bank PLC, as administrative agent and collateral agent.
EBITDA	Earnings before interest, taxes, depreciation and amortization.
ESPP	Element Solutions Inc 2014 Employee Stock Purchase Plan.
E.U.	European Union.
Exchange Act	Securities Exchange Act of 1934, as amended.
FASB	Financial Accounting Standard Board.
FCPA	Foreign Corrupt Practices Act of 1977.
February 2015 Notes Offering	Element Solutions' private offering of $1.10 billion aggregate principal amount of 6.50% USD Notes due 2022 and €350 million aggregate principal amount of 6.00% EUR Notes due 2023, completed on February 2, 2015.
Founder Entities	Mariposa Acquisition, LLC and Berggruen Holdings Ltd. and its affiliates, collectively.
GAAP	U.S. Generally Accepted Accounting Principles.
Kester Acquisition	Acquisition of 100% of the outstanding shares and certain assets of the Kester business on December 2, 2019, a global supplier of advanced technology assembly materials used in electronics assembly and semiconductor application, for $63.9 million net of cash, working capital and other closing adjustments from Illinois Tool Works Inc.
MacDermid	MacDermid, Incorporated, a Connecticut corporation.
MacDermid Acquisition	Acquisition on October 31, 2013 of substantially all of the equity of MacDermid Holdings, LLC, which, at the time, owned approximately 97% of MacDermid. Element Solutions acquired the remaining 3% of MacDermid on March 4, 2014, pursuant to the terms of the Exchange Agreement, dated October 25, 2013, between Element Solutions and the fiduciaries of the MacDermid, Incorporated Profit Sharing and Employee Savings Plan.
MacDermid Printing	MacDermid Printing Solutions LLC, now known as MacDermid Graphics Solutions LLC.
NYSE	New York Stock Exchange.
OEM	Original Equipment Manufacturer.
OMG	OM Group, Inc. (NYSE:OMG), a Delaware corporation.
OMG Businesses	OMG's Electronic Chemicals and Photomasks businesses, collectively, other than their Malaysian subsidiary acquired separately.
OMG Acquisition	Element Solutions' acquisition of the OMG Businesses completed on October 28, 2015.
OMG Malaysia	OMG Electronic Chemicals (M) Sdn Bhd, a subsidiary of OMG located in Malaysia, acquired separately by Element Solutions in the OMG Malaysia Acquisition.

Terms	Definitions
OMG Malaysia Acquisition	Element Solutions' acquisition of 100% interest in OMG Malaysia completed on January 31, 2016.
PCAOB	Public Company Accounting Oversight Board.
PDH	Platform Delaware Holdings, Inc., a former subsidiary of Element Solutions.
Prior Senior Notes	Element Solutions' 6.00% EUR Notes due 2023 and 6.50% USD Notes due 2022, collectively.
Prior Senior Notes Indenture	The indenture, dated as of February 2, 2015, governing the Prior Senior Notes.
Retaining Holder	Each Holder whose equity interest of MacDermid Holdings, LLC, held immediately prior to the closing of the MacDermid Acquisition, was converted into PDH Common Stock pursuant to a Retaining Holder Securityholders' Agreement dated October 31, 2013.
RSUs	Restricted stock units issued by Element Solutions from time to time under the 2013 Plan.
SEC	Securities and Exchange Commission.
Securities Act	Securities Act of 1933, as amended.
Series A Preferred Stock	Element Solutions' 2,000,000 shares of Series A convertible preferred stock, which were converted into shares of Element Solutions' common stock on February 25, 2020, on a one-for-one basis, upon request of the Founder Entities.
Series B Convertible Preferred Stock	Element Solutions' 600,000 shares of Series B convertible preferred stock issued to Nalozo, L.P., an affiliate of Nalozo S.à.r.l., a Luxembourg limited liability company and the original seller in the Arysta Acquisition. At December 31, 2016, none of the Series B Convertible Preferred Stock remained outstanding.
SERP	Element Solutions' Supplemental Executive Retirement Plan for executive officers.
TCJA	Tax Cuts and Jobs Act of 2017.
UPL	UPL Corporation Ltd., a wholly-owned subsidiary of UPL Limited.
WACC	Weighted Average Cost of Capital.
2013 Plan	Element Solutions Inc Amended and Restated 2013 Incentive Compensation Plan.
2018 Annual Report	Element Solutions Inc's annual report on Form 10-K for the fiscal year ended December 31, 2018 filed with the SEC on February 28, 2019.
2019 Annual Report	This annual report on Form 10-K for the fiscal year ended December 31, 2019.
2017 Notes Offerings	Element Solutions' private offering of 5.875% USD Notes due 2025, completed on November 24, 2017 and December 8, 2017.
2020 Proxy Statement	Element Solutions' definitive proxy statement for its 2020 annual meeting of stockholders expected to be filed no later than 120 days after the Company's fiscal year end of December 31, 2019.
5.875% USD Notes Indenture	The indenture, dated as of November 24, 2017, governing the 5.875% USD Notes due 2025.
5.875% USD Notes due 2025	Element Solutions' $800 million aggregate principal amount of 5.875% senior notes due 2025, denominated in U.S. dollars, issued in the 2017 Notes Offering.
6.00% EUR Notes due 2023	Element Solutions' €350 million aggregate principal amount of 6.00% senior notes due 2023, denominated in euros, issued in the February 2015 Notes Offering and redeemed on February 1, 2019.
6.50% USD Notes due 2022	Element Solutions' $1.10 billion aggregate principal amount of 6.50% senior notes due 2022, denominated in U.S. dollars, issued in the February 2015 Notes Offering and redeemed on February 1, 2019.

Discontinued Operations

Unless otherwise specified, the results and disclosures presented in this 2019 Annual Report exclude discontinued operations which consist of the former Agricultural Solutions segment of Element Solutions sold on January 31, 2019. Accordingly, Agricultural Solutions' assets, liabilities, operating results and cash flows for all periods presented have been classified as discontinued operations within the Consolidated Financial Statements and can be found in *Note 5, Discontinued Operations*, to the Consolidated Financial Statements included in this 2019 Annual Report.

Forward-Looking Statements

This 2019 Annual Report contains forward-looking statements that can be identified by words such as "expect," "anticipate," "project," "will," "should," "believe," "intend," "plan," "assume," "estimate," "predict," "seek," "continue," "outlook," "may," "might," "can have," "likely," "potential," "target," "hope," "goal" or "priority" and variations of such words and similar expressions. Many of the forward-looking statements include, but are not limited to, statements, beliefs, projections and expectations regarding our business and management strategies; shares repurchases; cost containment and cost savings; the impact of new accounting standards and accounting changes; our dividend policy; the effects of global economic conditions on our business and financial condition; our hedging activities; timing and outcome of environmental and legal matters; goodwill and other intangible assets; price volatility and cost environment; liquidity and capital resources; funding sources; capital expenditures; debt and debt leverage ratio; off-balance sheet arrangements and contractual obligations; general views about future operating results; expected returns to stockholders; risk management programs; future prospects; and other events or developments that we expect or anticipate will occur in the future.

Forward-looking statements provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to any historical or current fact. These statements are not guarantees of future performance and the Company's actual results may differ materially from the results contemplated by these statements. Factors that might cause such differences include, but are not limited to, those discussed in Part I, Item 1A, *Risk Factors,* of this 2019 Annual Report. Any forward-looking statement is based only on information currently available and speaks only as of the date on which it is made. The Company undertakes no obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. Please consult any further disclosures on related subjects in the Company’s SEC filings.

Non-GAAP Financial Measures

This 2019 Annual Report contains non-GAAP financial measures such as Adjusted EBITDA and operating results on a constant currency and organic basis. Non-GAAP financial measures should not be considered in isolation from, as a substitute for, or superior to, performance measures calculated in accordance with GAAP. For definitions of these non-GAAP financial measures and additional information on why they are presented, their respective limitations and reconciliations to the most comparable applicable GAAP measures, see "*Non-GAAP Financial Measures"* in Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations*, and *Note 23*, *Segment Information*, to the Consolidated Financial Statements, all included in this 2019 Annual Report.

Part I

Item 1. Business

Unless the context otherwise indicates or requires, all product names and trade names used in this 2019 Annual Report are the Company's trademarks, although the "®" and "TM" trademark designations may have been omitted. This 2019 Annual Report contains additional trade names of other companies which should not imply a relationship with, or endorsement or sponsorship of us by, these other companies. Unless otherwise specified, all references to currency, monetary values and dollars shall mean U.S. dollars.

Business Overview

Element Solutions, incorporated in Delaware in January 2014, is a leading global specialty chemicals company whose businesses supply a broad range of solutions that enhance the performance of products people use every day. Developed in multi-step technological processes, the innovative solutions of our businesses enable customers' manufacturing processes in several key industries, including electronic circuitry, semiconductor, communications infrastructure, automotive systems, industrial surface finishing, consumer packaging and offshore energy. Substantially all of our businesses' products are consumed by our customers as part of their production process, providing us with reliable and recurring revenue streams as the products are replenished in order to continue production. Our customers use our innovation as a competitive advantage, relying on us to help them navigate through fast-paced, high-growth markets. Our product development and product extensions are expected to continue to drive sales growth in both new and existing markets, while expanding margins, by continuing to offer high customer value propositions.

We generate revenue through the formulation and sale of our businesses' dynamic chemistry solutions by our extensive global network of specially-trained scientists and engineers. We leverage close relationships with our customers and OEMs to execute our growth strategy and identify opportunities for new products. While our chemistries typically represent only a small portion of our customers' costs, they are integral to our customers' manufacturing processes and overall product performance.

We believe the majority of our businesses hold strong positions in high-growth markets they serve. Our strategy is based on a balance of operational excellence and prudent capital allocation. To that end, our teams focus on commercial execution through strong sales, marketing, product development and supply chain efficiency; while our senior leadership balances holding business teams responsible for operational execution with prioritizing and executing on capital allocation opportunities. In the future, we may pursue targeted and opportunistic acquisitions in our existing and adjacent end-markets that strengthen our current businesses, expand and diversify our product offering, and enhance our growth and strategic position.

Acquisitions

Kester Acquisition - On December 2, 2019, we completed the Kester Acquisition for $63.9 million net of cash, working capital and other closing adjustments, from Illinois Tool Works Inc. The Kester business, a global supplier of advanced technology assembly materials used in electronics assembly and semiconductor applications, complements our electronic assembly and semiconductor businesses. Kester is included in our Electronics business segment.

OMG Malaysia Acquisition - On January 31, 2016, we completed the OMG Malaysia Acquisition for $124 million. We acquired OMG Malaysia to further enhance our Electronics business segment in which OMG Malaysia is included.

Alent Acquisition - On December 1, 2015, we completed the Alent Acquisition for $1.74 billion in cash and 18.4 million shares of our common stock issued to Alent shareholders. Legacy Alent was a global supplier of specialty chemicals and engineered materials used primarily in electronics, automotive and industrial applications, and a supplier of high performance, consumable products and services. Alent's business is included in our Electronics business segment.

OMG Acquisition - On October 28, 2015, we completed the OMG Acquisition for a total purchase price of $239 million in cash. The acquired OMG Businesses are included in our Electronics business segment. OMG's Electronic Chemicals business is similar to the legacy MacDermid electronic chemical and surface treatment businesses, as it develops, produces and supplies chemicals for electronic and industrial applications. OMG's Photomasks products are used by customers to produce semiconductors and related products.

Arysta Acquisition - On February 13, 2015, we completed the Arysta Acquisition for $3.50 billion, consisting of $2.86 billion in cash and the issuance of $600 million of Series B Convertible Preferred Stock. The legacy Arysta business was a solutions-oriented business model which focused on product innovation to address grower needs, offering crop protection solutions,

including biosolutions and seed treatment products, to growers worldwide. The legacy Arysta business was included in our historical Agricultural Solutions business segment until the Arysta Sale and the related reclassification of its results into discontinued operations.

Divestitures

Arysta Sale - The Arysta Sale was completed on January 31, 2019 for net cash proceeds of $4.28 billion, after post-closing adjustments. The proceeds of the Arysta Sale were primarily used to pay down our then existing credit facilities under our second amended and restated credit agreement, dated August 6, 2014, as further amended and restated.

Business Segments

Our businesses generate revenue through the formulation and sale of our dynamic chemistry solutions. Our extensive global network of specially-trained scientists and engineers, drawing upon our broad and longstanding intellectual property portfolio and technical expertise, work closely with our customers and OEMs on an ongoing basis to develop proprietary solutions to their manufacturing needs and to ultimately win qualifications and specifications into their supply-chains. We leverage our teams' close relationships to execute our growth strategy by working directly with customers and OEMs to identify opportunities for new product development. Our continuous focus on customer-centric innovation serves as a catalyst to drive specification change and to capitalize on adjacent market opportunities in our industry.

In addition, our employees provide highly technical service and support to our customers and OEMs in conjunction with the sale of products in order to optimize functional performance of the processes used at their manufacturing locations. Our businesses' specialty chemicals and processes are seen as integral to their customers' product performance. We believe that our customers place significant value on the consistency and quality represented by our brands, which help us secure significant market share, customer loyalty and supply chain access.

In 2019, we achieved sales of $1.84 billion, to which our Electronics and Industrial & Specialty segments contributed approximately 59% and 41%, respectively. Neither segment is subject to significant seasonality, and both share a common focus on attractive niche markets, which we believe will grow faster than the diverse end-markets each segment serves. For further financial information about our operating segments and the geographic areas in which we do business, see *Note 23, Segment Information*, to the Consolidated Financial Statements included in this 2019 Annual Report.

Electronics

Our Electronics segment researches, formulates and delivers specialty chemicals and materials for all types of electronics hardware, from complex printed circuit board designs to new interconnection materials. In mobile communications, computers, automobiles and aerospace equipment, Electronics' products are an integral part of the electronics manufacturing process and the functionality of end-products. The segment's "wet chemistries" for metallization, surface treatments and solderable finishes form physical circuitry pathways and its "assembly materials," such as solders, pastes, fluxes and adhesives, join those pathways together.

Our Electronics segment provides specialty chemical solutions through the following businesses:

Assembly Solutions - representing approximately 50% of the segment's 2019 net sales. Of our total net sales for Assembly Solutions, approximately 40% is metal content, which we generally pass-through price fluctuations to our customers. As a global supplier of solder technologies, fluxes, cleaners and other attachment materials for the electronics assembly industry, we develop innovative materials that join electronic circuits in high volume device manufacturing. Our high-performing interconnect materials are used to assemble consumer electronics from circuit boards, discrete electronic components, connectors and integrated circuit substrates. We believe our growth in this business will be driven by the increasing use of electronics in consumer, automotive, telecommunications, memory, medical, aerospace and other markets.

Circuitry Solutions - representing approximately 35% of the segment's 2019 net sales. As a global supplier of chemical formulations to the electronics industry, we design and manufacture proprietary liquid chemical processes ("baths") used by our customers to manufacture printed circuit boards. Our product portfolio is focused on specialized consumable chemical processes, such as surface treatments, circuit formation, primary metallization, electroplate and final finishes. We believe our growth in this business will be driven by demand in internet infrastructure, wireless devices, computers and the increasing use of electronics in automobiles.

Semiconductor Solutions - representing approximately 15% of the segment's 2019 net sales. As a global supplier to the semiconductor industry, we provide advanced copper interconnects, die attachment, wafer bump processes and photomask technologies to our customers for integrated circuit fabrication and semiconductor packaging. We believe our growth in this business will be driven by advanced electronics packaging, memory and the increasing computing complexity in general electronics, automotive and industrial markets.

Products

A selection of Electronics' product offerings is presented below:

Assembly Solutions	
Electronic Assembly Materials	Chemicals and materials used in circuit board and electronic device assembly. Our product offering is primarily focused on solder technologies, including solder alloys, wires, pastes and preforms. The portfolio also includes fluxes, adhesives, encapsulants, cleaners and stencils, all of which facilitate wave solder and surface mount assembly activities. Our *Argomax* line of advanced sinter technology is used in power semiconductor and solid state lighting markets to improve reliability and device performance. Other key brands include *Alpha*, *InnLot*, *AccuFlux*, *Powerbond, TrueHeight and HiTech.*
Circuitry Solutions	
Circuit Board Metallization	Plating products are used to plate holes drilled through printed circuit boards to connect opposite sides of the board and multi-layered printed circuit boards. Products include *MacuSpec*, *M-Copper* and *M-System*.
Circuit Formation Products	Circuit formation products represent an assortment of products for defining circuit patterns and bonding conductors to insulating materials.
Electronic Materials	Specialty products developed for evolving electronic applications including photovoltaics, memory disk and molded interconnect devices manufacturing as well as lead frame and dielectric plating solutions.
Semiconductor Solutions	
Semiconductor Materials & Packaging Applications	Our *Atrox* line of silver-filled die attach adhesives with high thermal and electrical conductive properties is used for semiconductor packaging applications. Our *Viaform* product family of copper damascene chemistry is used in semiconductor plating applications for creating conductors as narrow as 10 nanometers. Our *Microfab* family of plating chemistry is used in wafer level packaging applications, including copper pillar, redistribution layers (RDLs), nickel, tin bump, gold bump and thru-silicon via (TSV) applications.

Industrial & Specialty

Our Industrial & Specialty segment provides customers with Industrial Solutions, which include chemical systems that protect and decorate metal and plastic surfaces; Graphics Solutions, which include consumable chemicals that enable printing image transfer on flexible packaging materials; and Energy Solutions, which include chemistries used in water-based hydraulic control fluids in offshore energy production. Industrial & Specialty's fully consumable products are used in the aerospace, automotive, construction, consumer electronics, consumer packaged goods and oil and gas production end markets.

Our Industrial & Specialty segment provides specialty chemical solutions through the following businesses:

Industrial Solutions - representing approximately 70% of the segment's 2019 net sales. As a global supplier of industrial metal and plastic finishing chemistries, our chemical systems protect and decorate metal and plastic surfaces. Some of our precisely formulated high-performance coatings have functional uses, including improving wear and tear, such as hard chrome plating of shock absorbers for cars and special drills used for oil and gas exploration, while others provide corrosion resistance for appliance parts. Alternatively, our chemistries may have decorative performance, such as the application of gloss finishes for parts used in automotive interiors or fashion finishes used on jewelry surfaces. Our industrial customer base is highly diverse and includes customers in the following end markets: appliances and electronics equipment; automotive parts; industrial parts; plumbing goods; construction equipment and transportation equipment. We believe our growth in this industry will be primarily driven by increased worldwide automobile production with elevated fashion elements and content per vehicle.

Graphics Solutions - representing approximately 20% of the segment's 2019 net sales. As a supplier of consumable materials used to transfer images on to consumer packaging materials, our products are used to improve print quality and printing productivity. We produce and market photopolymers through an extensive line of flexographic plates that are used in the consumer packaging and printing industries. Photopolymers are molecules that change properties upon exposure to light.

Flexography is a printing process that utilizes flexible printing plates made of rubber or other flexible plastics. We believe growth in this business will be driven by consumer demand and market shifts favoring the use of package imaging technologies that, like ours, offer a lower cost of ownership to customers.

Energy Solutions - representing approximately 10% of the segment's 2019 net sales. As a global supplier of specialized fluids to the offshore energy industry, we produce water-based hydraulic control fluids for major oil and gas companies and drilling contractors to be used in offshore deep-water production and drilling applications. We believe our growth in this business will be driven by continued capital expenditures in energy exploration and production.

Products

A selection of Industrial & Specialty's product offerings is presented below:

Industrial Solutions	
Electroless Nickel	Electroless nickel is applied to a variety of metal and plastic surfaces to enhance corrosion resistance, wear resistance, solderability and to repair worn or over-machined surfaces in a variety of applications.
Plating Products	The *CuMac* range of products for applications such as plating on aluminum wheels, plastic substrates and zinc-based die castings, and the *ChromKlad* and *ANKOR* range of hard chromium plating processes are utilized in various industrial finishing applications.
Pre-treatment and Cleaning Solutions	Pre-treatment and cleaning solutions are applied to prepare the surfaces of a wide variety of industrial products for subsequent treatment. This product family includes a complete line of aqueous and semi-aqueous pre-treatment and cleaning products.
Functional Conversion Coatings	Functional conversion coatings are applied to metals to enhance corrosion resistance and paint adhesion in a wide spectrum of industrial applications where heavy-duty usage and exposure to unfavorable environments are anticipated.
Hard-coated Films	Hard-coated films are used for the membrane switch in touch screen applications and the emerging technology of formable circuitry for durable human-machine-interface materials.
Water Treatment	*Fernox* is our water treatment product line used for the filtration, corrosion inhibition, and conditioning of water in residential and commercial boiler systems.
Graphic Solutions	
Solid Sheet Printing Elements	Solid sheet printing elements are digital and analog printing sheets, used in the flexographic printing and platemaking processes. Our extensive line of *Lux* flexographic plates are used in the commercial packaging letterpress newspaper and publication industries.
Liquid Imaging Products	Liquid products are liquid photopolymers used to produce printing plates for transferring images onto commercial packaging. Our key products are *MWH photopolymer*, *MWB 50 photopolymer*, *and M Stamp 40 photopolymer*. We also offer products that are used in the production of liquid photopolymer plates such as substrate, coverfilms and detergents.
Energy Solutions	
Offshore Fluids	Production fluids are used to operate valves for the deep-water oil extraction and transportation process, and drilling fluids are used to operate valves for drilling rigs on the ocean floor. Production and drilling fluids are water-based hydraulic fluids used in subsea control systems.

Competitive Strengths

We believe the following competitive strengths differentiate us from competitors and contribute to the ongoing success of both of our businesses:

- ***Industry Leading Positions.*** We strategically focus on acquiring and maintaining leading positions in niche sectors of high-growth markets by offering innovative products and high value-added services to our customers. We believe our scale and global reach in product development, marketing and formulation provides us with advantages over many competitors, allowing us to maintain strong market share positions and drive profitable growth. Our strong market presence contributes to our ability to attract new customers and successfully enter new end-markets.

- ***Customer Driven Innovation and Partnerships.*** We frequently work alongside our customers and other industry participants to develop new products and identify new market opportunities. We participate in a variety of dynamic end-markets where new unmet needs are always materializing. Our sales and technical service teams provide continuous insights that help ensure our research and development efforts are appropriately focused. Customer requirements can lead to improved or uniquely tailored formulations of existing product offerings or to the development of completely new products to satisfy previously unmet needs. Tailoring products for specific OEMs leads to long-term relationships and significant customer switching costs.
- ***Comprehensive Offering of Critical Products.*** We provide our customers with a comprehensive offering of products that meet many of their specialty chemical needs. In many cases, we offer a full suite of products with complementary capabilities that provide a complete functional solution to the customer. We believe the ability to provide a "end-to-end" product offering is a significant competitive advantage over many of our smaller competitors. Additionally, we believe our businesses' breadth of touchpoints from circuit formation through circuit assembly is unique in the market and allows for a broader dialogue with customers. We also believe that our existing product offerings provide many opportunities for growth in adjacent end-markets.
- ***Stable Cash Flow and Low Capital Requirements.*** Our businesses typically generate high margins and require low capital expenditures, which translate into high cash flow margins and returns on capital. Instead of large investments in physical assets to sustain business or grow, we dedicate our investments into our technological innovation or sales and services areas. Our business involves the formulation of a broad range of specialty chemicals created by blending raw materials and incorporating them into multi-step technological processes. This model allows us to conservatively manage our investments in fixed assets to both maintain and grow our businesses. We believe our existing fixed asset base is well-maintained and, accordingly, requires low capital expenditures.
- ***Performance-Driven Culture, Experienced Management and Board with Proven Track Record.*** We place a premium on maintaining an expert and qualified employee base in order to continue to provide innovative products and specialized technical service to our customers. We believe we have outstanding people who can deliver superior performance under the guidance and oversight of proven, experienced leadership. Our culture is performance-driven and decentralized. We empower our business teams and hold them accountable for their outcomes and business judgment. We measure people on financial results, safety, customer satisfaction, legal compliance, and environmental stewardship. We measure our performance against benchmarks and drive operational excellence through continuous improvement. Our experienced management team is complemented by an experienced Board, which includes individuals with proven track records of successfully acquiring and managing businesses. Our business segments are also led by executives that have extensive experience in their respective fields.

Business Strategies

We are building a best-in-class global specialty chemical solutions provider. Our primary long-term measures of success are the value we create for our customers, the growth opportunities we provide for our people and the growth in the intrinsic value of our shares, which is a byproduct of value to customers, a strong, meritocratic culture and prudent capital allocation. We regularly develop new products and processes and leverage our existing technologies and global footprint to profitably enter new markets. Our efforts are directed by the following key business strategies:

- ***Commercial Excellence.*** We understand that reliably meeting our customers' needs leads to success for all parties. From product development and applications excellence through quality manufacturing and on-time delivery, we demand a customer-focus from all levels of the organization. We believe that we can capitalize on our existing technical capabilities, sophisticated process know-how, and strong industry relationships to enable customer success. A continued focus on service and quality remains a priority across our businesses which serves as a differentiator.
- ***Market Leading Innovation.*** Our customers participate in dynamic markets driven by innovation, which means that we too must place a strong emphasis on innovation. We work right alongside our customers to develop leading edge products based on our significant intellectual property portfolio, experience-driven know-how, and technical expertise. Building on our core competencies in product innovation, applications development, and technical service should help drive organic growth. Innovation helps enable new high-growth markets and technologies and expand upon our existing portfolio with new products for current and adjacent markets.
- ***Enabling Sustainability.*** It is both our social responsibility and commercially compelling to develop sustainable solutions that not only meet but exceed the increasingly stringent environmental standards of our customers and regulators. As part of our innovation and product development process, we actively partner with governments,

industry groups and universities to develop commercially viable, environmentally friendly solutions for our customers use around the world. Enabling our customers to improve their environmental footprint will allow us to do well by doing good.

- ***Decisiveness and Action Orientation.*** A customer-oriented, customer-service driven organization requires decentralized decision making. We encourage our employees to make decisions and empower them to act swiftly to meet the ever-changing local needs of our customers. Clear communication, strong strategic alignment and a culture that rewards good judgement allow us to ensure the right decisions are being made by our trusted global workforce.
- ***Recruitment and Talent Development.*** Our success is a by-product of the efforts and capabilities of our people from our R&D laboratories to our customers' manufacturing floors. Our technical expertise and innovation track records are the result of a specialized, highly-skilled workforce. Our ability to drive profitable growth through technical process know-how, strong customer relationships and industry knowledge relies on our ability to attract, grow and retain a highly-skilled and motivated team at all levels of our organization.
- ***Disciplined and Prudent Capital Allocation.*** Our capital efficient business model translates to stable, substantial free cash flow. Our ability to grow the intrinsic value of our shares relies on deploying that capital prudently. We intend to be opportunistic with the allocation of our free cash flow and may pursue organic investments in priority markets, measured and strategic acquisitions as well as stockholder-friendly capital returns. Our investment decisions will be driven by comparing relative and absolute risk adjusted returns expectations.

Customers

Our businesses have a diverse customer base and sell products either directly to end-user customers or through intermediaries. We also have collaborative relationships with many OEMs and industry partners, who specify our chemistries and technologies for use in their products or grant us development rights of their intellectual property.

We believe that we are able to attract new customers successfully through our international reach, coupled with our local knowledge and on-the-ground presence, which enables us to meet the needs of our customers. We operate a relatively large number of small and medium-sized facilities located close to our customers throughout the world's major economic regions. This close proximity to our global customers' local sites enables access to all key growth markets and along with our efficient formulation process, allows for "just in time" supply chain management.

We believe that our business is not materially dependent upon any single customer, with no customer representing 10% or more of our consolidated net sales in 2019, 2018 or 2017.

Due to the relatively short cycle times in our business, our order backlog levels are minimal.

Selling & Marketing

We employ a customer-centric and highly-technical sales and marketing force worldwide. These professionals have technical expertise, local market knowledge and intimate customer relationships. Our local sales and marketing teams closely monitor their market trends and maintain active dialogue with our customers to assess and understand their constantly evolving challenges. We use this information from our local sales teams to anticipate future needs and respond rapidly to changing market conditions or technologies in order to deliver customized, value-added solutions to our customers, both locally and globally. This feedback loop is an important source of new product ideas and helps guide our capital allocation decisions and research and development initiatives.

Our methods for selling and marketing our proprietary products vary slightly by geographic region. In total, we generate business through the efforts of regional sales, technical and service personnel, as well as distributors. In addition to regional sales and service staff, we maintain a group of global personnel focused on coordinating sales projects and obtaining design specifications for complex projects involving multiple customers within the manufacturing supply chain.

Employees

In order to deliver innovative products and highly technical service to our customers, we place a premium on maintaining a highly specialized and high-quality employee base. At December 31, 2019, we employed approximately 4,400 full-time employees, including approximately 200 employees from the Kester Acquisition. We also employed 1,800 research and development chemists, experienced technical service and technical sales personnel. Our full-time employees are based throughout the world, with approximately 80% employed outside of the U.S.

In certain countries where we operate, our employees are also members of unions or are represented by works councils as required by law. We are required to consult and seek the consent or advice of these unions and/or works councils for any changes to our activities or employee benefits.

Our management believes that our relationships with our employees and collective bargaining unions are satisfactory.

Research and Development

Continued investment in research and development ensures that we remain ahead of emerging trends and continue to strengthen our strong positions in our market niches. Our research and development activities are also focused on developing products and improving formulations and processes that will drive growth or otherwise add value to both our core business operations and customers. We accelerate market introductions and increase the impact of our local product offerings through collaboration with partners in the academic and commercial sectors (customers and value-chain partners) and by working with customers and OEMs on tailored application development around the world through our technical service teams. We plan to continue to make meaningful investments in a broad range of research and development efforts.

Our commitment to technological innovation and our extensive intellectual property portfolio enables us to develop differentiated products at the forefront of technological advances. Research resulting in new, proprietary formulations is performed principally in Germany, Great Britain, India, Japan, and the United States. During 2019, our research and development expenses totaled $42.2 million. Substantially all research and development activity was performed internally.

Competitive Environment

Our markets, which are undergoing a consolidation phase, are competitive and subject to rapid changes in technology. Our businesses compete in markets for specialty chemicals for electronic applications, general metal and plastic finishing, offshore oil and gas exploration and production, and printing.

Our businesses compete primarily on the basis of quality, technology, performance, reliability, brand, reputation, range of products and services, and service and support. We maintain extensive support, technical and testing services for our customers and are continuously developing new products. Further consolidation within our industry or other changes in the competitive environment could result in larger competitors that compete with us across several business areas. In addition, some of our competitors may have greater financial, technical and marketing resources than we do and may be able to devote greater resources to promoting and selling certain products. We believe, however, that our ability to manufacture, sell, service and develop new products and applications, enable us to compete successfully. Some large competitors operate globally, as we do, but most operate only locally or regionally. We also face competition from many smaller companies that specialize in particular segments of the markets in which we compete.

The specific competitive environment of each of our segments is described below:

Electronics

Our Electronics segment provides a broad line of proprietary chemical compounds and supporting services, and broadly competes within the specialty chemicals industry. Although competition varies by end-market and geography, our most significant competitors are Atotech Inc., DuPont de Nemours, Inc., Senju Metal Industry Co. and Uyemura International.

Industrial & Specialty

Our Industrial & Specialty segment provides a broad line of proprietary chemical compounds and supporting services, and broadly competes within the specialty chemicals industry. Although competition varies by end-market and geography, our most significant competitors are Atotech Inc., DuPont de Nemours, Inc., BP p.l.c. and Flint Group.

Raw Materials and Sourcing of Products

Our businesses involve the formulation of a broad range of specialty chemicals which we create by blending raw materials and incorporating them into multi-step technological processes. Our operations depend upon obtaining adequate supplies of raw materials on a timely basis. We typically purchase our major raw materials on an as-needed basis from outside sources. The raw materials that are of greatest importance to our global operations are, in most cases, obtainable from multiple conformant sources worldwide.

Patents, Trademarks and Proprietary Products

Our intellectual property and other proprietary rights are important to our business and are protected by a combination of patents, trade secrets, trademarks and other non-patent strategies. We seek intellectual property and other proprietary rights in major markets and other commercially-relevant jurisdictions worldwide. We implement confidentiality procedures and contractual exclusivity and seek other rights necessary to protect our intellectual property, proprietary formulations, processes and other product-related rights. We rely on confidentiality agreements and patent, trade secret, trademark and copyright law as well as judicial enforcement of all of the foregoing to protect our technologies, processes, product composition, formulations and other intellectual property rights. We also enter into invention or patent assignment agreements, when applicable, with our employees, consultants, contractors and other third-parties who may be engaged in discovery or development of intellectual property and other proprietary rights. Finally, we seek to include provisions in our material transfer agreements, license and development agreements and other agreements that provide for the transfer of intellectual property rights back to us to the greatest extent possible under the circumstances of any specific transaction and development project.

At December 31, 2019, we owned, had applications pending, or licensed the rights to approximately 2,500 domestic and foreign patents, which have remaining lives of varying duration. Although certain of these patents are important to our business, no specific group or groups of intellectual property rights are material. However, we have many proprietary products which are not covered by patents. Further, we hold a number of domestic and foreign trade names and trademark registrations which we consider to be of value in identifying our products.

Environmental Regulations

As a manufacturer and distributor of specialty chemicals throughout the world, we are subject to extensive U.S. and foreign laws and regulations relating to environmental protection and worker health and safety, including those governing discharges of pollutants into the environment, the management, handling, generation, emission, release, discharge, treatment, storage and disposal of hazardous substances and wastes, the cleanup of contaminated properties and occupational safety and health matters. We have and may in the future incur significant costs, including cleanup costs, fines and sanctions and third-party claims for property or natural resource damage or personal injuries as a result of past or future violations of, or liabilities under, such laws and regulations. We believe that we are in material compliance with such laws and regulations, and at December 31, 2019, we believe we had appropriate liabilities recorded for our various environmental matters. Further, the cost of maintaining compliance has not, and we believe in the future, will not, have a material adverse effect on our business, financial condition or results of operations. However, due to the nature of our operations and the frequently changing nature of environmental compliance standards and technology, we cannot predict with any certainty that future material capital or operating expenditures will not be required in order to comply with applicable environmental laws and regulations.

In recent years, there has been a significant increase in the stringency of environmental regulation and enforcement of environmental standards, and the costs of compliance have risen significantly. We expect that the trend of increased regulation will continue in the future. In response to this increased government attention to environmental matters worldwide, we continue to develop proprietary products designed to reduce the discharge of pollutant materials into the environment and eliminate the use of certain targeted raw materials while enhancing the efficiency of customer chemical processes.

