CHASE Corporation

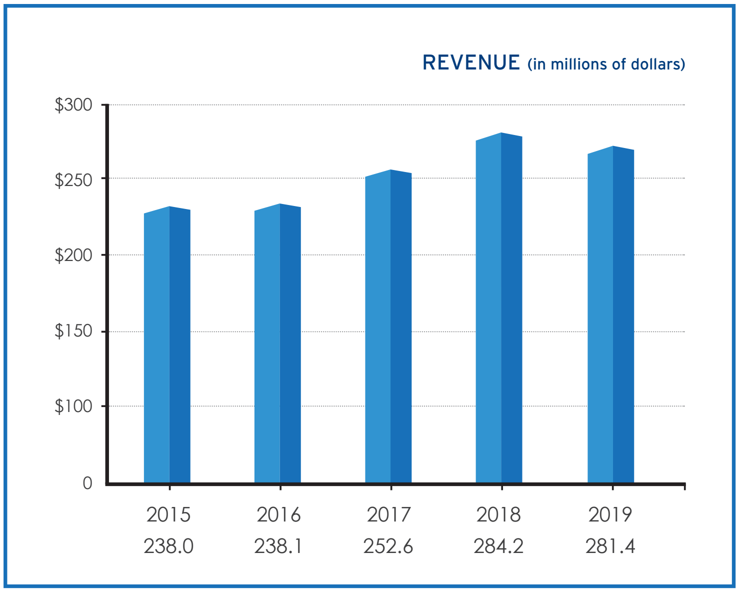
We make a material difference

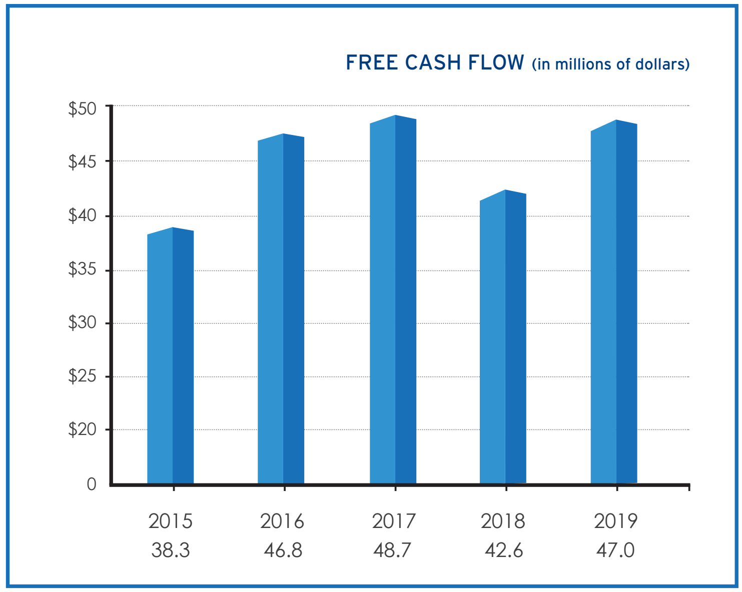
Annual Report 2019

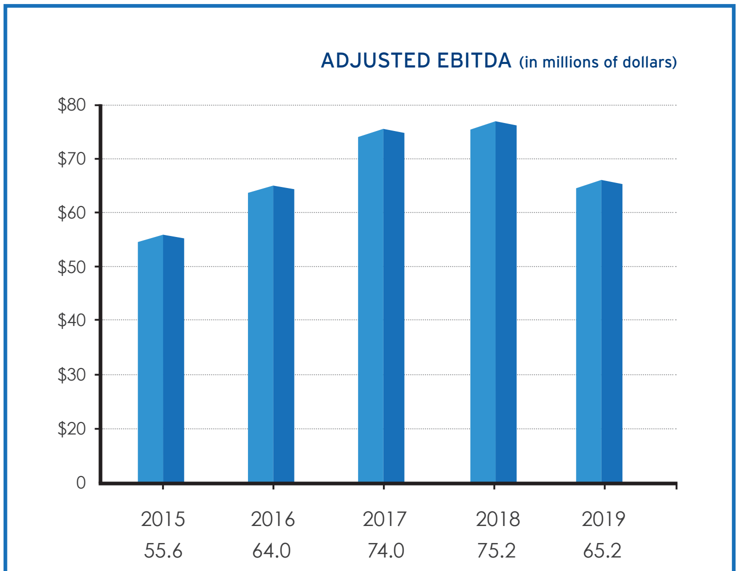
Conditions change. Principles don't.

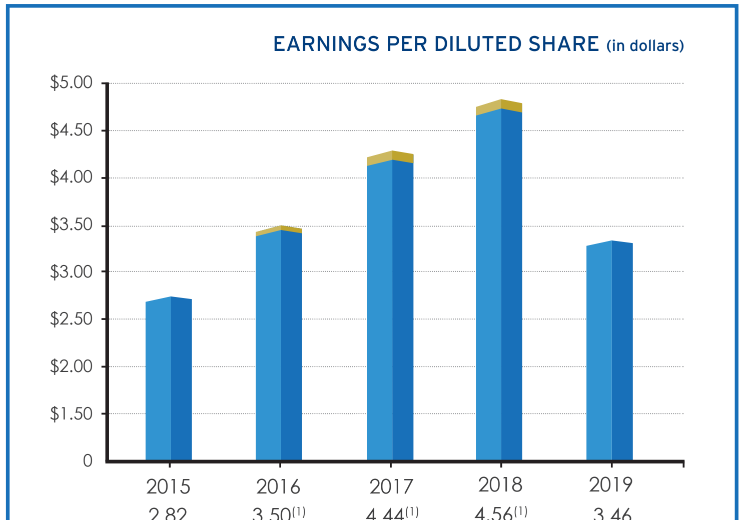
Financial Highlights

(in millions, except per share figures)	2019	2018	% Change
Revenue	281.4	284.2	-1%
Gross Margin %	36.0%	38.4%	
Net Income	32.7	43.1	-24%
Diluted EPS	3.46	4.56	-24%
Adjusted EBITDA	65.2	75.2	-13%
Free Cash Flow	47.0	42.6	+10%
Dividend Per Share	0.80	0.80	









1 Includes an after-tax gain of $0.07, $0.15 and $0.12 per share related to sale of businesses in 2016, 2017 and 2018, respectively.

Around the world, businesses are being impacted by continuing volatility and turbulence in virtually every market sector. Chase Corporation is no exception. Change in market dynamics requires our sharp focus on the fundamentals – the basic principles and strategies that are our foundation. These principles define the strategic drivers that have long guided your Company:

- Inorganic growth through attractive acquisitions and integration
- Organic growth in select areas through market and product development
- Consolidation and rationalization where appropriate

Fellow Shareholders,

The headwinds sparked in FY2018 have continued through FY2019 and added further pressure on financial performance. Top-line and bottom-line results were down from last year. However, undaunted by ongoing geopolitical uncertainty and marketplace pressures, the Company has made substantial progress in a number of areas in FY2019. Progress was made on our facility consolidation initiative on multiple fronts. Our debt was paid down to zero. Also, free cash flow improved over FY2018. This has allowed the Company to continue its investments in operations, ensuring return on your investment in Chase Corporation.

Though it was a trying year in many ways, one consistent highlight has been Chase employees. As our global footprint grows, we are indeed fortunate to be able to count on a solid workforce and to also bring on world-class people to help address future challenges and opportunities.

Chase has a long track record of success and we believe that it is attributable in great measure to our cultural foundation. Our people—their drive, their resilience, their resolve and discipline at all levels—have always served our customers and shareholders well, as they will in the year ahead.

FY2019 SUMMARY

Today, Chase Corporation has a portfolio of complementary brands serving a variety of markets worldwide.

Inorganic and organic growth over the past several years has required that we expand and strengthen our senior management capabilities.

Our businesses are more complex, and following consolidation and streamlining of product lines and manufacturing facilities we have restructured our internal and external reporting process to more accurately reflect the manner in which the current business is being managed and operated.

In FY2019, the Company reorganized into three reportable operating segments: Adhesives, Sealants and Additives, Industrial Tapes and Corrosion Protection and Waterproofing. The segments are distinguished by the nature of the products manufactured and how they are delivered to their respective markets. It is very satisfying that these three business segments are now managed by Vice Presidents who have been promoted from within and who possess the skill, talent and experience that will bring great value to our organization.

Adhesives, Sealants and Additives offers innovative and specialized products consisting of both end-use products and intermediates that are used in, or integrated into, another company's product. The segment sells predominantly into the transportation, appliance, medical, general industrial and environmental market verticals. Products include moisture protective coatings and customized sealant and adhesive systems for electronics, polymeric microspheres, polyurethane dispersions and superabsorbent polymers.

Industrial Tapes features legacy wire and cable materials, specialty tapes, and other laminated and coated products. These products are generally used in the assembly of other manufacturers' products, with demand typically dependent upon general economic conditions. The segment sells predominantly to established markets, with some exposure to growth opportunities through further development of existing products. Markets served include cable manufacturing, utilities and telecommunications, and electronics packaging. Offerings include insulating and conducting materials for wire and cable manufacturers, laminated durable papers, laminates for the packaging and industrial laminate markets, custom manufacturing services, pulling and detection tapes used in the installation, measurement and location of fiber optic cables and water and natural gas lines, cover tapes essential to delivering semiconductor components via tape-and-reel packaging and composite materials and elements.

Corrosion Protection and Waterproofing is principally composed of project-oriented products that are primarily sold and used as "Chase" branded products. End markets include new and existing infrastructure projects for oil, gas, water and wastewater pipelines, highways and bridge decks,

"Our people – their drive, their resilience, their resolve and discipline everywhere we do business is the backbone of Chase and our cultural foundation."

water and wastewater containment systems, and commercial buildings. Products include protective coatings for pipeline applications, coating and lining systems for waterproofing and liquid storage applications, adhesives and sealants used in architectural and building envelope waterproofing applications, high-performance polymeric asphalt additives, and expansion joint systems for waterproofing applications in transportation and architectural markets.

"Our success over time is the result of a long-term commitment to our core strategic drivers. As we expand our global footprint this commitment to acquisitions, organic growth and operational efficiency will inform and guide our decision making."

Research and Development (R&D) is a key strategic area of the Company. Our investment in R&D continues to increase as new products and application opportunities arise and we continue to support customer efforts to innovate. In the past year we have brought new leadership to the department and added additional technical resources that will allow us to remain a leader in the markets we serve.

Cost pressures have led to the further prioritization of our ongoing consolidation efforts. Tangible progress was recognized in FY2019, including launching the next phase in our facility consolidation and rationalization initiative — the relocation of our pulling and detection manufacturing operations into our Hickory, NC facility. This was coupled with the completion of the consolidation of our wire and cable materials operations into our Oxford, MA and Lenoir, NC facilities. The fiscal year also saw Chase achieve the full pay down of the debt incurred to acquire Zappa Stewart in the prior year, and the generation of free cash flows surpassing the prior year.

While no acquisitions were completed in FY2019, we remained active in the M&A market, maintaining a pipeline of potential targets along with ongoing due diligence efforts. We maintain a disciplined approach with our analysis of valuations and have not felt compelled to stretch for opportunities presented.

Business Segment Results

ADHESIVES, SEALANTS AND ADDITIVES

Our specialty chemical intermediates product line, which has a predominantly North American market focus, surpassed the prior year sales mark, resulting in a year-over-year increase in total revenue for the Adhesives, Sealants and Additives segment. The specialty chemical intermediates product line had the comparative benefit of the full-year contribution of the Zappa Stewart business in FY2019. By contrast, our electronic and industrial coatings product line was adversely affected by Asian market headwinds, and finished FY2019 behind the prior year.

INDUSTRIAL TAPES

Our pulling and detection, cable materials and specialty products product lines in FY2019 obtained strong domestic sales. However, the Industrial Tapes segment as a whole fell short of total sales achieved in the prior year when factoring in FY2018 sales related to the now-divested structural composites product line. The segment enters FY2020 the beneficiary of both the Pawtucket, RI and Granite Falls, NC consolidation projects, both performed to improve efficiencies and gain economies of scale for the segment's two largest product lines.

CORROSION PROTECTION AND WATERPROOFING

The Corrosion Protection and Waterproofing segment's revenue was down for FY2019. Declines were concentrated in the pipeline coatings and bridge and highway product lines. Prolonged construction contraction in the Middle East and the nonrecurring high profile bridge jobs completed in the eastern U.S. in the prior year drove these results. The segment's other product lines, building envelope and coating and lining systems products, fared better in FY2019, showing year-over-year sales growth.

THE INTERNET OF THINGS

The Internet of Things (IoT) will be a growth driver due to the need for greater bandwidth and desire for more data. The rate at which devices are entering this market is explosive. While our pulling and detection tapes, conformal coatings and communication cable materials are anticipated to realize the greatest lift from this macro trend, a myriad of products in all three segments are poised to benefit.

5G (fifth generation cellular wireless) will also impact this trend, increasing the demand for further infrastructure build-out to support this evolved technology.

"Conditions change. Principles don't."

LOOKING AHEAD

We expect continuing challenges in FY2020. The trade war has and will continue to unsettle markets around the world, and the resulting turbulence will require that the Chase team be alert and responsive to what lies ahead. In a difficult year, our flexibility and responsiveness have given us confidence, and this confidence will continue to manifest in our ability to address threats and take advantage of opportunities in the period ahead. We will remain grounded in the core strategies that have served us well for many years. Thank you for your continuing support.

Sincerely,

Adam P. Chase
President and Chief Executive Officer

Peter R. Chase
Executive Chairman

Christian J. Talma
Chief Financial Officer

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 AUGUST 31, 2019

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

Commission File Number: 1-9852

CHASE CORPORATION
(Exact name of registrant as specified in its charter)

Massachusetts	**11-1797126**
(State or other jurisdiction of incorporation of organization)	(I.R.S. Employer Identification No.)