Available Information

Our internet website address is *www.elementsolutionsinc.com*. We make available free of charge, through our website, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, all amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act and proxy statements for our annual meeting of stockholders, as soon as reasonably practicable after each such material is electronically filed with or furnished to the SEC. The SEC also makes available at *www.sec.gov* reports, proxy and information statements and other information filed by issuers with the SEC, such as Element Solutions.

Copies of our Board of Directors Governance Principles and Code of Conduct; Business Conduct and Ethics Policy; Code of Ethics for Senior Financial Officers; and the charters of the Audit Committee, Compensation Committee and Nominating and Policies Committee of our Board of Directors are posted in the "Investors - Corporate Governance" section of our website.

The information contained on our website is not a part of or incorporated by reference into this 2019 Annual Report.

In addition to the information included in this Part I, Item 1, *Business*, see Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations,* and Part II, Item 8, *Financial Statements and Supplementary Data*, as well as Note 1, *Background and Basis of Presentation,* and Note 23, *Segment Information,* to the Consolidated Financial Statements, all included in this 2019 Annual Report*,* for financial and other information relating to our operating segments and the geographic areas in which we do business.

Corporate Information

Our principal executive offices are located at 500 East Broward Boulevard, Suite 1860, Fort Lauderdale, Florida 33394 and our telephone number is (561) 207-9600.

Item 1A. Risk Factors

The ownership of our securities involves a number of risks and uncertainties. Potential investors should carefully consider the risks and uncertainties described below and the other information in this 2019 Annual Report before deciding whether to invest in our Company. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The risks described below are not the only ones facing us or our operating businesses. Additional risks that are currently unknown to us or that we currently consider to be immaterial may also impair our business or adversely affect our financial condition or results of operations.

Risks Related to our Business

Operations, Markets and Competition

We may be unable to compete successfully in the competitive markets in which we operate and, as a result, we may experience pricing pressure, fewer customer orders, reduced margins and the loss of market share.

We may be unable to compete successfully in the competitive markets in which we operate. In these markets, we encounter competition from numerous and varied competitors in all areas of our business. Some of our competitors have longer operating histories, greater resources, greater brand recognition, and a larger base of customers than we do. As a result, we may lose business if we are unable to devote greater resources to the research and development, manufacturing, formulation, promotion, sale or support of our products, withstand adverse changes in economic conditions or prices of raw materials, and/or maintain competitive pricing. In addition, our competitors could enter into exclusive arrangements with our existing or potential customers or suppliers which could limit our ability to acquire necessary raw materials or to generate sales and/or significantly increase costs.

In order to compete successfully, we must develop new products and services that offer distinct value to our customers as the markets in which we operate are driven by consumer preferences that are rapidly changing, as well as frequent new product introductions and improvements. We seek to provide tailored products for our customers' often unique problems, which require an ongoing level of innovation. Our inability to anticipate customers' changing needs or adapt to emerging technological and business trends accurately, control research and development costs or execute our innovation strategy could adversely affect our ability to sustain our market positions and/or penetrate new markets. Furthermore, some customers may perceive our environmental, social and governance profile to be less robust than that of our competitors, which could influence the selection of their supplier and lead to the loss of market share to our competitors.

Consolidation of our competitors could also place us at a competitive disadvantage and reduce our profitability. We operate in industries which are fragmented on a global scale, but in which there has been a trend toward consolidation in recent years. Consolidations of our competitors may jeopardize the strength of our positions in one or more of our markets which could adversely affect our business, financial condition or results of operations, as well as our growth potential.

If we don't successfully execute our go-to-market strategy, our business and financial performance may suffer.

Our go-to-market strategy is focused on leveraging our existing portfolio of products and services as well as introducing new products and services to meet the demands of a continually changing technological landscape. To successfully execute this strategy, we must emphasize the aspects of our core business where demand remains strong, identify and capitalize on organic growth, and innovate and develop new products and services that will enable us to expand beyond our existing technology categories. Any failure to successfully execute this strategy, including any failure to invest sufficiently in strategic growth areas, could adversely affect our business, financial condition or results of operations.

The process of developing new high-technology products and services and enhancing existing products and services is complex, costly and uncertain. After we develop a product, we must be able to manufacture appropriate volumes quickly while also managing costs and preserving margins. To accomplish this, we must accurately forecast volumes, mixes of products and configurations that meet customer requirements, and we may not succeed at doing so. Any delay in the development, production or marketing of a new product, service or solution could result in us not being among the first to market, which could further harm our competitive position.

Industry and consumer trends may cause significant fluctuations in our results of operations and have a material adverse effect on our financial condition.

The specialty chemical industry is subject to constant and rapid technological change, product obsolescence, price erosion, evolving standards, finite product lifecycles, raw material price fluctuations, and changes in product supply and demand. For example, the mobile device market, particularly smartphones and tablets, is characterized by rapidly changing market conditions, frequent product introductions and intense competition based on features and price which could impact our sale volumes and margins. In the automotive industry, demand for our products and services may be affected by technological advances, changing automotive OEM specifications and other factors that impact production levels of our customers that we cannot control, such as interest rates, fuel prices, shifts in vehicle mix (including shifts toward alternative energy vehicles), consumer confidence, regulatory and legislative oversight requirements and trade agreements. In addition, technological changes, in our customers' products or processes may make our specialty chemicals unnecessary or obsolete. Customers also have found, and may continue to find, alternative materials or processes which no longer require our products. Finally, the specialty chemical industry is currently being affected by globalization and a shift in customers' businesses. All these factors, consumer trends and industry characteristics may impact the demand for our products which may cause significant fluctuations in our results of operations and adversely affect our financial condition.

The failure to attract and retain key personnel, including our executive officers, or effectively manage succession, could have an adverse impact on our business, financial condition or results of operations.

Our business involves complex operations, and therefore the Company's success depends to a significant degree on the skills, experience and efforts of its executive management and other key personnel and their ability to provide the Company with uninterrupted leadership and direction. In addition, because of the specialized and technical nature of our business, our future performance is dependent on our ability to attract, develop and retain skilled employees, including our specialized research and development and sales and service personnel, in order to maintain our efficient production processes, drive innovation in our product offerings and maintain our deep customer relationships. The failure to attract and retain key personnel, or effectively manage succession, could have an adverse material impact on our business, financial condition or results of operations.

In addition, we are highly dependent on the experience and track records of Martin E. Franklin, the other Board members and our executive leadership team. If one or more of our executive officers or Board members were to cease to be employed by us or to serve as directors, or if we were unable to replace them in a timely manner, our business, financial condition, results of operations and/or stock price could be adversely affected.

Fluctuations in the supply and prices of raw materials may negatively impact our business, financial condition or results of operations.

The unavailability or increased prices of raw materials could have a material adverse impact on our business, financial condition or results of operations. We use a variety of specialty and commodity chemicals in our formulation processes, and such formulation operations depend upon obtaining adequate supplies of raw materials on a timely basis. We typically purchase our major raw materials on a contract or as needed basis from outside sources. The availability and prices of raw materials may be subject to curtailment or change due to, among other things, the financial stability of our suppliers, new laws or regulations, protectionist nationalistic trade policies and practices, changes in exchange rates and worldwide price levels. In some cases, we are limited in our ability to purchase certain raw materials from other suppliers by our supply agreements which contain certain minimum purchase requirements.

In addition, the requirement of the Dodd-Frank Wall Street Reform and Consumer Protection Act, relating to the annual disclosure of a company's use of conflict minerals (tin, tantalum, tungsten, or gold) mined from covered countries (Democratic Republic of the Congo and adjoining countries) in its products, could affect the sourcing, pricing, and availability of these conflict minerals. If only a limited pool of our suppliers can demonstrate that they do not source any conflict minerals from the covered countries or as permitted under the conflict minerals rules, we may not be able to obtain conformant conflict minerals in sufficient quantities or at competitive prices.

Further, commodities and energy prices are subject to volatility caused by market fluctuations, supply and demand, currency fluctuations, production and transportation disruptions, and other world events. As we source many of our raw materials globally to help ensure quality control, if the cost of energy, shipping or transportation increases and we are unable to pass along those costs to our customers, our profit margins and working capital would be adversely impacted. Also, increasing our prices to our customers could result in long-term sales declines or loss of market share if our customers find alternative suppliers or choose to reformulate their consumer products to use fewer ingredients which could have an adverse long-term impact on our business, financial condition or results of operations.

Our reliance on certain key customers, contract manufacturers and suppliers could adversely affect our overall sales and profitability.

Although we believe our business is not materially dependent upon any single customer, we rely on certain key customers, the loss of which may impair our results of operations for the affected earnings periods. In addition, there is limited available manufacturing capacity that meets our quality standards and regulatory requirements. If we are unable to arrange for sufficient production capacity among our contract manufacturers or suppliers, or if our contract manufacturers or suppliers encounter production, quality, financial or other difficulties (including labor or geopolitical disturbances), we may be unable to meet our customers' demands. Finally, we rely on independent distributors to distribute our products and to assist us with the marketing and sale of certain of our products. There can be no assurance that our distributors will focus adequate resources on selling our products to end users, or will be successful in selling our products, which could materially adversely affect our business and results of operations.

We may not realize the anticipated benefits of acquisitions or divestitures which may adversely affect our existing businesses, reputation and financial condition.

We have in the past completed several acquisitions and dispositions and may in the future pursue additional opportunistic strategic transactions. Our ability to benefit from acquisitions or divestitures depends on many factors, including our ability to negotiate favorable transaction terms, close such transactions in a timely and cost-effective manner and successfully integrate any businesses we acquire.

With respect to acquisitions, we may be exposed to successor liability relating to actions taken before the acquisition. The due diligence we conduct in connection with an acquisition, the controls and policies we implement and any contractual guarantees or indemnities that we receive from the sellers of acquired companies or assets may not be sufficient to protect us from, or compensate us for, actual liabilities. Acquisitions also involve other risks, such as differing levels of management and internal control effectiveness, systems integration risks, the risk of impairment charges relating to recorded goodwill and intangible assets, the risk of significant accounting charges and expenses resulting from the completion and integration of a sizable acquisition, the need to fund increased capital expenditures and working capital requirements, our ability to retain and motivate employees and compliance and reputational risks.

In addition to unanticipated delays, costs and other issues, divestitures may expose us to liabilities or claims for indemnification for retained liabilities or indemnification obligations associated with the assets or businesses that we sell. The magnitude of any such retained liability or indemnification obligation may be difficult to quantify at the time of the transaction, including certain liabilities retained in connection with the Arysta Sale and described under Note 5. *Discontinued Operations,* to the Consolidated Financial Statements included in this 2019 Annual Report. We cannot predict the ultimate resolution of these matters, and there can be no assurance that any such resolution, which may take several years, will not adversely impact our financial position or results of operations.

Intellectual Property and Information Security

If we are unable to protect our intellectual property rights, our business, financial condition or results of operations could be adversely affected.

Protection of our proprietary processes, methods, formulations and other technology is important to our business. We generally rely on patent, trade secret, trademark and copyright laws of the U.S. and certain other countries in which our products are produced or sold, as well as nondisclosure and confidentiality agreements, to protect our intellectual property rights. The laws of other countries may not protect our intellectual property rights to the same extent as the laws of the U.S. Failure to protect our existing intellectual property rights, domestically or internationally, may result in the loss of valuable technologies and our competitors offering similar products, potentially resulting in the loss of one or more competitive advances and decreased sales and/or market shares. Additionally, we rely in some cases upon unpatented proprietary manufacturing expertise, continuing technological innovation and other trade secrets to develop and maintain our competitive position. While we generally enter into confidentiality agreements with our employees and third-parties to protect our intellectual property, our confidentiality agreements could be breached and may not provide meaningful protection for or adequate remedies to protect our trade secrets or proprietary manufacturing expertise in the event of unauthorized use or disclosure of information.

Further, protecting against the unauthorized use of our products, technology and other proprietary rights is difficult, time-consuming and expensive, and we cannot be certain that the steps that we are taking will prevent or minimize the risks of such unauthorized use. Litigation may be necessary to enforce our intellectual property rights or to determine the validity and scope

of the proprietary rights of others. Litigation of this type could also result in substantial costs and diversion of resources and could significantly harm our results of operations and reputation.

Additionally, we could face patent infringement claims from our competitors or others alleging that our processes or products infringe on their proprietary technologies. If we are found to be infringing on the proprietary technology of others, we may be liable for material damages and we may be required to change our processes, redesign our products partially or completely, pay to use the technology of others, stop using certain technologies or stop producing the infringing product entirely. Regardless of the merit of these claims, they can be time-consuming, divert the time and attention of our management and technical personnel, and result in costly litigation. Any settlement or adverse judgment resulting from such litigation could also prevent us from offering certain of our products and/or require us to obtain a license to continue to use the intellectual property rights that are the subject of the claim, or otherwise restrict or prohibit our use of such intellectual property rights. Any required licensing fees may not be available to us on acceptable terms, if at all.

Finally, our exposure to risks associated with the use of intellectual property may increase as a result of acquisitions, as we would have a lower level of visibility into the development process with respect to such technology and the steps taken to safeguard against the risks of infringing the rights of third parties.

If we experience a significant disruption in our information technology systems, including security breaches, or if we fail to implement new systems and software successfully, our business operations and financial condition could be adversely affected.

We depend on information technology systems throughout the Company to, among other functions, control our manufacturing processes, process orders and bill, collect and make payments, interact with customers and suppliers, manage inventory and otherwise conduct business. We also depend on these systems to respond to customer inquiries, contribute to our overall internal control processes, maintain records of our property, plant and equipment and record and pay amounts due to vendors and other creditors. The failure of our information technology systems to perform as we anticipate could disrupt our business and could result in transaction errors, processing inefficiencies, and the loss of sales and customers. As we upgrade or change systems, we may also experience interruptions in service, loss of data or reduced functionality and other unforeseen material issues which could adversely impact our ability to provide quotes, take customer orders and otherwise run our business in a timely manner. In addition, if our new systems fail to provide accurate and increased visibility into pricing and cost structures, it may be difficult to improve or maximize our profit margins. As a result, our results of operations could be adversely affected.

In addition, cyber-attacks or security breaches could compromise confidential, business critical information, cause a disruption in our operations or harm our reputation. Our information technology systems are subject to potential disruptions, including significant network or power outages, cyberattacks, computer viruses, other malicious codes, and/or unauthorized access attempts, any of which, if successful, could result in data leaks or otherwise compromise our confidential or proprietary information and disrupt our operations. Despite our efforts to protect sensitive information and comply with and implement data security measures, there can be no assurance that any controls and procedures that we have in place will be sufficient to protect us. Further, as cyber threats are continually evolving, our controls and procedures may become inadequate and we may be required to devote additional resources to modify or enhance our systems in the future. We may also be required to expend resources to remediate cyber-related incidents or to enhance and strengthen our cyber security. Any such disruptions to our information technology systems, breaches or compromises of data, and/or misappropriation of information could result in violation of privacy and other laws, litigation, fines, negative publicity, lost sales or business delays, any of which could have a material adverse effect on our business, financial condition or results of operations.

Changes in data privacy and data protection laws and regulations, or any failure to comply with such laws and regulations, could adversely impact our business.

Our global business is subject to a wide variety of domestic and foreign laws and regulations designed to protect the privacy of clients, customers, employees and other third parties. The interpretation and application of such privacy laws and regulations, including but not limited to the General Data Protection Regulation (GDPR) in the E.U. and the California Consumer Protection Act (CCPA) in the U.S., which became effective on January 1, 2020, is uncertain and evolving and it is possible that these laws may be interpreted and applied in a manner that is inconsistent with our data practices. Complying with these various laws and regulations is difficult and could require us to incur substantial costs or change our business practices in a manner adverse to our business.

Further, although we have implemented internal controls and procedures designed to ensure compliance with the GDPR, the CCPA and other privacy-related laws, rules and regulations, there can be no assurance that our controls and procedures enable us to be fully compliant. Any failure, or perceived failure, by us to comply with the GDPR, the CCPA or any other applicable

regulatory requirements or orders, including but not limited to privacy, data protection, information security, or consumer protection-related privacy laws and regulations, in one or more jurisdictions within the E.U., the U.S. or elsewhere, could result in proceedings or actions against us by governmental entities or individuals; subject us to significant fines, penalties, and/or judgments; require us to change our business practices; limit access to our products and services in certain countries; or otherwise adversely affect our business, as we would be at risk to lose both customers and sales, and incur substantial costs.

Finally, as data security events and concerns about privacy abuses by other companies are changing consumer and social expectations for enhanced privacy and data protection, even the perception of noncompliance, whether or not valid, may damage our reputation.

Global Operations and Regulations

Our substantial international operations subject us to risks of doing business in foreign countries which could affect our business, financial condition or results of operations.

Our products are manufactured and formulated, distributed or sold globally, and approximately 76% of our net sales were generated from non-U.S. operations in 2019. The risks inherent in international trade may reduce our international sales and harm our business, including:

- fluctuations in currency values and foreign currency exchange rates;
- changes in tariff regulations;
- political instability, war, terrorism and other political risks;
- additional withholding taxes or other taxes on foreign income;
- foreign exchange controls or other currency restrictions and limitation on the movement of funds, potentially leading to the inability to readily repatriate earnings from foreign operations effectively;
- establishing and maintaining relationships with local distributors and OEMs;
- the effects of tariff increases and retaliations, restrictive regulations and potential boycotts;
- instability in certain countries and negative impact on the global economy;
- import and export control and licensing requirements;
- public health crisis, including the occurrence of a contagious disease or illness, such as the coronavirus whose impact on our business and operations is at this time uncertain and which, if it persists for an extended period of time, could disrupt our global supply chain and result in significant expenses and delays outside of our control;
- business cultures accepting of various levels of corruption;
- compliance with a variety of U.S. laws, including the FCPA and the Bribery Act, the anti-bribery laws of other countries and rules regarding conflict minerals by us, our employees, suppliers or distributors;
- compliance with a variety of foreign laws and regulations, including unexpected changes in taxation and regulatory requirements;
- greater difficulty in safeguarding intellectual property than in the U.S.;
- difficulty in staffing and managing geographically diverse operations; and
- challenges in maintaining an effective internal control environment, including language and cultural differences, varying levels of GAAP expertise and internal control over financial reporting.

Any of these risks could impact our ability to manufacture, source, sell or export our products or repatriate profits. We could also experience a loss of sales and profitability from our international operations, and/or a substantial impairment or loss of assets, any of which could have a material adverse impact on our business, financial condition or results of operations.

Additionally, changes in U.S. policy regarding international trade, including import and export regulation and international trade agreements, could negatively impact our business. The U.S. has imposed tariffs on certain goods imported from China and certain other countries, which has resulted in retaliatory tariffs. Despite the "Phase 1" trade agreement signed on January 15, 2020 between the U.S. and China, it remains unclear what the U.S. and China will or will not do with respect to tariffs or other trade agreements and policies. Additional tariffs that may be imposed by the U.S. on a broader range of imports from China or other countries, or further retaliatory trade measures taken by China or other countries in response, could result in an increase in supply chain costs that we may not be able to offset or that otherwise adversely impacts our results of operations.

Similarly, the U.K.'s exit from the E.U., commonly referred to as "Brexit," has created uncertainties affecting business operations in the U.K. and the E.U., and possibly other countries, including with respect to compliance with the regulatory regimes regarding the labeling and registration of the products we sell in these markets. The U.K. formally left the E.U. on January 31, 2020, starting an 11-month transition period. While we have taken steps to mitigate any disruption to our operations by Brexit, we could face increased regulatory costs, volatility in exchange rates, market instability and other risks, depending on the final terms of the U.K.'s trade deal with the E.U., if any.

Our net sales and gross profit have varied depending on our product, customer and geographic mix for any given period which makes it difficult to forecast future operating results.

Our net sales and gross profit vary among our products, customers and markets, and therefore may be different in future periods from historic or current periods. Overall gross profit margins in any given period are dependent in large part on the product, customer and geographic mix reflected in that period's net sales. Market trends, competitive pressures, commoditization of products, increased component or shipping costs, regulatory conditions and other factors may also result in reductions in revenue or pressure on the gross profit margins in a given period. The varying nature of our product, customer and geographic mix between periods has materially impacted our net sales and gross profit between periods during certain recessionary times and may lead to difficulties in measuring the potential impact of market, regulatory and other factors on our business. As a result, we may be challenged in our ability to forecast our future operating results.

Changes in tax laws and regulations could adversely affect our financial condition, results of operations and liquidity.

We are subject to U.S. federal and state, and other countries' and jurisdictions' income, payroll, property, sales and use, and other types of taxes. Changes in tax rates, enactment of new tax laws, revisions of tax regulations, and claims or litigation with taxing authorities may require significant judgment in determining the appropriate provision and related accruals for these taxes; and as a result, such changes could result in substantially higher taxes and, therefore, could have a significant adverse effect on our financial condition, results of operations and liquidity.

Currently, a significant amount of our net sales are generated from customers located outside of the U.S., and a large portion of our assets and employees are located outside of the U.S. The U.S., the E.U. and member states along with numerous other countries are currently engaged in establishing fundamental changes to tax laws affecting the taxation of multinational corporations. For example, on December 22, 2017, the U.S. government enacted the TCJA which made significant changes to certain U.S. tax laws relevant to us. While interpretation of some of the provisions of the TCJA continues to be subject to uncertainty, and regulatory guidance on certain aspects of the TCJA has not yet been issued, to date the TCJA has had an adverse effect on the U.S. federal income taxation of our operations, including significantly limiting interest expense deductions and imposing new U.S. taxes on certain earnings of non-U.S. entities on a current basis. These and other changes may have an adverse impact on our financial results and on our cash flows in the future. See Note 11, *Income Taxes*, to the Consolidated Financial Statements included in this 2019 Annual Report for additional information on the TCJA and its consequences on our business, financial condition or results of operations.

In addition, we are subject to the continual examination of our income tax returns by the U.S. Internal Revenue Service and foreign tax authorities in the countries and jurisdictions in which we operate and we may be subject to assessments or audits in the future. Although we believe our tax estimates are reasonable, the final determination of tax audits and any related litigation could be materially different from that which is reflected in our historical financial statements. An audit or litigation can result in significant additional income taxes payable in the jurisdictions in which we operate which could have an adverse impact on our financial condition and results of operations.

Chemical manufacturing is inherently hazardous and may result in accidents, which may disrupt our operations or expose us to significant losses or liabilities.

The hazards associated with chemical manufacturing and the related storage and transportation of raw materials, products and wastes are inherent in our operations as our research and development, manufacturing, formulating and packaging activities involve the use of hazardous materials and the generation of hazardous waste. We cannot eliminate the risk of accidental contamination, discharge or injury resulting from those materials. Also, our suppliers or contract manufacturers may use and/or generate hazardous materials in connection with producing our products. We may be required to indemnify our suppliers, contract manufacturers or waste disposal contractors against damages and other liabilities arising out of the production, handling or storage of our products or raw materials or the disposal of related wastes. Potential risks include explosions and fires, chemical spills and other discharges or releases of toxic or hazardous substances or gases, and pipeline and storage tank leaks and ruptures. Those hazards may result in personal injury and loss of life, damage to property and contamination of the environment, which may result in a suspension of operations and the imposition of civil or criminal fines, penalties and other

sanctions, cleanup costs, and claims by governmental entities or third-parties. We are dependent on the continued operation of our production facilities (including third-party manufacturing on a tolling basis), and the loss or shutdown of operations over an extended period could have a material adverse effect on our financial condition or results of operations.

Our operations currently use, and have historically used, hazardous materials and generate, and have historically generated, quantities of hazardous waste. As a result, we are subject to regulatory oversight and investigation, remediation, and monitoring obligations at our current and former Superfund sites, as well as third-party disposal sites, under federal laws and their state and local analogues, including the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, the Clean Air Act, and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as well as analogous foreign laws. We are also subject to ongoing obligations at active sites in the U.S. and are conducting closure activities pursuant to the RCRA at several of our sites in the U.S. The costs and liabilities associated with these issues may be substantial and, to the extent not covered by insurance, may materially impact the financial health of the Company.

Our products are subject to numerous, complex government regulations and compliance with these regulations could require us to incur additional costs or to reformulate or discontinue certain of our products.

Our products are subject to numerous, complex federal, state, local and foreign customs regulations, imports and international trade laws, export control, antitrust laws, environmental and chemicals manufacturing, global climate change, health and safety requirements and zoning and occupancy laws that regulate manufacturers generally or govern the importation, promotion and sale of our products, the operation of factories and warehouse facilities and our relationship with our customers, suppliers, employees and competitors.

Our products and manufacturing processes are also subject to numerous regulations and ongoing reviews by certain governmental authorities. These regulations include, for example, the European Union REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulation, the REACH regulation's Substances of Very High Concern (SVHC) program, Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act relating to the use in our products of certain "conflict minerals" that are mined from the Democratic Republic of Congo and adjoining countries, and similar laws in other jurisdictions. These regulations may require us to re-design our products or supply chain to ensure compliance with the applicable standards, for example by requiring the use of different types or sources of materials, which could have an adverse impact on the efficiency of our manufacturing process, the performance of our products, add greater testing lead-times for product introductions or other similar effects, which could materially alter our marketplace position and reputation or otherwise have a material adverse effect on our financial condition and results of operations.

In addition, we have incurred, are incurring and will incur in the future, costs and capital expenditures in complying with environmental, health and safety laws and regulations. For example, we have several product lines that rely on lead-based solder and many others that historically did so. Legal claims have been brought alleging harmful exposures or contamination as a result of lead-based solder, and it is possible that we may face additional claims in the future. We are also currently involved in various environmental investigations due to historic operations. Liability under some environmental laws relating to contaminated sites can be joint and several and imposed retroactively, regardless of fault or the legality of the activities that gave rise to the contamination. Some of our formulating and manufacturing facilities have an extended history of chemical formulating and manufacturing operations or other industrial activities, and contaminants have been detected at some of our sites and offsite disposal locations. Ultimate environmental costs and liabilities are difficult to predict and may significantly vary from current estimates. To the extent available, we maintain what we believe to be adequate insurance coverage. However, there can be assurance that we won't incur losses beyond the limits or outside the terms of such coverage. In addition, the discovery of additional contaminants, the inability or failure of other liable parties to satisfy their obligations, the imposition of additional cleanup obligations, or the commencement of related third-party claims could result in additional material costs and negatively impact our financial condition or results of operations.

Although it is our policy to comply with such laws and regulations, it is possible that we have not been, or may not be at all times, in material compliance with all such requirements. Additionally, these requirements and their enforcement may become more stringent in the future and the ultimate cost of compliance could be material. In particular, changes in environmental and climate laws or regulations could lead to new or additional investment in production designs and could increase environmental compliance expenditures, for us and our suppliers. Changes in climate change concerns, or in the regulation of such concerns, including greenhouse gas emissions, could also subject us to additional costs and restrictions, including increased energy and raw materials costs which could negatively impact our financial condition and results of operations.

Our offshore oil industry products are subject to the hazards inherent in the offshore oil production and drilling industry, and we may incur substantial liabilities or losses as a result of these hazards.

In the offshore oil industry, we are subject to the hazards inherent in the offshore oil production and drilling industry. Our offshore business produces water-based hydraulic control fluids for major oil companies and drilling contractors to be used for potentially hazardous offshore deepwater production and drilling applications. Offshore deepwater oil production and drilling are subject to hazards that include blowouts, explosions, fires, collisions, capsizing, sinking and damage or loss to pipeline, subsea or other facilities from severe weather conditions. Those hazards could result in personal injury and loss of life, severe damage to or destruction of property and equipment, pollution or environmental damage and suspension of operations. A catastrophic occurrence at a location where our products are used may expose us to substantial liability for personal injury, wrongful death, product liability or commercial claims. To the extent available, we maintain insurance coverage that we believe is customary in our industry. Such insurance does not, however, provide coverage for all liabilities, and there can be no assurance that our insurance coverage will be adequate to cover claims that may arise or that we will be able to maintain adequate insurance at rates we consider reasonable. The occurrence of a significant offshore deepwater oil production or drilling event that results in liability to us that is not fully insured could have a material adverse effect on our financial condition or results of operations.

Certain of our products may be subject to various export control regulations and exports may require a license from the U.S. Department of State or the U.S. Department of Commerce.

As a global company, we are subject to various laws and regulations relating to the export of products, services, and technology. In the U.S., these laws include, among others, the U.S. Export Administration Regulations (EAR), administered by the U.S. Department of Commerce's Bureau of Industry and Security, and the International Traffic in Arms Regulations (ITAR), administered by the U.S. Department of State's Directorate of Defense Trade Controls. Some of our products or technology may have military or strategic applications governed by the ITAR or represent so-called "dual use" items governed by the EAR. Although our relevant products are currently subject to automatic approval and do not require government licenses to be exported to certain jurisdictions or persons, this may change in the future if these laws and regulations are amended or if new laws or regulations are adopted. Any failure to comply with these laws and regulations could result in civil or criminal penalties, fines, investigations, adverse publicity and restrictions on our ability to export our products, which could result in a material adverse effect on our business, financial condition or results of operations.

Failure to comply with the FCPA and other similar anti-corruption laws could subject us to penalties and damage our reputation.

Our international operations are subject to the FCPA, the Bribery Act and similar anti-bribery laws in other jurisdictions, which generally prohibit companies and their intermediaries from making improper payments for the purpose of obtaining or retaining business. Under these laws, companies may also be held liable for actions taken by third-parties acting on their behalf, such as strategic or local partners or representatives. Our policies mandate compliance with these anti-bribery laws, including the requirements to maintain accurate information and internal controls. However, certain of the jurisdictions in which we conduct business have experienced a heightened risk for corruption, extortion, bribery, pay-offs, theft and other improper practices and, despite our training and compliance programs, there is no assurance that our internal control policies and procedures will protect us from acts committed by our employees or agents. Failure by us or our intermediaries to comply with applicable anti-corruption laws may result in civil and/or criminal penalties or other sanctions, including disgorgement of profits and contract suspensions or cancellations, any of which could damage our reputation and have a material adverse effect on our business, financial condition or results of operations.

Failure to comply with international trade restrictions and economic sanctions laws and regulations could adversely affect our business, financial condition or results of operations.

We have operations, assets and/or make sales in countries all over the world, including countries that are or may become the target of trade and economic restrictions from the U.S. and/or other countries, which we refer to collectively as "Economic Sanctions Laws." Economic Sanctions Laws are complex and change with time as international relationships and confrontations between and among nations evolve. For example, the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) and the U.S. State Department administer certain laws and regulations that impose penalties upon U.S. persons and entities and, in some instances, non-U.S. entities, for conducting activities or transacting business with certain countries, governments, entities, or individuals subject to Economic Sanctions Laws. We have established policies and procedures to assist with our compliance with Economic Sanctions Laws and believe we do not unlawfully conduct business in any sanctioned countries. However, given the breadth of our international operations and the scope of our sales globally, including via third-party distributors over whom we may have limited or no control, coupled with the complexity and ever-changing

nature of Economic Sanctions Laws, there can be no assurance that our controls and procedures have prevented in the past or will prevent at all times in the future a violation of these laws. Failure to comply with Economic Sanctions Laws, or allegations of such failure, could lead to investigations and/or actions being taken against us which could materially and adversely affect our reputation or have a material adverse effect on our business, financial condition or results of operations.

Risks Related to our Financial Results, Finances and Capital Structure

Financial Performance

Unfavorable currency exchange rate fluctuations could adversely affect our results of operations.

The reporting currency for our financial statements is the U.S. dollar. However, we have substantial assets, liabilities, net sales and costs denominated in currencies other than U.S. dollars. To prepare our Consolidated Financial Statements, we must translate those assets, liabilities, revenues and expenses into U.S. dollars at then-applicable exchange rates. Consequently, increases and decreases in the value of the U.S. dollar versus other currencies will affect the amount of these items in our Consolidated Financial Statements, even if their value has not changed in their original currency. These translations could result in significant changes to our results of operations from period to period. Additionally, volatility in currency exchange rates may adversely impact our financial condition, cash flows and liquidity. Although we employ a variety of techniques to mitigate the impact of exchange rate fluctuations, including foreign currency hedging activities, we cannot guarantee that such risk management strategies will be effective, and our financial condition or results of operations could be adversely impacted.

Changes in the method for determining London Interbank Offered Rate (LIBOR) and/or the replacement of LIBOR could adversely affect our results of operations.

Amounts drawn under our Credit Agreement may bear interest rates in relation to LIBOR, depending on our selection of repayment options. In July 2017, the United Kingdom Financial Conduct Authority announced that it would phase out the use of LIBOR as a benchmark by the end of 2021. It is unclear whether new methods of calculating LIBOR will be established such that it continues to exist after 2021. The U.S. Federal Reserve is considering replacing U.S. dollar LIBOR with a newly created index called the Secured Overnight Financing Rate, calculated with a broad set of short-term repurchase agreements backed by treasury securities. If LIBOR ceases to exist, we may need to renegotiate our Credit Agreement and may not be able to do so with terms that are favorable to us. The overall financing market may be disrupted as a result of the phase-out or replacement of LIBOR. Disruption in the financial markets or the inability to renegotiate our Credit Agreement with favorable terms could have a material adverse effect on our business, financial position, and operating results.

Any future impairment of our tangible or intangible long-lived assets may materially affect our results of operations.

As a result of our historical Acquisitions, as of December 31, 2019, we had recorded approximately $3.12 billion of intangible assets and goodwill. Under GAAP, we review our intangible assets and long-lived assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Additionally, goodwill is subject to an impairment test at least annually. Indicators such as under-performance relative to historical or projected future operating results, changes in our strategy for our overall business or use of acquired assets, unexpected negative industry or economic trends, decreased market capitalization relative to net book values, unanticipated competitive activities, change in consumer demand, loss of key personnel and acts by governments and courts may signal that an asset has become impaired. To the extent any of our acquired assets do not perform as anticipated, whether due to internal or external factors, the value of such assets may be negatively affected and we may be required to record impairment charges. Our results of operations and financial position in future periods could be negatively impacted should future impairments of our long-lived assets, including intangible assets or goodwill, occur.

If we fail to establish and maintain adequate internal controls over financial reporting, we may not be able to report our financial results in a timely and reliable manner, which could harm our business and adversely impact our stock price.