295 University Avenue, Westwood, Massachusetts 02090
(Address of Principal Executive Offices) (Zip Code)

(781) 332-0700
(Registrant's Telephone Number, Including Area Code)

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, $.10 par value	**CCF**	**NYSE American**

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 checkmark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting 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 checkmark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES ☐ NO ☒

The aggregate market value of the common stock held by non-affiliates of the registrant, computed by reference to the closing price as of the last business day of the Registrant's most recently completed second fiscal quarter, February 28, 2019, was approximately $532,958,000.

As of October 31, 2019, the Company had outstanding 9,424,079 shares of common stock, $0.10 par value, which is its only class of common stock.

Documents Incorporated By Reference:

Portions of the registrant's definitive proxy statement for the Annual Meeting of Shareholders, which is expected to be filed within 120 days after the registrant's fiscal year ended August 31, 2019, are incorporated by reference into Part III hereof.

CHASE CORPORATION
INDEX TO ANNUAL REPORT ON FORM 10-K

For the Year Ended August 31, 2019

Cautionary Note Concerning Forward-Looking Statements

This Annual Report on Form 10-K contains “forward-looking statements” within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements, including without limitation forward-looking statements made under the caption “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” involve risks and uncertainties. Any statements contained in this Annual Report that are not statements of historical fact may be deemed to be forward-looking statements. Forward-looking statements include, without limitation, statements as to our future operating results; seasonality expectations; plans for the development, utilization or disposal of manufacturing facilities; future economic conditions; our expectations as to legal proceedings; the effect of our market and product development efforts; and expectations or plans relating to the implementation or realization of our strategic goals and future growth, including through potential future acquisitions. Forward-looking statements may also include, among other things, statements relating to future sales, earnings, cash flow, results of operations, use of cash and other measures of financial performance, as well as statements relating to future dividend payments. Other forward-looking statements may be identified through the use of words such as “believes,” “anticipates,” “may,” “should,” “will,” “plans,” “projects,” “expects,” “expectations,” “estimates,” “predicts,” “targets,” “forecasts,” “strategy,” and other words of similar meaning in connection with the discussion of future operating or financial performance. These statements are based on current expectations, estimates and projections about the industries in which we operate, and the beliefs and assumptions made by management. Because forward-looking statements relate to the future, they are subject to inherent risks, uncertainties and changes in circumstances that are difficult to predict. Accordingly, the Company’s actual results may differ materially from those contemplated by the forward-looking statements. Investors, therefore, are cautioned against relying on any of these forward-looking statements. They are neither statements of historical fact nor guarantees or assurances of future performance. Readers should refer to the discussions under Item 1A “Risk Factors” of this Annual Report on Form 10-K.

PART I

ITEM 1 – BUSINESS

Primary Operating Divisions and Facilities and Industry Segments

Chase Corporation (the "Company," "Chase," "we," or "us"), a global specialty chemicals company founded in 1946, is a leading manufacturer of protective materials for high-reliability applications across diverse market sectors. Our strategy is to maximize the performance of our core businesses and brands while seeking future opportunities through strategic acquisitions. Through investments in facilities, systems and organizational consolidation we seek to improve performance and gain economies of scale.

In the fourth quarter of our fiscal year 2019, we reorganized from two into three reportable operating segments, an Adhesives, Sealants and Additives segment, an Industrial Tapes segment and a Corrosion Protection and Waterproofing segment. The segments are distinguished by the nature of the products manufactured and how they are delivered to their respective markets. The Adhesives, Sealants and Additives segment (whose operations were formerly included within the Industrial Materials segment) offers innovative and specialized product offerings consisting of both end-use products and intermediates that are used in, or integrated into, another company's products. Demand for the segment's product offerings is typically dependent upon general economic conditions. The Adhesives, Sealants and Additives segment leverages the core specialty chemical competencies of the Company, and serves diverse markets and applications. The segment sells predominantly into the transportation, appliances, medical, general industrial and environmental market verticals. The Industrial Tapes segment (whose operations were formerly included within the Industrial Materials segment) features legacy wire and cable materials, specialty tapes, and other laminated and coated products. The segment derives its competitive advantage through its proven chemistries, diverse specialty offerings and the reliability its supply chain offers to end customers. These products are generally used in the assembly of other manufacturers' products, with demand typically dependent upon general economic conditions. The Industrial Tapes segment sells mostly to established markets, with some exposure to growth opportunities through further development of existing products. Markets served include cable manufacturing, utilities and telecommunications, and electronics packaging. The Corrosion Protection and Waterproofing segment (formerly known as the Construction Materials segment) is principally composed of project-oriented product offerings that are primarily sold and used as "Chase" branded products. End markets include new and existing infrastructure projects on oil, gas, water and wastewater pipelines, highways and bridge decks, water and wastewater containment systems, and commercial buildings. The segment's products include protective coatings for pipeline applications, coating and lining systems for waterproofing and liquid storage applications, adhesives and sealants used in architectural and building envelope waterproofing applications, high-performance polymeric asphalt additives, and expansion joint systems for waterproofing applications in transportation and architectural markets. With sales generally dependent on outdoor project work, the segment experiences highly seasonal sales patterns. Our manufacturing facilities are distinct to their respective segments apart from our O'Hara Township, PA, Blawnox, PA and Hickory, NC facilities, which produce products related to a combination of operating segments.

A summary of our operating structure as of August 31, 2019 is as follows:

ADHESIVES, SEALANTS AND ADDITIVES SEGMENT

Key Products	Primary Operating Locations	Background/History
Protective conformal coatings under the brand name HumiSeal®, moisture protective electronic coatings sold to the electronics industry including circuitry used in automobiles, industrial controls and home appliances.	O'Hara Township, PA	The HumiSeal business and product lines were acquired in the early 1970s.
Advanced adhesives, sealants, and coatings for automotive and industrial applications that require specialized bonding, encapsulating, environmental protection, or thermal management functionality.	Woburn, MA Newark, CA	In September 2016, we acquired certain assets and the operations of Resin Designs, LLC, and entered leases for their existing manufacturing facilities in Massachusetts and California.
Protective conformal coatings under the brand name HumiSeal®, moisture protective electronic coatings sold to the electronics industry including circuitry used in automobiles, industrial controls and home appliances.	Winnersh, Wokingham, England	In October 2005, we acquired all of the capital stock of Concoat Holdings Ltd. and its subsidiaries. In 2006 Concoat was renamed HumiSeal Europe.
	Paris, France	In March 2007, we expanded our international presence with the formation of HumiSeal Europe SARL in France. HumiSeal Europe SARL operates a sales/technical service office and warehouse near Paris, France. This business works closely with the HumiSeal operation in Winnersh, Wokingham, England, allowing direct sales and service to the French market.
	Pune, India	In June 2016, we further expanded our international presence through the purchase of Spray Products (India) Private Limited, located in Pune, India. This business enhances the Company's ability to provide technical, sales, manufacturing, chemical handling and packaging services in the region and works closely with our HumiSeal manufacturing operation in Winnersh, Wokingham, England. In December 2016, Spray Products (India) Private Limited was renamed HumiSeal India Private Limited.
Polymeric microspheres, sold under the Dualite® brand, which are utilized for weight and density reduction and sound dampening across varied industries.	Greenville, SC	In January 2015, we acquired two product lines from Henkel Corporation. They, along with the Superabsorbents business acquired in December 2017, comprise our specialty chemical intermediates product line.
Polyurethane dispersions utilized for various coating products.		The Company currently contracts with manufacturing partners to produce its polyurethane dispersions.
Superabsorbent polymers, sold through our Zappa Stewart division, which are utilized for water and liquid management, remediation and protection in diverse markets including wire and cable, medical, environmental, infrastructure, energy and consumer products.	Hickory, NC McLeansville, NC	In December 2017, we acquired Stewart Superabsorbents, LLC and its Zappa-Tec business (collectively "Zappa Stewart").

INDUSTRIAL TAPES SEGMENT

Key Products	Primary Operating Locations	Background/History
Specialty tapes and related products for the electronic and telecommunications industries using the brand name Chase & Sons®.	Oxford, MA	In August 2011, we relocated our manufacturing processes that had been previously conducted at our Webster, MA facility to this location.
Insulating and conducting materials for the manufacture of electrical and telephone wire and cable, electrical splicing, and terminating and repair tapes, which are marketed to wire and cable manufacturers selling into energy-oriented and communication markets, and to public utilities.		In December 2012, we relocated the majority of our manufacturing processes that had been previously conducted at our Randolph, MA facility to this location. Our Randolph facility was one of our first operating facilities, and had been producing products for the wire and cable industry for more than fifty years.
		In the fourth quarter of 2018, we moved the wire and cable material manufacturing process that had been conducted at our Pawtucket, RI facility to our Lenoir, NC and Oxford, MA locations
PaperTyger®, a trademark for laminated durable papers sold to the envelope converting and commercial printing industries.		We acquired the Paper Tyger, LLC assets in 2003.
Chase BLH2OCK®, a water-blocking compound sold to the wire and cable industry.	Blawnox, PA	In September 2012, we relocated our Chase BLH2OCK® manufacturing processes that had been previously conducted at our Randolph, MA facility to this location.
Laminated film foils for the electronics and cable industries and cover tapes essential to delivering semiconductor components via tape and reel packaging.	Lenoir, NC Suzhou, China	In June 2012, we acquired all of the capital stock of NEPTCO Incorporated, which operated facilities in Rhode Island, North Carolina and China.
		In October 2013, we moved the manufacturing processes that had been conducted at our Taylorsville, NC facility to our Lenoir, NC location.
		In the fourth quarter of 2018, we moved the wire and cable material manufacturing process that had been conducted at our Pawtucket, RI facility to our Lenoir, NC and Oxford, MA locations.
Pulling and detection tapes used in the installation, measurement and location of fiber optic cables, and water and natural gas lines.	Granite Falls, NC Hickory, NC	In the third quarter of 2019, we began relocating the pulling and detection tapes manufacturing process from our Granite Falls, NC location to our Hickory, NC location.

CORROSION PROTECTION AND WATERPROOFING SEGMENT

Key Products	Primary Operating Locations	Background/History
Protective pipe-coating tapes and other protectants for valves, regulators, casings, joints, metals, and concrete, which are sold under the brand name Royston®, to oil companies, gas utilities and pipeline companies. Rosphalt50® is a polymer additive that provides long-term cost-effective solutions in many applications such as waterproofing of bridge decks and approaches, ramps, racetracks, airport runways and taxiways and specialty road applications. Waterproofing membranes for highway bridge deck metal-supported surfaces	Blawnox, PA	The Royston business was acquired in the early 1970s.
Waterproofing sealants, expansion joints and accessories for the transportation, industrial and architectural markets.	O'Hara Township, PA	In April 2005, we acquired certain assets of E-Poxy Engineered Materials. Additionally, in September 2006, we acquired all of the capital stock of Capital Services Joint Systems. Both of these acquisitions were combined to form the expansion joints business.
Technologically advanced products, including the brand Tapecoat®, for demanding anti-corrosion applications in the gas, oil and marine pipeline market segments, as well as tapes and membranes for roofing and other construction-related applications.	Evanston, IL	In November 2001, we acquired substantially all the assets of Tapecoat, previously a division of T.C. Manufacturing Inc.
Specialized high-performance coating and lining systems used worldwide in liquid storage and containment applications.	Houston, TX	In September 2009, we acquired all the outstanding capital stock of C.I.M. Industries Inc. (“CIM”).
Waterproofing and corrosion protection systems for oil, gas and water pipelines, and a supplier to Europe, the Middle East and Southeast Asia.	Rye, East Sussex, England	In September 2007, we purchased certain product lines and a related manufacturing facility in Rye, East Sussex, England through our wholly-owned subsidiary, Chase Protective Coatings Ltd. This facility joins Chase's North American-based Tapecoat® and Royston® brands to broaden the protective pipeline coatings product line and better address global demand.
The ServiWrap® brand bitumen pipeline protection tapes and products, which offer long-term corrosion protection for buried pipelines in the most challenging natural environments.		In December 2009, we acquired the full range of ServiWrap® pipeline protection products (“ServiWrap”) from Grace Construction Products Limited, a U.K.-based unit of W.R. Grace & Co. ServiWrap products complement our portfolio of pipeline protection tapes, coatings and accessories and extend our global customer base.

Other Business Developments

In the third quarter of fiscal year 2019, Chase began moving the pulling and detection operations housed in its Granite Falls, NC location to its Hickory, NC facility. This is in line with the Company’s ongoing initiative to consolidate its manufacturing plants and streamline its processes. Currently, the pulling and detection operations are the only Chase-owned production operations in Granite Falls, NC, with the remaining portions of the building being either utilized for research and development or leased to a third party (see Note 18 to the Consolidated Financial Statements for additional information on this lease). The process of moving continued subsequent to the fourth quarter of fiscal 2019 and is anticipated to be completed during the first half of fiscal 2020. The Company recognized $526,000 in expense related to the move in fiscal 2019. Future costs related to this move are currently anticipated to be approximately $700,000, and the Company plans to disclose these amounts within operations optimization costs in the Consolidated Statement of Operations in future periods.

During the fourth quarter of fiscal 2019, the Company commissioned engineering studies of certain legacy operations, machinery and locations related to the Company's facility rationalization and consolidation initiative. Chase is currently reviewing the data and recommendations provided by the study and may further utilize third party engineering, IT and other professional services firms in the future for similar work, as well as work on optimizing our computer systems. The Company recognized $200,000 in expense related to these services in fiscal 2019.

On June 25, 2018, the Company announced to its employees the planned closing of its Pawtucket, RI manufacturing facility effective August 31, 2018. This is in line with the Company's ongoing efforts to consolidate its manufacturing plants and streamline its processes. The manufacturing of products previously produced in the Pawtucket, RI facility was moved to Company facilities in Oxford, MA and Lenoir, NC during a two-month transition period. The Company expensed $1,272,000 in the fourth quarter of fiscal 2018 related to the closure, including: (a) cash-related employee-related, logistics and uncapitalized facilities improvement costs of $590,000; and (b) non-cash-related accelerated depreciation expense of $682,000. The Company also recognized $260,000 in expenses related to this move in the three-month period ended November 30, 2018, with no additional expense recognized in the final nine months of fiscal 2019. Future costs related to this move are not anticipated to be significant to the Consolidated Financial Statements.

On April 20, 2018, Chase finalized an agreement with an unrelated party to sell all inventory, operational machinery and equipment and intangible assets of the Company's structural composites rod business, as well as a license related to the production and sale of rod, for proceeds of $2,232,000, net of transaction costs and following certain working capital adjustments. This business, which was part of the structural composites product line within the Industrial Tapes segment, had limited growth and profitability prospects as part of the Company, and was outside the areas Chase has identified for strategic emphasis. The resulting pre-tax gain on sale of $1,480,000 was recognized in the third quarter of fiscal 2018 as a gain on sale of businesses within the consolidated statement of operations. Chase received $2,075,000, net of transaction costs, in the third quarter of fiscal 2018, with the remaining $157,000 received in the fourth quarter of fiscal 2018 as a result of a working capital true-up. Chase will provide certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services. The purchaser also entered into a royalty agreement with the Company. The purchaser will make royalty payments to Chase based on future sales of certain structural composite material manufactured by the purchaser.

On December 29, 2017, Chase entered an agreement to acquire Stewart Superabsorbents, LLC ("SSA, LLC"), an advanced superabsorbent polymer (SAP) formulator and solutions provider, with operations located in Hickory and McLeansville, NC. The transaction closed on December 31, 2017. In its final fiscal year before its acquisition, SSA, LLC, and its recently-acquired Zappa-Tec business (collectively "Zappa Stewart") had combined revenue in excess of $24,000,000. This acquisition proved to be immediately accretive to the Company's earnings in the period of acquisition, after adjusting for nonrecurring costs associated with the transaction and financing. The business was acquired for a purchase price of $73,469,000 after final working capital adjustments and excluding acquisition-related costs. As part of this transaction, Chase acquired all assets of the business, and entered multiyear leases at both locations. The Company expensed $393,000 of acquisition-related costs during the second quarter of fiscal 2018. The purchase was funded from a combination of Chase's existing revolving credit facility and available cash on hand. Zappa Stewart's protective materials technology complements Chase's current specialty chemicals offerings. This acquisition is aligned with the Company's core strategies and extends its reach into growing medical, environmental and consumer applications. The Company finalized purchase accounting in the first quarter of fiscal 2019, without any adjustment to amounts recorded at August 31, 2018. Following the effective date of the acquisition the financial results of Zappa Stewart's operations have been included in the Company's financial statements in the specialty chemical intermediates product line, contained within the Adhesives, Sealants and Additives operating segment.

On April 3, 2017, Chase executed an agreement with an unrelated party to sell all inventory, machinery and equipment and intangible assets of the Company's fiber optic cable components product line for proceeds of $3,858,000 net of transaction costs and following certain working capital adjustments. The resulting pre-tax gain on sale of $2,013,000 was recognized in the third quarter of fiscal 2017 as gain on sale of businesses within the consolidated statement of operations. Further, the purchaser entered a multiyear lease for a portion of the manufacturing space at the Company's Granite Falls, NC facility. Chase will provide certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services. The

Company’s fiber optic cable components product line’s historical results are included as part of the Company’s Industrial Tapes operating segment.

On September 30, 2016, the Company acquired certain assets of Resin Designs, LLC (“Resin Designs”), an advanced adhesives and sealants manufacturer, with locations in Woburn, MA and Newark, CA. The business was acquired for a purchase price of $30,270,000 after final working capital adjustments and excluding acquisition-related costs. As part of this transaction, Chase acquired all working capital and fixed assets of the business, and entered multiyear leases at both locations. The Company expensed $584,000 of acquisition-related costs during the first quarter of fiscal 2017 associated with this acquisition. The purchase was funded entirely with available cash on hand. Resin Designs is a formulator of customized adhesive and sealant systems used in high-reliability electronic applications. The acquisition broadens the Company’s adhesives and sealants product offering and manufacturing capabilities, and expands its market reach. Since the effective date of the acquisition, the financial results of Resin Designs’ operations have been included in the Company’s financial statements within the electronic and industrial coatings product line, contained within the Adhesives, Sealants and Additives operating segment.

Products and Markets

Our principal products are specialty tapes, laminates, adhesives, sealants, coatings and chemical intermediates which are sold by our salespeople, manufacturers' representatives and distributors. In our Adhesives, Sealants and Additives segment, these products consist of:

(i) moisture protective coatings, which are sold to the electronics industry for circuitry manufacturing, including circuitry used in automobiles, industrial controls and home appliances;

(ii) advanced adhesives, sealants, and coatings for automotive and industrial applications that require specialized bonding, encapsulating, environmental protection, or thermal management functionality;

(iii) polymeric microspheres utilized by various industries to allow for weight and density reduction and sound dampening;

(iv) polyurethane dispersions utilized for various coating products; and

(v) superabsorbent polymers, which are utilized for water and liquid management, remediation and protection in diverse markets including wire and cable, medical, environmental, infrastructure, energy and consumer products.

In our Industrial Tapes segment, these products consist of:

(i) insulating and conducting materials for the manufacture of electrical and telephone wire and cable, electrical splicing, and terminating and repair tapes, which are marketed to wire and cable manufacturers;

(ii) laminated film foils, including EMI/RFI shielding tapes used in communication and local area network (LAN) cables;

(iii) laminated durable papers, including laminated paper with an inner security barrier used in personal and mail-stream privacy protection, which are sold primarily to the envelope converting and commercial printing industries;

(iv) pulling and detection tapes used in the installation, measurement and location of fiber optic cables, water and natural gas lines, and power, data, and video cables for commercial buildings; and

(v) cover tapes with reliable adhesive and anti-static properties essential to delivering semiconductor components via tape and reel packaging.

In our Corrosion Protection and Waterproofing segment, these products consist of:

(i) protective coatings, tapes and protectants for pipelines, valves, casings and other metals, which are sold to oil companies, gas companies and water/wastewater utilities for use in both the construction and maintenance of oil, gas, water and wastewater pipelines;

(ii) fluid-applied coating and lining systems for use in the water and wastewater industry;

(iii) waterproofing tapes and coatings used in waterproofing of the exterior of both commercial and residential structures;

(iv) waterproofing membranes for highway bridge deck metal-supported surfaces, and high-performance polymeric asphalt additives, which are sold to municipal transportation authorities; and

(v) expansion and control joint systems designed for roads, bridges, stadiums and airport runways.

There is some seasonality in selling products into the construction market, which most acutely effects our Corrosion Protection and Waterproofing segment. Higher demand is often experienced when temperatures are warmer in most of North America (April through October), with lower demand occurring when temperatures are colder (typically our second fiscal quarter).

Employees

As of October 31, 2019, we employed approximately 726 people (including union employees). We consider our employee relations to be good. In the U.S., we offer our employees a wide array of company-paid benefits, which we believe are competitive relative to others in our industry. In our operations outside the U.S., we offer benefits that may vary from those offered to our U.S. employees due to customary local practices and statutory requirements.

Backlog, Customers and Competition

As of October 31, 2019, the backlog of customer orders believed to be firm was approximately $17,930,000. This compared with a backlog of $21,825,000 as of October 31, 2018. The decrease in backlog from the prior year amount is primarily due to the changes in the ordering patterns of our customers year-over-year. During fiscal 2019, 2018 and 2017, no customer accounted for more than 10% of sales. No material portion of our business is subject to renegotiation or termination of profits or contracts at the election of the United States Federal Government.

There are other companies that manufacture or sell products and services similar to those made and sold by us. Many of those companies are larger and have greater financial resources than we have. We compete principally on the basis of technical performance, service reliability, quality and price.

Raw Materials

We obtain raw materials from a wide variety of suppliers, with alternative sources of most essential materials available within reasonable lead times.

Patents, Trademarks, Licenses, Franchises and Concessions

We own the following trademarks that we believe are of material importance to our business: Chase Corporation®, C-Spray (Logo), a trademark used in conjunction with most of the Company's business segment and product line marketing material and communications; HumiSeal®, a trademark for moisture protective coatings sold to the electronics industry; Chase & Sons®, a trademark for barrier and insulating tapes sold to the wire and cable industry; Chase BLH2OCK®, a trademark for a water-blocking compound sold to the wire and cable industry; Rosphalt50®, a trademark for an asphalt additive used predominantly on bridge decks for waterproofing protection; PaperTyger®, a trademark for laminated durable papers sold to the envelope converting and commercial printing industries; DuraDocument®, a trademark for durable, laminated papers sold to the digital print industry; Defender® a trademarked RFID protective material sold to the personal accessories and paper industries; Tapecoat®, a trademark for corrosion preventive surface coatings and primers; Maflowrap®, a trademark for anti-corrosive tapes incorporating self-adhesive mastic or rubber-backed strips, made of plastic materials; Royston®, a trademark for a corrosion-inhibiting coating composition for use on pipes; Ceva®, a trademark for epoxy pastes/gels/mortars and elastomeric concrete used in the construction industry; CIM® trademarks for fluid-applied coating and lining systems used in the water and wastewater industry; ServiWrap® trademarks for pipeline protection tapes, coatings and accessories; NEPTCO®, a trademark used in conjunction with most of NEPTCO's products marketing material and communications; NEPTAPE®, a trademark for coated shielding and insulation materials used in the wire and cable industry; Muletape®, a trademark for pulling and installation tapes sold to the telecommunications industry; Trace-Safe®, a trademark for detection tapes sold to the telecommunications and water and gas utilities industries; Dualite®, a trademark for polymeric microspheres utilized for density and weight reduction and sound dampening by various industries; 4EvaSeal®, a trademark for adhesive-backed tape utilized in various industries; Resin Designs®, a trademark for adhesives and sealants sold into the microelectronics and semiconductor industries; SlickTape®, a trademark for a lubricated shielding tape sold to the wire and cable industry; HighDraw®, a trademark for a highly extensible shielding tape sold to the wire and cable industry; ZapZorb®, a trademark for environmental solidification products that are designed to meet the specific challenges posed by a wide range of liquid-bearing waste streams; ZapLoc®, a trademark for medical waste solidifier products packaged in bottles or larger packages; and ZapPak®, a trademark for medical waste solidifier products packaged in dissolvable film. We do not have any other material trademarks, licenses, franchises, or concessions. While we do hold various patents, as well as other trademarks, we do not believe that they are material to the success of our business.

Working Capital

We fund our business operations through a combination of available cash and cash equivalents, short-term investments and cash flows generated from operations. In addition, our revolving credit facility is available for additional working capital needs or investment opportunities. We have historically funded acquisitions through both available cash on hand and additional borrowings and financing agreements with our bank lenders.

Research and Development

We expensed approximately $4,021,000, $3,940,000 and $3,696,000 for Company-sponsored research and development during fiscal 2019, 2018 and 2017, respectively, which was recorded within selling, general and administrative expenses. Research and development increased in fiscal 2019 and 2018 over prior years due to continued focused development work on strategic product lines, and the addition of the established research and development departments of Zappa Stewart during fiscal 2018 and Resin Designs during fiscal 2017.

Available Information

Chase maintains a website at http://www.chasecorp.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to such reports filed or furnished pursuant to section 13(a) or 15(d) of the Securities Exchange Act of 1934, as well as section 16 reports on Form 3, 4, or 5, are available free of charge on this site as soon as is reasonably practicable after they are filed or furnished with the SEC. Our Code of Conduct and Ethics and the charters for the Audit Committee, the Nominating and Governance Committee and the Compensation and Management Development Committee of our Board of Directors are also available on our internet website. The Code of Conduct and Ethics and charters are also available in print to any shareholder upon request. Requests for such documents should be directed to Ruthanne Hawkins, Shareholder and Investor Relations Department, at 295 University Avenue, Westwood, Massachusetts 02090. Our internet website and the information contained on it or connected to it are not part of nor incorporated by reference into this Form 10-K. Our filings with the SEC are also available on the SEC's website at http://www.sec.gov and at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operations of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

Financial Information regarding Segment and Geographic Areas

Please see Notes 11 and 12 to the Company's Consolidated Financial Statements for financial information about the Company's operating segments and domestic and foreign operations for each of the last three fiscal years.

ITEM 1A – RISK FACTORS

The following risk factors should be read carefully in connection with evaluating our business and the forward-looking information contained in this Annual Report on Form 10-K. We feel that any of the following risks could materially adversely affect our business, operations, industry, financial position or our future financial performance. While we believe that we have identified and discussed below the key risk factors affecting our business, there may be additional risks and uncertainties that are not presently known or that are not currently believed to be significant that may adversely affect our business, operations, industry, financial position and financial performance in the future.

We currently operate in mature markets where increases or decreases in market share could be significant.

Our sales and net income are largely dependent on sales from a consistent and well-established customer base. Organic growth opportunities are minimal; however, we have used and will continue to use strategic acquisitions as a means to build and grow the business. In this business environment, increases or decreases in market share could have a material effect on our business condition or results of operation. We face intense competition from a diverse range of competitors, including operating divisions of companies much larger and with far greater resources than we have. If we are unable to maintain our market share, our business could suffer.

Our business strategy includes the pursuit of strategic acquisitions, which may not be successful if they happen at all.