We are required by the SEC to establish and maintain adequate internal control over financial reporting that provides reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements in accordance with GAAP. We are likewise required, on a quarterly basis, to evaluate the effectiveness of our internal controls and to disclose any material changes and material weaknesses in those internal controls. We have in the past experienced, and in the future may experience again, material weaknesses and potential problems in implementing and maintaining adequate internal controls as required by the SEC. If we fail to achieve and maintain the adequacy of our internal controls, we may not be able to conclude that we have effective internal controls over financial reporting. If we cannot provide reliable financial reports or prevent fraud, our business and operating results could be harmed, investors could lose confidence in our reported financial information, and

our stock price could drop significantly. Likewise, if our financial statements are not filed on a timely basis as required by the SEC and the NYSE, we could face severe consequences from those authorities, and our reputation could be harmed which in turn could affect the value of our securities.

Indebtedness

Our Credit Agreement and other debt agreements contain restrictions that limit our flexibility in operating our business.

The Credit Agreement, the 5.875% USD Notes Indenture and other debt agreements governing our outstanding debt contain restrictive clauses which may limit our activities and operational and financial flexibility, including, among other things, our ability to grant liens, pay cash dividends, enter new lines of business, repurchase our shares of common stock, make certain investments and engage in certain merger, consolidation or asset sale transactions. In addition, the Credit Agreement includes customary remedies, including the right of the lenders to take action with respect to the collateral securing outstanding loans, that would apply should we default or otherwise be unable to satisfy our debt obligations. These covenants may restrict our flexibility in operating our business. We may also not be able to borrow under the Credit Agreement if an event of default under the terms of this agreement occurs. As a result, we may be unable to pursue certain business initiatives or certain transactions that might otherwise be advantageous, meet extraordinary capital needs, finance future operations, plan for or react to market conditions, or otherwise take actions that we believe are in the best interest of our business which, in turn, may adversely impact our business prospects, financial condition or results of operations.

In addition, the Credit Agreement requires that we meet certain financial ratios, including a first lien net leverage ratio based on net debt to EBITDA. EBITDA is a non-GAAP measures of liquidity defined in the Credit Agreement. Our ability to meet these financial covenants depends upon the future successful operating performance of our businesses. If we fail to comply with the Credit Agreement covenants, we would be in default under the term loan and revolving credit facility, and the maturity of our outstanding debt could be accelerated unless we were able to obtain waivers from our lenders. If we were found to be in default under the term loan and revolving credit facility, it could adversely impact our results of operations, financial position and cash flows.

We and our subsidiaries may be able to incur significant additional indebtedness in the future, which would result in additional restrictions upon our business and impact our financial condition.

The Credit Agreement provides for senior secured credit facilities in an aggregate principal amount of $1.08 billion, consisting of a revolving facility in an aggregate principal amount of $330 million maturing in 2024 and a term loan in an aggregate principal amount of $750 million maturing in 2026. At December 31, 2019, we had $733.4 million outstanding under the term loan and full capacity under the revolver. Despite our current level of indebtedness, we and our subsidiaries may be able to incur significant additional indebtedness in the future. Although the Credit Agreement contains restrictions on the incurrence of additional indebtedness, these restrictions are subject to a number of significant qualifications and exceptions, and any indebtedness incurred in compliance with these restrictions could be substantial. Any significant indebtedness incurred by us or our subsidiaries could have the following material consequences:

- require us to dedicate a substantial portion of our cash flow from operations to payments on our indebtedness, thereby reducing the availability of our cash flow to fund acquisitions, working capital, capital expenditures, dividends, research and development efforts and other general corporate purposes;
- increase the amount of our interest expense, because our borrowings include instruments with variable rates of interest, which, if interest rates increase, would result in higher interest expense;
- increase our vulnerability to general adverse economic and industry conditions;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- limit our ability to make strategic acquisitions, introduce new technologies or exploit business opportunities;
- place us at a competitive disadvantage compared to our competitors that have less indebtedness; and
- limit, among other things, our ability to borrow additional funds.

We may also enter into additional debt transactions or credit facilities, including equipment loans, working capital lines of credit, senior notes and other long-term debt, which may increase our indebtedness and result in additional restrictions upon our businesses. In addition, major debt rating agencies regularly evaluate our debt based on a number of factors, including our degree of leverage. There can be no assurance that we will be able to maintain our existing debt ratings, and failure to do so could adversely affect our cost of funds, liquidity and access to capital markets.

Risks Related to Ownership of our Common Stock and Senior Notes

We have numerous equity instruments outstanding that could require the future issuance of additional shares of common stock, which issuance could result in significant dilution of ownership interests and have an adverse effect on our stock price.

We have a number of equity instruments outstanding that could require us to issue additional shares of our common stock. Depending on the equity instrument, these additional shares may either be issued for no additional consideration or based on a fixed amount of additional consideration. Specifically, at December 31, 2019, we had outstanding the following:

- 4,484,757 RSUs which were granted to employees under our 2013 Plan with each RSU representing a contingent right to receive one share of our common stock (assuming performance-based RSUs vest at target level) or multiple shares depending upon the Company's performance;
- 349,009 options which are exercisable to purchase shares of our common stock, on a one-for-one basis, at any time at the option of the holder; and
- $60 million of potential contingent consideration agreed upon in connection with the MacDermid Acquisition which, at our option, may be paid in shares of our common stock.

At December 31, 2019, we had 7,212,987 shares available under the 2013 Plan (subject to increase in accordance with the terms of the 2013 Plan), net of the outstanding RSUs and options noted above, and 4,596,112 shares available under the ESPP.

At December 31, 2019, we also had 2,000,000 shares of Series A Preferred Stock, which were convertible at any time into shares of our common stock at the option of their holders. All outstanding Series A Preferred Stock were converted into shares of our common stock, on a one-for-one basis, on February 25, 2020.

Volatility of our stock price could adversely affect us and our stockholders.

Fluctuations in the price of our common stock could negatively affect us and contribute to the loss of all or part of a stockholder’s investment in our Company. The market price of our common stock could fluctuate significantly as a result of:

- our operating and financial performance and prospects;
- quarterly or annual variations in our operating results;
- the public's reaction to our press releases and filings with the SEC;
- changes in, or failure to meet, earnings estimates, or the publication of research reports by analysts who track our common stock or the stock of other companies in our industry;
- operating and securities price performance of companies that investors deem comparable to us;
- speculation in the press or investment community;
- changes in laws and regulations affecting our businesses;
- strategic actions by us, our customers or our competitors, such as acquisitions, divestitures, restructuring or other material events, or market rumors regarding such actions;
- sales of substantial amounts of common stock by our directors, executive officers or significant stockholders or the perception that such sales could occur;
- shares repurchases or issuance of additional shares of common stock by the Company;
- additional debt we may incur in the future;
- changes in key personnel or business strategy;
- material litigation or governmental investigations;
- actions by stockholders; and
- the realization of any risk factors set forth in this 2019 Annual Report.

Many of the factors listed above are beyond our control and may cause the market price of our common stock to decline, regardless of our financial condition, results of operations, business or prospects. Repurchases of our shares of common stock would also reduce the number of our outstanding shares and might incrementally increase the potential for volatility in our stock by reducing the potential volumes at which our shares may trade in the public markets. There can be no assurance that the market price of our common stock will not decline in the future. Further, in the past, market fluctuations and price declines

in a company's stock have led to securities class action litigation. If such a suit were to arise, it could have a substantial cost and divert our resources regardless of the outcome.

Future sales, or the perception of future sales, of our common stock may depress the price of our common stock.

If any of our executive officers, directors or stockholders sells a large number of shares of our common stock, or if we issue a large number of shares of common stock in connection with future acquisitions, financings or other circumstances, the market price of our common stock could decline significantly. Moreover, the perception in the public market that we or our stockholders might sell shares of common stock could depress the market price of those shares.

We cannot predict the size of future issuances of our shares of common stock or the effect, if any, that future issuances or sales of our shares will have on the market price of such shares. Sales of substantial amounts of our shares, including sales by significant stockholders, and shares issued in connection with any acquisition, or the perception that such sales could occur, may adversely affect prevailing market prices for our shares of common stock. Decline in the stock price of our common stock may also may make it more difficult for us to finance acquisitions with shares of common stock and/or sell additional equity or equity-related securities in future offerings at a time and price we deem necessary or appropriate.

We may issue preferred stock in the future, and the terms of the preferred stock may reduce the value of our common stock.

Our Board is authorized to create and issue one or more additional series of preferred stock, and, with respect to each series, to determine the number of shares constituting the series and the designations and the powers, preferences and rights, and the qualifications, limitations and restrictions thereof, which may include dividend rights, conversion or exchange rights, voting rights, redemption rights and terms and liquidation preferences, without stockholder approval. If we create and issue one or more additional series of preferred stock, it could affect the rights of our common stockholders or reduce the value of our outstanding common stock. Our Board could, without stockholder approval, issue preferred stock with voting and other rights that could adversely affect the voting power of the holders of our common stock and which could have certain anti-takeover effects.

There can be no assurance that we will declare dividends or have available cash to make dividend payments.

To the extent the Board, in its sole discretion, decides to pay dividends on our common stock, we will pay dividends at the times and in the amounts as the Board determines appropriate. Should any dividend be declared, we may, however, reduce or discontinue entirely the payment of such dividends at any time. Paying dividends will depend upon many factors, including our financial condition and results of operations, our available cash and current and anticipated cash needs, capital requirements and access to capital markets, covenants associated with the Credit Agreement and other debt obligations, contractual, legal, tax and regulatory restrictions and other factors that the Board may deem relevant. Therefore, there can be no assurance that we will have the ability and/or sufficient funds to pay dividends or as to the amounts of these dividends, if any.

We have redeemed in the past, and may redeem or repurchase in the future, our outstanding debt securities which could impact the market for our senior notes and/or negatively affect our liquidity.

We may from time to time seek to repurchase, redeem or refinance our outstanding debt securities, including the 5.875% USD Notes due 2025, in open market purchases, accelerated repurchase programs, privately negotiated transactions, tender offers, partial or full calls for redemption or otherwise. Any such repurchases or redemptions and the timing and amount thereof would depend on prevailing market conditions, liquidity requirements, contractual restrictions and other factors. Depending on such timing and amount, our liquidity could be negatively affected.

We are dependent on cash flows from our operating subsidiaries to fund our debt obligations, capital expenditures and ongoing operations.

We do not have any material assets or operations other than ownership of equity interests of our operating subsidiaries. Our operations are conducted almost entirely through our subsidiaries, and our ability to generate cash to meet our obligations or to pay dividends, if any, is highly dependent on the earnings of, and receipt of funds from, our subsidiaries through dividends or intercompany loans, in particular from MacDermid. As a result, we are dependent on the income generated by our subsidiaries, and to some degree on our ability to repatriate earnings from our foreign operations effectively, to meet our debt service obligations, expenses and operating cash requirements. The amount of distributions and dividends, if any, which may be paid to us from each of our subsidiaries depends on many factors, including the results of operations and financial condition of our subsidiaries, limits on dividends or otherwise under applicable law, constitutional documents of our subsidiaries, documents governing their indebtedness, and other factors which may be outside our control. If our subsidiaries are unable to generate

sufficient cash flows or if we are unable to repatriate earnings effectively, we may be unable to service our debt obligations, pay our expenses and/or meet our operating cash requirements.

We are governed by Delaware law, which has anti-takeover implications.

We are governed by Delaware law, the application of which may have the effect of deterring hostile takeover attempts or a change in control. In particular, Section 203 of the Delaware General Corporation Law imposes certain restrictions on merger, business combinations and other transactions between us and holders of 15% or more of our common stock. A Delaware corporation may opt out of that provision either with an express provision in its original certificate of incorporation or in an amendment to its certificate of incorporation or by-laws approved by its stockholders. We have not opted out of this provision. Section 203 could prohibit or delay mergers or other takeover or change in control attempts and, accordingly, may discourage attempts to acquire us, which may negatively affect our stock price.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate offices are located in a leased facility in Fort Lauderdale, Florida. At December 31, 2019, our physical presence included 42 manufacturing sites, 9 of which include research facilities, and 8 stand-alone research centers. Of our manufacturing facilities, 9 are located in the U.S. with the remaining international facilities located primarily in Asia and Europe. We own 23 of our manufacturing facilities, 4 of our manufacturing facilities that include research facilities and 5 of our stand-alone research centers. In addition to the remaining manufacturing and research facilities, we lease the majority of our office, warehouse and other physical locations. Among our two business segments, Electronics and Industrial & Specialty utilize 21 and 8 of our manufacturing facilities, respectively, with the remaining 13 manufacturing facilities being shared between the two segments.

We believe that all of our facilities and equipment are in good condition, well-maintained, adequate for our present operations, and utilized for their intended purposes. See Note 7, *Property, Plant and Equipment*, to the Consolidated Financial Statements included in this 2019 Annual Report for amounts invested in land, buildings, machinery, and equipment, and Note 17, *Leases*, to the Consolidated Financial Statements included in this 2019 Annual Report, for information about our operating lease commitments.

Item 3. Legal Proceedings

In the ordinary course of business, we are involved in various legal disputes, investigations and claims and other legal proceedings, including, but not limited to, product liability claims, contractual disputes, premises claims, tax examinations, and employment, environmental, and health and safety matters. Where appropriate, we may establish loss contingencies for such proceedings based on an assessment of whether the risk of loss is remote, reasonably possible or probable. We also maintain insurance to mitigate certain of such risks. Although we cannot predict with certainty the ultimate resolution of our various legal proceedings, investigations and/or claims asserted against us, we believe that the resolution of these claims will not, individually or in the aggregate, have a material adverse effect on our business, financial condition or results of operations. Due to their inherent uncertainty, however, there can be no assurance as to the ultimate outcome of current or future litigation, proceedings, investigations or claims and it is possible that a resolution of one or more such proceedings could result in fines and penalties that could adversely affect our business, financial condition or results of operations.

In addition, we are involved in various claims relating to environmental matters at a number of current and former plant sites and waste management sites. We engage or participate in remedial and other environmental compliance activities at certain of these sites. At other sites, we have been named as a potential responsible party pursuant to the federal Superfund Act and/or state Superfund laws comparable to the federal law for site remediation. Based on currently available information, we do not anticipate any material losses in excess of the liabilities recorded. However, it is possible that, as additional information becomes available, the impact of an adverse determination could have a different effect. For additional information regarding environmental matters and liabilities, see Note 18, *Contingencies, Environmental and Legal Matters*, to the Consolidated Financial Statements included in this 2019 Annual Report.

Item 4. Mine Safety Disclosure

Not applicable.

Part II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market for our Common Stock

Our common stock is traded on the NYSE under the symbol "ESI." On February 25, 2020, there were approximately 282 registered holders of record of our common stock, par value $0.01 per share. On February 25, 2020, the closing price of our common stock was $10.67.

Dividends

We have never declared or paid any cash dividends on our common stock. We anticipate that we will retain all of our future earnings, if any, for use in the development and expansion of our business, including future acquisitions, and for general corporate purposes, including for the repayment of debt. Our Credit Agreement and the 5.875% USD Notes Indenture governing our existing 5.875% USD Notes also contain restrictions, which may prohibit or limit our ability to pay dividends. As a holding company, our ability to pay dividends is highly dependent on receipts of funds from our subsidiaries. See Part I, Item 1A.—Risk Factors— "*We are dependent on cash flows from our operating subsidiaries to fund our debt obligations, capital expenditures and ongoing operations*."

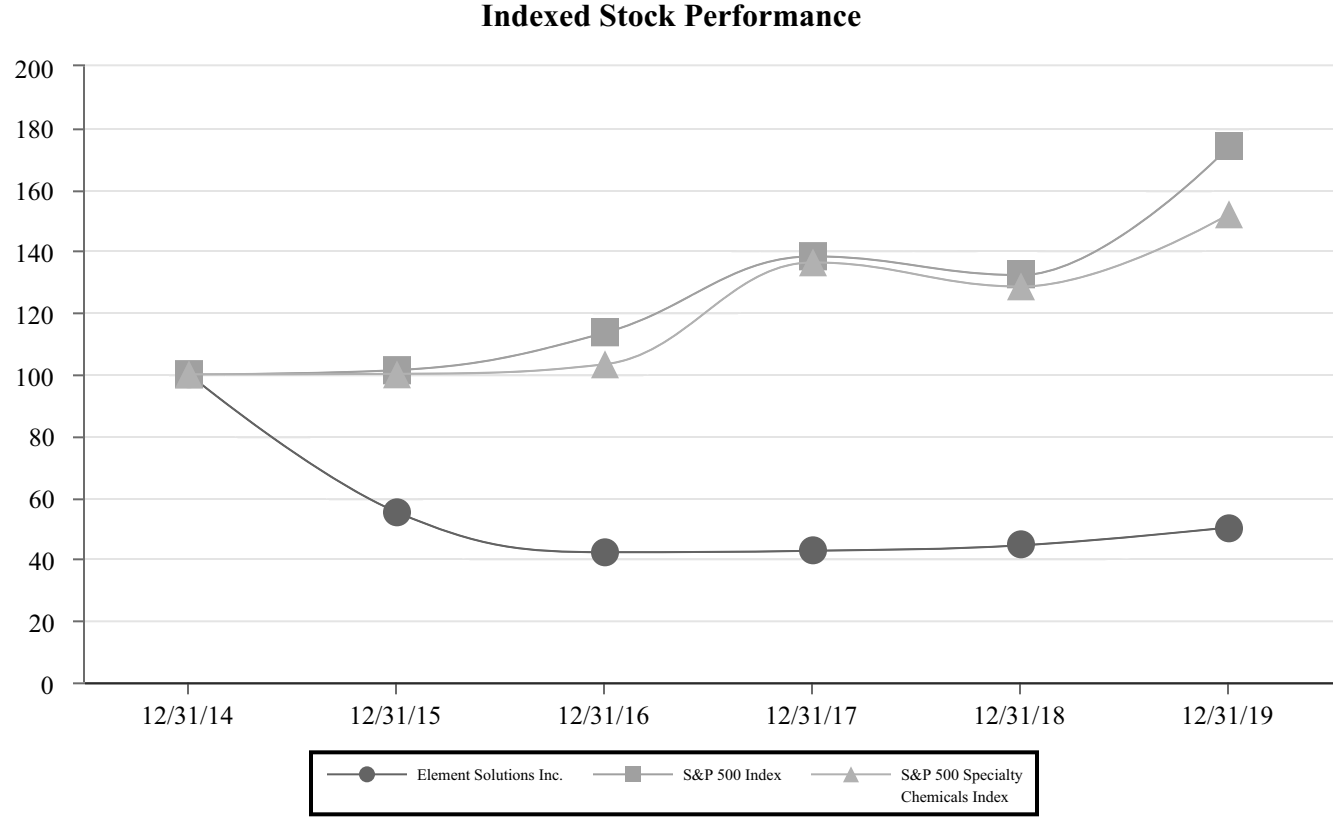
Prior to their conversion into shares of our common stock on February 25, 2020, the holders of our Series A Preferred Stock were entitled to receive an annual dividend on their Series A Preferred Stock in the form of shares of our common stock. For 2019, 2018 and 2017, no stock dividend had been declared with respect to the Series A Preferred Stock on the basis of the last dividend price used in calculating the Series A Preferred Stock dividends of $22.85.

In addition to the restrictions described above, we may become subject to additional covenants should we incur any additional indebtedness, which may prohibit or further limit our ability to pay dividends.

Performance Graph

The following performance graph and related information shall not be deemed "soliciting material" or to be "filed" with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that the Company specifically incorporates it by reference into such filing.

This graph compares cumulative total stockholder return on our common stock from December 31, 2014 through December 31, 2019 with the cumulative total return of (i) the Standard and Poor's 500 Index, and (ii) the S&P 500 Specialty Chemicals Index, assuming a $100 investment made on December 31, 2014. The stock performance shown on this graph is based on historical data and is not indicative of, or intended to forecast, possible future performance of our common stock.



Equity Compensation Plan Information

The information regarding our equity compensation plans will be included in the 2020 Proxy Statement under the heading "Executive Compensation Tables - Equity Compensation Plan Information," and is incorporated by reference into this 2019 Annual Report.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

During the three months ended December 31, 2019, the Company repurchased the following shares of its common stock:

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of a Publicly Announced Repurchase Program	Approximate Dollar Value of Shares that May Yet be Purchased Under the Repurchase Program [1] *(in millions)*
October 1 - October 31	—	$ —	—	
November 1 - November 30	—	—	—	
December 1 - December 31	981,657	11.16	981,657	
Total	981,657	$ 11.16	981,657	$ 243

[1] *In July 2018, the Board authorized a program to repurchase up to $750 million of the Company's common stock, of which approximately $507 million had been utilized as of December 31, 2019. The Company's share repurchase program does not require the repurchase of any specific number of shares, and share repurchases are made opportunistically at the discretion of the Company.*

Item 6. Selected Financial Data

Element Solutions' Selected Consolidated Financial Information

The following selected consolidated historical financial data is derived from our consolidated financial statements. This financial information, included below and elsewhere in this 2019 Annual Report, is not necessarily indicative of future results and should be read in conjunction with the sections entitled "Financial Statements and Supplementary Data" included in Part II, Item 8 of this 2019 Annual Report, and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in Part II, Item 7 of this 2019 Annual Report.

	Year Ended December 31,				
(dollars in millions, except per share data)	**2019 [1]**	**2018 [2]**	**2017 [3]**	**2016 [4]**	**2015 [5]**
Statement of Operations Data					
Net sales	$ 1,835.9	$ 1,961.0	$ 1,878.6	$ 1,770.1	$ 800.7
Gross profit	788.3	837.6	813.8	777.3	387.4
Operating profit	249.1	248.5	200.2	89.4	22.1
Income (loss) before income taxes, non-controlling interests and dividends on preferred shares	140.9	(53.2)	(260.4)	(231.8)	(252.6)
Income tax (expense) benefit	(61.3)	(23.8)	68.6	41.3	3.9
Net income (loss) from continuing operations	79.6	(77.0)	(191.8)	(190.5)	(248.7)
Income (loss) from discontinued operations, net of tax	13.3	(242.9)	(103.8)	113.8	(55.7)
Net income (loss)	$ 92.9	$ (319.9)	$ (295.6)	$ (76.7)	$ (304.4)
Earnings (loss) per share					
Basic from continuing operations	$ 0.31	$ (0.27)	$ (0.68)	$ (0.62)	$ (1.22)
Basic from discontinued operations	0.05	(0.86)	(0.36)	0.45	(0.30)
Basic attributable to common stockholders	$ 0.36	$ (1.13)	$ (1.04)	$ (0.17)	$ (1.52)
Diluted from continuing operations	$ 0.30	$ (0.27)	$ (0.68)	$ (1.06)	$ (1.22)
Diluted from discontinued operations	0.05	(0.86)	(0.36)	0.41	(0.30)
Diluted attributable to common stockholders	$ 0.35	$ (1.13)	$ (1.04)	$ (0.65)	$ (1.52)
Adjusted EBITDA [6]	$ 416.7	$ 420.7	$ 401.2	$ 368.4	$ 188.3

	December 31,				
(dollars in millions)	**2019**	**2018**	**2017**	**2016**	**2015**
Balance Sheet Data					
Cash and cash equivalents	$ 190.1	$ 233.6	$ 258.4	$ 236.1	$ 176.9
Working capital [7]	562.5	545.2	581.7	469.4	520.6
Total assets					
Continuing operations	4,306.7	4,367.8	4,651.7	4,487.6	4,701.6
Discontinued operations	17.7	5,033.7	5,600.7	5,566.5	5,488.6
Total	4,324.4	9,401.5	10,252.4	10,054.1	10,190.2
Total debt	1,521.0	5,376.0	5,447.2	5,150.2	5,210.9
Total equity	$ 2,219.3	$ 2,181.1	$ 2,860.0	$ 2,889.8	$ 2,273.3

Comparability of the statement of operations data for continuing operations within the table above is affected by the following acquisitions: Kester in December 2019, OMG Malaysia in January 2016, Alent in December 2015 and OMG Businesses in October 2015. Comparability of the balance sheet data within the table above is affected by the previously mentioned acquisitions, as well as the Arysta Acquisition in February 2015. Arysta is presented as discontinued operations in each of the periods presented.

(1) In addition to the impact of the 2019 acquisition and related valuation of intangible assets, the results presented include the following significant items affecting comparability for the year ended December 31, 2019:

- debt refinancing charges of $62.0 million;
- restructuring costs of $14.1 million, primarily related to severance;
- foreign exchange gain on foreign denominated external and internal long-term debt of $31.9 million;
- non-cash mark-to-market gain related to the contingent consideration in connection with the MacDermid Acquisition of $17.4 million;
- net interest expense of $90.7 million, which decreased from 2018 primarily due to the pay down of our existing credit facilities on January 31, 2019 in connection with the Arysta Sale; and
- tax expense changed primarily due to the increase in pre-tax income and the net impact of change in valuation allowances. In addition, 2018 includes a net benefit of $41.8 million associated with finalizing the accounting for the impact of the TCJA that did not recur in 2019. Both years reflect the negative impact of U.S. taxation of global intangible low-taxed income ("GILTI") and U.S. interest deduction limitations.

(2) The results presented include the following significant items affecting comparability for the year ended December 31, 2018:

- acquisition and integration related costs of $12.1 million, primarily comprised of facility integration and employee-related costs;
- restructuring costs of $6.3 million, primarily related to severance;
- foreign exchange loss on foreign denominated external and internal long-term debt of $6.0 million;
- other expenses of $14.4 million, primarily comprised of employee-related expenses associated with the Arysta Sale that do not qualify for discontinued operations, non-cash changes in the fair value of contingent consideration and certain professional consulting fees;
- non-cash mark-to-market gain related to the contingent consideration in connection with the MacDermid Acquisition of $21.8 million;
- gain on sale of an investment of $11.3 million;
- net interest expense of $311 million, which decreased from 2017 primarily due to a full year's benefit related to the 2017 redemption of our 10.375% senior notes due 2021 and the 2017 repricing of portions of our term loans; and
- tax expense changed primarily due to i) the impact of the reduction in pre-tax losses, ii) the TCJA rate change from 35% to 21%, iii) the net change due to enactment of foreign statutory tax rates and iv) the net impact of change in valuation allowances.

(3) The results presented include the following significant items affecting comparability for the year ended December 31, 2017:

- debt refinancing charges of $83.1 million;
- foreign exchange loss on foreign denominated external and internal long-term debt of $53.4 million;
- restructuring costs of $23.5 million, primarily related to severance;
- net interest expense of $337 million, primarily related to interest charges resulting from incremental debt facilities, including term loans, bonds and revolving credit borrowings, impacted by the repricing of our term debt; and
- tax expense changed primarily due to i) the benefit related to the provisional estimate under the TCJA in 2017, ii) the 2016 settlement gain of the Series B Convertible Preferred Stock which was treated as a non-taxable purchase price adjustment and iii) net change due to enactment of foreign statutory tax rates.

(4) In addition to the impact of the 2016 and 2015 acquisitions and related valuation of intangible assets, the results presented include the following significant items affecting comparability for the year ended December 31, 2016:

- gains relating to the amendment of the Series B Convertible Preferred Stock and the related execution of a settlement agreement totaling $32.9 million and $103 million, respectively;
- goodwill impairment charge of $46.6 million related to our Energy Solutions reporting unit within our Industrial & Specialty segment;
- foreign exchange loss on foreign denominated external and internal long-term debt of $25.8 million;
- acquisition and integration related costs of $25.1 million, primarily comprised of professional fees;
- restructuring costs of $25.0 million, primarily related to severance;

- debt refinancing charges of $19.7 million;
- amortization of inventory step-up of $11.7 million charged to cost of sales;
- net interest expense of $372 million, primarily related to interest charges resulting from incremental debt facilities, including term loans, bonds and revolving credit borrowings, used to fund our acquisitions; and
- tax expense changed primarily due to the 2016 settlement gain of the Series B Convertible Preferred Stock which was treated as a non-taxable purchase price adjustment.

(5) In addition to the impact of the 2015 acquisitions and related valuation of intangible assets, the results presented include the following significant items affecting comparability for the year ended December 31, 2015:

- fair value loss on foreign exchange forward contract related to the Alent Acquisition of $73.7 million;
- acquisition and integration related costs of $47.2 million, primarily comprised of professional fees;
- amortization of inventory step-up of $18.5 million charged to cost of sales;
- restructuring costs of $6.7 million, primarily related to severance, professional and consulting fees;
- foreign exchange loss on foreign denominated external and internal long-term debt of $12.7 million;
- non-cash mark-to-market charge related to the contingent consideration in connection with the MacDermid Acquisition of $6.8 million;
- legal settlement income of $16.0 million; and
- net interest expense of $207 million, primarily related to interest charges resulting from incremental debt facilities, including term loans, bonds and revolving credit borrowings, used to fund our acquisitions.

(6) Adjusted EBITDA is a non-GAAP financial measure and as such, should not be considered in isolation from, a substitute for, or superior to, performance measures calculated in accordance with GAAP. For a definition of Adjusted EBITDA and additional information on why we present this measure, its limitations and a reconciliation to the most comparable applicable GAAP measure, see "*Non-GAAP Financial Measures"* in the Management's Discussion and Analysis of Financial Condition and Results of Operations section included in Part II, Item 7, and Note 23, *Segment Information*, to the Consolidated Financial Statements, all included in this 2019 Annual Report.

(7) Working capital is defined as current assets less current liabilities from continuing operations.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

This Management's Discussion and Analysis of Financial Condition and Results of Operations section should be read in conjunction with "Financial Statements and Supplementary Data" included in Part II, Item 8 of this 2019 Annual Report, "Selected Financial Data" included in Part II, Item 6 of this 2019 Annual Report, and our audited Consolidated Financial Statements and notes thereto included elsewhere in this 2019 Annual Report. The following "Overview of our Business" and "Recent Developments" sections below is a brief presentation of our business and certain significant items addressed in this section or elsewhere in this 2019 Annual Report. This section and the relevant portions of this 2019 Annual Report should be read in their entirety for a complete discussion of the events and items summarized below.

Business Overview

Element Solutions Inc, incorporated in Delaware in January 2014, is a leading global specialty chemicals company whose businesses supply a broad range of solutions that enhance the performance of products people use every day. Developed in multi-step technological processes, the innovative solutions of our businesses enable customers' manufacturing processes in several key industries, including electronic circuitry, semiconductor, communications infrastructure, automotive systems, industrial surface finishing, consumer packaging and offshore energy. Substantially all of our businesses' products are consumed by our customers as part of their production process, providing us with reliable and recurring revenue streams as the products are replenished in order to continue production. Our customers use our innovations as competitive advantages, relying on us to help them navigate through fast-paced, high-growth markets. Our product development and product extensions are expected to continue to drive sales growth in both new and existing markets, while expanding margins, by continuing to offer high customer value propositions.

We believe the majority of our businesses hold strong positions in the high-growth markets they serve. Our strategy is based on a balance of operational excellence and prudent capital allocation. To that end, our teams focus on commercial execution through strong sales, marketing, product development and supply chain efficiency; while our senior leadership balances holding business teams responsible for operational execution with prioritizing and executing on capital allocation opportunities. In the future, we may pursue targeted and opportunistic acquisitions in our existing and adjacent end-markets that strengthen our current businesses, expand and diversify our product offering, and enhance our growth and strategic position.

We generate revenue through the formulation and sale of our businesses' dynamic chemistry solutions by our extensive global network of specially-trained scientists and engineers. While our chemistries typically represent only a small portion of our customers' costs, they are integral to our customers' manufacturing processes and overall product performance. We leverage these close relationships with our customers and OEMs to execute our growth strategy and identify opportunities for new products. These new products are developed and created by drawing upon our intellectual property portfolio and technical expertise. We believe that our customers place significant value on the consistency and quality of our brands, which we capitalize on through significant market share, customer loyalty and supply chain access. Lastly, operational risks and switching costs make it difficult for our customers to change suppliers which allows us to retain customers and maintain our market positions.

Our operations are organized into two segments: Electronics and Industrial & Specialty, which are each described below:

Electronics – The Electronics segment researches, formulates and delivers specialty chemicals and materials for all types of electronics hardware, from complex printed circuit board designs to new interconnection materials. In mobile communications, computers, automobiles and aerospace equipment, its products are an integral part of the electronics manufacturing process and the functionality of end-products. The segment's "wet chemistries" for metallization, surface treatments and solderable finishes form physical circuitry pathways and its "assembly materials," such as solders, pastes, fluxes and adhesives, join those pathways together. The segment provides specialty chemical solutions through the following businesses: Assembly Solutions, Circuitry Solutions and Semiconductor Solutions.

Industrial & Specialty – The Industrial & Specialty segment provides customers with Industrial Solutions, which include chemical systems that protect and decorate metal and plastic surfaces; Graphics Solutions, which include consumable chemicals that enable printing image transfer on flexible packaging materials; and Energy Solutions, which include chemistries used in water-based hydraulic control fluids in offshore energy production. Its fully consumable products are used in the aerospace, automotive, construction, consumer electronics, consumer packaged goods and oil and gas production end markets.

Our operating segments include significant foreign operations. There are certain risks associated with our foreign operations. See Part I, Item 1A. Risk Factors— "*Our substantial international operations subject us to risks of doing business in foreign*

countries which could affect our business, financial condition or results of operations." and "*Unfavorable currency exchange rate fluctuations could adversely affect our results of operations.*"

Summary of 2019 Significant Activities

- ***Arysta Sale -*** On January 31, 2019, the Arysta Sale to UPL was completed for net cash proceeds of $4.28 billion, after post-closing adjustments. The proceeds of the Arysta Sale were primarily used to pay down our then existing credit facilities under our second amended and restated credit agreement, dated August 6, 2014, as further amended and restated.

- ***Recapitalization -*** On the closing date of the Arysta Sale, we paid down our then existing credit facilities with the proceeds of the Arysta Sale and entered into the Credit Agreement, which provides for senior secured credit facilities in an aggregate principal amount of $1.08 billion. On the closing date of the Arysta Sale, the $750 million term loan was borrowed under the Credit Agreement. In addition, on February 1, 2019, we used a portion of the net proceeds from the Arysta Sale and a portion of the borrowings under the Credit Agreement to redeem all outstanding Prior Senior Notes. The 5.875% USD Notes due 2025 were not redeemed and remain outstanding.

- ***Launch of Element Solutions -*** On the closing date of the Arysta Sale, the Company changed its name from "Platform Specialty Products Corporation" to "Element Solutions Inc" and, effective February 1, 2019, its shares of common stock began trading on the NYSE under the ticker symbol "ESI." The Company also launched a new corporate website: *www.elementsolutionsinc.com*.

- ***Repurchases of Common Stock -*** During the year ended December 31, 2019, we repurchased approximately 44.8 million shares of our common stock for an aggregate purchase price of approximately $507 million. The remaining authorization under the previously-announced $750 million stock repurchase program was approximately $243 million at December 31, 2019. The repurchases were funded from cash on hand and proceeds from borrowings under the Credit Agreement.

- ***Kester Acquisition -*** On December 2, 2019, we completed the Kester Acquisition for $63.9 million, net of cash, working capital and other closing adjustments from Illinois Tool Works Inc. The Kester business, a global supplier of advanced technology assembly materials used in electronics assembly and semiconductor applications, complements our assembly and semiconductor businesses. Kester is included in our Electronics segment.

Acquisitions

In the future, we may pursue targeted and opportunistic acquisitions in our existing end-markets with product offerings that complement our product portfolio or geographic footprint. We expect to achieve commercial and distribution efficiencies by expanding into related categories that can be marketed through our existing distribution channels or provide us with new distribution channels for our existing products. Furthermore, to the extent we pursue future acquisitions, we expect that acquisition candidates would demonstrate a combination of attractive margins, strong cash flow characteristics, niche leading positions and consumable products that generate recurring revenue. We believe the diversity of the niche-end markets we serve will enable us to continue our growth and maintain strong cash flow generation throughout economic cycles and mitigate the impact of a downturn in any single market. We will only pursue a candidate when it is deemed to be fiscally prudent and that meets our acquisition criteria. We anticipate that any future acquisitions would be financed through a combination of cash on hand, operating cash flow, availability under our Credit Agreement and/or new debt or equity offerings.

Foreign Currency Exposure

Approximately 76% of our net sales from continuing operations originated outside of the U.S. and were denominated in numerous currencies, including the euro, Chinese yuan, British pound, and Taiwan dollar. Therefore, changes in foreign exchange rates in any given reporting period may positively or negatively impact our financial performance. Foreign exchange translation negatively impacted 2019 net sales performance by approximately 3%.

In addition, our foreign subsidiaries are subject to foreign currency risk relating to receipts from customers, payments to suppliers and intercompany transactions that are not in their functional currency, which is typically their local currency. As a result, our foreign subsidiaries enter into foreign exchange hedges from time to time and on an ongoing basis to protect against transaction exposures. We actively assess our hedging programs in order to mitigate foreign exchange risk exposures. This includes programs to hedge our foreign currency denominated balance sheet exposures as well as foreign currency anticipated cash flows.

Critical Accounting Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and judgments regarding uncertainties, and, as a result, may significantly impact our financial results. We base our estimates and judgments on historical experience, current conditions, as well as other reasonable factors and assumptions. Several of the estimates and assumptions we are required to make relate to matters that are inherently uncertain as they pertain to future events. Actual results may differ from these estimates and assumptions and could be material to our financial statements.

We consider the accounting estimates discussed below to be critical to the understanding of our financial statements and involve difficult, subjective, or complex judgments that could potentially affect reported results. See Note 2, *Summary of Significant Accounting Policies*, to the Consolidated Financial Statements included in this 2019 Annual Report for a detailed discussion of the application of these and other accounting policies.

Revenue Recognition

We recognize revenue either upon shipment or delivery of product depending on when it is reasonably assured that both title and the risks and rewards of ownership have been passed on to the customer, our performance obligations have been fulfilled and collectability is probable. Estimates for sales rebates, incentives and discounts, as well as sales returns and allowances, are accounted for as reductions of revenue when the earnings process is complete. Differences between estimated expense and actual costs are typically immaterial and are recognized in earnings in the period such differences are determined.

Most performance obligations relate to contracts with a duration of less than one year, in which we have the right to invoice the customer at the time the performance obligation is satisfied for the amount of revenue recognized at that time. Accordingly, we have elected the practical expedient available under ASC Topic 606, *Revenue from Contracts with Customers*, not to disclose remaining performance obligations under our contracts. We have also elected the practical expedient to expense incremental costs for obtaining contracts with terms of less than one year.

Business Combinations

Purchase price allocations of acquisitions to tangible and intangible assets acquired, liabilities assumed and non-controlling interests in the acquiree are based on estimated fair value at the acquisition date. The excess of the acquisition price over those estimated fair values is recorded as goodwill. Changes to the acquisition date provisional fair values prior to the end of the measurement period are recorded as adjustments to the associated goodwill. Acquisition-related expenses and restructuring costs, if any, are expensed as incurred.

Goodwill

Goodwill is tested for impairment at the reporting unit level annually in the fourth quarter, or when events or changes in circumstances indicate that goodwill might be impaired. Our reporting units are determined based upon our organizational structure in place at the date of the goodwill impairment test. The fair value of each reporting unit is determined based equally on market multiples and the present value of discounted future cash flows. The discounted cash flows are prepared based upon cash flows at the reporting unit level and involve significant judgments related to future growth rates and discount rates, among other considerations, from the vantage point of a market participant.

The primary components of and assumptions used in the assessment consist of the following:

- *Valuation Techniques* - we use a discounted cash flow analysis, which requires assumptions about short and long-term net cash flows, growth rates and discount rates. Additionally, we consider guideline company and guideline transaction information, where available, to aid in the valuation of the reporting units.
- *Growth Assumptions* - Multi-year financial forecasts of revenue and the resulting cash flows for periods of five to seven years, including an estimated terminal growth rate at the end of the forecasted period, are developed for each reporting unit by considering several key business drivers such as new business initiatives, client service and retention standards, market share changes, historical performance and industry and economic trends, among other considerations.
- *Discount Rate Assumptions* - Discount rates are estimated based on the WACC, which combines the required return on equity and considers the risk-free interest rate, market risk premium, small stock risk premium and a company specific risk premium, with the cost of debt, based on Baa-rated U.S. corporate bonds, adjusted using an income tax factor.
- *Estimated Fair Value and Sensitivitie*s - The estimated fair value of each reporting unit is derived from the valuation

techniques described above. The estimated fair value of each reporting unit is analyzed in relation to numerous market and historical factors, including current economic and market conditions, company-specific growth opportunities and guideline company information.

If the fair value of a reporting unit exceeds the carrying value of the net assets assigned to that reporting unit, goodwill is not impaired and no further testing is required. If the carrying value of the net assets assigned to the reporting unit exceeds the fair value of the reporting unit, the goodwill impairment loss is calculated as the difference between these amounts, limited to the amount of goodwill allocated to the reporting unit.

As part of our 2019 goodwill impairment test in the fourth quarter of 2019, we determined that the excess of the fair value of the Energy Solutions reporting unit within our Industrial & Specialty segment exceeded its carrying value by less than 20%. Goodwill assigned to the Energy Solutions reporting unit was approximately $250 million as of the assessment date. The estimated fair value of this reporting unit is highly sensitive to changes in these estimates and assumptions; therefore, in some instances, changes in these assumptions may impact whether the fair value of a reporting unit is greater than its carrying value. We performed sensitivity analysis around these assumptions in order to assess the reasonableness of the assumptions and the resulting estimated fair values. Based on a sensitivity analysis performed for the Energy Solutions reporting unit, a 100 basis point increase in the WACC or 100 basis point decrease in the terminal growth rate, without any other changes to the valuation, would not result in the carrying value being greater than the fair value. Future impairments of this reporting units may occur if the business does not achieve its expected cash flows or macroeconomic conditions result in an increase in the WACC used to estimate fair value.

In 2019, we also determined that the fair values of the remaining reporting units were considered substantially in excess of their respective carrying values.

See Note 8, *Goodwill and Intangible Assets*, to the Consolidated Financial Statements included in this 2019 Annual Report for additional information.

Indefinite-Lived Intangible Assets

Indefinite-lived intangible assets are reviewed for potential impairment on an annual basis in the fourth quarter, or more frequently when events or circumstances indicate that such assets may be impaired, by comparing their estimated fair values to their carrying values. An impairment charge is recognized when the carrying value of an indefinite-lived intangible asset exceeds its estimated fair value. We use the "relief from royalty" method to estimate the fair value of trade name intangible assets for impairment. The primary assumptions used to estimate the present value of cash flows from such assets include sales projections and growth rates being applied to a prevailing market-based royalty rate, the effects of which are then tax effected and discounted using the WACC from the vantage point of a market participant. Assumptions concerning sales projections are impacted by the uncertain nature of global and local economic conditions in the various markets we serve.

No material impairments of indefinite-lived intangible assets were identified during 2019, 2018 and 2017.

Long-Lived Assets Including Finite-Lived Intangible Assets

Finite-lived intangible assets are amortized on a straight-line basis over their estimated useful lives, which currently range from 8 to 25 years for customer lists, 3 to 10 years for developed technology, 5 to 20 years for trade names and up to 5 years for non-compete agreements. If circumstances require a long-lived asset group to be tested for possible impairment, we first determine whether the estimated undiscounted pre-tax future cash flows expected to result from the use of the asset plus the net proceeds expected from disposition of the asset, if any, are less than the carrying value of the asset. When an impairment is identified, the carrying value of the asset is reduced to its estimated fair value based on a discounted cash flow approach or, when available and appropriate, to comparable market values.

No material impairments of long-lived assets, including finite-lived intangible assets, were identified during 2019, 2018 and 2017.

Income Taxes

We recognize deferred tax assets and liabilities based on the differences between the financial statement basis and the tax basis of assets, liabilities, net operating losses and tax carryforwards. A valuation allowance is required to be recognized to reduce the recorded deferred tax asset to the amount that will more likely than not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income by jurisdiction during the periods in which those temporary

differences become deductible or when carryforwards can be utilized. We consider the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in this assessment. If these estimates and related assumptions change in the future, we may be required to record additional valuation allowances against our deferred tax assets resulting in additional income tax expense. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences and carryforwards are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date of such change.

We are subject to income taxes in the U.S. and in various states and foreign jurisdictions. Significant judgment is required in evaluating our uncertain tax positions and determining our provision for income taxes. The first step in evaluating the tax position for recognition is to determine the amount of evidence that supports a favorable conclusion for the tax position upon audit. In order to recognize the tax position, we must determine whether it is more likely than not that the position is sustainable. The final evaluation step is to measure the tax benefit as the largest amount that has a more than 50% chance of being realized upon final settlement. Although we believe that the positions taken on income tax matters are reasonable, we establish tax reserves in recognition that various taxing authorities may challenge certain of those positions taken, potentially resulting in additional tax liabilities.

Recent Accounting Pronouncements

A summary of recent accounting pronouncements is included in Note 3, *Recent Accounting Pronouncements*, to the Consolidated Financial Statements included in this 2019 Annual Report.

Non-GAAP Financial Measures

To supplement our financial results presented in accordance with GAAP in this Management's Discussion and Analysis of Financial Condition and Results of Operations section, we present certain non-GAAP financial measures, such as operating results on a constant currency and organic basis and Adjusted EBITDA. Management internally reviews each of these non-GAAP measures to evaluate performance on a comparative period-to-period basis in terms of absolute performance, trends and expected future performance with respect to our business. We believe these non-GAAP financial measures, which are each further described below, provide investors with an additional perspective on trends and underlying operating results on a period-to-period comparable basis. We also believe that investors find this information helpful in understanding the ongoing performance of our operations separate from items that may have a disproportionate positive or negative impact on our financial results in any particular period or are considered to be associated with our capital structure.

These non-GAAP financial measures, however, have limitations as analytical tools and should not be considered in isolation from, or a substitute for, or superior to, the related financial information that we report in accordance with GAAP. The principal limitation of these non-GAAP financial measures is that they exclude significant expenses and income that are required by GAAP to be recorded in our financial statements and may not be comparable to similarly titled measures of other companies due to potential differences in calculation methods. In addition, these measures are subject to inherent limitations as they reflect the exercise of judgment by management about which items are excluded or included in determining these non-GAAP financial measures. Investors are encouraged to review the reconciliations of these non-GAAP financial measures to their most comparable GAAP financial measures included in this 2019 Annual Report and not to rely on any single financial measure to evaluate our businesses.

Constant Currency

We disclose operating results, from net sales through operating profit and Adjusted EBITDA, on a constant currency basis by adjusting to exclude the impact of changes due to the translation of foreign currencies of our international locations into U.S. dollars. Management believes this non-GAAP financial information facilitates period-to-period comparison in the analysis of trends in business performance, thereby providing valuable supplemental information regarding our results of operations, consistent with how we internally evaluate our financial results.

The impact of foreign currency translation is calculated by converting our current-period local currency financial results into U.S. dollars using the prior period's exchange rates and comparing these adjusted amounts to our prior period reported results. The difference between actual growth rates and constant currency growth rates represents the impact of foreign currency translation.

Organic Net Sales Growth

Organic net sales growth is defined as net sales excluding the impact of foreign currency translation, changes due to the pass-through pricing of certain metals and acquisitions and/or divestitures, as applicable. Management believes this non-GAAP financial measure provides investors with a more complete understanding of the underlying net sales trends by providing comparable net sales over differing periods on a consistent basis.

For a reconciliation of reported net sales growth to organic net sales growth, see the "*Net Sales*" captions within the "Results of Operations" section below.

Adjusted EBITDA

We define Adjusted EBITDA as EBITDA (earnings before interest, provision for income taxes, depreciation and amortization), excluding the impact of additional items included in GAAP earnings which we believe are not representative or indicative of our ongoing business or are considered to be associated with our capital structure. Management believes Adjusted EBITDA provides investors with a more complete understanding of the long-term profitability trends of our business and facilitates comparisons of our profitability to prior and future periods.

For a reconciliation of "Net income (loss) attributable to common stockholders" to Adjusted EBITDA and more information about the adjustments made, see Note 23, *Segment Information*, to the Consolidated Financial Statements included in this 2019 Annual Report.

Results of Operations

			Change - 2019 vs 2018				Change - 2018 vs 2017		
(dollars in millions)	**2019**	**2018**	**Reported**	**Constant Currency**	**Organic**	**2017**	**Reported**	**Constant Currency**	**Organic**
Net sales	$ 1,835.9	$ 1,961.0	(6)%	(4)%	(4)%	$ 1,878.6	4%	3%	3%
Cost of sales	1,047.6	1,123.4	(7)%	(4)%		1,064.8	6%	4%	
Gross profit	788.3	837.6	(6)%	(3)%		813.8	3%	2%	
Gross margin	*42.9 %*	*42.7 %*	*20 bps*	*10 bps*		*43.3 %*	*(60) bps*	*(50) bps*	
Operating expenses	539.2	589.1	(8)%	(6)%		613.6	(4)%	(5)%	
Operating profit	249.1	248.5	0%	4%		200.2	24%	23%	
Operating margin	*13.6 %*	*12.7 %*	*90 bps*	*90 bps*		*10.7 %*	*200 bps*	*200 bps*	
Other expense, net	(108.2)	(301.7)	(64)%			(460.6)	(34)%		
Income tax (expense) benefit	(61.3)	(23.8)	(nm)			68.6	(nm)		
Net income (loss) from continuing operations	79.6	(77.0)	(nm)			(191.8)	(60)%		
Income (loss) from discontinued operations, net	13.3	(242.9)	(nm)			(103.8)	134%		
Net income (loss)	$ 92.9	$ (319.9)	(nm)			$ (295.6)	8%		
Adjusted EBITDA	$ 416.7	$ 420.7	(1)%	3%		$ 401.2	5%	4%	
Adjusted EBITDA margin	*22.7 %*	*21.5 %*	*120 bps*	*140 bps*		*21.4 %*	*10 bps*	*0 bps*	

(nm) Calculation not meaningful.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018

Net Sales

Net sales for 2019 decreased by 6% on a reported basis and 4% on both a constant currency and organic basis. Electronics and our consolidated results were positively impacted by $7.8 million of acquisitions and negatively impacted by $1.2 million of pass-through metals pricing.

The following table reconciles GAAP net sales growth to constant currency and organic net sales growth:

	Year ended December 31,		% Change					
(dollars in millions)	2019	2018	Reported Net Sales Growth	Impact of Currency	Constant Currency	Pass-Through Metals Pricing	Acquisitions/ Dispositions	Organic Net Sales Growth
Electronics:								
Assembly Solutions	$ 545.6	$ 580.0	(6)%	3%	(3)%	0%	(1)%	(4)%
Circuitry Solutions	377.6	406.3	(7)%	2%	(5)%	—%	—%	(5)%
Semiconductor Solutions	162.5	171.2	(5)%	1%	(4)%	—%	0%	(4)%
Total	$ 1,085.7	$ 1,157.5	(6)%	3%	(4)%	0%	(1)%	(4)%
Industrial & Specialty:								
Industrial Solutions	$ 521.1	$ 560.7	(7)%	3%	(4)%	—%	—%	(4)%
Graphics Solutions	152.0	159.1	(4)%	2%	(2)%	—%	—%	(2)%
Energy Solutions	77.1	83.7	(8)%	4%	(4)%	—%	—%	(4)%
Total	$ 750.2	$ 803.5	(7)%	3%	(3)%	—%	—%	(3)%
Total	$ 1,835.9	$ 1,961.0	(6)%	3%	(4)%	0%	0%	(4)%

NOTE: Totals may not sum due to rounding.

Electronics' net sales for 2019 decreased by 6% on a reported basis and 4% on both a constant currency and organic basis.

- Assembly Solutions: net sales declined by 6% on a reported basis and 4% on an organic basis. The decrease was due to demand softness across the broad consumer and industrial electronics markets, primarily in mobile phone and automotive markets. Weakness in Asia and the Americas, which were impacted by pressure from trade tensions, was partially offset by increased demand for assembly products used in automotive electronics markets.
- Circuitry Solutions: net sales declined by 7% on a reported basis and 5% on an organic basis. The decrease was primarily due to weakness within the high-end mobile phone markets in Asia, primarily China and Taiwan, and lower demand from memory disk customers.
- Semiconductor Solutions: net sales declined 5% on a reported basis and 4% on an organic basis. The decrease was primarily due to weakness in the broad semiconductor market, including lower net sales of products containing precious metals, partially offset by strength in advanced assembly products used in telecom infrastructure, primarily related to 5G, and automotive electronics markets.

Industrial & Specialty's net sales for 2019 decreased by 7% on a reported basis and 3% on both a constant currency and organic basis.

- Industrial Solutions: net sales declined by 7% on a reported basis and 4% on an organic basis. The decrease was due to demand softness in European industrial markets, primarily automotive, and in Asia, particularly China.
- Graphic Solutions: net sales declined by 4% on a reported basis and 2% on an organic basis. The decrease was primarily due to lower newspaper net sales, partially offset by modest growth in packaging, particularly in Europe and Latin America.
- Energy Solutions: net sales declined 8% on a reported basis and 4% on an organic basis. The decrease was primarily due to loss of certain business in the first quarter of 2019 which had a negative impact of approximately 9% on organic

net sales growth, partially offset by growth in Europe and Asia related to fill and drilling activity. The loss of certain business is expected to negatively impact organic net sales growth through the first quarter of 2020.

Gross Profit

(dollars in millions)	Year Ended December 31, 2019	2018	Change Reported	Change Constant Currency
Gross Profit:				
Electronics	$ 447.3	$ 465.5	(4)%	(2)%
Industrial & Specialty	341.0	372.1	(8)%	(5)%
Total	$ 788.3	$ 837.6	(6)%	(3)%
Gross profit margin:				
Electronics	*41.2 %*	*40.2 %*	*100 bps*	*80 bps*
Industrial & Specialty	*45.4 %*	*46.3 %*	*(90) bps*	*(90) bps*
Total	*42.9 %*	*42.7 %*	*20 bps*	*10 bps*

Electronics' gross profit for 2019 decreased by 4% on a reported basis and 2% on a constant currency basis. The constant currency decrease in gross profit was primarily driven by lower net sales partially offset by favorable product mix. Favorable product mix was largely driven by higher net sales of high-margin products in Semiconductor Solutions, which are used in telecom infrastructure, primarily related to 5G, and automotive electronics markets.

Industrial & Specialty's gross profit for 2019 decreased by 8% on a reported basis and 5% on a constant currency basis. The constant currency decrease in gross profit was driven by lower net sales volumes. The decrease in gross margin was primarily due to lower net sales in Energy Solutions, which products have higher gross margins.

Operating Expenses

(dollars in millions)	Year ended December 31, 2019	2018	Change Reported	Change Constant Currency
Selling, technical, general and administrative (STG&A)	$ 497.0	$ 544.8	(9)%	(6)%
Research and development (R&D)	42.2	44.3	(5)%	(4)%
Total	$ 539.2	$ 589.1	(8)%	(6)%
Operating Expenses as % of Net Sales				
STG&A	*27.1 %*	*27.8 %*	*(70) bps*	*(90) bps*
R&D	*2.3 %*	*2.3 %*	*0 bps*	*(10) bps*
Total	*29.4 %*	*30.0 %*	*(60) bps*	*(80) bps*

Operating expenses for 2019 decreased 8% on a reported basis and 6% on a constant currency basis, driven primarily by lower corporate expenses as we benefited from our cost containment initiatives implemented in the second quarter of 2019 across the Company's businesses. In addition, we continue to realize the benefits relating to our corporate structure reorganization. Operating expenses for 2019 and 2018 reflect a benefit of $17.4 million and $21.8 million, respectively, as a result of adjustments to the performance targets of the contingent consideration liability the majority of which was recognized in the fourth quarter.

Other (Expense) Income, net

(dollars in millions)	Year Ended December 31, 2019	2018
Interest expense, net	$ (90.7)	$ (311.0)
Foreign exchange gain (loss)	28.7	(5.5)
Other (expense) income, net	(46.2)	14.8
Total	$ (108.2)	$ (301.7)

Interest expense, net

Net interest expense decreased $220 million primarily due to the pay down of our existing credit facilities on January 31, 2019 in connection with the Arysta Sale.

Foreign exchange gain (loss)

Foreign exchange gain increased $34.2 million primarily due to the remeasurement of euro- and British pound-denominated intercompany balances and losses on euro-denominated external debt into U.S. dollar in 2018, which did not reoccur to the same extent in 2019, which was partially offset by Taiwan dollar-denominated intercompany balances.

Other (expense) income, net

Other expense, net for 2019 totaled $46.2 million and included $61.0 million of debt refinancing costs related to the pay down of our then existing credit facilities in connection with the Arysta Sale, partially offset by a $11.7 million gain on derivative contracts, associated with the refinancing of our non-U.S. dollar denominated third-party debt in the first quarter. Other income, net for 2018 totaled $14.8 million and included a gain on the sale of an equity investment of $11.3 million.

Income Tax

The income tax expense for 2019 totaled $61.3 million, as compared to $23.8 million of expense in 2018. Tax expense changed primarily due to the increase in pre-tax income and the net impact of change in valuation allowances. In addition, 2018 includes a net benefit of $41.8 million associated with finalizing the accounting for the impact of the TCJA that did not recur in 2019. Both years reflect the negative impact of U.S. taxation of global intangible low-taxed income ("GILTI") and U.S. interest deduction limitations. For additional information see Note 11, *Income Taxes*, to the Consolidated Financial Statements included in this 2019 Annual Report.

Income (Loss) from Discontinued Operations, Net of Tax

Net income from discontinued operations was $13.3 million for 2019, which primarily represented the settlement of certain post-closing adjustments. Net loss from discontinued operations was $243 million for 2018, primarily due to the estimated impairment on the Arysta Sale of $450 million. See Note 5, *Discontinued Operations*, to the Consolidated Financial Statements for further information regarding the Arysta discontinued operation.

Other Comprehensive Income (Loss)

Other comprehensive income for 2019 totaled $517 million, as compared to a loss of $371 million in the prior year. The change was driven primarily by foreign currency translation losses resulting from the Arysta Sale of $480 million and currency translation gains associated with the Brazilian real, Chinese yuan and euro, partially offset by losses associated with the British pound.

Segment Adjusted EBITDA Performance

(dollars in millions)	Year Ended December 31, 2019	Year Ended December 31, 2018	Change Reported	Change Constant Currency
Adjusted EBITDA:				
Electronics	$ 252.9	$ 248.2	2%	6%
Industrial & Specialty	163.8	172.5	(5)%	(1)%
Total	$ 416.7	$ 420.7	(1)%	3%
Adjusted EBITDA margin:				
Electronics	*23.3 %*	*21.4 %*	*190 bps*	*210 bps*
Industrial & Specialty	*21.8 %*	*21.5 %*	*30 bps*	*50 bps*
Total	*22.7 %*	*21.5 %*	*120 bps*	*140 bps*

Electronics' Adjusted EBITDA for 2019 increased 2% on a reported basis and 6% on a constant currency basis. The constant currency increase was driven primarily by lower general and administrative expenses, partially offset by lower gross profit.

Industrial & Specialty's Adjusted EBITDA for 2019 decreased 5% on a reported basis and 1% on a constant currency basis. The constant currency decrease was driven primarily by lower gross profit, partially offset by lower general and administrative expenses.

On a consolidated basis for 2019, the relatively stable gross margins and the decrease in overall operating expenses, which declined at a rate higher than the decline in overall net sales, led to Adjusted EBITDA margin expansion compared to the prior year.

Comparison of Fiscal Years 2018 and 2017

For the comparison of fiscal years 2018 and 2017, see "*Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017*" in Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations,* included in our 2018 Annual Report and is incorporated by reference into this 2019 Annual Report.

Liquidity and Capital Resources

The Arysta Sale was completed on January 31, 2019 for net cash proceeds of $4.28 billion, after post-closing adjustments relating to, among other things, cash, indebtedness and working capital, as finalized with UPL on May 17, 2019. On the closing date of the Arysta Sale, the $750 million term loan was borrowed under the Credit Agreement. On November 26, 2019, this term loan was subject to a repricing, which provided for a 25 basis point reduction in the interest rate spread applicable to the term loan.

Our primary sources of liquidity during 2019 were the proceeds of the Arysta Sale, as well as the $750 million term loan under the Credit Agreement, periodic borrowings under our revolving credit facility under the Credit Agreement and, prior to January 31, 2019, the Company's second amended and restated credit agreement, dated August 6, 2014, as further amended and restated, and available cash generated from operations. Our primary uses of cash and cash equivalents were to fund operations, debt service obligations, capital expenditures and working capital, as well as to pay down approximately $4.60 billion of debt outstanding on the closing date of the Arysta Sale and to fund our $507 million of repurchases of our common stock. In the first quarter of 2019, we also paid $40.0 million of contingent consideration related to the achievement of certain common stock trading targets set in connection with the MacDermid Acquisition. The expected interest payments on our existing debt, consisting of the 5.875% USD Notes due 2025 and the refinanced term loan under the Credit Agreement, are expected to total approximately $65 million per year over the next three years, taking into account the effect of interest rate swaps and cross-currency swaps, excluding any potential additional borrowings under the Credit Agreement, with the first significant payment, totaling $800 million due 2025.

We believe that our cash and cash equivalents and cash generated from operations, supplemented by our availability under our lines of credit, including our revolving credit facility under the Credit Agreement, will be sufficient to meet our working capital needs, interest payments, capital expenditures and other business requirements for at least the next twelve months. However,

working capital cycles and/or future repurchases of our common stock and/or acquisitions may require additional funding, which may include future debt and/or equity offerings. Our long-term liquidity may be influenced by our ability to borrow additional funds, renegotiate existing debt and raise equity under terms that are favorable to us.

We may from time to time seek to repurchase our equity and/or to retire or repurchase our outstanding debt through cash purchases and/or exchanges for equity, in open market purchases, privately negotiated transactions or otherwise. Such repurchases or exchanges, if any, will depend on prevailing market conditions, our liquidity requirements, contractual restrictions, applicable restrictions under our various financing arrangements, and other factors.

During 2019, approximately 76% of our net sales were generated from non-U.S. operations, and we expect a large portion of our net sales to continue to be generated outside of the U.S. As a result, our foreign subsidiaries will likely continue to hold a substantial portion of our cash. We expect to manage our worldwide cash requirements based on available funds among the many subsidiaries through which we conduct business and the cost effectiveness with which those funds can be accessed. We may transfer cash from certain international subsidiaries to U.S. and/or other international subsidiaries when we believe it is cost effective to do so.

We continually review our domestic and foreign cash profile, expected future cash generation and investment opportunities, which support our current designation of a portion of these funds as being indefinitely reinvested, and reassess whether there are demonstrated needs to repatriate a portion of these funds being held internationally. If, as a result of our review, we determine that all or a portion of the funds require repatriation, we may be required to accrue additional taxes. Of our $190 million of cash and cash equivalents at December 31, 2019, $158 million was held by our foreign subsidiaries. In 2019, domestic cash was primarily used to fund repurchases of our common stock and repayments of our revolving credit facility under the Credit Agreement. See Note 11, *Income Taxes*, to our Consolidated Financial Statements included in this 2019 Annual Report for further discussion of income taxes on remaining undistributed foreign earnings.

The following is a summary of our cash flows used in operating, investing and financing activities of continuing operations during the periods indicated:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Cash provided by (used in) operating activities	$ 170.9	$ (0.8)	$ (34.3)
Cash provided by (used in) investing activities	$ 4,199.7	$ (23.8)	$ (18.9)
Cash used in financing activities	$ (4,438.9)	$ (1.4)	$ (1.7)

Year Ended December 31, 2019 compared to the Year Ended December 31, 2018

Operating Activities

Increase in net cash flows used in operating activities of $172 million was driven primarily by higher cash operating profits (net loss adjusted for non-cash items), including $168 million of lower interest payments and lower net build of accounts receivable and inventories due to lower net sales, partially offset by the payment of contingent consideration liability in the first quarter of 2019 of $30.9 million.

Investing Activities

Increase in net cash flows provided by investing activities was primarily driven by the Arysta Sale, which generated $4.28 billion, after certain post-closing adjustments. In the fourth quarter of 2019, we completed the Kester Acquisition for $63.9 million, net of cash, working capital and other closing adjustments. Investing cash inflows from the prior year include $25.0 million of proceeds from the sale of an equity investment, which was offset by an acquisition for $28.2 million.

Financing Activities

The increase in net cash flows used in financing activities was primarily driven by the pay down of approximately $4.60 billion of debt from a combination of proceeds of the Arysta Sale and a $750 million term loan under the Credit Agreement. These cash inflows were also used to fund the repurchases of our common stock for an aggregate purchase price of approximately $507 million. In addition, $40.5 million was primarily used to fund fees related to our debt pay down and the Credit Agreement. Cash outflows under our lines of credit totaled $24.9 million during 2019, as compared to $25.0 million of inflows from borrowings in 2018.

Pension Plans

We maintain "Domestic Pension Plans," which consist of a non-contributory domestic defined benefit pension plan and SERP plans. These plans are closed to new participants and plan benefits associated with all current participants have been frozen. We also maintain "Foreign Pension Plans" in countries such as Taiwan and Germany, which include a mixture of retirement, death benefit and longevity plans, among others, all of which have been deemed immaterial, individually and in the aggregate.

The expected long-term rate of return on assets assumption is developed with reference to historical returns, forward-looking return expectations, the Domestic and Foreign Pension Plans' investment allocations, and peer comparisons. We used a long-term rate of return on plan assets of 5.4% and 1.4% for our Domestic and Foreign Pension Plans, respectively, to determine our net periodic pension expense for 2019. The discount rate used to value the pension obligation was developed with reference to a number of factors, including the current interest rate environment, benchmark fixed-income yields, peer comparisons and expected future pension benefit payments. Discount rates of 3.3% and 1.0% were established for the Domestic Pension Plan and Foreign Pension Plans, respectively, at December 31, 2019, compared to rates of 4.3% and 1.5% established for those respective plans at December 31, 2018. We evaluate the Pension Plans' actuarial assumptions on an annual basis, including the expected long-term rate of return on assets and discount rates. A one percent increase in the discount rate would increase (decrease) the pension plan expense and pension benefit obligation by approximately $1.0 million and $(23.4) million, respectively, whereas a one percent decrease in the discount rate would (decrease) increase the pension plan expense and pension benefit obligation by approximately $(0.9) million and $28.2 million, respectively.

Our Domestic Pension Plans' investment policies incorporate an asset allocation strategy that emphasizes long-term growth of capital and acceptable asset volatility as long as such volatility remains consistent with the volatility of the indexes of relevant markets. Our investment policies attempt to achieve a mix of approximately 25% of plan investments for long-term growth, 74% for liability-matching and 1% for near-term benefit payments. The weighted average asset allocation of the Domestic Pension Plans was 87% fixed income mutual fund holdings, 7% equity securities, 5% limited partnership interests and managed equity funds and 1% cash at December 31, 2019.

The Domestic Pension Plans were underfunded by $22.0 million at December 31, 2019 compared to $21.5 million at December 31, 2018. The decrease in the funding position was primarily driven by actuarial losses due to changes in plan assumptions and experience of $24.5 million and $8.7 million of interest costs, partially offset by a gain on plan assets of $32.2 million and a $0.5 million employer contribution.

The Foreign Pension Plans were underfunded by $20.6 million at December 31, 2019 compared to $19.0 million at December 31, 2018.

The Company is not required to make any plan contributions in 2020. While we do not currently anticipate any, additional future material contributions may be required in order to maintain appropriate funding levels within our plans.

Financial Borrowings

Credit Facilities and Senior Notes

At December 31, 2019, we had $1.52 billion of indebtedness, which primarily included:

- $787 million of 5.875% USD Notes due 2025; and
- $733 million of term debt arrangements outstanding under our term loans.

Availability under our revolving credit facility and various lines of credit and overdraft facilities totaled $351 million at December 31, 2019 (net of $5.3 million of stand-by letters of credit which reduce our borrowing capacity).

Covenants

At December 31, 2019, we were in compliance with the debt covenants contained in our credit facilities under the Credit Agreement and, in accordance with applicable debt covenants, had full availability of our unused borrowing capacity, net of letters of credit, under the revolving facility.

Contractual Obligations and Commitments

We own most of our major manufacturing facilities, but we do lease certain offices, manufacturing factories, warehouse spaces and land, as well as other equipment primarily under non-cancelable operating leases.

Summarized in the table below are our obligations and commitments at December 31, 2019:

		Payment Due by Period						
(dollars in millions)		2020	2021	2022	2023	2024	Thereafter	Total
Long-term debt	(1)	$ 7.4	$ 7.4	$ 7.4	$ 7.4	$ 7.4	$ 1,505.5	$ 1,542.5
Operating leases	(2)	19.2	15.5	11.9	9.7	7.7	27.9	91.9
Interest payments, net	(1) (3)	62.3	62.1	61.9	61.8	73.1	75.9	397.1
Principal payments on finance leases		0.2	0.1	0.1	—	—	—	0.4
Purchase obligations and other long-term obligations		2.0	—	—	—	—	6.5	8.5
Total cash contractual obligations		$ 91.1	$ 85.1	$ 81.3	$ 78.9	$ 88.2	$ 1,615.8	$ 2,040.4

(1) Reflects the principal payments on long-term debt.