From time to time, we engage in discussions with potential target companies concerning potential acquisitions. In executing our acquisition strategy, we may be unable to identify suitable acquisition candidates. In addition, we may face competition from other companies for acquisition candidates, making it more difficult to acquire suitable companies on favorable terms. We have historically financed larger acquisitions with additional borrowings under our bank credit agreements. Our existing credit agreement places certain restrictions on our ability to acquire other businesses, and imposes certain financial covenants on us that may limit our ability to borrow generally. If we incur additional indebtedness in order to finance an acquisition, that indebtedness may reduce the availability of our cash flow to fund future working capital, capital expenditures, and other general corporate purposes, may increase our vulnerability to adverse economic conditions, and may expose us to the risk of increased interest rates. If we finance an acquisition through the issuance of equity securities, the ownership interest of our existing shareholders would be proportionately diluted.

Even if we do identify a suitable acquisition target and are able to negotiate and close a transaction, the integration of an acquired business into our operations involves numerous risks, including potential difficulties in integrating an acquired company's product line with ours; the diversion of our resources and management's attention from other business concerns; the potential loss of key employees; limitations imposed by antitrust or merger control laws in the United States or other jurisdictions; risks associated with entering a new geographical or product market; and the day-to-day management of a larger and more diverse combined company.

We may not realize the synergies, operating efficiencies, market position or revenue growth we anticipate from acquisitions, and our failure to effectively manage the above risks could have a material adverse effect on our business, growth prospects and financial performance.

Our results of operations could be adversely affected by uncertain economic and political conditions and the effects of these conditions on our customers' businesses and levels of business activity.

Global economic and political conditions can affect the businesses of our customers and the markets they serve. A severe or prolonged economic downturn or a negative or uncertain political climate could adversely affect, among others, the automotive, housing, construction, pipeline, energy, transportation infrastructure or electronics industries. This may reduce demand for our products or depress pricing of those products, either of which may have a material adverse effect on our results of operations. Changes in global economic conditions or foreign and domestic trade policy could also shift demand to products for which we do not have competitive advantages, and this could negatively affect the amount of business that we are able to obtain. In addition, if we are unable to successfully anticipate changing economic and political conditions, we may be unable to effectively plan for and respond to those changes and our business could be negatively affected.

General economic factors, domestically and internationally, may also adversely affect our financial performance through increased raw material costs or other expenses and by making access to capital more difficult.

The cumulative effect of higher interest rates, energy costs, inflation, levels of unemployment, healthcare costs, unsettled financial markets, and other economic factors (including changes in foreign currency exchange rates and changes to federal, state, local and international tax laws or the application or enforcement practices of such laws) could adversely affect our financial condition by increasing our manufacturing costs and other expenses at the same time that our customers may be scaling back demand for our products. Prices of certain commodity products, including oil and petroleum-based products, are historically volatile and are subject to fluctuations arising from changes in domestic and international supply and demand, labor costs, competition, weather events and climate change, market speculation, government regulations and periodic delays in delivery. Rapid and significant changes in commodity prices may affect our sales and profit margins. These factors can increase our cost of products and services sold and/or selling, general and administrative expenses, and otherwise adversely affect our operating results. Disruptions in the credit markets may limit our ability to access debt capital for use in acquisitions or other purposes on advantageous terms or at all. If we are unable to manage our expenses in response to general economic conditions and margin pressures, or if we are unable to obtain capital for strategic acquisitions or other needs, then our results of operations would be negatively affected.

Fluctuations in the supply and prices of raw materials may negatively impact our financial results.

We obtain raw materials needed to manufacture our products from a number of suppliers. Many of these raw materials are petroleum-based derivatives. Under normal market conditions, these materials are generally available on the open market and from a variety of producers. From time to time, however, the prices and availability of these raw materials fluctuate, which could impair our ability to procure necessary materials, or increase the cost of manufacturing our products. If the prices of raw materials increase, and we are unable to pass these increases on to our customers, we could experience reduced profit margins.

If our products fail to perform as expected, or if we experience product recalls, we could incur significant and unexpected costs and lose existing and future business.

Our products are complex and could have defects or errors presently unknown to us, which may give rise to claims against us, diminish our brands or divert our resources from other purposes. Despite testing, new and existing products could contain defects and errors and may in the future contain manufacturing or design defects, errors or performance problems when first introduced, or even after these products have been used by our customers for a period of time. These problems could result in expensive and time-consuming design modifications or warranty charges, changes to our manufacturing processes, product recalls, significant increases in our maintenance costs, or exposure to liability for damages, any of which may result in substantial and unexpected expenditures, require significant management attention, damage our reputation and customer relationships, and adversely affect our business, our operating results and our cash flow.

We are dependent on key personnel.

We depend significantly on our executive officers including our President and Chief Executive Officer, Adam P. Chase, and on other key employees. The loss of the services of any of these key employees could have a material impact on our business and results of operations. In addition, our acquisition strategy will require that we attract, motivate and retain additional skilled and experienced personnel. The inability to satisfy such requirements could have a negative impact on our ability to remain competitive in the future.

If we cannot successfully manage the unique challenges presented by international markets, we may not be successful in expanding our international operations.

Our strategy includes expansion of our operations in existing and new international markets by selective acquisitions and strategic alliances. Our ability to successfully execute our strategy in international markets is affected by many of the same operational risks we face in expanding our U.S. operations. In addition, our international expansion may be adversely affected by our ability to identify and gain access to local suppliers as well as by local laws and customs, legal and regulatory constraints, political and economic conditions and currency regulations of the countries or regions in which we currently operate or intend to operate in the future. The ongoing negotiations to determine the future terms of the U.K.'s exit from the European Union (Brexit), pose risks of volatility in global markets and, given our exposure and presence in the U.K., could specifically affect our operations and future financial results. Risks inherent in our international operations also include, among others, the costs and difficulties of managing international operations, adverse tax consequences, domestic and international tariffs and trade policies and greater difficulty in enforcing intellectual property rights. Additionally, foreign currency exchange rates and fluctuations (such as those experienced following the June 23, 2016 Brexit referendum vote in the U.K.) may have an impact on future costs or on future cash flows from our international operations.

Current and threatened tariffs on goods from China and other countries could result in lower revenue, profits and cash flows.

The Company (a) imports raw materials from China; (b) makes sales of finished goods into China; and (c) has manufacturing operations in China. The Company works to lower the potential negative effects of the tariffs through seeking alternative sources for our raw materials, when available and pragmatic, and, in certain cases, through altering our manufacturing logistics by utilizing non-U.S. manufacturing where tariffs do not apply. While we also attempt to pass on these additional costs to our customers, competitive factors (including competitors who import from other countries not subject to such tariffs) may limit our ability to sustain price increases and, as a result, may adversely impact our revenue, profits and cash flows. In addition, the imposition of tariffs may influence the sourcing habits of certain end users of our products which, in turn, could have a direct impact on the requirements of our direct customers for our products. Such an impact could adversely affect our revenue, profits and cash flows.

We may experience difficulties in the redesign and consolidation of our manufacturing facilities which could impact shipments to customers, product quality, and our ability to realize cost savings.

We currently have several ongoing projects to streamline our manufacturing operations, which include the redesign and consolidation of certain manufacturing facilities in order to reduce overhead costs. Despite our planning, we may be unable to effectively leverage assets, personnel, and business processes in the transition of production among manufacturing facilities. Uncertainty is inherent within the facility redesign and consolidation process, and unforeseen circumstances could offset the anticipated benefits of these streamlining projects, disrupt service to customers, and impact product quality.

Financial market performance may have a material adverse effect on our pension plan assets and require additional funding requirements.

Significant and sustained declines in the financial markets may have a material adverse effect on the fair market value of the assets of our pension plans. While these pension plan assets are considered non-financial assets since they are not carried on our balance sheet (i.e. balance sheet reflects only the net of plan assets and obligations), the fair market valuation of these assets could impact our funding requirements, funded status or net periodic pension cost. Any significant and sustained declines in the fair market value of these pension assets could require us to increase our funding requirements, which would have an impact on our cash flow, and could also lead to additional pension expense.

If we fail to maintain effective internal control over financial reporting, this may adversely affect investor confidence in our company and, as a result, the value of our common stock.

We are required under Section 404 of the Sarbanes-Oxley Act to furnish a report by management on the effectiveness of our internal control over financial reporting and to include a report by our independent auditors attesting to such effectiveness. Any failure by us to maintain effective internal control over financial reporting could adversely affect our ability to report accurately our financial condition or results of operations.

As discussed in our Annual Report on Form 10-K for the year ended August 31, 2018 (under "Controls and Procedures"), our management concluded that, as of August 31, 2018, we had a material weakness in our internal control over financial reporting related to our business combination processes. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. We have remediated the identified material weakness, but no assurances can be given that management will not identify in the future internal control deficiencies, with respect to business combination processes or otherwise, that constitute a material weakness in our internal control over financial reporting or that any such material weakness will be remediated in a timely fashion.

If we are unable to maintain effective internal control over financial reporting, or if our independent auditors determine that we have a material weakness in our internal control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, also could restrict our future access to the capital markets.

Failure or compromise of security with respect to an operating or information system or portable electronic device could adversely affect our results of operations and financial condition or the effectiveness of our internal controls over operations and financial reporting.

We are highly dependent on automated systems to record and process our daily transactions and certain other components of our financial statements. We could experience a failure of one or more of these systems, or a compromise of our security due to technical system flaws, data input or record keeping errors, or tampering or manipulation of our systems by employees or unauthorized third parties. Information security risks also exist with respect to the use of portable electronic devices, such as laptops and smartphones, which are particularly vulnerable to loss and theft. We may also be subject to disruptions of any of these systems arising from events that are wholly or partially beyond our control (for example, natural disasters, acts of terrorism, epidemics, computer viruses, cyber-attacks, malware, ransomware, and electrical/telecommunications outages). All of these risks are also applicable wherever we rely on outside vendors to provide services. Operating system failures, disruptions, or the compromise of security with respect to operating systems or portable electronic devices could subject us to liability claims, harm our reputation, interrupt our operations, or adversely affect our business, results from operations, financial condition, cash flow or internal control over financial reporting.

ITEM 1B – UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2 – PROPERTIES

The principal properties of the Company as of August 31, 2019 are situated at the following locations and have the following characteristics:

Location	Square Feet	Owned / Leased	Principal Use
Westwood, MA	20,200	Leased	Corporate headquarters, executive office and global operations center, including research and development, sales and administrative services
Blawnox, PA	44,000	Owned	Manufacture and sale of protective coatings and tape products
Evanston, IL	100,000	Owned	Manufacture and sale of protective coatings and tape products
Granite Falls, NC	108,000	Owned	Manufacture and sale of pulling and detection tapes, as well as research and development services
Greenville, SC	34,600	Leased	Manufacture and sale of polymeric microspheres, as well as research and development
Hickory, NC	180,000	Leased	Manufacture and sale of superabsorbent polymer products and pulling and detection tapes, as well as research and development
Houston, TX	45,000	Owned	Manufacture of coating and lining systems for use in liquid storage and containment applications
Lenoir, NC	110,000	Owned	Manufacture and sale of laminated film foils and cover tapes
McLeansville, NC	41,000	Leased	Sales/technical service office and warehouse for superabsorbent polymer products
Mississauga, Canada	2,500	Leased	Distribution center
Newark, CA	32,500	Leased	Manufacture and sale of sealant systems
O'Hara Township, PA	109,000	Owned	Manufacture and sale of protective electronic coatings, expansion joints and accessories
Oxford, MA	73,600	Owned	Manufacture of tape and related products for the electronic and telecommunications industries, as well as laminated durable papers
Paris, France	1,900	Leased	Sales/technical service office and warehouse allowing direct sales and service to the French market
Pawtucket, RI	70,400	Owned	Manufacture and sale of laminated film foils for the electronics and cable industries (through August 2018, when operations were relocated to Oxford, MA and Lenoir, NC facilities), and offices for sales and administrative services. In the third quarter of 2019 the building was classified as an asset held for sale
Pune, India	4,650	Leased	Packaging and sale of protective electronic coatings
Randolph, MA	—	Owned	Ceased manufacturing products at this location in 2012. During fiscal 2016, we demolished the building and classified the property as an asset held for sale
Rotterdam, Netherlands	2,500	Leased	Distribution center
Rye, East Sussex, England	36,600	Owned	Manufacture and sale of protective coatings and tape products
Suzhou, China	48,000	Leased	Manufacture of packaging tape products for the electronics industries
Winnersh, Wokingham, England	18,800	Leased	Manufacture and sale of protective electronic coatings, as well as research and development
Woburn, MA	34,000	Leased	Manufacture and sale of adhesive systems, as well as research and development

The above facilities vary in age, are in good condition and, in the opinion of management, adequate and suitable for present operations. We also own equipment and machinery that is in good repair and, in the opinion of management, adequate and suitable for present operations. We believe that we could significantly add to our capacity by increasing shift operations. Availability of machine hours through additional shifts would provide expansion of current production volume without significant additional capital investment.

ITEM 3 – LEGAL PROCEEDINGS

The Company is involved from time to time in litigation incidental to the conduct of its business. Although the Company does not expect that the outcome in any of these matters, individually or collectively, will have a material adverse effect on its financial condition, results of operations or cash flows, litigation is inherently unpredictable. Therefore, judgments could be rendered, or settlements agreed to that could adversely affect the Company's operating results or cash flows in a particular period. The Company routinely assesses all its litigation and threatened litigation as to the probability of ultimately incurring a liability and records its best estimate of the ultimate loss in situations where we assess the likelihood of loss as probable.

ITEM 4 – MINE SAFETY DISCLOSURES

Not applicable.

ITEM 4A – INFORMATION ABOUT OUR EXECUTIVE OFFICERS

The following table sets forth information concerning our Executive Officers as of October 31, 2019. Each of our Executive Officers is selected by our Board of Directors and holds office until his successor is elected and qualified.