(2) Reflects periodic payments made in accordance with operating lease agreements.

(3) Amounts are based on currently applicable interest rates and exchange rates in the case of variable interest rate debt net of associated floating and floor legs of the interest rate swaps.

(4) Purchase obligations represent amounts committed under legally enforceable supply agreements and non-cancelable purchase contracts. We do not include purchase obligations that can be canceled with a nominal fee. Other long-term obligations consist of asset retirement obligations, or AROs.

Benefit payments related to our defined benefit plans are included in Note 10, *Pension, Post-Retirement and Post Employment Plans*, to the Consolidated Financial Statements included in this 2019 Annual Report, and are excluded from the table above.

To the extent we can reliably determine when payments will occur pertaining to our $71.2 million unrecognized tax benefit liabilities and $12.0 million environmental liability, the related amounts will be included in the table above. However, due to the high degree of uncertainty regarding the timing of potential future cash flows associated with such liabilities at December 31, 2019, we are unable to make a reliable estimate as to the timing of such payments, and are therefore excluded from the table above.

Off-Balance Sheet Transactions

We use customary off-balance sheet arrangements, such as letters of credit, to finance our business.

For additional information regarding letters of credit, see Note 12, *Debt*, to the Consolidated Financial Statements included in this 2019 Annual Report, under the heading "Lines of Credit and Other Debt Facilities."

There are no other arrangements that have, or are reasonably likely to have, a current or future material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Foreign Currency Risk

We conduct a significant portion of our business in currencies other than the U.S. dollar, our financial reporting currency. In 2019, approximately 76% of our net sales were generated outside of the U.S. Generally, our foreign subsidiaries use their local currency as their functional currency; the currency in which they incur operating expenses and collect accounts receivable. Our business is exposed to foreign currency risk from changes in the exchange rate primarily between the U.S. dollar and the following currencies: euro, Chinese yuan, British pound, and Taiwan dollar. As a result, our operating results could be affected by foreign currency exchange rate volatility relative to the U.S. dollar. We are not able to project, in any meaningful way, the possible effect of these foreign currency fluctuations on translated amounts or future earnings.

We actively assess our foreign exchange risk exposure and may enter into foreign exchange hedges to mitigate such risk and protect ourselves against transaction exposures. Our hedging programs include strategies to mitigate our foreign currency

denominated balance sheet exposures as well as foreign currency anticipated cash flows. At December 31, 2019, the aggregate U.S. dollar notional amount of foreign currency forward contracts, none of which were designated as hedges for accounting purposes, totaled $74.2 million. The market value of the foreign currency forward contracts at December 31, 2019 was a $0.7 million net current asset, and net realized and unrealized gains on such contracts for 2019 totaled $14.7 million.

Our policies prohibit us from speculating in financial instruments for profit on exchange rate price fluctuations, from trading in currencies for which there are no underlying exposures and from entering into trades for any currency to intentionally increase the underlying exposure.

Interest Rate Risk

We are exposed to interest rate risk associated with our cash and cash equivalents, long-term debt and other financing commitments. At December 31, 2019, we had cash and cash equivalents of $190 million and total debt of $1.52 billion, including approximately $733 million of variable interest rate debt based on the one-month LIBOR. We entered into a series of pay-fixed, receive-floating interest rate swaps with respect to a portion of our indebtedness. The swaps effectively fixed the floating rate portion of the interest payments of our $750 million term loan under the Credit Agreement. We also entered into cross-currency swaps to effectively convert the $750 million term loan under the Credit Agreement, a U.S. dollar denominated debt obligation, into fixed-rate euro-denominated debt. Under these contracts, we are obligated to make periodic euro-denominated coupon payments to the hedge counterparties on an aggregate initial notional amount of €662 million, in exchange for periodic U.S. dollar-denominated coupon payments from these hedge counterparties on an aggregate initial notional amount of $750 million. The net result of these hedges, which expire in January 2024, is an interest rate of approximately 2.2%, which could vary due to changes in the euro and the U.S. dollar exchange rate.

Counterparty Risk

Outstanding financial derivative instruments expose us to credit loss in the event of non-performance by our counterparties. The credit exposure related to these financial instruments is considered in the fair values of such contracts. We review the credit ratings of our counterparties and adjust our exposure as deemed appropriate on a periodic basis. At December 31, 2019, we believe that our exposure to counterparty risk was immaterial.

Commodity Price Risk

Some raw materials and supplies are subject to price and supply fluctuations caused by market dynamics. Our strategic sourcing initiatives are focused on mitigating the impact of commodity price risk. Although some of our commercial agreements allow us to pass on certain unusual increases in component and raw material costs to our customers in limited situations, we may not be fully compensated for such increased costs. To a lesser extent, we are also exposed to fluctuations in the prices of certain utilities and services, such as electricity, natural gas and freight.

Periodically, we employ forward metals contracts or other financial instruments to hedge commodity price or other price risks. Such contracts are generally designated as normal purchases and accounted for similar to other inventory purchases. We continue to review a full range of business options focused on strategic risk management for all raw material commodities. Any failure by our suppliers to provide acceptable raw materials or supplies could adversely affect our production schedules and contract profitability. We assess qualification of suppliers and continually monitor them to control risk associated with such supply base reliance. At December 31, 2019, the aggregate U.S. dollar notional amount of metals futures contracts, none of which were designated as hedges for accounting purposes, totaled $28.6 million. The market value of the metals forward contracts at December 31, 2019 was a $0.4 million net current liability, and net realized and unrealized losses on such contracts for 2019 totaled $1.3 million.

Item 8. Financial Statements and Supplementary Data

See “Index to Consolidated Financial Statements” in this 2019 Annual Report.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As required by Rule 13a-15 under the Exchange Act, management carried out an evaluation, under the supervision and with the participation of our CEO and CFO, of the effectiveness of the design and operation of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) at December 31, 2019. Based on this evaluation, our CEO and CFO have concluded that our disclosure controls and procedures at December 31, 2019 were effective to provide reasonable assurance that the information required to be disclosed by us in the reports we file or submit under the Exchange Act is (1) recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms and (2) accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow timely decisions regarding required disclosures.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of our financial statements in accordance with GAAP, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. As required by Rule 13a-15 under the Exchange Act, management assessed the effectiveness of our internal control over financial reporting at December 31, 2019. In making this assessment, management used the criteria set forth in the *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Based on this assessment, the Company's management has concluded that our internal control over financial reporting was effective at December 31, 2019.

The effectiveness of our internal control over financial reporting at December 31, 2019 has been audited by PricewaterhouseCoopers LLP, as stated in their report, which appears in this 2019 Annual Report.

Changes to Internal Control Over Financial Reporting

As required by Rule 13a-15(d) under the Exchange Act, our management, including our CEO and CFO, has evaluated the Company's internal control over financial reporting to determine whether any changes occurred during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. There have been no changes in our internal control over financial reporting during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item regarding the Company's executive officers, directors and audit committee of the Board will be included in the 2020 Proxy Statement under the headings "Executive Officers of the Company," "Proposal 1 - Election of Directors" and "Corporate Governance," and is incorporated by reference into this 2019 Annual Report.

The Company has adopted a Business Conduct and Ethics Policy applicable to all directors and employees of Element Solutions, including our CEO, CFO and Chief Accounting Officer. The Company has also adopted a Code of Ethics for Senior Financial Officers applicable, more specifically, to our CEO, CFO and Chief Accounting Officer. The Policy and the Code of Ethics are posted on the Company's website at *www.elementsolutionsinc.com* under "Investors – Corporate Governance – Governance Documents." We intend to provide disclosure of any amendment to or waiver of the Policy and/or Code of Ethics on our website within four business days following the date of such amendment or waiver.

Item 11. Executive Compensation

The information required by this item will be included in the 2020 Proxy Statement under the headings "Director Compensation," "Compensation Discussion and Analysis," "Report of the Compensation Committee," "Executive Compensation Tables" and "Corporate Governance - Compensation Committee interlocks and Insider Participation," and is incorporated by reference into this 2019 Annual Report.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item will be included in the 2020 Proxy Statement under the headings "Security Ownership" and "Executive Compensation Tables - Equity Compensation Plan Information," and is incorporated by reference into this 2019 Annual Report.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item will be included in the 2020 Proxy Statement under the headings "Corporate Governance" and "Certain Relationships and Related Transactions," and is incorporated by reference into this 2019 Annual Report.

Item 14. Principal Accounting Fees and Services

The information required by this item will be included in the 2020 Proxy Statement under the headings "Report of the Audit Committee" and "Proposal 3 - Ratification of Independent Registered Public Accounting Firm for 2020," and is incorporated by reference into this 2019 Annual Report.

Part IV

Item 15. Exhibits, Financial Statement Schedules

(A) Exhibits

Exhibit Nb.	Exhibit Description	Incorporated by Reference				Included in this 2019 Annual Report
		Form	File Nb.	Exhibit Nb.	Filing Date	
2.1**	Stock Purchase Agreement, dated as of July 20, 2018, between Element Solutions and UPL.	8-K	001-36272	2.1	7/20/2018	
2.2	Amendment Number One to Stock Purchase Agreement dated as of January 25, 2019 by and among Element Solutions, UPL, Arysta, US Purchaser and Merger Sub	8-K	001-36272	2.1	1/28/2019	
3.1(a)	Certificate of Incorporation, dated January 22, 2014	S-4 POS	333-192778	3.1	1/24/2014	
3.1(b)	Certificate of Amendment of Certificate of Incorporation, dated June 12, 2014	8-K	001-36272	3.1	6/13/2014	
3.1(c)	Certificate of Amendment of Certificate of Incorporation, dated January 31, 2019	8-K	001-36272	3.1	2/5/2019	
3.2	Amended and Restated By-laws	8-K	001-36272	3.2	2/5/2019	
4.1	Specimen Common Stock certificate	8-K	001-36272	4.1	2/5/2019	
4.2	Description of Common Stock					X
4.3	Indenture, dated as of November 24, 2017, among Element Solutions (f/k/a Platform Specialty Products Corporation), the guarantors named therein and the Trustee	8-K	001-36272	4.1	11/27/2017	
4.4	Form of 5.875% senior notes due 2025 (Exhibit A)	8-K	001-36272	A to 4.01	11/27/2017	
10.1**	Credit Agreement, dated as of January 31, 2019, by and among, inter alios, the Company, MacDermid, the subsidiaries of the Company from time to time parties thereto, the lenders from time to time parties thereto, and Barclays Bank PLC, as administrative agent	8-K	001-36272	10.1	2/5/2019	
10.2**	Amendment No.1 to Credit Agreement, dated November 26, 2019, among, inter alios, the Company, MacDermid, the subsidiaries of the Company from time to time parties thereto, the lenders from time to time parties thereto, and Barclays Bank PLC, as administrative agent	8-K	001-36272	10.1	12/3/2019	
10.3**	Pledge and Security Agreement, dated as of January 31, 2019, among the Company, MacDermid and the subsidiaries of the Company from time to time parties thereto in favor of Barclays Bank PLC, as collateral agent	8-K	001-36272	10.2	2/5/2019	
10.4†	Element Solutions Inc Amended and Restated 2013 Incentive Compensation Plan	10-Q	001-36272	10.2	8/2/2019	
10.5†	Element Solutions Inc 2014 Employee Stock Purchase Plan	10-Q	001-36272	10.3	8/2/2019	

Exhibit Nb.	Exhibit Description	Incorporated by Reference				Included in this 2019 Annual Report
		Form	File Nb.	Exhibit Nb.	Filing Date	
10.6†	MacDermid, Incorporated Supplemental Executive Retirement Plan, effective April 1, 1994, as amended on February 25, 2005, and as further amended on July 11, 2013	S-4/A	333-192778	10.7	1/2/2014	
10.7†	Amendment No. 1, dated as of December 13, 2013, to MacDermid, Incorporated Supplemental Executive Retirement Plan (as Previously Amended and Restated)	S-4/A	333-192778	10.9	1/2/2014	
10.8†	Form of Restricted Stock Unit Agreement – Platform Specialty Products Corporation Amended and Restated 2013 Incentive Compensation Plan	S-4	333-192778	10.11	1/2/2014	
10.9†	Form of Performance-Based Restricted Stock Unit Award Agreement – Element Solutions Inc Amended and Restated 2013 Incentive Compensation Plan	8-K	001-36272	10.2	3/25/2016	
10.10†	Form of Non-Qualified Stock Option Agreement – Element Solutions Inc Amended and Restated 2013 Incentive Compensation Plan	8-K	001-36272	10.3	3/25/2016	
10.11†	Form of Incentive Stock Option Agreement – Element Solutions Inc Amended and Restated 2013 Incentive Compensation Plan	10-K	001-36272	10.23	2/28/2019	
10.12†	Form of Director and Officer Indemnification Agreement	S-4/A	333-192778	10.12	1/2/2014	
10.13†	Form of Change in Control Agreement	10-Q	001-36272	10.1	11/7/2019	
10.14	Advisory Services Agreement, dated October 31, 2013, by and between Element Solutions Inc (f/k/a Platform Specialty Products Corporation) and Mariposa Capital, LLC	S-4/A	333-192778	10.15	1/2/2014	
10.15	Letter Agreement, dated July 11, 2016, by and between Element Solutions Inc (f/k/a Platform Specialty Products Corporation) and John P. Connolly, former CFO	8-K	001-36272	10.1	3/28/2019	
10.16	Letter Agreement, dated March 22, 2019, by and between Element Solutions Inc and John P. Connolly, former CFO	8-K	001-36272	10.2	3/28/2019	
14.1	Code of Ethics for Senior Financial Officers	10-K	001-36272	14.1	2/28/2019	
21.1	List of subsidiaries					X
23.1	Consent of PricewaterhouseCoopers LLP					X
24.1	Power of Attorney					X
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1*	Certification pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.SCH*	Inline XBRL Taxonomy Extension Schema Document					X
101.CAL*	Inline XBRL Extension Calculation Linkbase Document					X

Exhibit Nb.	Exhibit Description	Incorporated by Reference				Included in this 2019 Annual Report
		Form	File Nb.	Exhibit Nb.	Filing Date	
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document					X
101.INS*	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL documents					X
104*	Cover Page Interactive Data File (formatted as Inline XBRL and included in Exhibit 101)					X

* Furnished herewith.

** Certain schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule or exhibit will be furnished supplementally to the SEC upon request.

† Indicates management contract or compensatory plan.

(B) Financial Statement Schedule

Schedule II — Valuation and Qualifying Accounts and Reserves

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

ELEMENT SOLUTIONS INC

By: /s/ Michael Russnok
Michael Russnok
Chief Accounting Officer
Date: February 28, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Benjamin Gliklich Benjamin Gliklich	Director and Chief Executive Officer (Principal Executive Officer)	February 28, 2020
/s/ Carey J. Dorman Carey J. Dorman	Chief Financial Officer (Principal Financial Officer)	February 28, 2020
/s/ Michael Russnok Michael Russnok	Chief Accounting Officer (Principal Accounting Officer)	February 28, 2020
/s/ Martin E. Franklin Martin E. Franklin	Executive Chairman of the Board	February 28, 2020
/s/ Scot R. Benson Scot R. Benson	Director and President & Chief Operating Officer	February 28, 2020
/s/ Ian G.H. Ashken Ian G.H. Ashken	Director	February 28, 2020
/s/ Christopher T. Fraser Christopher T. Fraser	Director	February 28, 2020
/s/ Michael F. Goss Michael F. Goss	Director	February 28, 2020
/s/ Nichelle Maynard-Elliott Nichelle Maynard-Elliott	Director	February 28, 2020
/s/ E. Stanley O'Neal E. Stanley O'Neal	Director	February 28, 2020
/s/ Rakesh Sachdev Rakesh Sachdev	Director	February 28, 2020

Index to Consolidated Financial Statements

	Page
Report of Independent Registered Public Accounting Firm	F-1
Consolidated Financial Statements:	
Consolidated Statements of Operations	
Years Ended December 31, 2019, 2018 and 2017	F-4
Consolidated Statements of Comprehensive Income (Loss)	
Years Ended December 31, 2019, 2018 and 2017	F-5
Consolidated Balance Sheets	
December 31, 2019 and 2018	F-6
Consolidated Statements of Cash Flows	
Years Ended December 31, 2019, 2018 and 2017	F-7
Consolidated Statements of Changes in Stockholders' Equity	
Years Ended December 31, 2019, 2018 and 2017	F-8
Notes to Consolidated Financial Statements	F-11
Financial Statement Schedule:	
Schedule II – Valuation and Qualifying Accounts and Reserves	
Years Ended December 31, 2019, 2018 and 2017	F-46

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Element Solutions Inc

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Element Solutions Inc and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations, of comprehensive income (loss), of changes in stockholders' equity and of cash flows for each of the three years in the period ended December 31, 2019, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 3 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the

company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Goodwill Impairment Assessment

As described in Notes 2 and 8 to the consolidated financial statements, the Company's consolidated goodwill balance was $2.2 billion as of December 31, 2019. Goodwill is tested for impairment by management at the reporting unit level annually in the fourth quarter, or when events or changes in circumstances indicate that goodwill might be impaired. Management tests for impairment by comparing the fair value of each reporting unit to its carrying value. The fair value of each reporting unit is based equally on market multiples and the present value of discounted future cash flows. The cash flow model utilized by management in the goodwill impairment test involves significant judgments related to future growth rates and discount rates, among other considerations from the vantage point of a market participant.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment is a critical audit matter are there was significant judgment by management when developing the fair value measurement of the reporting units. This in turn led to a high degree of auditor judgment, subjectivity, and effort in performing procedures and in evaluating audit evidence relating to management's cash flow projections, including significant assumptions for the future growth rates and the discount rates. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the valuation of the Company's reporting units. These procedures also included, among others, testing management's process for developing the fair value estimates. This included evaluating the appropriateness of the discounted cash flow model, testing the completeness, accuracy, and relevance of underlying data used in the model, and evaluating the significant assumptions used by management, including the future growth rates and the discount rates. Evaluating management's assumptions related to future growth rates involved evaluating whether the assumptions used by management were reasonable considering (i) the current and past performance of the reporting units, (ii) the consistency with external market and industry data, and (iii) whether the assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in the evaluation of the appropriateness of the Company's discounted cash flow model and reasonableness of certain significant assumptions used by management, including the discount rates.

Valuation Allowance Assessment of Deferred Tax Assets

As described in Notes 2 and 11 to the consolidated financial statements, the Company has recorded $138.4 million of deferred tax assets as of December 31, 2019, net of valuation allowance of $219.6 million. The Company recognizes deferred tax assets and liabilities based on the differences between the financial statement basis and the tax basis of assets, liabilities, net operating losses and tax carryforwards. A valuation allowance is required to be recognized to reduce the recorded deferred tax asset to the amount that will more likely than not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income by jurisdiction during the periods in which those temporary differences become deductible or when carryforwards can be utilized. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in this assessment.

The principal considerations for our determination that performing procedures relating to the valuation allowance assessment of deferred tax assets is a critical audit matter are there was significant judgment by management in determining the realizability of deferred tax assets by jurisdiction, particularly as it relates to estimates of projected future taxable income, expected utilization of net operating losses, and tax carryforwards. This in turn led to a high degree of auditor judgment, subjectivity, and

effort in performing procedures and in evaluating audit evidence relating to management's assessment of the realizability of deferred tax assets and assumptions relating to projected future taxable income, expected utilization of net operating losses, and tax carryforwards.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the valuation allowance assessment of deferred tax assets, including controls over the determination of future taxable income by jurisdiction, expected utilization of net operating losses, and tax carryforwards. These procedures also included, among others, testing the completeness and accuracy of underlying data used by management, and evaluating management's assessment of the realizability of deferred tax assets by jurisdiction. This included evaluating the reasonableness of management's assumptions related to projected future taxable income, expected utilization of net operating losses, and tax carryforwards. Evaluating management's assumptions related to projected future taxable income, expected utilization of net operating losses, and tax carryforwards involved evaluating whether the assumptions used by management were reasonable considering the current and past performance of the respective entity and whether the assumptions were consistent with evidence obtained in other areas of the audit.

/s/ PricewaterhouseCoopers LLP
New York, New York
February 28, 2020

We have served as the Company's auditor since 2013.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(dollars in millions, except per share amounts)

	Year Ended December 31,		
	2019	**2018**	**2017**
Net sales	$ 1,835.9	$ 1,961.0	$ 1,878.6
Cost of sales	1,047.6	1,123.4	1,064.8
Gross profit	788.3	837.6	813.8
Operating expenses:			
Selling, technical, general and administrative	497.0	544.8	567.2
Research and development	42.2	44.3	46.4
Total operating expenses	539.2	589.1	613.6
Operating profit	249.1	248.5	200.2
Other (expense) income:			
Interest expense, net	(90.7)	(311.0)	(336.9)
Foreign exchange gain (loss)	28.7	(5.5)	(53.7)
Other (expense) income, net	(46.2)	14.8	(70.0)
Total other expense	(108.2)	(301.7)	(460.6)
Income (loss) before income taxes and non-controlling interests	140.9	(53.2)	(260.4)
Income tax (expense) benefit	(61.3)	(23.8)	68.6
Net income (loss) from continuing operations	79.6	(77.0)	(191.8)
Income (loss) from discontinued operations, net of tax	13.3	(242.9)	(103.8)
Net income (loss)	92.9	(319.9)	(295.6)
Net income attributable to the non-controlling interests	(0.7)	(4.5)	(0.6)
Net income (loss) attributable to common stockholders	$ 92.2	$ (324.4)	$ (296.2)
Earnings (loss) per share			
Basic from continuing operations	$ 0.31	$ (0.27)	$ (0.68)
Basic from discontinued operations	0.05	(0.86)	(0.36)
Basic attributable to common stockholders	$ 0.36	$ (1.13)	$ (1.04)
Diluted from continuing operations	$ 0.30	$ (0.27)	$ (0.68)
Diluted from discontinued operations	0.05	(0.86)	(0.36)
Diluted attributable to common stockholders	$ 0.35	$ (1.13)	$ (1.04)
Weighted average common shares outstanding			
Basic	257.6	288.2	286.1
Diluted	260.1	288.2	286.1

See accompanying notes to consolidated financial statements.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(dollars in millions)

	Year Ended December 31,		
	2019	**2018**	**2017**
Net income (loss)	$ 92.9	$ (319.9)	$ (295.6)
Other comprehensive income (loss)			
Foreign currency translation:			
Other comprehensive income (loss) before reclassifications, net of tax of $0.0 for 2019, 2018 and 2017	70.5	(378.0)	241.1
Reclassifications, net of tax of $0.0 for 2019	479.8	—	—
Total foreign currency translation adjustments	550.3	(378.0)	241.1
Pension and post-retirement plans:			
Other comprehensive income before reclassifications, net of tax (benefit) expense of $(0.9), $(1.6) and $2.2 for 2019, 2018 and 2017, respectively	0.6	1.8	2.5
Reclassifications, net of tax expense of $2.1 for 2017	(2.1)	—	8.4
Total pension and post-retirement plans	(1.5)	1.8	10.9
Unrealized (loss) gain on available for sale securities:			
Other comprehensive loss before reclassifications, net of tax benefit of $0.4 for 2017			(2.2)
Reclassifications, net of tax expense of $0.0 for 2017			0.5
Total unrealized loss on available for sale securities			(1.7)
Derivative financial instrument revaluation:			
Other comprehensive (loss) income before reclassifications, net of tax (benefit) expense of $0.0, $1.5 and $4.3 2019, 2018 and 2017, respectively	(29.2)	6.0	(4.6)
Reclassifications, net of tax of $1.5 for 2019 and $0.0 for 2018 and 2017, respectively	(3.0)	(0.5)	10.4
Total unrealized (loss) gain arising on qualified hedging derivatives	(32.2)	5.5	5.8
Other comprehensive income (loss)	516.6	(370.7)	256.1
Comprehensive income (loss)	609.5	(690.6)	(39.5)
Comprehensive (income) loss attributable to the non-controlling interests	(40.9)	30.0	(4.2)
Comprehensive income (loss) attributable to stockholders	$ 568.6	$ (660.6)	$ (43.7)

See accompanying notes to consolidated financial statements.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(dollars in millions)

	December 31,	
	2019	**2018**
Assets		
Cash & cash equivalents	$ 190.1	$ 233.6
Accounts receivable, net of allowance for doubtful accounts of $8.8 and $7.7 at December 31, 2019 and 2018, respectively	363.9	382.4
Inventories	199.6	188.1
Prepaid expenses	18.3	14.3
Other current assets	50.3	42.5
Current assets of discontinued operations	11.2	1,621.3
Total current assets	833.4	2,482.2
Property, plant and equipment, net	264.8	266.9
Goodwill	2,179.6	2,182.6
Intangible assets, net	944.4	1,024.5
Other assets	95.7	32.9
Non-current assets of discontinued operations	6.5	3,412.4
Total assets	$ 4,324.4	$ 9,401.5
Liabilities & stockholders' equity		
Accounts payable	$ 96.8	$ 100.9
Current installments of long-term debt and revolving credit facilities	7.8	25.3
Accrued expenses and other current liabilities	155.1	189.5
Current liabilities of discontinued operations	34.1	826.8
Total current liabilities	293.8	1,142.5
Debt	1,513.2	5,350.7
Pension and post-retirement benefits	50.8	49.5
Deferred income taxes	119.6	133.0
Other liabilities	127.7	128.5
Non-current liabilities of discontinued operations	—	416.2
Total liabilities	2,105.1	7,220.4
Commitments and contingencies (Note 18)		
Stockholders' equity		
Preferred stock - Series A	—	—
Common stock, 400.0 shares authorized (2019: 258.4 shares issued; 2018: 289.3 shares issued)	2.6	2.9
Additional paid-in capital	4,114.2	4,062.1
Treasury stock (2019: 8.3 shares; 2018: 0.3 shares)	(78.9)	(3.5)
Accumulated deficit	(1,536.5)	(1,195.4)
Accumulated other comprehensive loss	(280.5)	(756.9)
Total stockholders' equity	2,220.9	2,109.2
Non-controlling interests	(1.6)	71.9
Total equity	2,219.3	2,181.1
Total liabilities and stockholders' equity	$ 4,324.4	$ 9,401.5

See accompanying notes to consolidated financial statements.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(dollars in millions)

	Year Ended December 31,		
	2019	**2018**	**2017**
Cash flows from operating activities:			
Net income (loss)	$ 92.9	$ (319.9)	$ (295.6)
Income (loss) from discontinued operations, net of tax	13.3	(242.9)	(103.8)
Net income (loss) from continuing operations	79.6	(77.0)	(191.8)
Reconciliations of net income (loss) to net cash flows provided by (used in) operating activities:			
Depreciation and amortization	154.7	156.7	156.0
Deferred income taxes	(3.1)	(54.7)	(134.1)
Foreign exchange (gain) loss	(54.6)	(0.2)	45.8
Other, net	66.9	4.0	75.1
Changes in assets and liabilities, net of acquisitions:			
Accounts receivable	21.8	0.9	(21.5)
Inventories	(3.8)	(18.8)	(9.2)
Accounts payable	(7.0)	(5.5)	(3.3)
Accrued expenses	(57.7)	(10.6)	2.5
Prepaid expenses and other current assets	(2.9)	10.5	(13.0)
Other assets and liabilities	(23.0)	(6.1)	59.2
Net cash flows provided by (used in) operating activities of continuing operations	170.9	(0.8)	(34.3)
Cash flows from investing activities:			
Capital expenditures	(29.7)	(28.4)	(30.8)
Proceeds from disposal of property, plant and equipment	4.6	4.2	16.9
Proceeds from the Arysta Sale (net of cash $148.7 million)	4,281.8	—	—
Proceeds from the sale of equity investment	—	25.0	—
Acquisition of business, net of cash acquired	(63.9)	(28.2)	—
Other, net	6.9	3.6	(5.0)
Net cash flows provided by (used in) investing activities of continuing operations	4,199.7	(23.8)	(18.9)
Cash flows from financing activities:			
Debt proceeds, net of discount	1,493.4	—	4,142.7
Repayments of borrowings	(5,351.4)	(22.5)	(4,122.5)
Change in lines of credit, net	(24.9)	25.0	—
Repurchases of common stock	(507.1)	—	—
Payment of financing fees	(40.5)	(1.4)	(22.6)
Other, net	(8.4)	(2.5)	0.7
Net cash flows used in financing activities of continuing operations	(4,438.9)	(1.4)	(1.7)
Cash flows from discontinued operations:			
Net cash flows (used in) provided by operating activities of discontinued operations	(161.7)	(7.9)	185.3
Net cash flows used in investing activities of discontinued operations	(5.0)	(51.2)	(28.6)
Net cash flows provided by (used in) financing activities of discontinued operations	4.8	43.8	(74.5)
Net cash flows (used in) provided by discontinued operations	(161.9)	(15.3)	82.2
Effect of exchange rate changes on cash, cash equivalents and restricted cash	4.8	(27.0)	33.1
Net (decrease) increase in cash, cash equivalents and restricted cash	(225.4)	(68.3)	60.4
Cash, cash equivalents and restricted cash at beginning of period [(1)]	415.5	483.8	423.4
Cash, cash equivalents and restricted cash at end of period [(2)]	$ 190.1	$ 415.5	$ 483.8
Supplemental disclosure information of continuing operations:			
Cash paid for interest	$ 125.4	$ 293.4	$ 315.7
Cash paid for income taxes	$ 71.2	$ 78.9	$ 73.9

(1) *Includes cash, cash equivalents and restricted cash of discontinued operations of $181.9 million, $225.4 million and $187.4 million at December 31, 2018, 2017 and 2016, respectively.*

(2) *Includes cash, cash equivalents and restricted cash of discontinued operations of $0.0 million, $181.9 million and $225.4 million at December 31, 2019, 2018 and 2017 respectively.*

See accompanying notes to consolidated financial statements.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY
(dollars in millions, except share and per share amounts)

	Preferred Stock		Common Stock		Additional Paid-in Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity	Non-controlling Interests	Total Equity
	Shares	Amount	Shares	Amount		Shares	Amount					
Balance at December 31, 2018	2,000,000	$ —	289,316,170	$ 2.9	$ 4,062.1	341,967	$ (3.5)	$ (1,195.4)	$ (756.9)	$ 2,109.2	$ 71.9	$ 2,181.1
Net income	—	—	—	—	—	—	—	92.2	—	92.2	0.7	92.9
Other comprehensive income, net of taxes	—	—	—	—	—	—	—	—	27.0	27.0	—	27.0
Arysta Sale	—	—	—	—	(5.7)	—	—	—	463.3	457.6	(46.6)	411.0
Conversion of shares of common stock of PDH into common stock	—	—	4,019,710	0.1	41.1	—	—	—	(13.9)	27.3	(27.3)	—
Issuance of common stock under ESPP	—	—	123,982	—	1.1	—	—	—	—	1.1	—	1.1
Repurchases of common stock	—	—	(37,000,000)	(0.4)	—	7,764,242	(73.5)	(433.3)	—	(507.2)	—	(507.2)
Equity compensation expense	—	—		—	13.7	—	—	—	—	13.7	—	13.7
Exercise/ vesting of share based compensation	—	—	1,968,471	—	1.9	170,989	(1.9)	—	—	—	—	—
Changes in non-controlling interests	—	—	—	—	—	—	—	—	—	—	(0.3)	(0.3)
Balance at December 31, 2019	2,000,000	$ —	258,428,333	$ 2.6	$ 4,114.2	8,277,198	$ (78.9)	$ (1,536.5)	$ (280.5)	$ 2,220.9	$ (1.6)	$ 2,219.3

See accompanying notes to consolidated financial statements.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY (continued)
(dollars in millions, except share and per share amounts)

	Preferred Stock		Common Stock		Additional Paid-in Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity	Non-controlling Interests	Total Equity
	Shares	Amount	Shares	Amount		Shares	Amount					
Balance at December 31, 2017	2,000,000	$ —	287,405,939	$ 2.9	$ 4,032.0	6,618	$ (0.1)	$ (869.7)	$ (422.0)	$ 2,743.1	$ 116.9	$ 2,860.0
Impact of ASU 2016-01 adoption	—	—	—	—	—	—	—	(1.3)	1.3	—	—	—
Balance at January 1, 2018	2,000,000	—	287,405,939	2.9	4,032.0	6,618	(0.1)	(871.0)	(420.7)	2,743.1	116.9	2,860.0
Net (loss) income	—	—	—	—	—	—	—	(324.4)	—	(324.4)	4.5	(319.9)
Other comprehensive loss, net of taxes	—	—	—	—	—	—	—	—	(336.2)	(336.2)	(34.5)	(370.7)
Conversion of shares of common stock of PDH into common stock	—	—	793,063	—	9.9	—	—	—	—	9.9	(9.9)	—
Issuance of common stock under ESPP	—	—	128,595	—	1.2	—	—	—	—	1.2	—	1.2
Equity compensation expense	—	—		—	18.9	—	—	—	—	18.9	—	18.9
Exercise/ vesting of share based compensation	—	—	988,573	—	0.1	335,349	(3.4)	—	—	(3.3)	—	(3.3)
Changes in non-controlling interests	—	—	—	—	—	—	—	—	—	—	(5.1)	(5.1)
Balance at December 31, 2018	2,000,000	$ —	289,316,170	$ 2.9	$ 4,062.1	341,967	$ (3.5)	$ (1,195.4)	$ (756.9)	$ 2,109.2	$ 71.9	$ 2,181.1

See accompanying notes to consolidated financial statements.