Name	Age	Offices Held and Business Experience during the Past Five Years
Adam P. Chase	47	President of the Company since January 2008, Chief Executive Officer of the Company since February 2015. Adam Chase was the Chief Operating Officer of the Company from February 2007 to February 2015.
Peter R. Chase	71	Chairman of the Board of the Company since February 2007, and Executive Chairman of the Company since February 2015. Peter Chase was the Chief Executive Officer of the Company from September 1993 to February 2015. Peter Chase is the father of Adam Chase.
Christian J. Talma	46	Chief Financial Officer of the Company since February 2019 and Chief Accounting Officer from August 2018 to February 2019. Previously, Vice President Operations Finance and Strategy for Haemonetics Corp. from 2016 to 2018. Prior to that, Christian Talma was employed at Siemens A.G., since 2002, most recently as Head of North America Service Sales Finance.

PART II

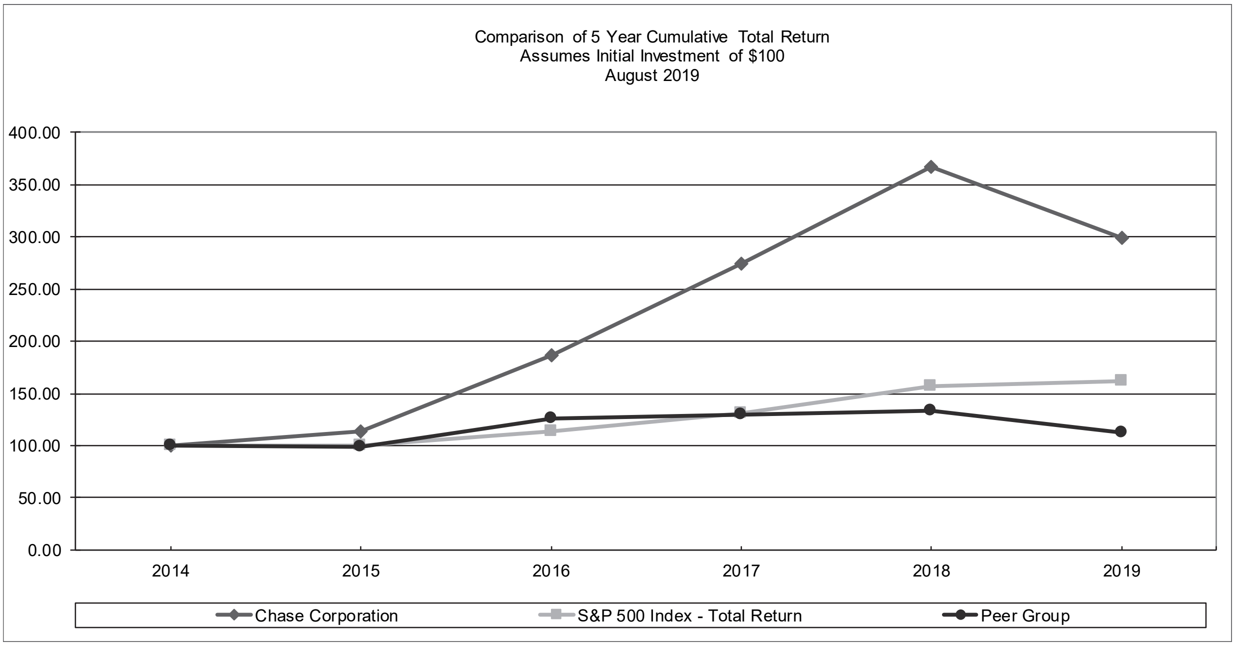
ITEM 5 – MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is traded on the NYSE American under the symbol CCF. As of October 31, 2019, there were 310 shareholders of record of our Common Stock and we believe there were approximately 5,201 beneficial shareholders who held shares in nominee name. On that date, the closing price of our common stock was $117.15 per share as reported by the NYSE American.

Single annual cash dividend payments were declared and scheduled to be paid subsequent to each year ended August 31, 2019, 2018 and 2017 in the amount of $0.80 per common share. Our revolving credit facility contains financial covenants which may have the effect of limiting the amount of dividends that we can pay.

Comparative Stock Performance

The following line graph compares the yearly percentage change in our cumulative total shareholder return on the Common Stock for the last five fiscal years with the cumulative total return on the Standard & Poor's 500 Stock Index (the "S&P 500 Index"), and a composite peer index that is weighted by market equity capitalization (the "Peer Group Index"). The companies included in the Peer Group Index are Henkel AG & Co KGaA, H.B. Fuller Company, Intertape Polymer Group, Rogers Corporation and RPM International, Inc. Cumulative total returns are calculated assuming that $100 was invested on August 31, 2014 in each of the Common Stock, the S&P 500 Index and the Peer Group Index, and that all dividends were reinvested.



	2014	2015	2016	2017	2018	2019
Chase Corp	$ 100	$ 113	$ 187	$ 275	$ 367	$ 299
S&P 500 Index	$ 100	$ 100	$ 113	$ 131	$ 157	$ 162
Peer Group Index	$ 100	$ 98	$ 126	$ 130	$ 133	$ 112

The information under the caption "Comparative Stock Performance" above is not deemed to be "filed" as part of this Annual Report, and is not subject to the liability provisions of Section 18 of the Securities Exchange Act of 1934. Such information will not be deemed to be incorporated by reference into any filing we make under the Securities Act of 1933 unless we explicitly incorporate it into such a filing at the time.

ITEM 6 – SELECTED FINANCIAL DATA

The following selected financial data should be read in conjunction with "Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Item 8 – Financial Statements and Supplementary Data."

	Fiscal Years Ended August 31,				
	2019	2018	2017	2016	2015
	(In thousands, except per share amounts)				
Statement of Operations Data					
Revenue	$281,351	$284,188	$252,560	$238,094	$238,046
Net income	$ 32,711	$ 43,143	$ 42,014	$ 32,807	$ 26,413
Add: net (gain) loss attributable to noncontrolling interest	—	—	—	—	(95)
Net income attributable to Chase Corporation	$ 32,711	$ 43,143	$ 42,014	$ 32,807	$ 26,318
Net income available to common shareholders, per common and common equivalent share:					
Basic:					
Net income per common and common equivalent share	$ 3.48	$ 4.60	$ 4.49	$ 3.55	$ 2.87
Diluted:					
Net income per common and common equivalent share	$ 3.46	$ 4.56	$ 4.44	$ 3.50	$ 2.82
Balance Sheet Data					
Total assets	$307,968	$316,469	$254,738	$262,819	$255,642
Long-term debt, including current portion	$ —	$ 25,000	$ —	$ 43,400	$ 51,800
Total stockholders' equity	$271,227	$246,756	$210,929	$174,089	$154,342
Cash dividends paid per common and common equivalent share	$ 0.80	$ 0.80	$ 0.70	$ 0.65	$ 0.60

ITEM 7 – MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion provides an analysis of our financial condition and results of operations and should be read in conjunction with the Consolidated Financial Statements and notes thereto included in Item 8 of this Annual Report on Form 10-K.

Selected Relationships within the Consolidated Statements of Operations

	Years Ended August 31,		
	2019	2018	2017
	(Dollars in thousands)		
Revenue	$ 281,351	$ 284,188	$ 252,560
Net income	$ 32,711	$ 43,143	$ 42,014
Increase (decrease) in revenue from prior year			
Amount	$ (2,837)	$ 31,628	$ 14,466
Percentage	(1)%	13 %	6 %
Increase (decrease) in net income from prior year			
Amount	$ (10,432)	$ 1,129	$ 9,207
Percentage	(24)%	3 %	28 %
Percentage of revenue:			
Revenue	100 %	100 %	100 %
Cost of products and services sold	64	62	58
Selling, general and administrative expenses	19	18	18
Other (income) expense, net	2	(*)	(*)
Income before income taxes	15 %	20 %	24 %
Income taxes	4	5	7
Net income	12 %	15 %	17 %

* denotes less than one percent
Note: Some percentage of revenue amounts may not sum due to rounding

Overview

The Company's revenue contracted in the current year, affected by challenges faced in Asian markets, a tight credit market in the Middle East and the prior year divestiture of our structural composites rod business. These decreases were tempered by a comparative bump from our December 2017 (fiscal 2018) acquired Zappa Stewart superabsorbents business, and organic sales growth in our primarily North American focused pulling and detection and cable materials product lines. Price increases continued during the current year to address elevated raw material costs, but came short of obtaining full margin recovery for the period.

During fiscal 2019, the Company made further strides on its consolidation and rationalization initiative. We made substantial progress on relocating our pulling and detection product line production operations from our Granite Falls, NC facility to our Hickory, NC facility. The Company has been successful in not incurring elevated levels of manufacturing spend during pulling and detection's period of transition, which is anticipated to be completed in the first half of fiscal 2020. Operational efficiency gains were made in the latter half of the year at our Oxford, MA and Lenoir, NC facilities, which absorbed the specialized cable material manufacturing operations of our Pawtucket, RI facility at the start of fiscal 2019. Following the move out of Pawtucket, higher manufacturing expenses were required to maintain service levels during the transition; these expenses were seen in the first half of fiscal 2019 but subsided in the second half of the year, and the Company is now beginning to recognize the long-term cost savings initially sought by combining the operations.

Net cash provided by operating activities exceeded the prior year and, along with cash repatriated from our U.K. operations, was utilized to pay off in full the outstanding principal balance of our $150,000,000 revolving credit facility. The Company had borrowed $65,000,000 from the facility in December 2017 to substantially fund the acquisition of Zappa Stewart, and had begun paying down the balance in fiscal 2018. Our revolving credit facility allows for us to pay down debt when we have excess cash, while retaining access to immediate liquidity to fund future accretive activities as identified.

Revenue from the Adhesives, Sealants and Additives segment increased over the prior year with our specialty chemical intermediates product line sales up over the prior year, with four additional months of operations of our acquired Zappa Stewart business in the current year. The segment’s overall revenue increase was negatively impacted by decreased annual sales of our electronic and industrial coatings product line, which saw declines in the second half of the year on exposure to slower Asian markets, which were not fully offset by gains the product line experienced in North America.

Our Industrial Tapes segment had a slight decrease in sales from the prior year, most notably related to the substantive divestiture of our structural composites product line in the third quarter of the prior year. Our electronic materials product line also contributed to the year-over-year decrease, as it faced headwinds selling into Asian end markets. Positively affecting the segment’s top-line results for the year were our pulling and detection, cable materials and specialty products product lines, all with strong sales into North American markets.

Our Corrosion Protection and Waterproofing segment’s revenue declined from the prior year, primarily on decreased demand for our U.K. and U.S.-produced pipeline coatings products and our bridge and highway products. The overall decrease in sales experienced by the segment was tempered by increased sales of our building envelope and coating and lining systems products.

Through mergers, acquisitions and divestitures, our marketing and product development efforts and our ability to rationalize and consolidate our operations, the Company remains focused on its core strategies for sustainable long-term growth. At August 31, 2019, the Company’s cash on hand was $47,771,000 and there was no balance outstanding on the Company’s $150,000,000 revolving debt facility.

The Company has three reportable operating segments summarized below:

Segment	Product Lines	Manufacturing Focus and Products
Adhesives, Sealants and Additives	Electronic and Industrial Coatings Specialty Chemical Intermediates	Protective coatings, including moisture protective coatings and customized sealant and adhesive systems for electronics; polyurethane dispersions, polymeric microspheres and superabsorbent polymers.
Industrial Tapes	Cable Materials Specialty Products Pulling and Detection Electronic Materials Structural Composites (1) Fiber Optic Cable Components (2)	Protective tape and coating products and services, including insulating and conducting materials for wire and cable manufacturers; laminated durable papers, packaging and industrial laminate products and custom manufacturing services; pulling and detection tapes used in the installation, measurement and location of fiber optic cables and water and natural gas lines; cover tapes essential to delivering semiconductor components via tape and reel packaging; composite materials elements (now divested); glass-based strength elements designed to allow fiber optic cables to withstand mechanical and environmental strain and stress (now divested).
Corrosion Protection and Waterproofing	Coating and Lining Systems Pipeline Coatings Building Envelope Bridge and Highway	Protective coatings and tape products, including coating and lining systems for use in liquid storage and containment applications; protective coatings for pipeline and general construction applications; adhesives and sealants used in architectural and building envelope waterproofing applications; high-performance polymeric asphalt additives and expansion and control joint systems for use in the transportation and architectural markets.

(1) Product line was substantially divested with the sale of the structural composites rod business on April 20, 2018. Custom manufacturing performed for the purchaser of the structural composites rod business subsequent to the sale is included within the specialty products product line.

(2) Results of product line included for period prior to its April 3, 2017 sale by the Company.

Results of Operations

Revenue and Income Before Income Taxes by Segment are as follows:

		Revenue		Income Before Income Taxes	% of Revenue
		(Dollars in thousands)			
Fiscal 2019					
Adhesives, Sealants and Additives	$	104,796	$	27,142 [(a)]	26 %
Industrial Tapes		129,845		28,216 [(b)]	22 %
Corrosion Protection and Waterproofing		46,710		15,909 [(c)]	34 %
	$	281,351		71,267	25 %
Less corporate and common costs				(27,714)[(d)]	
Income before income taxes			$	43,553	
Fiscal 2018					
Adhesives, Sealants and Additives	$	101,690	$	35,190 [(e)]	35 %
Industrial Tapes		130,598		30,886 [(f)]	24 %
Corrosion Protection and Waterproofing		51,900		18,178	35 %
	$	284,188		84,254	30 %
Less corporate and common costs				(27,289)[(g)]	
Income before income taxes			$	56,965	
Fiscal 2017					
Adhesives, Sealants and Additives	$	78,933	$	32,237 [(h)]	41 %
Industrial Tapes		124,023		35,324 [(i)]	28 %
Corrosion Protection and Waterproofing		49,604		18,205	37 %
	$	252,560		85,766	34 %
Less corporate and common costs				(24,874)[(j)]	
Income before income taxes			$	60,892	

(a) Includes $2,410 of loss on impairment of goodwill related to the Company's polyurethane dispersions business

(b) Includes $260 of expense related to the closure and exit of our Pawtucket, RI location recognized in the first quarter of fiscal 2019, and $526 in exit costs related to the movement of the pulling and detection business out of the Granite Falls, NC location and into the Hickory, NC location during the second half of fiscal 2019

(c) Includes $200 of expense related to engineering studies performed to assess potential future operational changes and further plant rationalization and consolidation

(d) Includes $511 of pension-related settlement costs due to the timing of lump-sum distributions

(e) Includes $1,070 of expense related to inventory step-up in fair value attributable to the acquisition of Zappa Stewart

(f) Includes $1,085 gain on sale of license related to the structural composites product line recorded in the second quarter of fiscal 2018, $1,480 gain on sale of business related to the April 2018 sale of the structural composites rod business and $1,272 of expense related to the exit of our Pawtucket, RI location in the fourth quarter of fiscal 2018

(g) Includes $393 in acquisition-related expense attributable to the December 2017 acquisition of Zappa Stewart

(h) Includes $190 of expense related to inventory step-up in fair value attributable to the Resin Designs acquisition

(i) Includes a $2,013 gain on sale of our fiber optic cable components business

(j) Includes $584 in acquisition-related expense attributable to the September 2016 acquisition of certain assets of Resin Designs, facility exit and demolition costs of $70 related to the Company's Randolph, MA location, a $792 gain related to the November 2016 sale of the Company's Paterson, NJ location, a $68 gain related to the December 2016 sale of the Company's former corporate headquarters in Bridgewater, MA and $14 of pension-related settlement costs due to the timing of lump-sum distributions

Total Revenue

Total revenue in fiscal 2019 decreased $2,837,000 or 1% to $281,351,000 from $284,188,000 in the prior year.

Revenue in our Adhesives, Sealants and Additives segment increased $3,106,000 or 3% to $104,796,000 for the year ended August 31, 2019 compared to $101,690,000 in fiscal 2018. The increase in revenue from our Adhesives, Sealants and Additives segment in fiscal 2019 was primarily due to an increase in revenue from our specialty chemical intermediates product line totaling $7,083,000, which included the first full year of operations from the December 2017 acquired Zappa Stewart business. The segment's net sales increase was negatively affected by our electronic and industrial coatings product line's $3,977,000 sales-volume-driven decrease, with headwinds seen most acutely in Asian markets in the second half of the fiscal year. These headwinds also manifested in a decreased royalty received from our licensed manufacturer in Asia.

Revenue in our Industrial Tapes segment decreased $753,000 or 1% to $129,845,000 for the year ended August 31, 2019 compared to $130,598,000 in fiscal 2018. The decrease in revenue from our Industrial Tapes segment in fiscal 2019 was primarily due to: (a) a sales volume decrease of $5,077,000 from our structural composite products (following the Company's divestiture of the structural composites rod business in April 2018, product sales revenue for wind energy products significantly declined, and the Company has recognized wind-energy-related revenue, including royalty revenue and revenue for transitional custom manufacturing services performed for the buyer, in our specialty products product line since the sale); and (b) an entirely volume-driven sales decrease of $2,608,000 in our electronic materials product line, which has a near exclusively Asian end-market. These decreases were partially offset by: (a) a sales increase of $3,500,000 from our pulling and detection products, from volume and price-driven sales growth into large scale utility and telecommunications infrastructure build in North America; (b) an increase in revenue from our cable materials products of $2,880,000 on both volume and price; and (c) a sales volume increase of $552,000 for our specialty products, which, subsequent to the sale of our fiber optic cable components business in April 2017 and our structural composites rod business in April 2018, includes revenue from the manufacturing services provided by the Company to the common purchaser of the divested businesses (totaling $2,062,000 for fiscal 2019).

Revenue from our Corrosion Protection and Waterproofing segment decreased $5,190,000 or 10% to $46,710,000 for the year ended August 31, 2019 compared to $51,900,000 for fiscal 2018. The decreased revenue for our Corrosion Protection and Waterproofing segment in fiscal 2019 was primarily due to a decrease in sales totaling $4,680,000 in our pipeline coatings products. Our U.K.-produced water and wastewater pipeline products experienced the sharpest decline attributed to tight credit markets in the Middle East regions they sell into, while our U.S.-produced oil and gas pipeline products had sales levels only slightly below the prior year. Our bridge and highway products failed to repeat the large eastern U.S. bridge work laden prior year sales levels in the current year and were off by $2,353,000 year-over-year. Partially countering the overall decrease in revenue for the segment were: (a) a $952,000 increase in our building envelope product sales, driven predominantly by an increase in sales volume; and (b) coating and lining systems products, which had a revenue increase of $891,000.

Royalties and commissions in the Adhesive, Sealants and Additives and Industrial Tapes segments totaled $4,512,000, $5,226,000 and $4,683,000 for the years ended August 31, 2019, 2018 and 2017, respectively. The decrease in royalties and commissions in fiscal 2019 compared to both fiscal 2018 and 2017 was primarily due to decreased sales of electronic and industrial coatings products by our licensed manufacturer in Asia.

Export sales from domestic operations to unaffiliated third parties were $30,582,000, $42,883,000 and $36,719,000 for the years ended August 31, 2019, 2018 and 2017, respectively. The decrease in export sales in fiscal 2019 against fiscal 2018 resulted from decreased export sales into China and Europe. Prior to its divestiture in the fiscal year 2018, nearly all sales related to our structural composite materials product line were into Europe. The increase in export sales in fiscal 2018 against fiscal 2017 resulted from increased export sales into China and Europe.

In fiscal 2018, total revenue increased $31,628,000 or 13% to $284,188,000 from $252,560,000 in the prior year. Revenue in our Adhesives, Sealants and Additives segment increased $22,757,000 or 29% to $101,690,000 for the year ended August 31, 2018 compared to $78,933,000 in fiscal 2017. The increase in revenue from our Adhesives, Sealants and Additives segment in fiscal 2018 was primarily due to: (a) increases in revenue from our specialty chemical intermediates product line totaling $17,383,000, which included sales of $16,324,000 related to the first eight months of operations from the acquired Zappa Stewart business; and (b) sales increases of $5,374,000 for our electronic and industrial coatings product line reflecting mainly sales volume increases, with some positive growth related to price, from the automotive, industrial controls and appliance manufacturing industries, along with increased sales from the Resin Designs business acquired in early fiscal 2017, and with an increased royalty received from our licensed manufacturer in Asia. Revenue in our Industrial Tapes segment increased $6,575,000 or 5% to $130,598,000 for the year ended August 31, 2018 compared to $124,023,000 in fiscal 2017. The increase in revenue from our Industrial Tapes segment in fiscal 2018 was primarily due to: (a) sales increases of $6,510,000, predominantly on volume, from our pulling and detection products, with large scale infrastructure build and repair work from the utility and telecommunications industries fueling growth; (b) sales volume increases of $3,902,000 for our specialty products, which, subsequent to the sale of our fiber optic cable components business in April 2017 and our structural composites rod business in April 2018, includes revenue from the manufacturing services provided by the Company to the common purchaser of the divested businesses (totaling $2,186,000 for fiscal 2018); (c) sales volume increases of $1,998,000 from our structural composite products on sales into the wind energy market (following the Company's divestiture of the structural composites rod business in April 2018, the Company began recognizing wind energy-related revenue, including royalty revenue and revenue for transitional custom manufacturing services performed for the buyer, in our specialty products product line); and (d) an entirely volume-driven sales increase of $472,000 in our electronic materials product line. These increases were negatively impacted by: (a) decreased sales of $4,340,000 from our fiber optic cable components product line, which the Company sold in April 2017 (no revenue was recorded within the fiber optic cable components product line following its divestiture early in the third quarter of 2017, including all of fiscal 2018); and (b) a net decrease in revenue from our cable materials products of $1,967,000, with decreases in sales volume more than offsetting pricing increases obtained. Revenue from our Corrosion Protection and Waterproofing segment increased $2,296,000 or 5% to $51,900,000 for the year ended August 31, 2018 compared to $49,604,000 for fiscal 2017. The increased revenue for our Corrosion Protection and Waterproofing segment in fiscal 2018 was primarily due to an increase in sales volume and prices totaling $2,853,000 in our pipeline coatings products, with both our U.K.-produced water and wastewater pipeline products and U.S.-produced oil and gas pipeline products achieving increases over the prior year. Our bridge and highway products achieved a year-over-year increase in sales totaling $145,000, on both volume and price, compared to fiscal 2017, with large bridge infrastructure work in the eastern U.S. continuing in fiscal 2018. Partially countering the overall increase in revenue for the segment in fiscal 2018 were: (a) a $629,000 decrease in our building envelope product sales, driven predominantly by a decrease in sales volume; and (b) coating and lining systems products, which had a net revenue decrease of $73,000 on decreased sales volume offsetting increased sales prices.

Cost of Products and Services Sold

Cost of products and services sold increased $5,027,000 or 3% to $180,163,000 for the fiscal year ended August 31, 2019 compared to $175,136,000 in fiscal 2018. As a percentage of revenue, cost of products and services sold increased to 64% in fiscal 2019 compared to 62% for fiscal 2018.

The following table summarizes the relative percentages of cost of products and services sold to revenue for our three operating segments:

	Fiscal Years Ended August 31,		
Cost of products and services sold	**2019**	**2018**	**2017**
Adhesives, Sealants and Additives	58 %	52 %	47 %
Industrial Tapes	72 %	71 %	66 %
Corrosion Protection and Waterproofing	57 %	57 %	54 %
Total	64 %	62 %	58 %

Cost of products and services sold in our Adhesives, Sealants and Additives segment was $60,345,000 for the fiscal year ended August 31, 2019 compared to $53,324,000 in fiscal 2018. As a percentage of revenue, cost of products and services sold in this segment increased to 58% for fiscal 2019 compared to 52% in fiscal 2018. Cost of products and services sold in our Industrial Tapes segment was $93,299,000 for the fiscal year ended August 31, 2019 compared to $92,418,000 in fiscal 2018. As a percentage of revenue, cost of products and services sold in this segment increased to 72% in fiscal 2019 compared to 71% for fiscal 2018. Cost of products and services sold in our Corrosion Protection and Waterproofing segment was $26,519,000 for the fiscal year ended August 31, 2019 compared to $29,394,000 in fiscal 2018. As a percentage of revenue, cost of products and services sold in this segment was consistent at 57% in both fiscal 2019 and fiscal 2018. As a percentage of revenue, cost of products and services overall increased primarily due to: (a) a less favorable sales mix, most specifically felt in our Adhesives, Sealants and Additives segment, as our lower margin products constituted a comparatively higher portion of total sales; (b) increasing supply and demand imbalances and tariffs causing rising raw material costs; and (c) production inefficiencies and additional costs to maintain service levels in the first half of fiscal 2019 at our Oxford, MA and Lenoir, NC locations following the consolidation of our Pawtucket, RI operations. We purchase a wide variety of commodity items, including petroleum-based solvents, films, yarns, polymers and nonwovens, along with base metals (aluminum and copper), as well as many other substrates. To facilitate control of our margins, we closely monitor the pricing of our commodities-based raw materials across all product lines, as their price volatility can have short- and long-term effects on both our customers' demand for our products and the margins at which we are able to sell them.

Cost of products and services sold in our Adhesives, Sealants and Additives segment was $53,324,000 for the fiscal year ended August 31, 2018 compared to $37,190,000 in fiscal 2017. As a percentage of revenue, cost of products and services sold in this segment increased to 52% for fiscal 2018 compared to 47% in fiscal 2017. Cost of products and services sold in our Industrial Tapes segment was $92,418,000 for the fiscal year ended August 31, 2018 compared to $81,919,000 in fiscal 2017. As a percentage of revenue, cost of products and services sold in this segment increased to 71% for fiscal 2018 compared to 66% in fiscal 2017. Cost of products and services sold in our Corrosion Protection and Waterproofing segment was $29,394,000 for the fiscal year ended August 31, 2018 compared to $26,927,000 in fiscal 2017. As a percentage of revenue, cost of products and services sold in this segment increased to 57% in fiscal 2018 compared to 54% for fiscal 2017. As a percentage of revenue, cost of products and services sold in the three segments increased primarily due to: (a) the effects of international and domestic trade policy on raw material costs, which most acutely rose in the latter half of fiscal 2018; (b) the rising costs of petroleum-based inputs; (c) an unfavorable product mix, most prominently in our Corrosion Protection and Waterproofing segment, as our lower margin products constituted a comparatively higher portion of total sales in fiscal year 2018; and (d) in the case of our Adhesives, Sealants and Additives segment the inclusion of $1,070,000 in cost of sale of inventory step-up, related to inventory purchased as part of our fiscal 2018 second quarter acquisition of Zappa Stewart.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased $1,085,000 or 2% to $52,728,000 during fiscal 2019 compared to $51,643,000 in fiscal 2018. As a percentage of revenue, selling, general and administrative expenses increased to 19% of total revenue in fiscal 2019 compared to 18% for fiscal 2018. The year-over-year increase in expenses is primarily attributable to: (a) increased amortization expense of $638,000, primarily related to intangible assets acquired in our December 31, 2017 acquisition of Zappa Stewart; (b) increased selling and commission expense of $252,000, principally related to sales growth on our highest commissionable products in the current year, coupled with the addition of a full year of the established sales force of Zappa Stewart; and (c) increased research and development costs of $81,000, after the addition of the established research and development department within Zappa Stewart during the second quarter of the prior year. The Company continues to closely monitor spend with an emphasis on controlling costs and leveraging existing resources.