ELEMENT SOLUTIONS INC AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY (continued)
(dollars in millions, except share and per share amounts)

	Preferred Stock		Common Stock		Additional Paid-in Capital	Treasury Stock		Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity	Non-controlling Interests	Total Equity
	Shares	Amount	Shares	Amount		Shares	Amount					
Balance at December 31, 2016	2,000,000	$ —	284,221,168	$ 2.8	$ 3,981.3	—	$ —	$ (573.5)	$ (674.5)	$ 2,736.1	$ 153.7	$ 2,889.8
Net (loss) income	—	—	—	—	—	—	—	(296.2)	—	(296.2)	0.6	(295.6)
Other comprehensive income, net of taxes	—	—	—	—	—	—	—	—	252.5	252.5	3.6	256.1
Conversion of shares of common stock of PDH into common stock	—	—	2,923,436	0.1	35.6	—	—	—	—	35.7	(35.7)	—
Issuance of common stock under ESPP	—	—	138,566	—	1.3	—	—	—	—	1.3	—	1.3
Equity compensation expense	—	—	—	—	11.7	—	—	—	—	11.7	—	11.7
Exercise/ vesting of share based compensation	—	—	122,769	—	0.1	6,618	(0.1)	—	—	—	—	—
Changes in non-controlling interests	—	—	—	—	2.0	—	—	—	—	2.0	(5.3)	(3.3)
Balance at December 31, 2017	2,000,000	$ —	287,405,939	$ 2.9	$ 4,032.0	6,618	$ (0.1)	$ (869.7)	$ (422.0)	$ 2,743.1	$ 116.9	$ 2,860.0

See accompanying notes to consolidated financial statements.

1. BACKGROUND AND BASIS OF PRESENTATION

Background

Element Solutions was incorporated in Delaware in January 2014 and its shares of common stock, par value $0.01 per share, trade on the NYSE under the ticker symbol “ESI.”

Element Solutions is a leading global specialty chemicals company whose businesses supply a broad range of solutions that enhance the performance of products people use every day. Developed in multi-step technological processes, the innovative solutions of the Company's businesses enable customers' manufacturing processes in several key industries, including electronic circuitry, semiconductor, communications infrastructure, automotive systems, industrial surface finishing, consumer packaging and offshore energy. Element Solutions delivers its products to customers through its sales and service workforce, regional distributors and manufacturing representatives.

The Company's operations are organized in two reportable segments: Electronics and Industrial & Specialty. The reporting segments represent businesses for which separate financial information is utilized by the chief operating decision maker, or CODM, for purpose of allocating resources and evaluating performance.

Electronics – The Electronics segment researches, formulates and delivers specialty chemicals and materials for all types of electronics hardware, from complex printed circuit board designs to new interconnection materials. In mobile communications, computers, automobiles and aerospace equipment, its products are an integral part of the electronics manufacturing process and the functionality of their goods. The segment's "wet chemistries" for metallization, surface treatments and solderable finishes form physical circuitry pathways, and its "assembly materials," such as solders, pastes, fluxes and adhesives, join those pathways together. The segment provides specialty chemical solutions through the following businesses: Assembly Solutions, Circuitry Solutions and Semiconductor Solutions.

Industrial & Specialty – The Industrial & Specialty segment provides customers with Industrial Solutions, which include chemical systems that protect and decorate metal and plastic surfaces; Graphics Solutions, which include consumable chemicals that enable printing image transfer on flexible packaging materials; and Energy Solutions, which include chemistries used in water-based hydraulic control fluids for offshore deep-water drilling. Its fully consumable products are used in the aerospace, automotive, construction, consumer electronics, consumer packaged goods and oil and gas production end markets.

Basis of Presentation

The accompanying Consolidated Financial Statements have been prepared in accordance with GAAP and include the accounts of Element Solutions and all of its controlled subsidiaries. The Company consolidates the income, expenses, assets, liabilities and cash flows of its subsidiaries from the date it acquires control or becomes the primary beneficiary. All intercompany accounts and transactions have been eliminated upon consolidation.

On January 31, 2019, the Company completed the Arysta Sale for net cash proceeds of $4.28 billion, after certain post-closing adjustments. Agricultural Solutions' assets, liabilities, operating results and cash flows for all periods presented have been classified as discontinued operations within the Consolidated Financial Statements. See Note 5, *Discontinued Operations*, to the Consolidated Financial Statements for additional information. The Company's Prior Senior Notes, 5.875% USD Notes due 2025 and term loans then outstanding under the Company's second amended and restated credit agreement, as further amended and restated, were not required to be immediately redeemed or repaid in connection with the Arysta Sale. As such, the related liabilities and interest expense are not included in discontinued operations, and therefore fully burden continuing operations.

In preparing the Consolidated Financial Statements in conformity with GAAP, management uses estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of net sales and expenses during the reporting period. Management applies judgment based on its understanding and analysis of the relevant circumstances, including historical experience and future expectations. These judgments, by their nature, are subject to an inherent degree of uncertainty. Accordingly, actual results could differ significantly from these estimates and assumptions.

Certain prior year amounts have been reclassified to conform to the current year's presentation.

Out of Period Adjustments

The Company evaluated the previously disclosed errors noted below and their impact on the relevant quarterly and annual periods, individually and in the aggregate, and concluded that those adjustments were not material to the Company's 2017 Consolidated Financial Statements.

The Company identified and corrected out-of-period errors originating in 2016 associated with income taxes. The impact of these errors was the overstatement of net loss in 2016 and the understatement of net loss in 2017 of $6.6 million. The Company identified and corrected out-of-period errors originating in 2016 associated with income taxes for discontinued operation. The impact of these errors was the overstatement of net loss in 2016 and the understatement of net loss in 2017 of $2.7 million.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash and Cash Equivalents – The Company considers all highly liquid instruments purchased with an original maturity of three months or less to be cash equivalents.

Receivables and Allowance for Doubtful Accounts – The Company determines its allowance for doubtful accounts using a combination of factors to reduce trade receivable balances to their estimated net realizable amount. The Company maintains and adjusts its allowance for doubtful accounts based on a variety of factors, including the length of time receivables are past due from the contractual terms of the receivables, macroeconomic trends and conditions, significant one-time events such as bankruptcy filings or deterioration in the customer's operating results or financial position, historical experience and the financial condition of its customers. The Company performs ongoing credit evaluations of the financial condition of its third-party distributors and other customers and, in certain circumstances, requires collateral, such as letters of credit and bank guarantees. Credit risk with respect to accounts receivable is generally diversified due to the large number of entities comprising the Company's customer base and its dispersion across many different geographical regions. At December 31, 2019 and 2018, the Company did not believe it had any significant concentrations of credit risk that could materially impact its results of operations or financial position.

Inventories – Inventories are stated at the lower of cost or net realizable value with cost being determined by the first-in/first-out and average cost methods. The Company regularly reviews inventories for obsolescence and excess quantities and calculates reserves based on historical write-offs, customer demand, product evolution, usage rates and quantities of stock on hand. Additional obsolescence reserves may be required if actual sales are less favorable than those projected.

Property, Plant and Equipment – Property, plant and equipment is stated at cost less accumulated depreciation. Equipment under finance lease arrangements is stated at the net present value of minimum lease payments. The Company records depreciation on a straight-line basis over the estimated useful life of each asset.

Estimated useful lives by asset class are as follows:

	Average useful life (in years)		
Buildings and building improvements	5	to	20
Machinery, equipment and fixtures	3	to	15
Computer hardware and software	3	to	7
Furniture and automobiles	3	to	7
Leasehold improvements	Lesser of useful life or lease term		

Maintenance and repair costs are charged directly to expense; renewals and improvements which significantly extend the useful life of the asset are capitalized and expensed over its remaining useful life. Costs and accumulated depreciation on assets retired or disposed of are removed from the accounts and any resulting gains or losses are recorded to earnings in the period of disposal.

Business Combinations – The Company allocates the purchase price of acquisitions to tangible and intangible assets acquired, liabilities assumed and non-controlling interests in the acquiree based on their estimated fair values at the acquisition date. The excess of the acquisition price over those estimated fair values is recorded as goodwill. Changes to the acquisition date

provisional fair values prior to the end of the measurement period are recorded as adjustments to the associated goodwill. Acquisition-related expenses and restructuring costs, if any, are expensed as incurred.

Goodwill – Goodwill is tested for impairment at the reporting unit level annually in the fourth quarter, or when events or changes in circumstances indicate that goodwill might be impaired. The Company's reporting units are determined based upon its organizational structure in place at the date of the goodwill impairment test.

The Company tests for impairment by comparing the fair value of each reporting unit to its carrying value. The fair value of each reporting unit is based equally on market multiples and the present value of discounted future cash flows. Excluding certain nonrecurring charges, the discounted cash flows are prepared based upon cash flows at the reporting unit level. The cash flow model utilized in the goodwill impairment test involves significant judgments related to future growth rates and discount rates, among other considerations from the vantage point of a market participant. If the fair value of a reporting unit exceeds the carrying value of the net assets assigned to that reporting unit, goodwill is not impaired and no further testing is required. If the carrying value of the net assets assigned to the reporting unit exceeds the fair value of the reporting unit, the goodwill impairment loss is calculated as the difference between these amounts, limited to the amount of goodwill allocated to the reporting unit.

The primary components of and assumptions used in the assessment consist of the following:

- *Valuation Techniques* - the Company uses a discounted cash flow analysis, which requires assumptions about short and long-term net cash flows, growth rates and discount rates. Additionally, it considers guideline company and guideline transaction information, where available, to aid in the valuation of the reporting units.
- *Growth Assumptions* - Multi-year financial forecasts are developed for each reporting unit by considering several key business drivers, such as new business initiatives, client service and retention standards, market share changes, historical performance and industry and economic trends, among other considerations.
- *Discount Rate Assumptions* - Discount rates are estimated based on the WACC, which combines the required return on equity and considers the risk-free interest rate, market risk premium, small stock risk premium and a company specific risk premium, with the cost of debt, based on rated corporate bonds, adjusted using an income tax factor.
- *Estimated Fair Value and Sensitivitie*s - The estimated fair value of each reporting unit is derived from the valuation techniques described above. The estimated fair value of each reporting unit is analyzed in relation to numerous market and historical factors, including current economic and market conditions, company-specific growth opportunities and guideline company information.

Indefinite-Lived Intangible Assets – Indefinite-lived intangible assets are reviewed for potential impairment on an annual basis, in the fourth quarter, or more frequently when events or circumstances indicate that such assets may be impaired, by comparing their estimated fair values to their carrying values. An impairment charge is recognized when the carrying value of an indefinite-lived intangible asset exceeds its estimated fair value. The Company uses the “relief from royalty” method to estimate the fair value of trade name intangible assets for impairment. The primary assumptions used to estimate the present value of cash flows from such assets include sales projections and growth rates being applied to a prevailing market-based royalty rate, the effects of which are then tax effected and discounted using the WACC from the vantage point of a market participant. Assumptions concerning sales projections are impacted by the uncertain nature of global and local economic conditions in the various markets it serves.

Finite-Lived Intangible Assets – Finite-lived intangible assets are amortized on a straight-line basis over their estimated useful lives, which currently range from 8 to 25 years for customer lists, 3 to 10 years for developed technologies, 5 to 20 years for trade names and up to 5 years for non-compete agreements. If circumstances require a long-lived asset group to be tested for possible impairment, the Company first determines if the estimated undiscounted future pre-tax cash flows expected to result from the use of the asset plus net proceeds expected from disposition of the asset, if any, are less than the carrying value of the asset. When an impairment is identified, the carrying value of the asset is reduced to its estimated fair value based on a discounted cash flow approach or, when available and appropriate, to comparable market values.

Contingencies and Commitments – The Company records accruals for loss contingencies and commitments which are both probable and reasonably estimable. Significant judgment is required to determine both probability and the estimated amount of loss. The Company reviews accruals on a quarterly basis and adjusts, as necessary, to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other current information. Legal fees are expensed as incurred.

Environmental Matters – The Company accrues for environmental matters when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on current laws and existing technologies. Costs related to environmental contamination treatment and cleanup are charged to expense. The accruals are adjusted periodically as assessment and remediation efforts progress or as additional technical or legal information becomes available. Accruals for environmental liabilities are included in the Consolidated Balance Sheets as "Accrued expenses and other current liabilities" and "Other liabilities" at undiscounted amounts. Accruals for related insurance or other third-party recoveries for environmental liabilities are recorded when it is probable that a recovery will be realized and are included in the Consolidated Balance Sheets as "Other current assets" and "Other assets."

Employee Benefits – Amounts recognized in the Company's Consolidated Financial Statements related to pension and other post-retirement benefits are determined from actuarial valuations. Inherent in such valuations are assumptions including expected return on plan assets, discount rates at which the liabilities could be settled, rates of increase in future compensation levels and mortality rates. These assumptions are updated annually and are disclosed in Note 10, *Pension, Post-Retirement and Post-Employment Plans*, to the Consolidated Financial Statements. Actual results that differ from the assumptions are recorded in "Accumulated other comprehensive loss" within Stockholders' Equity and amortized over future periods and, therefore, affect expense recognized.

The Company considers a number of factors in determining and selecting assumptions for the overall expected long-term rate of return on plan assets. The Company considers the historical long-term return experience of its assets, the current and expected allocation of its plan assets and expected long-term rates of return. Expected long-term rates of return are derived with the assistance of investment advisors. The Company bases its expected allocation of plan assets on a diversified portfolio consisting of domestic and international equity securities, fixed income securities, real estate and alternative asset classes. The measurement date used to determine pension and other post-retirement benefits is December 31, at which time the minimum contribution levels for the following year are determined.

Derivatives – The Company operates internationally and uses certain financial instruments to manage its foreign currency exposures. To designate a derivative for hedge accounting at inception and throughout the hedge period, the Company formally documents the nature and relationships between hedging instrument and hedged item, as well as its risk-management objectives and strategies for undertaking various hedge transactions, and the method of assessing hedge effectiveness. Additionally, for hedges of forecasted transactions, the significant characteristics and expected terms of forecasted transactions are specifically identified, and the likelihood of each forecasted transaction occurring is deemed probable. If it is determined that a forecasted transaction will not occur, a gain or loss is recognized in current earnings. Financial instruments qualifying for hedge accounting must maintain a specified level of effectiveness between the hedging instrument and the item being hedged, both at inception and throughout the hedged period. The Company does not engage in trading or other speculative uses of financial instruments. It is the Company's policy to disclose the fair value of derivative instruments that are subject to master netting arrangements on a gross basis in the Consolidated Balance Sheets.

The Company has used, and may use in the future, forward contracts and options to mitigate its exposure to changes in foreign currency exchange rates on third-party and intercompany forecasted transactions. If hedge accounting is applied, the effective portion of unrealized gains and losses associated with forward contracts and the intrinsic value of option contracts are deferred as a component of "Accumulated other comprehensive loss" until the underlying hedged transactions are reported in the Company's Consolidated Statements of Operations. For derivative contracts not designated as hedging instruments, the Company records changes in the net fair value of the such contracts in "Other (expense) income, net" in the Consolidated Statements of Operations.

Financial Instruments – The Company's financial instruments consist primarily of cash and cash equivalents, accounts receivable, investments, accounts payable and debt. The Company believes that the carrying value of the cash and cash equivalents, accounts receivable and accounts payable are representative of their respective fair values because of their short maturities. Available for sale equity investments are carried at fair value. Prior to 2018, changes in net unrealized gains or losses were included in the stockholders' equity section of the Consolidated Balance Sheets as "Accumulated other comprehensive loss." Beginning in the first quarter of 2018, such changes are recorded in the Statement of Operations. See Note 13, *Financial Instruments*, to the Consolidated Financial Statements.

Equity Securities – Equity securities that have readily determinable fair values are classified as available for sale and are carried at fair value. Unrealized holding gains and losses are recorded in the Consolidated Statements of Operations as "Other (expense) income." Equity securities which do not have readily determinable fair values are recorded at cost and are evaluated

whenever events or changes in circumstances indicate that the carrying values of such investments may be impaired. Equity securities are included in the Consolidated Balance Sheets as "Other assets."

Foreign Currency Translation – The Company's foreign subsidiaries primarily use their local currency as their functional currency. The assets and liabilities of the Company's foreign subsidiaries are translated into U.S. dollars using foreign currency exchange rates prevailing at the balance sheet dates. Revenue and expense accounts are translated at average foreign currency exchange rates for the periods presented. Cumulative currency translation adjustments are included in the stockholders' equity section of the Consolidated Balance Sheets as "Accumulated other comprehensive loss." Net gains and losses from transactions denominated in currencies other than the functional currency of the entity are included in the Consolidated Statements of Operations as "Foreign exchange loss."

Revenue Recognition – The Company recognizes revenue either upon shipment or delivery of product depending on when it is reasonably assured that both title and the risks and rewards of ownership have been passed on to the customer, the Company's performance obligations have been fulfilled and collectability is probable. Estimates for sales rebates, incentives and discounts, as well as sales returns and allowances, are accounted for as reductions of revenue when the earnings process is complete. Sales rebates, incentives and discounts are typically earned by customers based on annual sales volume targets. The Company records an estimate for these accruals based on contract terms and its historical experience with similar programs. An estimate for future expected sales returns is recorded based on historical experience with product returns; however, changes to these estimates may be required if the historical data used in the calculation differs from actual experience. Differences between estimated expense and actual costs are typically immaterial and are recognized in earnings in the period such differences are determined. Variable consideration for volume discounts, rebates and returns are recorded as contract liabilities and settled with the customer in accordance with the terms of the applicable contract, typically when program requirements are achieved by the customer.

Most performance obligations relate to contracts with a duration of less than one year, in which the Company has the right to invoice the customer at the time the performance obligation is satisfied for the amount of revenue recognized at that time. Accordingly, the Company has elected the practical expedient available under ASC Topic 606, *Revenue from Contracts with Customers*, not to disclose remaining performance obligations under its contracts. The Company has also elected the practical expedient to expense incremental costs for obtaining contracts with terms of less than one year.

See Note 23, *Segment Information,* to the Consolidated Financial Statements for a disaggregation of net sales by business unit.

Research and Development – Research and development costs, which primarily relate to internal salaries, are expensed as incurred.

Income Taxes – The Company recognizes deferred tax assets and liabilities based on the differences between the financial statement basis and the tax basis of assets, liabilities, net operating losses and tax carryforwards. A valuation allowance is required to be recognized to reduce the recorded deferred tax asset to the amount that will more likely than not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income by jurisdiction during the periods in which those temporary differences become deductible or when carryforwards can be utilized. The Company considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in this assessment. If these estimates and related assumptions change in the future, the Company may be required to record additional valuation allowances against its deferred tax assets; resulting in additional income tax expense. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences and carryforwards are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date of such change.

The Company is subject to income taxes in the U.S. and in various states and foreign jurisdictions. Significant judgment is required in evaluating uncertain tax positions and determining provisions for income taxes. The first step in evaluating the tax position for recognition is to determine the amount of evidence that supports a favorable conclusion for the tax position upon audit. In order to recognize the tax position, the Company must determine whether it is more likely than not that the position is sustainable. The final evaluation step is to measure the tax benefit as the largest amount that has a more than 50% chance of being realized upon final settlement. Although the Company believes that the positions taken on income tax matters are reasonable, it establishes tax reserves in recognition that various taxing authorities may challenge certain of those positions taken; potentially resulting in additional tax liabilities.

Stock-Based Compensation Plans – Stock-based compensation is recorded in the Consolidated Statements of Operations as "Selling, technical, general and administrative" expense over the requisite service period based on the estimated grant-date fair value of the awards. The fair value of RSU awards is determined using Monte Carlo simulations for market-based RSU awards and the closing price of Element Solutions' common stock on the date of grant for all other RSU awards. The fair value of stock options is determined using the Black-Scholes option pricing model. Inputs in the model include assumptions related to stock price volatility, award terms and judgments as to whether performance targets will be achieved.

Compensation costs for awards with performance conditions are only recognized if and when it becomes probable that the performance conditions will be achieved. The probability of vesting is reassessed at the end of each reporting period and the compensation costs are adjusted accordingly, with the cumulative effect of such a change on current and prior periods being recognized in compensation cost in the period of the change. Compensation costs for stock options and market-based RSUs are recorded ratably over the vesting term of the options, effected for forfeitures as they occur.

Earnings (Loss) Per Common Share – Basic earnings (loss) per common share excludes dilution and is computed by dividing net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding during the period. Diluted earnings (loss) per common share assumes the issuance of all potentially dilutive share equivalents using the if-converted or treasury stock methods, provided that the effects of which are not anti-dilutive. For stock options and RSUs, it is assumed that the proceeds will be used to buy back shares. For stock options, such proceeds equal the average unrecognized compensation plus the assumed exercise of weighted average number of options outstanding. For unvested RSUs, the assumed proceeds equal the average unrecognized compensation expense.

Fair Value Measurements - The Company determines fair value as 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. Inputs used in the valuation techniques to derive fair values are classified based on a three-level hierarchy. The basis for fair value measurements for each level within the hierarchy is described below, with Level 1 having the highest priority and Level 3 having the lowest. The three levels of the fair value hierarchy are as follows:

- Level 1 – inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2 – inputs are quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in non-active markets; and model-derived valuations whose inputs are observable or whose significant valuation drivers are observable.
- Level 3 – inputs to valuation models are unobservable and/or reflect the Company’s market assumptions.

The fair value hierarchy is based on maximizing the use of observable inputs and minimizing the use of unobservable inputs when measuring fair value. Classification within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. The Company transfers the fair value of an asset or liability between levels of the fair value hierarchy at the end of the reporting period during which a significant change in the inputs used to determine the fair value has occurred.

NAV Practical Expedient is the measure of fair value using the net asset value, or NAV, per share (or its equivalent) as an alternative to the fair value hierarchy discussed above.

3. RECENT ACCOUNTING PRONOUNCEMENTS

Recently Adopted Accounting Pronouncements

Leases (Topic 842) - In February 2016, the FASB issued ASU No. 2016-02, *“Leases.”* This ASU requires lessees to recognize most leases in their balance sheets, but to continue to record expenses on their income statements in a manner similar to current accounting. The ASU is required to be applied to leases in existence as of the date of initial application using a modified retrospective transition approach. The Company adopted the new standard on January 1, 2019. No cumulative-effect adjustment was required to the opening balance of retained earnings on the adoption date.

The Company made updates to its systems, policies and internal controls over financial reporting in preparation of adopting the new guidance. Upon the adoption of ASC 842 during the first quarter of 2019, the Company elected the following package of transition practical expedients:

- not to separate non-lease components from lease components and account for them as a single lease component;

- not to reassess arrangements entered into prior to January 1, 2019 for whether an arrangement is or contains a lease, the lease classification applied or to separate initial direct costs; and
- to use hindsight in determining the lease term for lease contracts that have historically been renewed or amended.

At December 31, 2018, the Company was not a lessor to any significant lease agreements and substantially all of the leases under which the Company was a lessee were classified as operating leases under the existing ASC 840 guidance. As such, consistent with the Company's practical expedient election to not reassess lease classification, substantially all the Company's existing leases continued to be classified as operating leases under ASC 842. As a lessee, the Company categorizes its operating leases into two general categories: real estate and other.

This new standard had no impact on the Company's Consolidated Statements of Operations or Cash Flows but its Consolidated Balance Sheet at December 31, 2019 was impacted by the recognition of right-of-use ("ROU") assets of $61.1 million in "Other Assets" which reflected the present value of remaining operating lease payments under existing lease arrangements, as well as current and non-current lease liabilities of $16.1 million and $46.3 million, reported in "Accrued expenses and other current liabilities" and "Other liabilities," respectively.

See Note 17, *Leases*, to the Consolidated Financial Statements for more information.

Derivatives and Hedging (Topic 815) - In August 2017, the FASB issued ASU No. 2017-12, "*Targeted Improvements to Accounting for Hedging Activities."* This ASU improves the financial reporting of hedge relationships by updating hedging designation and measurement guidance. The update also simplifies the application of existing hedge accounting guidance related to assessing hedge effectiveness. The Company adopted the new standard prospectively on of January 1, 2019, and applied it to contracts in existence at the date of adoption. This new guidance did not have a material impact on the Company's Consolidated Financial Statements.

Recently Issued Accounting Pronouncements Not Yet Adopted

Income Taxes (Topic 740) - In December 2019, the FASB issued ASU No. 2019-12, *"Simplifying the Accounting for Income Taxes,"* which removes certain exceptions related to the approach for intraperiod tax allocation, the recognition of deferred tax liabilities for outside basis differences and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. The guidance is generally effective as of January 1, 2021, with early adoption permitted. The Company is evaluating the impact of the new guidance on the Consolidated Financial Statements.

4. ACQUISITION

On December 2, 2019, the Company completed the Kester Acquisition for $63.9 million, net of cash, working capital and certain post-closing adjustments and funded with available liquidity. The Kester business, a global supplier of advanced technology assembly materials used in electronics assembly and semiconductor applications, complements our assembly and semiconductor businesses. Kester is included in our Electronics business segment.

The following table summarizes the allocation of the purchase price to the identified assets acquired and liabilities assumed at the acquisition date:

(dollars in millions)		
Identifiable assets acquired and liabilities assumed		
Accounts receivable	$	7.6
Inventories		8.9
Other current assets		0.4
Property, plant and equipment		8.3
Identifiable intangible assets		36.2
Other assets		2.6
Current liabilities		(3.2)
Long-term liabilities		(4.5)
Total identifiable net assets		56.3
Goodwill		7.6
Total purchase price	$	63.9

The excess of the cost of the Kester Acquisition over the net amounts assigned to the fair values of the assets acquired and the liabilities assumed was recorded as goodwill and represented the value of the assembled workforce. The majority of the $7.6 million goodwill recorded in connection with the Kester Acquisition is expected to be deductible for tax purposes.

The fair value of the identifiable intangible assets recorded in conjunction with the Kester Acquisition were as follows:

(dollars in millions)		**Fair Value**	**Weighted Average Useful Life *(years)***
Customer lists	$	35.0	12
Trade name		1.0	5
Developed technology		0.2	3
Total	$	36.2	11.8

The fair value of the identifiable intangible assets was determined primarily using the “income approach,” which requires a forecast of all of the expected future cash flows either through the use of the multi-period excess earnings method or the relief-from-royalty method. Some of the more significant assumptions inherent in the development of intangible asset values include: the amount and timing of projected future cash flows, the attrition rate and the discount rate selected to measure the risks inherent in the future cash flows.

As of December 31, 2019, the purchase price allocation for Kester Acquisition is preliminary. The Company is in the process of assessing the fair value primarily for property, plant and equipment and asset retirement obligations, and expects to complete the purchase price allocation within the one year measurement period.

The Kester Acquisition was not significant to our Consolidated Financial Statements, therefore, pro forma and post acquisition results of operations have not been presented.

5. DISCONTINUED OPERATIONS

On July 20, 2018, the Company agreed to sell to UPL 100% of the then issued and outstanding shares of common stock of Arysta and its subsidiaries pursuant to the terms and conditions of a certain stock purchase agreement, as amended. The Arysta Sale was completed on January 31, 2019 for net cash proceeds of $4.28 billion, after certain post-closing adjustments relating to, among other things, cash, indebtedness and working capital, as finalized with UPL on May 17, 2019.

The Company's former Agricultural Solutions business was previously its own reportable segment and has been presented for all periods as discontinued operations in the Company's Consolidated Financial Statements as the Arysta Sale represented a

significant strategic shift and was determined to have a major effect on the Company's operations and financial results. Corporate costs previously allocated to the Agricultural Solutions segment have been reallocated to the remaining segments for all periods presented as these costs were not clearly identifiable as costs of the Agricultural Solutions segment.

The sale resulted in an overall loss of $448 million as an estimated asset impairment loss of $450 million was recorded in 2018, primarily due to the reclassification of foreign currency translation adjustments from "Accumulated other comprehensive loss" within Stockholders' Equity into earnings within the Consolidated Statement of Operations.

In connection with the Arysta Sale, the Company agreed to retain certain liabilities associated with legal and tax proceedings, primarily related to an Arysta subsidiary in Brazil. The Company does not expect to incur a material loss as a result of these proceedings. However, the resolutions of these matters may take several years and, to the extent not covered by insurance, may adversely impact our financial position or results of operations.

The following table details the components comprising net income (loss) from the Company's discontinued operations attributable to common stockholders:

	Year Ended December 31,		
(dollars in millions)	**2019 [1]**	**2018**	**2017**
Net sales	$ 65.3	$ 1,991.8	1,897.3
Cost of sales	(45.5)	(1,190.3)	(1,122.1)
Selling, technical, general and administrative	(37.2)	(466.4)	(531.4)
Research and development	(4.6)	(52.4)	(52.0)
Goodwill impairment [2]	—	—	(160.0)
Gain (loss) on Arysta Sale	2.4	(450.0)	—
Operating (loss) profit	(19.6)	(167.3)	31.8
Other, net	9.0	11.5	(60.4)
Loss from discontinued operations, before income taxes	(10.6)	(155.8)	(28.6)
Income tax benefit (expense)	23.9	(87.1)	(75.2)
Income (loss) from discontinued operations, net of tax	13.3	(242.9)	(103.8)
Net (income) loss from discontinued operations attributable to the non-controlling interests	—	(3.0)	1.7
Net income (loss) from discontinued operations attributable to common stockholders	$ 13.3	$ (245.9)	$ (102.1)

[1] *Includes activity through January 31, 2019, when the Arysta Sale was completed, and certain post-closing adjustments relating to, among other things, cash, indebtedness and working capital as of the closing date.*

[2] *In 2017, the Company recorded an impairment charge in the former Agricultural Solutions segment of $160 million related to its Agro Business reporting unit. This charge was driven by the impact of a delayed agricultural market recovery, which resulted in lower expectations for future profitability and cash flows as compared to the expectations of the 2016 annual goodwill impairment test.*

The following table details supplemental cash flow disclosure information related to Company's discontinued operations:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Cash paid for interest	$ —	$ 5.4	$ 7.1
Cash paid for income taxes	$ 25.3	$ 69.5	$ 71.1

The carrying value of major classes of assets and liabilities related to the Company's discontinued operations at December 31, 2019 and 2018 were as follows:

	December 31,	
(dollars in millions)	**2019**	**2018**
Assets		
Cash and cash equivalents	$ —	$ 177.8
Accounts receivable, net	—	919.4
Inventories	—	369.1
Other current assets	11.2	155.0
Current assets of discontinued operations	$ 11.2	$ 1,621.3
Property, plant and equipment, net	$ —	$ 172.0
Goodwill	—	1,816.9
Intangible assets, net	—	1,797.7
Other assets [(1)]	6.5	(374.2)
Non-current assets of discontinued operations	$ 6.5	$ 3,412.4
Liabilities		
Accounts payable	$ —	$ 365.7
Current installments of revolving credit facilities	—	52.5
Accrued expenses and other current liabilities	34.1	408.6
Current liabilities of discontinued operations	$ 34.1	$ 826.8
Deferred income taxes	$ —	$ 369.9
Other liabilities	—	46.3
Non-current liabilities of discontinued operations	$ —	$ 416.2

(1) *Includes the impairment loss of $450 million on discontinued operations at December 31, 2018.*

6. INVENTORIES

The major components of inventory, on a net basis, were as follows:

	December 31,	
(dollars in millions)	**2019**	**2018**
Finished goods	$ 118.5	$ 109.4
Work in process	22.6	15.3
Raw materials and supplies	58.5	63.4
Total inventories	$ 199.6	$ 188.1

7. PROPERTY, PLANT AND EQUIPMENT

The major components of property, plant and equipment were as follows:

	December 31,	
(dollars in millions)	**2019**	**2018**
Land and leasehold improvements	$ 68.6	$ 67.8
Buildings and improvements	113.5	101.0
Machinery, equipment, fixtures and software	220.0	207.3
Construction in process	16.0	14.9
Total property, plant and equipment	418.1	391.0
Accumulated depreciation	(153.3)	(124.1)
Property, plant and equipment, net	$ 264.8	$ 266.9

For 2019, 2018 and 2017, the Company recorded depreciation expense of $41.5 million, $44.6 million and $46.4 million, respectively.

8. GOODWILL AND INTANGIBLE ASSETS

Goodwill

The changes in the carrying amount of goodwill by segment were as follows:

(dollars in millions)	Electronics	Industrial & Specialty	Total
Balance at December 31, 2017	$ 1,261.9	$ 990.7 (1)	$ 2,252.6
Addition from acquisition (2)	11.1	—	11.1
Foreign currency translation and other	(46.3)	(34.8)	(81.1)
Balance at December 31, 2018	1,226.7	955.9 (1)	2,182.6
Addition from acquisition (3)	7.6	—	7.6
Foreign currency translation and other	(10.9)	0.3	(10.6)
Balance at December 31, 2019	$ 1,223.4	$ 956.2 (1)	$ 2,179.6

(1) *Includes accumulated impairment losses of $46.6 million.*

(2) *In May 2018, the Company completed the acquisition of Hi-Tech Korea Co., Ltd. The impact of this acquisition on the Company's results of operations was not material.*

(3) *In December 2019, the Company completed the acquisition of the Kester businesses. The impact of this acquisition on the Company's results of operations was not material.*

No impairments of goodwill were identified during the years ended December 31, 2019 and 2018.

Indefinite-Lived Intangible Assets

The carrying value of indefinite-lived intangible assets, other than goodwill, which consists solely of trade names, was $104 million and $150 million at December 31, 2019 and 2018, respectively. The Company found no indications of impairment related to its indefinite-lived intangible assets as a result of its annual impairment review.

Finite-Lived Intangible Assets

Intangible assets subject to amortization were as follows:

	December 31, 2019			December 31, 2018		
(dollars in millions)	Gross Carrying Amount	Accumulated Amortization	Net Book Value	Gross Carrying Amount	Accumulated Amortization	Net Book Value
Customer lists	$ 959.1	$ (351.4)	$ 607.7	$ 927.8	$ (283.2)	$ 644.6
Developed technology	380.5	(194.8)	185.7	381.3	(155.6)	225.7
Trade names	51.5	(4.9)	46.6	5.9	(1.6)	4.3
Non-compete agreement	1.6	(1.6)	—	1.5	(1.3)	0.2
Total	$ 1,392.7	$ (552.7)	$ 840.0	$ 1,316.5	$ (441.7)	$ 874.8

For 2019, 2018 and 2017, the Company recorded amortization expense on intangible assets of $113 million, $112 million and $110 million, respectively.

Estimated future amortization of intangible assets for each of the next five years is as follows:

(dollars in millions)	Amortization Expense
2020	$ 115.4
2021	108.8
2022	95.8
2023	93.3
2024	83.5

9. LONG-TERM COMPENSATION PLANS

In June 2014, the Company's stockholders adopted the 2013 Plan, which is administered by the compensation committee of the Board, except as otherwise expressly provided in the 2013 Plan. The Board approved a maximum of 15,500,000 shares of common stock, which were reserved and made available for issuance under the 2013 Plan.

For 2019, 2018 and 2017, compensation expense associated with the Company's long-term compensation plans was as follows:

	Year Ended December 31,		
(dollars in millions)	2019	2018	2017
Equity classified RSUs	$ 12.6	$ 13.9	$ 8.3
Liability classified RSUs	(1.0)	0.7	0.6
Stock options	0.2	0.8	0.7
Compensation expense from continuing operations	11.8	15.4	9.6
Compensation expense from discontinued operations	0.6	3.9	2.2
Total	$ 12.4	$ 19.3	$ 11.8
Unrecognized compensation expense for awards expected to vest	$ 8.9		
Weighted average remaining vesting period (months)	25		

At December 31, 2019, a total of 3,453,247 shares of common stock had been issued, and 4,833,766 RSUs and stock options were outstanding under the 2013 Plan.

		RSUs		
	Total	Equity Classified	Liability Classified	Stock Options
Outstanding at December 31, 2018	3,890,643	3,034,193	319,678	536,772
Granted	3,634,086	3,404,362	—	229,724
Exercised/Issued	(1,968,471)	(1,723,373)	—	(245,098)
Cancelled	(66,117)	—	—	(66,117)
Forfeited	(656,375)	(525,522)	(24,581)	(106,272)
Outstanding at December 31, 2019	4,833,766	4,189,660	295,097	349,009

The total fair value of RSUs which vested during 2019, 2018 and 2017 was $18.5 million, $9.9 million and $1.4 million respectively, based on vesting date stock price.

Equity Classified RSUs

The Company granted the following equity classified RSUs under the 2013 Plan:

Year of Issuance:	RSUs	Weighted Average Grant Date Fair Value	Weighted Average Vesting Period (months)
2019	3,404,362	$ 11.14	44
2018	1,581,444	$ 10.35	26
2017	1,117,719	$ 16.08	31

Certain of the RSUs granted during the period contain performance vesting conditions in addition to a service vesting condition. RSUs granted with service or performance vesting conditions were valued at the grant date stock price. Certain of the RSUs contain a market vesting condition based on the performance of the Company's common stock relative to the S&P MidCap 400. The grant date fair value of these RSUs was determined using a Monte Carlo simulation. Certain of the RSUs with performance or market vesting conditions also contain provisions for additional share awards in the event certain performance or market conditions are met at the end of certain applicable measurement periods. These conditions are generally based on Adjusted EBITDA, adjusted earnings per share, return on invested capital ("ROIC") and/or total stockholder return ('TSR") targets. In the first quarter of 2019, the Compensation Committee granted to certain key executives 2.4 million performance-based RSUs with an aggregate grant date fair value of $26.7 million which vesting is subject to the achievement by the Company of a certain performance target in any fiscal year ending on or before December 31, 2022, and continuous service. The Company is currently not recognizing compensation expense for these awards as the achievement of this performance target is not probable.

The following table provides the range of assumptions used in valuing RSUs containing market vesting conditions for the year ended December 31, 2017, as there were no RSUs containing market vesting conditions granted in 2019 and 2018:

	2017
Weighted average expected term (years) [(1)]	3.00
Expected volatility [(2)]	52.1%
Risk-free rate [(3)]	1.50%

[(1)] *Weighted average expected term is calculated based on the award vesting period.*
[(2)] *Expected volatility is calculated based on a blend of the implied and historical equity volatility of an index of comparable companies over a period equal to the expected term.*
[(3)] *Risk-free rate of return is based on an interpolation of U.S. Treasury rates to reflect an expected term of three years at the date of grant.*

At December 31, 2019, the following equity classified RSUs were outstanding:

	December 31, 2019		
Vesting Conditions:	Outstanding	Weighted Average Remaining Vesting Period (months)	Potential Additional Awards
Service-based	471,319	9	—
Performance-based	3,564,350	30	684,071
Market-based	153,991	4	307,982
Total	4,189,660	27	992,053

For all equity classified RSUs, shares are issued immediately upon satisfaction of vesting conditions.

Liability Classified RSUs

During 2014, the Company granted to certain employees RSUs which vest on December 31, 2020. These RSUs are subject to an Adjusted EBITDA performance condition and share price market condition. Additionally, the number of shares of common stock to be issued was limited to a maximum cash value, requiring these awards to be classified as liabilities. Compensation expense was calculated based on a market value that is remeasured each reporting period.

Stock Options

The Company granted the following qualified and non-qualified stock options under the 2013 Plan:

Year of Issuance:	Stock Options	Weighted Average Strike Price Per Share	Weighted Average Grant Date Fair Value Per Share
2019	229,724	$ 11.28	$ 5.15
2017	256,202	$ 13.30	$ 6.05

Stock options vest ratably over a three-year period and have contractual lives of ten years from the grant date.

The fair value of the grants is calculated using the Black-Scholes option pricing model at the grant date. The following table provides the range of assumptions used in valuing stock options for the years ended December 31, 2019 and 2017, as there were no stock options granted in 2018:

	Year Ended December 31,	
	2019	2017
Weighted average expected term (years) [(1)]	6.0	6.0
Expected volatility [(2)]	44.2%	45.0%
Risk-free rate [(3)]	2.48%	2.09%
Expected dividend rate	—%	—%

[(1)] *Weighted average expected term is calculated based on the simplified method for plain vanilla options.*

[(2)] *Expected volatility is calculated based on a blend of the implied and historical equity volatility of an index of comparable companies over a period equal to the expected term.*

[(3)] *Risk-free rate of return is based on an interpolation of U.S. Treasury rates to reflect an expected term of six years at the date of grant.*

At December 31, 2019, there were 49,130 outstanding stock options with an exercise price of $13.30, which were vested and out-of-the-money, 66,464 outstanding stock options which were vested and in-the-money, with an aggregate intrinsic value of $0.2 million, and 233,415 outstanding stock options which were unvested, with an aggregate intrinsic value of $0.1 million.

10. PENSION, POST-RETIREMENT AND POST-EMPLOYMENT PLANS

For 2019, 2018 and 2017, the net periodic cost for all plans totaled $1.0 million, $0.1 million and $11.5 million, respectively.

Domestic Defined Benefit Pension Plan

The domestic non-contributory defined benefit pension plan is closed to new participants. Pursuant to this plan, retirement benefits are provided based upon years of service and compensation levels. An investment committee, appointed by the Board, manages the plan and its assets in accordance with the plan's investment policies. The Company's investment policies incorporate an asset allocation strategy that emphasizes the long-term growth of capital and acceptable asset volatility as long as it is consistent with the volatility of the relevant market indexes. The investment policies attempt to achieve a mix of approximately 25% of plan investments for long-term growth, 74% for liability-matching assets and 1% for near-term benefit payments. These allocation targets exclude the market value of equity derivatives. The Company believes this strategy is consistent with the long-term nature of plan liabilities and ultimate cash needs of the plans. Plan assets consist primarily of listed stocks, equity security funds, short-term Treasury bond mutual funds, derivatives and limited partnership interests. The weighted average asset allocation of this pension plan was 87% fixed income mutual fund holdings, 7% equity securities, 5% limited partnership interests and 1% cash at December 31, 2019.

Actual pension expense and future contributions required to fund this pension plan will depend on future investment performance, changes in future discount rates, the level of Company contributions and various other factors related to the populations participating in this pension plan. The Company evaluates the plan's actuarial assumptions on an annual basis, including the expected long-term rate of return on assets and discount rate, and adjusts the assumptions, as necessary, to ensure proper funding levels are maintained so that the plan can meet obligations as they become due.

At December 31, 2019 and 2018, the projected benefit obligation for this pension plan totaled $220 million and $199 million, respectively.

Supplemental Executive Retirement Plans

The Company sponsors SERPs that entitle certain employees to the difference between the benefits actually paid to them and the benefits they would have received under the pension plan described above were it not for certain restrictions imposed by the Internal Revenue Service Code. Covered compensation under the SERPs includes an employee's annual salary and bonus. At December 31, 2019 and 2018, the projected benefit obligation for the SERPs totaled $8.0 million and $7.3 million, respectively.

Foreign Pension Plans

The Company's international benefit plans are included in the tables presented below. These plans are not significant, individually or in the aggregate, to the Company's consolidated financial position, results of operations or cash flows. At December 31, 2019 and 2018, the projected benefit obligation for these foreign pension plans totaled $26.6 million and $23.3 million, respectively.

Certain other foreign subsidiaries maintain benefit plans that are consistent with statutory practices but do not meet the criteria for pension or post-retirement accounting and have therefore been excluded from the tables presented below. These benefit plans had obligation balances of $1.1 million at December 31, 2019 and 2018, respectively, and were recorded in the Consolidated Balance Sheets as "Pension and post-retirement benefits."

The Company's U.K. Pension Plan, which was comprised of a defined benefit plan and a defined contribution plan providing retirement and death benefit plans to employees in the U.K., was transferred to Pension Insurance Corporation plc at December 31, 2017, in accordance with an agreement entered in to by the plan trustees in October 2014, and the related plan liabilities were settled. The Company reclassified $9.8 million from "Accumulated other comprehensive loss" to reflect the settlement of the pension obligation in 2017.

Domestic Defined Benefit Post-Retirement Medical and Dental Plan

The Company sponsors defined benefit post-retirement medical and dental plans that covers all of its MacDermid domestic full-time employees, hired prior to April 1, 1997, who retire after age 55, with at least ten to twenty years of service (depending upon the date of hire). Eligible employees receive a subsidy from the Company towards the purchase of their retiree medical benefits based on the date of retirement. The annual increase in the Company's costs for post-retirement medical benefits is subject to a limit of 5%. Retirees are required to contribute to the plan costs in excess of their respective Company limits in addition to their other required contributions. The projected benefit obligation for the post-retirement plan at December 31, 2019 is comprised of 39% retirees, 32% fully eligible active participants and 29% other participants. The actuarial determination of the Company's accumulated benefit obligation associated with the plan for post-retirement medical benefits assumes annual cost increases of 2% and 4%, based on the date of retirement. As a result of the above mentioned plan limits, the effect of an increase in the healthcare cost trend on the Company's accumulated benefit obligation and the service and interest costs associated therewith is limited to an immaterial amount.

The components of net periodic (benefit)/cost of the Domestic and Foreign Pension Plans and Post-Retirement Medical Benefits were as follows:

	Year Ended December 31,					
	2019		2018		2017	
(dollars in millions)	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Pension and SERP Benefits						
Service cost	$ —	$ 0.7	$ —	$ 1.2	$ —	$ 1.6
Interest cost on the projected benefit obligation	8.7	0.3	8.1	0.3	8.8	1.4
Expected return on plan assets	(9.6)	(0.1)	(10.4)	(0.1)	(10.1)	(1.3)
Amortization of prior service cost	—	—	—	—	—	0.1
Amortization of actuarial net loss	—	0.1	—	—	—	0.1
Plan curtailment	—	—	0.1	—	—	0.3
Plan settlement	—	0.2	0.2	0.1	—	10.1
Net periodic (benefit) cost	$ (0.9)	$ 1.2	$ (2.0)	$ 1.5	$ (1.3)	$ 12.3
Post-retirement Medical Benefits						
Service cost	$ —	$ 0.1	$ —	$ 0.1	$ —	$ —
Interest cost on the projected benefit obligation	0.4	0.1	0.4	0.1	0.4	0.1
Net periodic cost	$ 0.4	$ 0.3	$ 0.4	$ 0.2	$ 0.4	$ 0.1

The weighted average key assumptions used to determine the net periodic (benefit)/cost of the Domestic and Foreign Pension Plans are as follows:

	Year Ended December 31,					
	2019		2018		2017	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Pension and SERP Benefits						
Discount rate	4.4%	1.5%	3.7%	1.4%	4.2%	1.6%
Rate of compensation increase	3.5%	3.4%	3.5%	3.4%	3.5%	3.2%
Long-term rate of return on assets	5.4%	1.4%	5.4%	1.8%	5.9%	1.7%
Post-retirement Medical Benefits						
Discount rate	4.3%	9.2%	3.7%	9.9%	4.2%	12.2%

The expected long-term rate of return on assets assumption is developed with reference to historical returns, forward-looking return expectations, the Domestic and Foreign Pension Plans' investment allocations and peer comparisons.

The following tables summarize changes in benefit obligation, plan assets and funded status of the Company's plans:

	Pension and SERP Benefits				Post-Retirement Medical Benefits			
	2019		2018		2019		2018	
(dollars in millions)	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Change in Projected Benefit Obligation:								
Beginning of period balance	$ 206.2	$ 23.3	$ 226.2	$ 23.0	$ 9.0	$ 1.3	$ 9.7	$ 0.9
Additions	—	2.7	—	2.0	—	—	—	—
Service cost	—	0.7	—	1.2	—	0.1	—	0.1
Plan amendments	—	—	—	—	—	(1.4)	—	—
Interest cost	8.7	0.3	8.1	0.3	0.4	0.1	0.4	0.1
Actuarial loss (gain) due to assumption change	25.6	1.1	(15.4)	(0.5)	1.0	0.1	(1.1)	0.1
Actuarial (gain) loss due to plan experience	(1.1)	1.0	(1.7)	0.2	(0.6)	(0.1)	0.5	0.3
Benefits and expenses paid	(11.5)	(0.6)	(10.3)	(0.9)	(0.6)	—	(0.5)	—
Settlement	—	(1.6)	(0.7)	(1.1)	—	—	—	—
Foreign currency translation	—	(0.2)	—	(0.9)	—	—	—	(0.2)
End of period balance	$ 227.9	$ 26.6	$ 206.2	$ 23.3	$ 9.2	$ 0.1	$ 9.0	$ 1.3
Change in Plan Assets:								
Beginning of period balance	$ 184.7	$ 4.3	$ 199.6	$ 7.7	$ —	$ —	$ —	$ —
Additions	—	—	—	—	—	—	—	—
Actual return on plan assets, net of expenses	32.2	1.4	(5.1)	0.2	—	—	—	—
Employer contributions	0.5	2.4	1.2	(1.7)	0.5	—	0.5	—
Benefits paid	(11.5)	(0.6)	(10.3)	(0.9)	(0.5)	—	(0.5)	—
Settlement	—	(1.6)	(0.7)	(0.8)	—	—	—	—
Foreign currency translation	—	0.1	—	(0.2)	—	—	—	—
End of period balance	$ 205.9	$ 6.0	$ 184.7	$ 4.3	$ —	$ —	$ —	$ —
Funded Status								
Funded status of plan	$ (22.0)	$ (20.6)	$ (21.5)	$ (19.0)	$ (9.2)	$ (0.1)	$ (9.0)	$ (1.3)
Supplemental Information:								
Accumulated benefit obligation	$ 217.1	$ 23.3	$ 196.8	$ 20.1	$ 9.2	$ 0.1	$ 9.0	$ 1.3
Plans with Accumulated Benefit Obligation in excess of Plan Assets:								
Accumulated benefit obligation	$ 217.1	$ 23.2	$ 196.8	$ 20.0	$ 9.2	$ 0.1	$ 9.0	$ 1.3
Fair value plan assets	$ 205.9	$ 5.8	$ 184.7	$ 4.1	$ —	$ —	$ —	$ —
Plans with Projected Benefit Obligation in excess of Plan Assets:								
Projected benefit obligation	$ 227.9	$ 26.5	$ 206.2	$ 23.1	$ 9.2	$ 0.1	$ 9.0	$ 1.3
Fair value plan assets	$ 205.9	$ 5.8	$ 184.7	$ 4.1	$ —	$ —	$ —	$ —

Weighted average key assumptions used to determine the benefit obligations in the actuarial valuations of the pension and post-retirement benefit liabilities are as follows:

	Pension and SERP Benefits				Post-Retirement Medical Benefits			
	2019		2018		2019		2018	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Discount rate	3.3%	1.0%	4.3%	1.5%	3.2%	7.3%	4.3%	9.2%
Rate of compensation increase	3.5%	3.1%	3.5%	3.4%	N/A	N/A	N/A	N/A

(N/A) Not applicable as compensation rates are not used in the determination of benefit obligations under the post-retirement benefit plans.

Amounts recognized in the Consolidated Balance Sheets and "Accumulated other comprehensive loss" consist of the following:

	Pension and SERP Benefits				Post-Retirement Medical Benefits			
	2019		2018		2019		2018	
(dollars in millions)	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Balance Sheet								
Accrued expenses and other current liabilities	$ 0.6	$ 0.8	$ 0.5	$ 1.0	$ 0.6	$ —	$ 0.7	$ —
Pension and post-retirement benefits	21.4	19.8	21.0	18.0	8.6	0.1	8.3	1.3
Accumulated Other Comprehensive Loss								
Net actuarial loss	$ (6.9)	$ (2.1)	$ (5.1)	$ (1.8)	$ (0.6)	$ (0.7)	$ (0.3)	$ (0.8)
Prior service costs	—	—	—	—	—	1.4	—	—

The following table presents the fair value of plan assets:

		December 31,	
(dollars in millions)	Classification	2019	2018
Asset Category			
Domestic equities	Level 1	$ —	$ 22.0
Derivatives	Level 2	9.9	—
Foreign equities	Level 1	5.4	3.9
Foreign bonds	Level 2	1.3	—
Mutual funds holding U.S. Treasury Securities	Level 1	20.3	19.0
Mutual funds holding fixed income securities	Level 1	121.9	96.3
U.S. Treasury bonds	Level 2	36.4	21.5
Cash and cash equivalents	Level 1	6.8	6.2
Sub-Total		202.0	168.9
Assets using net asset value (or NAV) as a practical expedient		9.9	20.1
Total		$ 211.9	$ 189.0

Assets using NAV as a practical expedient include limited partnership interests and commingled funds that are not actively traded or whose underlying investments are valued using observable marketplace inputs.

At December 31, 2019, expected future benefit payments related to the Company's defined benefit plans were as follows:

	Pension and SERP Benefits			
(dollars in millions)	Domestic	Foreign	Post-Retirement Medical Benefits	Total
2020	$ 12.6	$ 1.3	$ 0.6	$ 14.5
2021	12.4	1.4	0.6	14.4
2022	13.2	1.3	0.6	15.1
2023	13.0	1.5	0.6	15.1
2024	12.7	1.8	0.6	15.1
Subsequent five years	65.2	7.3	2.8	75.3
Total	$ 129.1	$ 14.6	$ 5.8	$ 149.5

The measurement date used to determine pension and other post-retirement medical benefits was December 31, 2019, at which time the minimum contribution level for the following year was determined. The Company is not required to make any plan contributions in 2020.

11. INCOME TAXES

Income (loss) before income taxes and non-controlling interests from continuing operations was as follows:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Domestic	$ (96.3)	$ (214.7)	$ (362.3)
Foreign	237.2	161.5	101.9
Total	$ 140.9	$ (53.2)	$ (260.4)

Income tax expense (benefit) from continuing operations consisted of the following:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Current:			
U.S.:			
Federal	$ (4.1)	$ 14.9	$ (1.2)
State and local	—	0.4	1.0
Foreign	68.5	63.2	65.7
Total current	64.4	78.5	65.5
Deferred:			
U.S.:			
Federal	33.2	(35.1)	(78.4)
State and local	(0.8)	(4.3)	(2.1)
Foreign	(35.5)	(15.3)	(53.6)
Total deferred	(3.1)	(54.7)	(134.1)
Income tax expense (benefit)	$ 61.3	$ 23.8	$ (68.6)

Income tax expense (benefit) from continuing operations differed from the amounts computed by applying the U.S. federal statutory tax rate to pre-tax loss, as a result of the following:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
U.S. federal statutory tax rate	21.0 %	21.0 %	35.0 %
Taxes computed at U.S. statutory rate	$ 29.6	$ (11.2)	$ (91.1)
State income taxes, net of federal benefit	(0.6)	(3.1)	1.7
U.S. tax on foreign operations	23.7	31.2	35.0
Foreign tax on foreign operations	12.1	11.4	8.3
Change in valuation allowances	0.9	27.5	43.3
Tax on undistributed foreign earnings	(3.2)	7.0	1.5
Net change in reserve	(2.1)	(4.9)	(10.6)
Tax rate changes	(0.9)	8.3	(19.4)
Impact of the TCJA	—	(41.8)	(46.3)
Other, net	1.8	(0.6)	9.0
Income tax expense (benefit)	$ 61.3	$ 23.8	$ (68.6)
Effective tax rate	43.5 %	(44.7)%	26.3 %

On December 22, 2017, the TCJA was enacted into law in the U.S. The legislation contains several key tax provisions including the reduction of the corporate income tax rate to 21% effective January 1, 2018, a one-time transition tax on foreign earnings which have not previously been subject to tax in the U.S., a limitation on the tax deductibility of interest expense, and new taxes on certain foreign-sourced earnings.

At December 31, 2017, the Company recorded a provisional income tax benefit for continuing operations totaling $46.3 million as a result of remeasuring U.S. federal deferred taxes for the change in statutory tax rate and a partial release of the U.S. federal valuation allowance due to changes in the carryforward period and limitation on the utilization of future net operating losses. The Company completed its analysis of the impact of the TCJA enactment-date effects and recorded an additional benefit of $41.8 million for continuing operations in 2018, primarily driven by a release of valuation due to the expected impact of global intangible low-taxed income ("GILTI") law changes of $55.5 million, partially offset by $13.7 million for the finalization of the calculation of the transition tax.

The components of deferred income taxes at December 31, 2019 and 2018 were as follows:

	December 31,	
(dollars in millions)	**2019**	**2018**
Deferred tax assets:		
Net operating losses	$ 112.7	$ 224.5
Interest carryforward	69.3	17.3
Capital loss carryforward	66.6	—
Tax credits	33.8	38.5
Employee benefits	22.2	38.6
Research and development costs	18.4	11.8
Unrealized foreign exchange	9.9	17.3
Accrued liabilities	5.3	26.4
Accounts receivable	1.3	16.0
Financing activities	0.1	11.8
Arysta outside basis difference	—	274.2
Goodwill	—	10.3
Other	18.4	14.9
Total deferred tax assets	358.0	701.6
Valuation allowance	(219.6)	(475.2)
Total gross deferred tax assets	138.4	226.4
Deferred tax liabilities:		
Intangible assets	198.0	631.2
Property, plant and equipment	17.9	31.8
Undistributed foreign earnings	9.9	29.5
Goodwill	6.3	—
Other	—	0.4
Total gross deferred tax liabilities	232.1	692.9
Net deferred tax liability	$ 93.7	$ 466.5

Deferred tax assets are included in the Consolidated Balance Sheets as "Other assets," "Non-current assets of discontinued operations" and "Deferred income taxes" at December 31, 2019 and 2018. The total deferred tax assets, valuation allowance and deferred tax liabilities of discontinued operations were $173 million, $75 million and $450 million, respectively, at December 31, 2018. There were no deferred taxes associated with discontinued operations at December 31, 2019.

The Company has provided for income and withholding taxes on previously unremitted earnings of certain foreign subsidiaries from 2015 and other foreign subsidiaries from 2016. As of December 31 2019, the Company is no longer permanently invested in income previously taxed in the U.S., and this change had an immaterial impact on 2019 tax expense. At December 31, 2019, the Company had accrued a deferred tax liability of $12.6 million of income and withholding taxes that would be due upon the

distribution of such earnings from non-U.S. subsidiaries to the U.S. No additional income taxes have been provided on approximately $130 million of remaining undistributed foreign earnings as these amounts continue to be indefinitely reinvested in our foreign operations. Determining the amount of the unrecognized deferred tax liability related to any remaining undistributed foreign earnings is not practicable.

Valuation allowances reflect the Company's assessment that it is more likely than not that certain federal, state and foreign deferred tax assets, primarily net operating losses, will not be realized. The assessment of the need for a valuation allowance requires management to make estimates and assumptions about future earnings, reversal of existing temporary differences and available tax planning strategies. If actual experience differs from these estimates and assumptions, the recorded deferred tax asset may not be fully realized, resulting in an increase to income tax expense in the Company's results of operations. The valuation allowance for deferred tax assets was $220 million and $475 million at December 31, 2019 and 2018, respectively. During 2019, the valuation allowance decreased by $256 million primarily due to the completion of the Arysta Sale, offset by an increase in valuation allowances related to interest carryforwards.

At December 31, 2019, the Company had federal, state and foreign net operating loss carryforwards of approximately $161 million, $745 million and $201 million, respectively. The U.S. federal net operating loss carryforwards expire between 2023 and 2037. The majority of the state net operating loss carryforwards expire between 2020 and 2036. The foreign tax net operating loss carryforwards expire between 2020 through 2036 or may be carried forward indefinitely. In addition, at December 31, 2019, the Company had approximately $272 million, $30.2 million and $3.8 million of capital loss carryforwards, foreign tax credits, and other tax credits, respectively, available for carryforward. The capital loss carryforwards expire in 2024. These carryforward periods range from ten years to an unlimited period of time. If certain changes in the Company's ownership occur, there could be an annual limitation on the amount of utilizable carryforwards.

Tax Uncertainties

The following table summarizes the activity related to the Company’s unrecognized tax benefits:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Unrecognized tax benefits at beginning of period	$ 81.4	$ 90.3	$ 128.3
Additions based upon prior year tax positions	1.4	2.7	4.0
Additions based on current year tax positions	3.2	3.1	6.5
Reductions for prior period positions	(7.6)	(6.9)	(38.0)
Reductions for settlements and payments	(2.1)	(4.3)	(4.2)
Reductions due to closed statutes	(5.1)	(3.5)	(6.3)
Total unrecognized tax benefits at end of period	$ 71.2	$ 81.4	$ 90.3

At December 31, 2019, the Company had $71.2 million of total unrecognized tax benefits, all of which, if recognized, would impact the Company’s effective tax rate. Due to expected settlements and statute of limitations expirations, the Company estimates that $4.4 million of the total unrecognized benefits will reverse within the next twelve months.

The Company recognizes interest and/or penalties related to income tax matters as part of income tax expense (benefit), which totaled $(2.9) million, $0.4 million and $1.2 million, for 2019, 2018 and 2017, respectively. The Company's accrual for interest and penalties totaled $9.6 million and $12.9 million at December 31, 2019 and 2018, respectively.

At December 31, 2019, the following tax years remained subject to examination by the major tax jurisdictions indicated below:

Major Jurisdictions	**Open Years**	
China	2015	through current
Germany	2013	through current
Taiwan	2013	through current
United Kingdom	2008 and 2015	through current
United States	2015	through current

The Company is subject to taxation in the U.S. and in various states and foreign jurisdictions. With few exceptions, at December 31, 2019, the Company was no longer subject to state and local or foreign examinations by tax authorities for years before 2013. The Company is currently undergoing tax examinations in several foreign jurisdictions. The Company believes it has appropriately accrued for the expected outcome of uncertain tax matters and believes such liabilities represent a reasonable provision for taxes ultimately expected to be paid. However, the Company's liability may need to be adjusted as new information becomes available and as tax examinations continue to progress.

12. DEBT

The Company's debt and finance lease obligations consisted of the following:

(dollars in millions)	Maturity Date	Interest Rate	December 31, 2019	December 31, 2018
USD Term Loans [1]	2026	LIBOR plus 2.00%	$ 733.4	$ —
Senior Notes - USD 800 million [2]	2025	5.875%	786.7	784.9
Senior Notes - USD 1.10 billion [2]	2022	6.50%		1,067.1
Senior Notes - EUR 350 million [2]	2023	6.00%	—	397.4
First Lien Credit Facility - USD Term Loans [1]	2020	> of 3.50% or LIBOR plus 2.50%	—	624.3
First Lien Credit Facility - USD Term Loans [1]	2021	> of 4.00% or LIBOR plus 3.00%	—	1,124.7
First Lien Credit Facility - Euro Term Loans [1]	2020	> of 3.25% or EURIBOR plus 2.50%	—	666.2
First Lien Credit Facility - Euro Term Loans [1]	2021	> of 3.50% or EURIBOR plus 2.75%	—	685.3
Borrowings under the Revolving Credit Facility	2024	LIBOR plus 2.25%	—	25.0
Other			0.9	1.1
Total debt and finance lease obligations			1,521.0	5,376.0
Less: current installments of long-term debt and revolving credit facilities			7.8	25.3
Total long-term debt and finance lease obligations			$ 1,513.2	$ 5,350.7

[1] *Term loans, net of unamortized discounts and debt issuance costs of $9.1 million and $22.4 million at December 31, 2019 and 2018, respectively. Weighted average effective interest rate of 2.2% and 4.6% at December 31, 2019 and 2018, respectively, including the effects of interest rate swaps and net investment hedges. See Note 13, Financial Instruments, to the Consolidated Financial Statements for further information regarding the Company's interest rate swaps and net investment hedges.*

[2] *Senior notes, net of unamortized premium, discounts and debt issuance costs of $13.3 million and $29.9 million at December 31, 2019 and 2018, respectively. Weighted average effective interest rate of 6.2% and 6.5% at December 31, 2019 and 2018, respectively.*

Minimum future principal payments on long-term debt were as follows:

(dollars in millions)	
2020	$ 7.4
2021	7.4
2022	7.4
2023	7.4
2024	7.4
Thereafter	1,505.5
Total	$ 1,542.5

Credit Agreement

The Company is a party to the Credit Agreement, which provides for senior secured credit facilities in an aggregate principal amount of $1.08 billion, consisting of a revolving facility in an aggregate principal amount of $330 million maturing in 2024 and a term loan in an aggregate principal amount of $750 million maturing in 2026. On the closing date of the Arysta Sale, the $750 million term loan was borrowed under the Credit Agreement. On November 26, 2019, this term loan was subject to a repricing, which provided for a 25 basis point reduction in the interest rate spread applicable to the term loan, as described below.

The Credit Agreement replaced the Company's second amended and restated credit agreement, dated August 6, 2014, as further amended and restated, which was terminated on January 31, 2019, the closing date of the Arysta Sale, when the Company paid down its then existing credit facilities under this agreement and expensed $22.9 million of unamortized premiums, discounts and debt issuance costs, which was recorded in the Consolidated Statement of Operations as "Other (expense) income, net."

Borrowings under the Credit Agreement initially bore interest at a per annum rate equal to a Base Rate, as defined in the Credit Agreement, plus in each case, an applicable interest rate equal to a spread of 1.25% with respect to Base Rate Loans and a spread of 2.25% with respect to Eurocurrency Rate Loans. The Company is required to pay a commitment fee in respect of any undrawn portion of the revolving credit facility of 0.50% per annum, subject to a stepdown to 0.375% based on the Company's first lien net leverage ratio.

On November 26, 2019, the Company entered into an amendment to the Credit Agreement and repriced its outstanding term loan. Pursuant to the amendment, the applicable interest rate was reduced by 25 basis points to a spread of 1.00% per annum with respect to Base Rate Loans and 2.00% per annum with respect to Eurocurrency Rate Loans. The Base Rate was not amended. The result of the amendment was not material to the Company's Consolidated Financial Statements. The repricing of the term loan is presented on the Consolidated Statements of Cash Flows as $744 million of "Debt proceeds, net of discount" and $744 million "Repayments of borrowings."

The Company's obligations under the Credit Agreement are guaranteed, jointly and severally, by certain of the Company's domestic subsidiaries and secured by a first-priority security interest in substantially all of the assets of the Company and MacDermid, as borrowers, and the guarantors, including mortgages on material real property, subject to certain exceptions.

Covenants, Events of Default and Provisions

The Credit Agreement contains customary representations and warranties, and affirmative and negative covenants, including limitations on additional indebtedness, dividends, and other distributions, entry into new lines of business, use of loan proceeds, capital expenditures, restricted payments, restrictions on liens on the assets of the borrowers or any guarantor, transactions with affiliates, amendments to organizational documents, accounting changes, sale and leaseback transactions and dispositions. To the extent the borrowers have total outstanding borrowings under the revolving facility (subject to certain exceptions) greater than 30% of the commitment amount under the revolving facility, the Company's first lien net leverage ratio should not exceed 5.0 to 1.0, subject to a right to cure.

The Credit Agreement requires the borrowers to make mandatory prepayments of borrowings, subject to certain exceptions, as described in the Credit Agreement. In addition, the Credit Agreement contains customary events of default that include, among others, non-payment of principal, interest or fees, violation of covenants, inaccuracy of representations and warranties, failure to make payment on, or defaults with respect to, certain other material indebtedness, bankruptcy and insolvency events, material judgments and change of control provisions. Upon the occurrence of an event of default, and after the expiration of any applicable grace period, payment of any outstanding loans under the Credit Agreement may be accelerated and the lenders could foreclose on their security interests in the assets of the borrowers and the guarantors.

At December 31, 2019, the Company was in compliance with the debt covenants contained in the credit facilities of the Credit Agreement and had full availability of its unused borrowing capacity of $325 million, net of letters of credit, under the revolving facility.

Senior Notes

5.875% USD Notes due 2025

The 5.875% USD Notes due 2025 are governed by the 5.875% USD Notes Indenture, which provides, among other things, for customary affirmative and negative covenants, events of default and other customary provisions. The Company also has the option to redeem the 5.875% USD Notes due 2025 prior to their maturity, subject to, in certain cases, the payment of an applicable make-whole premium. The 5.875% USD Notes due 2025 are unsecured. At December 31, 2019, the 5.875% USD Notes due 2025 were fully and unconditionally guaranteed on a senior unsecured basis by generally all of the Company's domestic subsidiaries that used to guarantee the obligations of the borrowers under the Credit Agreement.

Prior Senior Notes

On February 1, 2019, the Company completed the redemption of all outstanding Prior Senior Notes and, as a result, the Prior Senior Notes Indenture was terminated, releasing the Company and the guarantors named therein from their obligation under the Prior Senior Notes and the Prior Senior Notes Indenture. In connection with this redemption, the Company expensed $44.0 million, consisting of $29.5 million of call premiums and $14.5 million of unamortized premiums, discounts and debt issuance costs, which was recorded in the Consolidated Statement of Operations as "Other (expense) income, net." The Company funded the redemption with a portion of the net proceeds from the Arysta Sale and a portion of the borrowings under the Credit Agreement.

Lines of Credit and Other Debt Facilities

The Company has access to various revolving lines of credit, short-term debt facilities, and overdraft facilities worldwide which are used to fund short-term cash needs. At December 31, 2019 there were no amounts outstanding under such facilities while there was $25.0 million outstanding as of December 31, 2018. The Company also had letters of credit outstanding of $5.7 million and $10.2 million at December 31, 2019 and 2018, respectively, of which $5.3 million and $9.7 million at December 31, 2019 and 2018, respectively, reduced the borrowings available under the various facilities. At December 31, 2019 and 2018, the availability under these facilities was approximately $351 million and $481 million, respectively, net of outstanding letters of credit.