During fiscal 2018, selling, general and administrative expenses increased $4,972,000 or 11% to $51,643,000 compared to $46,671,000 in fiscal 2017. As a percentage of revenue, selling, general and administrative expenses stayed consistent at 18% of total revenue in both fiscal 2018 and fiscal 2017. The year-over-year increase in expenses is primarily attributable to: (a) increased amortization expense of $2,680,000, primarily related to intangible assets acquired in our December 31, 2017 acquisition of Zappa Stewart, and a full twelve months of amortization related to our September 30, 2016 acquisition of certain assets of Resin Designs; (b) increased selling and commission expense of $773,000, principally related to sales growth on our highest commissionable products in fiscal year 2018, coupled with the addition of the established sales force of Zappa Stewart and a full twelve months of the established sales force of Resin Designs; and (c) increased research and development expense of $244,000, principally related to fiscal year 2018 addition of the established research and development department of Zappa Stewart and a full twelve months of operation of the established research and development department of Resin Designs.

Loss on Impairment of Goodwill

During the three-month period ended February 28, 2019 (the second fiscal quarter of 2019), the ordering patterns of our polyurethane dispersions reporting unit's customers, especially those in the automotive industry, combined with a decrease in the reporting unit's backlog of customer orders believed to be firm as of February 28, 2019, indicated that an impairment in the carrying value of the reporting unit might have occurred. As such, we performed an impairment test on our indefinite-lived and long-lived assets related to our polyurethane dispersions reporting unit, now part of the Adhesives, Sealants and Additives operating segment (part of the former Industrial Materials segment during the second fiscal quarter of 2019), in accordance with ASC Topic 350, "Intangibles — Goodwill and Other" and ASC Topic 360, "Disclosure — Impairment or Disposal of Long-Lived Assets." As a result of impairment testing, which included first testing long-lived assets other than goodwill for impairment under applicable guidance, the Company recorded a charge of $2,410,000 to loss on impairment of goodwill within the consolidated statement of operations during the quarter ended February 28, 2019.

Operations Optimization Costs

During the second half of fiscal 2019, Chase began moving the pulling and detection operations housed in its Granite Falls, NC location to its Hickory, NC facility. This is in line with the Company's ongoing initiative to consolidate its manufacturing plants and streamline its processes. Currently, the pulling and detection operations are the only Chase-owned production operations in Granite Falls, NC, with the remaining portions of the building being either utilized for research and development or leased to a third party. The process of moving has continued subsequent to the fourth quarter of fiscal 2019 and is anticipated to be completed during the first half of fiscal 2020. The Company recognized $526,000 in expense related to the move in fiscal 2019. Future costs related to this move are currently anticipated to be approximately $700,000, and the Company plans to disclose these amounts separately on the Consolidated Financial Statements in future periods.

During the fourth quarter of fiscal 2019, Chase commissioned engineering studies of certain legacy operations, machinery and locations related to the Company's ongoing facility rationalization and consolidation initiative. Chase is currently reviewing the data and recommendations provided by the study and may further utilize third party engineering, IT and other professional services firms in the future for similar optimization-related work. The Company recognized $200,000 in expense related to these services in fiscal 2019; but given the ongoing nature of the review, an estimate of future costs cannot currently be determined.

On June 25, 2018, the Company announced to its employees the planned closing of its Pawtucket, RI manufacturing facility effective August 31, 2018. This was in line with the Company's ongoing efforts to consolidate its manufacturing plants and streamline its processes. The manufacture of products previously produced in the Pawtucket, RI facility was substantially moved to existing Company facilities in Oxford, MA and Lenoir, NC during a two-month transition period, with certain additional expenditures recognized in the first fiscal quarter of 2019. In the fourth quarter of fiscal 2018, $1,272,000 was expensed related to the closure, including: (a) cash-related employee-related, logistics and uncapitalized facilities improvement costs of $590,000; and (b) non-cash-related accelerated depreciation expense of $682,000. The Company expensed $260,000 in the three-month period ended November 30, 2018 related to the move, with no additional expense recognized in fiscal 2019. Future costs related to this move are not anticipated to be significant to the Company's Consolidated Financial Statements.

In fiscal 2017 and 2016, the Company recognized $70,000 and $935,000, respectively, in expenses to raze its Randolph, MA facility, which had been idle regarding production for several years. No expense related to this project was recognized in fiscal 2018 or 2019. The Company began marketing the site for sale during the second quarter of fiscal 2016. The Company substantially completed the demolition of the structure in the fourth fiscal quarter of 2016, and completed other environmental aspects of the project during fiscal 2017. The sale of the property is anticipated to follow in a subsequent period, and any future expenses related to the project are not anticipated to be material.

Acquisition-Related Costs

In fiscal 2018, the Company incurred $393,000 of costs related to our acquisition of Zappa Stewart. This acquisition was accounted for as a business combination in accordance with applicable accounting standards, and all related professional service fees (including banking, legal, accounting and actuarial fees) were expensed as incurred within the second fiscal quarter of 2018.

In fiscal 2017, the Company incurred $584,000 of costs related to our acquisition of certain assets of Resin Designs. This acquisition was accounted for as a business combination in accordance with applicable accounting standards, and all related professional service fees (including banking, legal, accounting, and actuarial fees) were expensed as incurred during the year ended August 31, 2017.

Interest Expense

Interest expense decreased $653,000 or 56% to $519,000 in fiscal 2019 compared to $1,172,000 in fiscal 2018. Interest expense increased $333,000 or 40% to $1,172,000 in fiscal 2018 compared to $839,000 in fiscal 2017. The decrease in interest expense in fiscal 2019 is the result of the decreased average outstanding balance of Chase's revolving debt facility, following the $65,000,000 draw on the facility in December 2017 to substantially fund the Company's acquisition of Zappa Stewart and subsequent incremental principal payments made.

In fiscal 2018, subsequent to the December 2017 borrowing, the Company made $40,000,000 in payments against the principal. In fiscal 2019, Chase made an additional $25,000,000 in principal payments, paying off the outstanding balance in full as of August 31, 2019.

Gain on Sale of Real Estate

In November 2016, the Company finalized the sale of its Paterson, NJ property for proceeds of $1,382,000. This transaction resulted in a gain of $792,000 which was recorded during the year ended August 31, 2017.

In October 2016, Chase entered an agreement to sell its former corporate headquarters and executive offices in Bridgewater, MA. In December 2016, the sale was finalized for gross proceeds of $740,000, resulting in a gain on sale of $68,000 recognized during the year ended August 31, 2017.

Gain on Sale of License

In November 2017, the Company entered an agreement with an unrelated party to sell a license, including certain intellectual property, and sell certain construction in process assets, both related to the manufacturing of certain structural composite materials. In the second fiscal quarter of 2018, the transaction was finalized for gross consideration of $1,111,000 comprising cash proceeds of $1,000,000 and foreign tax consideration paid by the purchaser on Chase's behalf of $111,000. This transaction resulted in a gain of $1,085,000, which was recorded as a gain on sale of license during the fiscal quarter ended February 28, 2018.

In relation to this license agreement, the purchaser also entered into a royalty agreement with the Company. The purchaser will make royalty payments to Chase based on the volume of future sales of certain structural composite material manufactured by the purchaser. Revenue recognized related to this royalty agreement was not material in fiscal 2019 or 2018, and this royalty agreement was terminated in fiscal 2019.

Gain on Sale of Businesses

On April 20, 2018, Chase finalized an agreement with an unrelated party to sell all inventory, operational machinery and equipment and intangible assets of the Company's structural composites rod business, as well as a license related to the production and sale of rod, for proceeds of $2,232,000, net of transaction costs and following certain working capital adjustments. This business, which was part of the structural composites product line within the Industrial Tapes segment, had limited growth and profitability prospects as part of the Company, and was outside the areas Chase has identified for strategic emphasis. The resulting pre-tax gain on sale of $1,480,000 was recognized in the third quarter of fiscal 2018 as a gain on sale of businesses within the Consolidated Statement of Operations. Chase received $2,075,000, net of transaction costs, in the third quarter of fiscal 2018, with the remaining $157,000 received in the fourth quarter of fiscal 2018 as a result of a working capital true-up. Chase will provide certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services.

In relation to this transaction, the purchaser entered into a royalty agreement with the Company. The purchaser will make royalty payments to Chase based on future sales of certain structural composite material manufactured by the purchaser. Royalty revenue recognized in 2019 and 2018 related to this agreement was not material.

On April 3, 2017, Chase executed an agreement with an unrelated party to sell all inventory, machinery and equipment and intangible assets of its fiber optic cable components product line for proceeds of $3,858,000, net of transaction costs and following all working capital adjustments. The fiber optic cable components product line had been a part of our Industrial Tapes segment. Given its low-growth and low-margin prospects, and a customer, supplier and equipment base separate from our other businesses, the product line was determined to not be part of Chase's long-term strategy. The resulting pre-tax gain on sale of $2,013,000 was recognized during the year ended August 31, 2017. Further, the purchaser entered a multiyear lease for a portion of the manufacturing space at the Company's Granite Falls, NC facility. Chase will provide certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services.

Other Income (Expense)

Other expense was $992,000 in fiscal 2019 compared to other expense of $172,000 in fiscal 2018, an increase of $820,000. Other income (expense) primarily includes foreign exchange gains (losses) caused by changes in exchange rates on transactions or balances denominated in currencies other than the functional currency of our subsidiaries, non-service cost components of periodic pension expense (including pension-related settlement costs due to the timing of lump-sum distributions), interest income, rental income and other non-trade/non-royalty/non-commission receipts. The increase in total other expense in fiscal 2019 compared to fiscal 2018 was largely due to the recognition of $511,000 in pension-related settlement costs in fiscal 2019, while no such expense was recognized in fiscal 2018.

Other expense was $172,000 in fiscal 2018 compared to other expense of $341,000 in fiscal 2017, a decrease of $169,000. The decrease in total other expense in fiscal 2018 compared to fiscal 2017 was largely due to the lower non-service cost component of periodic pension expense recognized in fiscal 2018.

Income Taxes

Our effective tax rate for fiscal 2019 was 24.9% as compared to 24.3% and 31.0% in fiscal 2018 and 2017, respectively.

The current and prior years' effective tax rates were most prominently affected by the passage of the Tax Cuts and Jobs Act (the "Tax Act") in December 2017 and discrete tax benefits related to stock-based compensation, recognized in relation to the Company's early adoption of ASU 2016-09 and described in more detail below. For fiscal 2019, the Company utilized the new 21% Federal tax rate enacted by the Tax Act. During fiscal 2018, Chase utilized a blended rate of 25.7%, based on a combination of four months of operations under the old 35% corporate income tax rate, and eight months at the new 21% rate. During fiscal 2017, Chase utilized the old 35% corporate income tax rate for the entire period. Please see Note 7 — "Income Taxes" to the Consolidated Financial Statements for further discussion of the effects of the Tax Act.

The Company early adopted ASU No. 2016-09, "Compensation – Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting", during the first fiscal quarter of 2017. During the fiscal years ended August 31, 2019, 2018 and 2017, the Company recognized excess tax benefits from stock-based compensation of $157,000, $1,921,000 and $1,917,000, respectively, within income tax expense on the Consolidated Statements of Operations. The current year decrease in the benefit resulted from a decrease in certain stock option exercise activity in fiscal 2019. The Company anticipates the potential for increased periodic volatility in future effective tax rates based on the continued application of ASU No. 2016-09.

Net Income

Net income in fiscal 2019 decreased $10,432,000 or 24% to $32,711,000 compared to $43,143,000 in fiscal 2018. The decrease in net income in 2019 was primarily due to: (a) a lower gross profit on sales; (b) a loss on impairment of goodwill; (c) increased amortization expense recognized in the current period and related to our December 2017 acquisition of Zappa Stewart; (d) nonrecurring gains on sales of both a business and a license in the prior year period; and (e) increased pension-related settlement costs due to the timing of lump-sum disbursements in the current year-to-date period.

Net income in fiscal 2018 increased $1,129,000 or 3% to $43,143,000 compared to $42,014,000 in fiscal 2017. The increase in net income in 2018 was primarily due to: (a) increase in gross profit on sales, positively impacted by our second quarter of 2018 acquisition of Zappa Stewart, along with increased royalties and commissions revenue; (b) a gain on sale of license and a gain on sale of business, both related to the structural composites rod business; (c) the recognition of a lower Federal statutory tax rate; and (d) the excess tax benefit recognized related to our early adoption of ASU No. 2016-09. These gains were negatively impacted by increased amortization expense, as well as one-time acquisition-related and inventory step-up costs, recognized in fiscal 2018, related to our December 2017 acquisition of Zappa Stewart.

Other Important Performance Measures

We believe that EBITDA, Adjusted EBITDA and Free Cash Flow are useful performance measures. They are used by our executive management team to measure operating performance, to allocate resources, to evaluate the effectiveness of our business strategies and to communicate with our Board of Directors and investors concerning our financial performance. The Company believes EBITDA, Adjusted EBITDA and Free Cash Flow are also useful to investors. EBITDA is useful in comparing the core operations of the business from period to period by removing the impact of the Company's capital structure (through interest expense), asset base (through depreciation and amortization) and tax rate, and in evaluating operating performance relative to others in the industry. Adjusted EBITDA allows for comparison to the Company's performance in prior periods without the effect of items that, by their nature, tend to obscure the Company's core operating results due to the potential variability across periods based on their timing, frequency and magnitude. Free Cash Flow provides a means for measuring the cash generated from operations that is available for mandatory obligations, including interest payments and debt repayment, and discretionary investment opportunities such as funding acquisitions, product and market development and paying dividends. As a result, management believes these metrics, which are commonly used by financial analysts and others in the industries in which the Company operates, enhance the ability of investors to analyze trends in the Company's business and evaluate the Company's performance relative to peer companies and the past performance of the Company itself. EBITDA, Adjusted EBITDA and Free Cash Flow are non-U.S. GAAP financial measures.