13. FINANCIAL INSTRUMENTS

Derivatives and Hedging

In the normal course of business, the Company is exposed to risks relating to changes in foreign currency exchange rates, commodity prices and interest rates. Derivative financial instruments, such as foreign currency exchange forward contracts, commodities futures contracts, interest rate swaps and net investment hedges are used to manage the risks associated with changes in the conditions of those markets. All derivatives are recognized in the Consolidated Balance Sheets at fair value. The counterparties to the Company's derivative agreements are primarily major international financial institutions. The Company continually monitors its derivative positions and the credit ratings of its counterparties and does not anticipate nonperformance on their part.

Foreign Currency

The Company conducts a significant portion of its business in currencies other than the U.S. dollar and a portion of its business in currencies other than the functional currencies of its subsidiaries. As a result, the Company's operating results are impacted by foreign currency exchange rate volatility.

At December 31, 2019, the Company held foreign currency forward contracts to purchase and sell various currencies to mitigate foreign currency exposure with the U.S. dollar. The Company has not designated any foreign currency exchange forward contracts as eligible for hedge accounting and, as a result, changes in the fair value of foreign currency forward contracts are recorded in the Consolidated Statements of Operations as "Other (expense) income, net." The total notional value of foreign currency exchange forward contracts held at December 31, 2019 and 2018 was approximately $74.2 million and $102 million, respectively, with settlement dates generally within one year.

Commodities

As part of its risk management policy, the Company enters into commodity futures contracts for the purpose of mitigating its exposure to fluctuations in prices of certain metals used in the production of its finished goods. The Company held futures contracts to purchase and sell various metals, primarily tin and silver, for a notional amount of $28.6 million and $28.9 million at December 31, 2019 and 2018, respectively. Substantially all contracts outstanding at December 31, 2019 have delivery dates within one year. The Company has not designated these derivatives as hedging instruments and, accordingly, records changes in their fair values in the Consolidated Statements of Operations as "Other (expense) income, net."

Unrealized gains and losses on derivative contracts are accounted for in the Consolidated Statements of Cash Flows as "Operating activities."

Interest Rates

During 2019, the Company:

- Terminated and settled interest rate swaps previously entered into, which resulted in a cash payment of $8.2 million, and reclassified $7.1 million of income from "Accumulated other comprehensive loss" to "Other (expense) income, net" in the Consolidated Statement of Operations. The proceeds are reflected as cash flows from Investing Activities on the Consolidated Statement of Cash Flows.

- Entered into interest rate swaps to effectively fix the floating rate of the interest payments associated with its new $750 million term loan under Credit Agreement through January 2024. These contracts were designated as a cash flow hedge. All interest payments to be paid during the last two years preceding the maturity date of this new term loan (February 2024 to January 2026) will revert back to a floating rate of interest. The proceeds are reflected as cash flows from Operating Activities on the Consolidated Statement of Cash Flows.

- Entered into cross-currency swaps to effectively convert the new $750 million term loan under the Credit Agreement, a U.S. dollar denominated debt obligation, into fixed-rate euro-denominated debt. Under these contracts, which expire in January 2024, the Company is obligated to make periodic euro-denominated coupon payments to the hedge counterparties on an aggregate initial notional amount of €662 million, in exchange for periodic U.S. dollar-denominated coupon payments from these hedge counterparties on an aggregate initial notional amount of $750 million. The Company has designated these contracts as a net investment hedge of the foreign currency exposure of a portion of its net investment in its European operations. The proceeds are reflected as cash flows from Operating Activities on the Consolidated Statement of Cash Flows.

The net result of the above hedges, which expire in January 2024, is an interest rate of approximately 2.2%, which could vary due to changes in the euro and the U.S. dollar exchange rate.

Changes in the fair value of a derivative instrument that is designated as, and meets all the required criteria of, a cash flow hedge are recorded in "Other comprehensive (loss) income" and reclassified from "Accumulated other comprehensive loss" into earnings as the underlying hedged item affects earnings. Amounts reclassified into earnings related to interest rate swaps are included in the Consolidated Statements of Operations as "Interest expense, net." Changes in the fair value of a derivative instrument that is designated as, and meets all the required criteria of, a net investment hedge are recorded in "Foreign currency translation" in "Accumulated other comprehensive loss" offsetting the translation adjustment attributable to the hedged portion of the Company’s net investment in its European operations.

During 2019 and 2018, the Company's interest rate swaps and cross-currency swaps were deemed highly effective. The Company expects to reclassify $6.9 million of expense from "Accumulated other comprehensive loss" to "Interest expense, net" in the Consolidated Statements of Operations during 2020.

Fair Value Measurements

The following table presents the Company's financial assets and liabilities measured at fair value on a recurring basis:

(dollars in millions)	Balance sheet location	Classification	December 31, 2019	December 31, 2018
Asset Category				
Foreign exchange and metals contracts not designated as hedging instruments	Other current assets	Level 2	$ 1.2	$ 0.9
Interest rate swaps designated as cash flow hedging instruments	Other current assets	Level 2	—	6.5
Cross currency swaps designated as net investment hedge	Other current assets	Level 2	18.4	—
Interest rate swaps designated as cash flow hedging instruments	Other assets	Level 2	—	2.6
Available for sale equity securities	Other assets	Level 1	0.3	0.3
Total			$ 19.9	$ 10.3
Liability Category				
Interest rate swaps designated as cash flow hedging instruments	Accrued expenses and other current liabilities	Level 2	$ 6.9	$ 0.6
Foreign exchange and metals contracts not designated as hedging instruments	Accrued expenses and other current liabilities	Level 2	0.9	1.2
Interest rate swaps designated as cash flow hedging instruments	Other liabilities	Level 2	19.7	0.3
Cross currency swaps designated as net investment hedge	Other Liabilities	Level 2	0.3	—
Long-term contingent consideration	Other liabilities	Level 3	—	57.4
Total			$ 27.8	$ 59.5

The following methods and assumptions were used to estimate the fair value of each class of the Company's financial assets and liabilities:

Derivatives - Derivative assets and liabilities include foreign currency, metals and interest rate derivatives. The values are determined using pricing models based upon observable market inputs, such as market spot and futures prices on over-the-counter derivative instruments, market interest rates and consideration of counterparty credit risk.

Available for sale equity securities - Available for sale equity securities classified as Level 1 assets are measured using quoted market prices at the reporting date multiplied by the quantity held.

Long-term contingent consideration - The long-term contingent consideration represented a potential liability of up to $100 million tied to the achievement of certain common stock trading price performance metrics and Adjusted EBITDA targets over a seven-year period ending December 2020 in connection with the MacDermid Acquisition. In the first quarter of 2019, the Company paid $40.0 million of this liability related to the achievement of common stock performance targets, reducing the potential contingent consideration liability to $60 million. Of the $40.0 million paid in 2019, $30.9 million was reflected as a cash outflow from Operating Activities and $9.1 million was reflected as a cash outflow from Financing Activities on the Consolidated Statements of Cash Flows. The amount reflected as Financing Activities represented the initial amount recorded in purchase accounting. In the fourth quarter of 2019, based on the 2020 budget, the Company determined that the Adjusted EBITDA performance target was not achievable and recognized a benefit of $21.1 million for the three months ended December 31, 2019 or $17.4 million for the year ended December 31, 2019, to "Selling, technical, general and administrative" expenses.

There were no significant transfers between the fair value hierarchy levels during 2019.

The carrying value and estimated fair value of the Company's long-term debt totaled $1.52 billion and $1.58 billion, respectively, at December 31, 2019. At December 31, 2018, the carrying value and estimated fair value each totaled $5.35 billion. The carrying values noted above include unamortized premiums, discounts and debt issuance costs. The estimated fair

value of long-term debt is measured using quoted market prices at the reporting date multiplied by the gross carrying amount of the related debt, which excludes unamortized premiums, discounts and debt issuance costs. Such instruments are valued using Level 2 inputs.

14. STOCKHOLDERS' EQUITY

Preferred Stock

The Company is authorized to issue 5 million shares of preferred stock. The Board had designated 2 million of those shares as "Series A Preferred Stock." At December 31, 2019 and 2018, a total of 2 million shares of Series A Preferred Stock were issued and outstanding. All outstanding shares of Series A Preferred Stock were converted into shares of common stock of the Company on February 25, 2020.

The Series A Preferred Stock had no voting rights, except in respect to any amendment to the Company's Certificate of Incorporation, as amended, that would have altered or changed their rights or privileges. Each share of Series A Preferred Stock was convertible into one share of common stock of Element Solutions at the option of the holder until December 31, 2020. All outstanding shares of Series A Preferred Stock would have been automatically converted into shares of common stock on a one-for-one basis (i) in the event of a change of control of the Company following an acquisition, or (ii) on December 31, 2020 (which may be extended by the Board for three additional years).

As holders of the Series A Preferred Stock, the Founder Entities were entitled to receive dividends in the form of shares of common stock of the Company. The dividend amount was calculated based on the appreciated stock price compared to the highest dividend price previously used in calculating a Series A Preferred Stock dividend, or $22.85 per share.

Non-Controlling Interest

In connection with the MacDermid Acquisition, shares of common stock of PDH were issued to the Retaining Holders and recorded in the Consolidated Balance Sheets as "Non-controlling interests." The Retaining Holders were entitled to convert their shares of PDH into shares of common stock of Element Solutions at any time. On March 29, 2019, the Company completed the merger of PDH with and into Element Solutions, with Element Solutions continuing as the surviving entity. As a result of this merger and without any action on the part of the Retaining Holders, each share of common stock of PDH outstanding at March 29, 2019 was converted into the Company's common stock. As a result, there were no shares of common stock of PDH recorded as non-controlling interests at December 31, 2019.

During 2019, 2018 and 2017, approximately $0.5 million, $1.3 million and $2.1 million, respectively, of net income had been allocated to the Retaining Holders, as included in the Consolidated Statements of Operations.

Repurchases of Common Stock

On February 8, 2019, as part of the Company's previously-announced $750 million stock repurchase program, the Company repurchased 37 million shares of its common stock for a per share purchase price of $11.72, the last sale price reported for the Company's shares as of the 4 PM close of trading on the NYSE on Friday, February 1, 2019, for an aggregate purchase price of $434 million. These repurchased shares, which represented approximately 13% of the Company's then outstanding common stock, were retired on the repurchase date. The repurchase was funded from cash on hand and borrowings under the Credit Agreement.

During the period from April 1, 2019 through December 31, 2019, the Company also repurchased approximately 7.8 million shares of its common stock under the share repurchase program for approximately $73.5 million, at an average price of $9.45 per share. The repurchases were allocated to treasury shares and were funded from cash on hand.

The remaining authorization under the share repurchase program was approximately $243 million at December 31, 2019.

15. ACCUMULATED OTHER COMPREHENSIVE (LOSS) INCOME

Changes in each component of "Accumulated other comprehensive (loss) income," net of tax, during 2019, 2018 and 2017 were as follows:

(dollars in millions)	Foreign Currency Translation Adjustments	Pension and Post-retirement Plans	Unrealized Gain (Loss) on Available for Sale Securities	Derivative Financial Instrument Revaluation	Non-Controlling Interests	Accumulated Other Comprehensive (Loss) Income
Balance at December 31, 2016	$ (694.7)	$ (18.8)	$ 0.4	$ (5.8)	$ 44.4	$ (674.5)
Other comprehensive income (loss) before reclassifications, net	241.1	2.5	(2.2)	(4.6)	(3.6)	233.2
Reclassifications, pretax	—	10.5	0.5	10.4	—	21.4
Tax benefit reclassified	—	(2.1)	—	—	—	(2.1)
Balance at December 31, 2017	(453.6)	(7.9)	(1.3)	—	40.8	(422.0)
Impact of ASU 2016-01 adoption	—	—	1.3	—	—	1.3
Adjusted balance at January 1, 2018	(453.6)	(7.9)	—	—	40.8	(420.7)
Other comprehensive income (loss) before reclassifications, net	(378.0)	1.8	—	6.0	34.5	(335.7)
Reclassifications, pretax	—	—	—	(0.5)	—	(0.5)
Balance at December 31, 2018	(831.6)	(6.1)	—	5.5	75.3	(756.9)
Other comprehensive income (loss) before reclassifications, net	70.5	0.6	—	(29.2)	(25.8)	16.1
Reclassifications, pretax	479.8	(2.1)	—	(4.5)	(14.4)	458.8
Tax expense reclassified	—	—	—	1.5	—	1.5
Balance at December 31, 2019	$ (281.3)	$ (7.6)	$ —	$ (26.7)	$ 35.1	$ (280.5)

16. EARNINGS (LOSS) PER SHARE

A computation of weighted average shares of common stock outstanding and earnings (loss) per share from continuing operations for 2019, 2018 and 2017 is as follows:

	Year Ended December 31,		
(dollars in millions, except per share amounts)	2019	2018	2017
Net income (loss) from continuing operations	$ 79.6	$ (77.0)	$ (191.8)
Net income attributable to the non-controlling interests	(0.7)	(1.5)	(2.3)
Net income (loss) from continuing operations attributable to common stockholders	$ 78.9	$ (78.5)	$ (194.1)
Basic weighted average common shares outstanding	257.6	288.2	286.1
Denominator adjustments for diluted EPS:			
Number of shares issuable upon conversion of Series A Preferred Stock	2.0	—	—
Number of stock options and RSUs	0.5	—	—
Denominator adjustments for diluted EPS	2.5	—	—
Dilutive weighted average common shares outstanding	260.1	288.2	286.1
Earnings (loss) per share from continuing operations attributable to common stockholders:			
Basic	$ 0.31	$ (0.27)	$ (0.68)
Diluted	$ 0.30	$ (0.27)	$ (0.68)

For 2019, 2018 and 2017, the following securities were not included in the computation of diluted shares outstanding because the effect would be anti-dilutive, or because performance targets and/or market conditions were not yet met for awards contingent upon such measures:

	Year Ended December 31,		
(amounts in millions)	**2019**	**2018**	**2017**
Shares issuable for the contingent consideration	3.6	7.8	7.4
Shares issuable upon conversion of the shares of common stock of PDH	—	4.1	6.0
Shares issuable upon conversion of Series A Preferred Stock	—	2.0	2.0
Shares issuable upon vesting of RSUs and exercise of stock options	4.3	1.7	0.9
Total shares excluded	7.9	15.6	16.3

17. LEASES

The Company primarily has operating lease agreements for certain land, office space, warehouse space and equipment. The Company determines if an arrangement is a lease at inception. ROU assets and lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The interest rate used to determine the present value of future lease payments is the Company's incremental borrowing rate, as the implicit rate in its leases is not readily determinable. The incremental borrowing rate is estimated to approximate the interest rate on a collateralized basis for borrowings with similar terms and payments. The Company's leases may include variable payments such as common area maintenance, insurance, real estate taxes, changes in price indices or other costs, which are expensed as incurred. ROU assets also include any lease payments made prior to commencement and are recorded net of any lease incentives received. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that it will exercise that option. Lease expense for fixed lease payments is recognized on a straight-line basis over the lease term.

ROU assets, current and non-current lease liabilities are reported as "Other assets," "Accrued expenses and other current liabilities" and "Other liabilities" in the Consolidated Balance Sheets, respectively. Finance leases are not material and are included in the Consolidated Balance Sheets as "Property, plant and equipment, net" and "Debt."

For 2019, 2018 and 2017, operating lease expenses are primarily included in "Selling, technical, general and administrative" in the Consolidated Statements of Operations and totaled $20.8 million, $21.6 million and $22.0 million, respectively.

	Year Ended December 31,
(dollars in millions)	**2019**
Supplemental Information for Operating Leases	
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 21.2
ROU assets obtained in exchange for operating lease obligations	$ 9.5
Weighted average remaining lease term	7 years
Weighted average discount rate	4.9%

Maturities of lease liabilities by fiscal year for operating leases at December 31, 2019 were as follows:

(dollars in millions)		
2020	$	18.7
2021		14.9
2022		12.4
2023		8.1
2024		4.4
Thereafter		14.2
Total future minimum lease payments		72.7
Less: imputed interest		(10.3)
Present value of lease liabilities	$	62.4

As of December 31, 2018, prior to the adoption of Topic 842, future minimum non-cancelable operating lease commitments were as follows:

(dollars in millions)		
2019	$	19.2
2020		15.5
2021		11.9
2022		9.7
2023		7.7
Thereafter		27.9
Total	$	91.9

18. CONTINGENCIES, ENVIRONMENTAL AND LEGAL MATTERS

Environmental Matters

The Company is involved in various claims relating to environmental matters at a number of current and former plants and waste management sites. The Company engages or participates in remedial and other environmental compliance activities at certain of these sites. At other sites, it has been named as a potential responsible party pursuant to the federal Superfund Act and/or state Superfund laws comparable to the federal law for site remediation. The Company analyzes each individual site, considering the number of parties involved, the level of its potential liability or contribution relating to the other parties, the nature and magnitude of the hazardous waste involved, the method and extent of remediation, the potential insurance coverage, the estimated legal and consulting expense with respect to each site and the time period over which any costs would likely be incurred. Based on this analysis, the Company estimates the clean-up costs and related claims for each site. The estimates are based in part on discussions with other potential responsible parties, governmental agencies and engineering firms.

The Company accrues for environmental matters when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on current laws and existing technologies. The accruals are adjusted periodically as assessment and remediation efforts progress or as additional technical or legal information becomes available. The Company's environmental liabilities, which are included in the Consolidated Balance Sheets as "Accrued expenses and other current liabilities" and "Other liabilities," totaled $12.0 million and $18.3 million at December 31, 2019 and 2018, respectively, primarily driven by environmental remediation, clean-up costs and monitoring of sites that were either closed or disposed of in prior years. While uncertainty exists with respect to the amount and timing of its ultimate environmental liabilities, the Company does not currently anticipate any material losses in excess of the amount recorded. However, new information about the sites, such as results of investigations, could make it necessary for the Company to reassess its potential exposure related to these environmental matters.

As of the date hereof, management believes it is not possible to develop an estimate of the range of reasonably possible environmental loss in excess of the Company's recorded liabilities, and is unable to ascertain the ultimate aggregate amount of monetary liability or financial impact with respect to these matters.

Legal Matters

From time to time, the Company is involved in various legal proceedings, investigations and/or claims in the normal course of its business. Although it cannot predict with certainty the ultimate resolution of these matters which involve judgments that are inherently subjective, the Company believes that their resolutions, to the extent not covered by insurance, will not, individually or in the aggregate, have a material adverse effect on its consolidated financial position, results of operations or cash flows.

In June 2017, MacDermid Printing and E.I. du Pont de Nemours and Company (now known as DuPont de Nemours) reached a settlement that resolved all outstanding litigation between MacDermid Printing, E.I. du Pont and Cortron Corporation, including lawsuits involving MacDermid Printing's flexographic printing technology. In connection with the settlement, in July 2017, E.I. du Pont made a payment of $20.0 million to MacDermid Printing, and the Company recorded a net settlement gain of $10.8 million in the Consolidated Statement of Operations as "Other (expense) income, net."

19. RELATED PARTY TRANSACTIONS

The Company is party to an Advisory Services Agreement with Mariposa Capital, LLC, an affiliate of one of its founder directors, whereby Mariposa Capital, LLC is entitled to receive an annual fee, accrued quarterly and payable in quarterly installments, and reimbursement for expenses. This agreement is automatically renewed for successive one-year terms unless either party notifies the other party in writing of its intention not to renew no later than 90 days prior to the expiration of the applicable term. Effective February 1, 2019, the annual fee increased from $2.0 million to $3.0 million. The annual fee was recorded in the Consolidated Statements of Operations as "Selling, technical, general and administrative" expense.

20. RESTRUCTURING

The Company continuously evaluates its operations in an effort to identify opportunities to improve profitability by leveraging existing infrastructure to reduce operating costs and respond to overall economic conditions.

Restructuring expenses were recorded as follows in each of the Company's business segments:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Electronics	$ 8.3	$ 4.9	$ 17.3
Industrial & Specialty	5.8	1.4	6.2
Total	$ 14.1	$ 6.3	$ 23.5

At December 31, 2019 and 2018, the Company’s restructuring liability was not material.

2019 and 2018 Activity

The restructuring plans initiated during the year primarily relate to headcount reductions associated with continued cost saving opportunities within the businesses, including initiatives associated with the Company's reorganization efforts resulting from the Arysta Sale to consolidate its corporate function with those of its former Performance Solutions segment. There are no material additional costs expected to be incurred related to these discrete restructuring activities.

2017 Activity

The restructuring plans primarily relate to headcount reductions associated with the integration of the Alent, OMG and OMG Malaysia Acquisitions. There are no material additional costs expected to be incurred related to these discrete restructuring activities.

Restructuring expenses were recorded as follows in the Consolidated Statements of Operations:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Cost of sales	$ —	$ 0.1	$ 1.6
Selling, technical, general and administrative	14.1	6.2	21.9
Total	$ 14.1	$ 6.3	$ 23.5

21. OTHER (EXPENSE) INCOME, NET

"Other (expense) income, net," as reported in the Consolidated Statements of Operations, consisted of the following:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Loss on debt extinguishment	$ (60.7)	$ (0.4)	$ (72.3)
Gain (loss) on derivative contracts	13.4	0.4	(1.8)
Gain on sale of equity investment	—	11.3	—
Gain on legal settlement	—	—	10.8
Other income (expense), net	1.1	3.5	(6.7)
Total	$ (46.2)	$ 14.8	$ (70.0)

22. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

"Accrued expenses and other current liabilities," as reported in the Consolidated Balance Sheets, consisted of the following:

	December 31,	
(dollars in millions)	**2019**	**2018**
Accrued salaries, wages and employee benefits	$ 47.5	$ 55.2
Accrued interest	4.2	43.5
Accrued income taxes payable	25.8	29.6
Lease liabilities	16.1	—
Other current liabilities	61.5	61.2
Total	$ 155.1	$ 189.5

23. SEGMENT INFORMATION

The Company's operations are organized into two reportable segments: Electronics and Industrial & Specialty. These segments represent businesses for which separate financial information is utilized by the chief operating decision maker, or CODM, for purposes of allocating resources and evaluating performance.

The Company allocates resources and evaluates the performance of its operating segments based primarily on net sales and Adjusted EBITDA. Adjusted EBITDA for each segment is defined as earnings before interest, taxes, depreciation and amortization, as further adjusted for additional items included in earnings which the Company believes are not considered to be representative or indicative of each segment's ongoing business or are considered to be associated with its capital structure. Adjusted EBITDA for each segment also includes an allocation of corporate costs, such as compensation expense and professional fees.

Results of Operations

The following table summarizes financial information regarding each reportable segment's results of operations, including disaggregated external net sales by product category:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Net Sales:			
Electronics			
Assembly Solutions	$ 545.6	$ 580.0	$ 561.4
Circuitry Solutions	377.6	406.3	401.1
Semiconductor Solutions	162.5	171.2	160.1
Total Electronics	1,085.7	1,157.5	1,122.6
Industrial & Specialty			
Industrial Solutions	521.1	560.7	528.0
Graphics Solutions	152.0	159.1	153.4
Energy Solutions	77.1	83.7	74.6
Total Industrial & Specialty	750.2	803.5	756.0
Total net sales	$ 1,835.9	$ 1,961.0	$ 1,878.6
Adjusted EBITDA:			
Electronics	$ 252.9	$ 248.2	$ 233.1
Industrial & Specialty	163.8	172.5	168.1
Total Adjusted EBITDA	$ 416.7	$ 420.7	$ 401.2

The following table reconciles "Net income (loss) attributable to common stockholders" to Adjusted EBITDA:

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
Net income (loss) attributable to common stockholders	$ 92.2	$ (324.4)	$ (296.2)
Add (subtract):			
Net income attributable to the non-controlling interests	0.7	4.5	0.6
(Income) loss from discontinued operations, net of tax	(13.3)	242.9	103.8
Income tax expense (benefit)	61.3	23.8	(68.6)
Interest expense, net	90.7	311.0	336.9
Depreciation expense	41.5	44.6	46.4
Amortization expense	113.2	112.1	109.6
EBITDA	386.3	414.5	232.5
Adjustments to reconcile to Adjusted EBITDA:			
Restructuring expense	14.1	6.3	23.5
Amortization of inventory step-up	0.7	—	—
Acquisition and integration costs	1.9	12.1	4.1
Legal settlement	—	—	(10.8)
Foreign exchange (gain) loss on foreign denominated external and internal long-term debt	(31.9)	6.0	53.4
Debt refinancing costs	62.0	0.5	83.1
Pension plan settlement	—	—	10.5
Gain on sale of equity investment	—	(11.3)	—
Change in fair value of contingent consideration	(17.4)	(21.8)	3.4
Other, net	1.0	14.4	1.5
Adjusted EBITDA	$ 416.7	$ 420.7	$ 401.2

Net Sales by Major Country

A major country is defined as one with total net sales by geographic area based on the country where sales were generated greater than 10% of the total consolidated net sales in any of the years presented.

	Year Ended December 31,		
(dollars in millions)	**2019**	**2018**	**2017**
United States	$ 448.7	$ 477.4	$ 451.4
China	328.3	367.4	358.6
Other countries	1,058.9	1,116.2	1,068.6
Total	$ 1,835.9	$ 1,961.0	$ 1,878.6

Long-Lived Assets by Major Country

A major country is defined as one with long-lived assets greater than 10% of the total long-lived assets, net in any of the years presented. Long-lived assets represent property, plant and equipment, net.

	December 31,	
(dollars in millions)	**2019**	**2018**
United States	$ 112.4	$ 108.2
China	31.8	36.1
Other countries	120.6	122.6
Total	$ 264.8	$ 266.9

Assets by Reportable Segment

Total assets by reportable segment at December 31, 2019 and 2018 are not presented as they are not utilized by the CODM for purposes of allocating resources and evaluating performance.

24. SUPPLEMENTARY DATA

(dollars in millions, except per share amounts)	2019 First Quarter	2019 Second Quarter	2019 Third Quarter	2019 Fourth Quarter
Selected Quarterly Financial Data (Unaudited)				
Net sales from continuing operations	$ 459.8	$ 456.7	$ 464.7	$ 454.7
Gross profit from continuing operations	198.3	193.0	205.7	191.3
Net (loss) income from continuing operations	(3.5)	14.7	(6.0)	74.4
Net income (loss) from discontinued operations	27.4	(13.3)	(0.9)	0.1
Net income (loss)	23.9	1.4	(6.9)	74.5
Earnings (loss) per share				
Basic from continuing operations	$ (0.02)	$ 0.06	$ (0.02)	$ 0.30
Basic from discontinued operations	0.11	(0.05)	(0.01)	—
Basic attributable to common stockholders	$ 0.09	$ 0.01	$ (0.03)	$ 0.30
Diluted from continuing operations	$ (0.02)	$ 0.06	$ (0.02)	$ 0.29
Diluted from discontinued operations	0.11	(0.05)	(0.01)	—
Diluted attributable to common stockholders	$ 0.09	$ 0.01	$ (0.03)	$ 0.29

(dollars in millions, except per share amounts)	2018 First Quarter	2018 Second Quarter	2018 Third Quarter	2018 Fourth Quarter
Selected Quarterly Financial Data (Unaudited)				
Net sales from continuing operations	$ 492.5	$ 501.6	$ 488.5	$ 478.4
Gross profit from continuing operations	211.1	214.7	209.6	202.2
Net loss from continuing operations	(8.9)	(49.6)	(4.3)	(14.2)
Net income (loss) from discontinued operations [(1)]	46.9	61.4	(401.6)	50.4
Net income (loss)	38.0	11.8	(405.9)	36.2
Earnings (loss) per share				
Basic from continuing operations	$ (0.04)	$ (0.17)	$ (0.02)	$ (0.05)
Basic from discontinued operations	0.17	0.21	(1.40)	0.18
Basic attributable to common stockholders	$ 0.13	$ 0.04	$ (1.42)	$ 0.13
Diluted from continuing operations	$ (0.04)	$ (0.17)	$ (0.02)	$ (0.05)
Diluted from discontinued operations	0.17	0.21	(1.40)	0.18
Diluted attributable to common stockholders	$ 0.13	$ 0.04	$ (1.42)	$ 0.13

(1) *Net income (loss) from discontinued operations was impacted by the recognition of an estimated asset impairment loss of $376 million in the third quarter of 2018 and an additional $74.0 million in the fourth quarter of 2018, as the carrying value of discontinued operations exceeded the estimated fair value less costs to sell, which primarily reflected the recognition of foreign currency translation adjustments that have been recorded in "Accumulated other comprehensive loss" within Stockholders' Equity.*

Element Solutions Inc

Valuation and Qualifying Accounts and Reserves

(dollars in millions)	Balance at beginning of period	(Charges) Income	Deductions from (increases to) reserves and other [1]	Balance at end of period
Reserves against accounts receivable:				
2019	$ (7.7)	$ (3.1)	$ 2.0	$ (8.8)
2018	(8.2)	(0.9)	1.4	(7.7)
2017	(10.9)	2.1	0.6	(8.2)

(dollars in millions)	Balance at beginning of period	(Charges) Income	Deductions from (increases to) reserves and other [1]	Balance at end of period
Valuation allowances against deferred tax assets:				
2019	$ (475.2)	$ 257.6	$ (2.0)	$ (219.6)
2018	(391.7)	(76.1)	(7.4)	(475.2)
2017	(383.3)	(10.9)	2.4	(391.7)

[1] *Other activity consists primarily of currency translation effects.*

This page intentionally left blank

This page intentionally left blank

DEFINITIONS AND RECONCILIATIONS OF NON-GAAP MEASURES FOR ANNUAL REPORT PAGES 3 TO 6

To supplement the financial measures prepared in accordance with generally accepted accounting principles in the United States ("GAAP"), the Company uses the following non-GAAP financial measures: EBITDA, adjusted EBITDA, adjusted EBITDA margin, adjusted common shares outstanding, free cash flow and organic net sales growth. The Company also evaluates and presents its results of operations on a constant currency basis.

Management uses these non-GAAP measures in its analysis of the Company's performance. However, these measures have limitations as analytical tools, and should not be considered in isolation from, a substitute for, or superior to, the related financial information that the Company reports in accordance with GAAP.

ADJUSTED EBITDA AND ADJUSTED EBITDA MARGIN
For a definition and reconciliation, see pp. 33 and F-42 to F-44 of the 2019 Annual Report on Form 10-K.

ORGANIC NET SALES GROWTH
For a definition and reconciliation, see p. 33 of the 2019 Annual Report on Form 10-K.

FREE CASH FLOW

	Element Solutions Inc		Platform Specialty Products Corporation (Predecessor Company)		
(in millions)	FY 2019	FY 2018	FY 2018	FY 2017	FY 2016
NET CASH FLOWS PROVIDED BY (USED IN) OPERATING ACTIVITIES	$ 171	$ (1)	$ (9)	$ 182	$ 185
Capital expenditures	(30)	(28)	(63)	(59)	(56)
Investment in registrations of products	–	–	(42)	(41)	(36)
Proceeds from disposal of PP&E	5	4	5	18	21
ADJUSTMENTS					
Impact for the proceeds of a JV sale in 3Q 2016	–	–	–	–	(8)
Make whole payments related to refinancing of 10.375% notes in 2017	–	–	–	44	–
Working capital adjustment related to Arysta	–	–	250	–	–
Interest payments—prior capital structure[1]	57	293	–	–	–
Interest payments—new capital structure[1]	(3)	(70)	–	–	–
Other[2]	38	–	–	–	–
FREE CASH FLOW	$ 238	$ 198	$ 141	$ 144	$ 105
3-year average			$ 130		
Adjusted Common Shares Outstanding	258		299		

[1] Adjustments for 2019 interest payments to reflect the Company's new capital structure by assuming that the Arysta Sale had closed and its new credit agreement had been in place on January 1, 2019.

[2] Adjustment for the payment of the contingent consideration related to the MacDermid Acquisition and payment for employee expenses associated with the Arysta Sale that do not qualify for discontinued operations.

ADJUSTED COMMON SHARES

(in millions)	Average FY 2019	Average FY 2018
BASIC OUTSTANDING COMMON SHARES	254	288
Number of shares issuable upon conversion of PDH Common Stock	–	4
Number of shares issuable upon conversion of Series A Preferred Stock	2	2
Number of shares issuable upon vesting of granted Equity Awards[1]	3	5
ADJUSTED COMMON SHARES OUTSTANDING	258	299

[1] Equity Awards with targets that are considered probable of achievement vested at target level

ELEMENT SOLUTIONS INC

ANNUAL REPORT 2019
CORPORATE INFORMATION

BOARD OF DIRECTORS

SIR MARTIN E. FRANKLIN
(Executive Chairman)
Founder & Chief Executive Officer
Mariposa Capital, LLC

BENJAMIN GLIKLICH
Chief Executive Officer
Element Solutions Inc

SCOT R. BENSON
President & Chief Operating Officer
Element Solutions Inc

IAN G.H. ASHKEN [1][2][3]
Former Vice Chairman & President of Jarden Corporation

CHRISTOPHER T. FRASER
Former Chief Executive Officer and President of KMG Chemicals Inc.

MICHAEL F. GOSS [1][3]
Chief Financial Officer
Condé Nast

NICHELLE MAYNARD-ELLIOTT [1][2]
Former Executive Director, Mergers & Acquisitions
Praxair, Inc.

E. STANLEY O'NEAL [2][3]
Former Chairman & Chief Executive Officer
Merrill Lynch & Co., Inc.

RAKESH SACHDEV
Former Chief Executive Officer of Platform Specialty Products Corporation (n/k/a Element Solutions Inc)

[1]Member of the Audit Committee
[2]Member of the Compensation Committee
[3]Member of the Nominating and Policies Committee

EXECUTIVE OFFICERS

BENJAMIN GLIKLICH
Chief Executive Officer

SCOT R. BENSON
President & Chief Operating Officer

JOHN E. CAPPS
Executive Vice President—General Counsel and Secretary

CAREY J. DORMAN
Chief Financial Officer

PATRICIA A. MOUNT
Vice President—Program Management & Integration

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

PricewaterhouseCoopers LLP
New York, New York

REGISTRAR AND TRANSFER AGENT

Computershare
P.O. Box 30170
College Station, TX 77842

ANNUAL REPORT ON FORM 10-K

This Annual Report and our annual report on Form 10-K for the fiscal year ended December 31, 2019, including our financial statements and the financial statement schedule, are available without charge by written request to:

INVESTOR RELATIONS

Yash Nehete
Senior Associate, Corporate Development & IR
Element Solutions Inc
383 Main Avenue, 6th Floor
Norwalk, Connecticut 06851
(561) 406-8465

SECURITIES LISTING

Our shares of common stock are listed on the NYSE. Ticker symbol: ESI

element solutions

elementsolutionsinc.com