We define EBITDA as net income before interest expense from borrowings, income tax expense, depreciation expense from fixed assets, and amortization expense from intangible assets. We define Adjusted EBITDA as EBITDA excluding costs and (gains) losses related to our acquisitions and divestitures, costs of products sold related to inventory step-up to fair value, settlement (gains) losses resulting from lump-sum distributions to participants from our defined benefit plans, operations optimization costs, and other significant items. We define Free Cash Flow as net cash provided by operating activities less purchases of property, plant and equipment.

The use of EBITDA, Adjusted EBITDA and Free Cash Flow has limitations and these performance measures should not be considered in isolation from, or as an alternative to, U.S. GAAP measures such as net income and net cash provided by operating activities. None of these measures should be interpreted as representing the residual cash flow of the Company available solely for discretionary expenditures or to invest in the growth of our business, since we may have certain non-discretionary expenditures that are not deducted from these measures, including scheduled principal and (in the case of Free Cash Flow) interest payments on outstanding debt. Our measurement of EBITDA, Adjusted EBITDA and Free Cash Flow may not be comparable to similarly-titled measures used by other companies.

The following table provides a reconciliation of net income, the most directly comparable financial measure presented in accordance with U.S. GAAP, to EBITDA and Adjusted EBITDA for the periods presented (dollars in thousands):

	Years Ended August 31,		
	2019	2018	2017
Net income	$ 32,711	$ 43,143	$ 42,014
Interest expense	519	1,172	839
Income taxes	10,842	13,822	18,878
Depreciation expense	4,762	5,817	5,130
Amortization expense	12,445	11,807	9,127
EBITDA	$ 61,279	$ 75,761	$ 75,988
Loss on impairment of goodwill (a)	2,410	—	—
Pension settlement costs (b)	511	—	14
Operations optimization costs (excluding depreciation) (c)	986	590	70
Acquisition-related costs (d)	—	393	584
Cost of sale of inventory step-up (e)	—	1,070	190
Gain on sale of real estate (f)	—	—	(860)
Gain on sale of license (g)	—	(1,085)	—
Gain on sale of businesses (h)	—	(1,480)	(2,013)
Adjusted EBITDA	$ 65,186	$ 75,249	$ 73,973

(a) Represents loss on impairment of goodwill related to the polyurethane dispersions business in the second quarter of fiscal 2019
(b) Represents pension-related settlement costs due to the timing of lump sum distributions
(c) Represents costs to relocate certain production operations from Granite Falls, NC to Hickory, NC in the second half of fiscal 2019, expense related to engineering studies performed to assess potential future operational changes and further plant rationalization and consolidation, Pawtucket, RI facility closure costs recognized in the fourth quarter of fiscal 2018 and first quarter of fiscal 2019 (excluding accelerated depreciation expense recognized) and the Randolph, MA facility exit and demolition costs incurred in 2017
(d) Represents costs related to the December 2017 (fiscal 2018) acquisition of Zappa Stewart and the September 2016 (fiscal 2017) acquisition of certain assets of Resin Designs
(e) Represents expenses related to inventory step-up in fair value related to the December 2017 (fiscal 2018) acquisition of Zappa Stewart and the September 2016 (fiscal 2017) acquisition of certain assets of Resin Designs
(f) Represents gain on November 2016 sale of the Company's Paterson, NJ location, and December 2016 sale of the Company's former corporate headquarters in Bridgewater, MA
(g) Represents fiscal 2018 second quarter gain on sale of a license related to the structural composites product line
(h) Represents gain on sale of the structural composites rod business in April 2018 (fiscal 2018) and the fiber optic cable components product line in April 2017 (fiscal 2017)

The following table provides a reconciliation of net cash provided by operating activities, the most directly comparable financial measure presented in accordance with U.S. GAAP, to Free Cash Flow for the periods presented (dollars in thousands):

	Years Ended August 31,		
	2019	2018	2017
Net cash provided by operating activities	$ 49,535	$ 46,071	$ 51,932
Purchases of property, plant and equipment	(2,488)	(3,488)	(3,199)
Free Cash Flow	$ 47,047	$ 42,583	$ 48,733

The following table provides a summary of net cash used in investing activities and net cash (used in) provided by financing activities, presented in accordance with U.S. GAAP, for the periods presented (dollars in thousands):

	Years Ended August 31,		
	2019	2018	2017
Net cash used in investing activities	$ (2,166)	$ (73,766)	$ (25,102)
Net cash (used in) provided by financing activities	$ (33,450)	$ 14,423	$ (52,796)

Liquidity and Sources of Capital

Our cash balance increased $12,943,000 to $47,771,000 at August 31, 2019 from $34,828,000 at August 31, 2018. The increased cash balance was primarily attributable to cash from operations of $49,535,000, partially offset by: (a) $25,000,000 in principal debt pay down on debt incurred to acquire Zappa Stewart in the prior year; and (b) a cash dividend payment of $7,522,000. Of the above noted amounts, $17,235,000 and $28,521,000 were held outside the U.S. by Chase Corporation and our foreign subsidiaries as of August 31, 2019 and 2018, respectively. Given our cash position and borrowing capability in the United States and the potential for increased investment and acquisitions in foreign jurisdictions, prior to the second quarter of fiscal 2018 (prior year), we did not have a history of repatriating a significant portion of our foreign cash. With the passage of the Tax Cuts and Jobs Act (the "Tax Act") in the second fiscal quarter of 2018, significant changes in the Internal Revenue Code were enacted, changing the U.S. taxable nature of previously unrepatriated foreign earnings. Following the passage of the Tax Act, the Company repatriated $10,499,000 in U.K. foreign earnings in fiscal 2018 and $17,230,000 in fiscal 2019. We do not currently take the position that undistributed foreign subsidiaries' earnings are considered to be permanently reinvested. See Note 7 — "Income Taxes" to the Consolidated Financial Statements included in this Report for further discussion of the effects of the Tax Act.

Our cash balance decreased $12,526,000 to $34,828,000 at August 31, 2018 from $47,354,000 at August 31, 2017. The decreased cash balance was primarily attributable to: (a) the $73,469,000 acquisition of Zappa Stewart, partially offset by a $65,000,000 utilization of our all-revolving debt facility; (b) $40,000,000 in subsequent debt repayments; (c) a cash dividend payment of $7,497,000; and (d) $3,488,000 in purchases of machinery and equipment throughout fiscal 2018. The overall decrease was positively impacted by: (a) cash from operations of $46,071,000; (b) cash proceeds from the sale of our structural composites rod business of $2,232,000; and (c) cash proceeds from the sale of a license related to our structural composites business of $1,000,000.

Cash provided by operations was $49,535,000 for the year ended August 31, 2019 compared to $46,071,000 in fiscal 2018. Cash provided by operations during fiscal 2019 was primarily due to operating income and decreased accounts receivable, which contracted on lower sales levels. Partially offsetting the overall increase of cash provided by operations were decreased payables.

Cash provided by operations was $46,071,000 for the year ended August 31, 2018 compared to $51,932,000 in fiscal 2017. Cash provided by operations during fiscal 2018 was primarily due to operating income and increased accounts payable, which rose on increased inventory balances. Partially offsetting the overall amount of cash provided by operations were increased inventory (as the Company made opportunistic purchases of non-perishable materials to take advantage of then current costs, which were believed to be lower than future costs), increased accounts receivable (following stronger fourth quarter sales in fiscal 2018) and decreases in accrued income taxes (as cash payments for taxes exceeded the amount of income tax expense recognized during the period).

The ratio of current assets to current liabilities was 6.0 as of August 31, 2019 compared to 4.4 as of August 31, 2018. The increase in our current ratio in fiscal 2019 was primarily attributable to the Company's ability to increase cash and cash equivalents, while concurrently decreasing accounts payable during fiscal 2019.

Cash used in investing activities was $2,166,000 for the year ended August 31, 2019 compared to $73,766,000 in fiscal 2018. During fiscal 2019, cash used in investing activities was primarily due to cash spent on capital purchases of machinery and equipment, partially offset by the final escrow payment received by the Company for our April 2017 sale of the fiber optic cable components business.

Cash used in investing activities was $73,766,000 for the year ended August 31, 2018 compared to $25,102,000 in fiscal 2017. During fiscal 2018, cash used in investing activities was primarily due to the acquisition of Zappa Stewart in December 2017 and our purchases of machinery and equipment throughout fiscal 2018. Partially offsetting these uses of cash were; (a) cash proceeds from the sale of our structural composites rod business; and (b) cash proceeds from the sale of a license related to our structural composites business of $1,000,000.

Cash used in financing activities was $33,450,000 for the year ended August 31, 2019 compared to $14,423,000 provided by financing activities in fiscal 2018 and $52,796,000 used in financing activities in fiscal 2017. During fiscal 2019 and 2018, Chase repaid $25,000,000 and $40,000,000, respectively, on the $65,000,000 it borrowed on its revolving debt facility to substantially fund its purchase of Zappa Stewart in fiscal 2018. Chase also paid annual dividends of $7,522,000 and $7,497,000 in 2019 and 2018, respectively. During fiscal 2017, cash used in financing activities was primarily due to our annual dividend payment, payments made on the term debt used to finance our fiscal 2012 acquisition of NEPTCO and, after December 15, 2016, payments made on the Company's revolving credit facility, described in more detail below.

On November 13, 2019, we announced a cash dividend of $0.80 per share (totaling approximately $7,540,000) to shareholders of record on November 26, 2019 and payable on December 4, 2019.

On November 13, 2018, we announced a cash dividend of $0.80 per share (resulting in payment of $7,522,000) to shareholders of record on November 23, 2018 and payable on December 5, 2018.

On October 30, 2017, we announced a cash dividend of $0.80 per share (resulting in payment of $7,497,000) to shareholders of record on November 9, 2017 and payable on December 6, 2017.

On December 15, 2016, we entered an Amended and Restated Credit Agreement (the "Credit Agreement") with Bank of America, acting as administrative agent, and with participation from Citizens Bank and JPMorgan Chase Bank (collectively with Bank of America, the "Lenders"). The Credit Agreement is initially an all-revolving credit facility with a borrowing capacity of $150,000,000, which can be increased by an additional $50,000,000 at the request of the Company and the individual or collective option of any of the Lenders. The Credit Agreement contains customary affirmative and negative covenants that, among other things, restrict our ability to incur additional indebtedness and require certain lender approval for acquisitions by us and our subsidiaries over a certain size. It also requires us to maintain certain financial ratios on a consolidated basis, including a consolidated net leverage ratio (as defined in the facility) of no more than 3.25 to 1.00, and a consolidated fixed charge coverage ratio (as defined in the facility) of at least 1.25 to 1.00. We were in compliance with our debt covenants as of August 31, 2019. The applicable interest rate for the Credit Agreement is based on the effective LIBOR plus an additional amount in the range of 1.00% to 1.75%, depending on our consolidated net leverage ratio or, at our option, at the bank's base lending rate. At August 31, 2019, there was no outstanding principal balance, and as such, no applicable interest rate. The Credit Agreement was used to refinance our previously existing credit facility, which consisted of a $70,000,000 five-year term loan entered into in June 2012 in connection with our acquisition of NEPTCO, together with a $15,000,000 revolving line of credit, each bearing interest at LIBOR plus an additional amount in the range of 1.75% to 2.25%, depending on our leverage ratio. The Credit Agreement also provides for additional liquidity to finance potential acquisitions, working capital, capital expenditures, and other general corporate purposes.

We have several on-going capital projects, as well as our facility rationalization and consolidation initiative, which are important to our long-term strategic goals. Further, machinery and equipment will be added as needed to increase capacity or enhance operating efficiencies in our other manufacturing plants.

During fiscal 2019, the Company announced it had begun moving the production of its pulling and detection products from its Granite Falls, NC location to its Hickory, NC location, with completion of the move expected to occur in the first half of fiscal 2020. During fiscal 2018, the Company announced the planned closing of its Pawtucket, RI manufacturing facility effective August 31, 2018. The manufacturing of products previously produced in the Pawtucket, RI facility was moved to Company facilities in Oxford, MA and Lenoir, NC. These actions are in line with the Company's ongoing efforts to consolidate its manufacturing plants and streamline its processes. During the fourth quarter of fiscal 2019, the Company commissioned engineering studies to assess potential future operational changes and further plant rationalization and consolidation. A total of all potential future costs arising from any further plant rationalization and consolidation cannot be estimated at this time.

We may acquire companies or other assets in future periods which are complementary to our business. We believe that our existing resources, including cash on hand and the Credit Agreement, together with cash generated from operations and additional bank borrowings, will be sufficient to fund our cash flow requirements through at least the next twelve months. However, there can be no assurance that additional financing, if needed, will be available on favorable terms, if at all.

To the extent that interest rates increase in future periods, we will assess the impact of these higher interest rates on the financial and cash flow projections of our potential acquisitions.

We have no material off-balance sheet arrangements.

Contractual Obligations

The following table summarizes our contractual cash obligations at August 31, 2019 and the effect such obligations are expected to have on our liquidity and cash flow in future periods (dollars in thousands):

Contractual Obligations	Total	Payments Due Less than 1 Year	Payments Due 1 - 3 Years	Payments Due 3 - 5 Years	Payments After 5 Years
Operating leases	10,893	2,468	3,430	2,387	2,608
Purchase obligations	14,368	14,368	—	—	—
Total (1) (2)	$ 25,261	$ 16,836	$ 3,430	$ 2,387	$ 2,608

(1) We may be required to make payments related to our unrecognized tax benefits. However, due to the uncertainty of the timing of future cash flows associated with these unrecognized tax benefits, we are unable to make reasonably reliable estimates of the period of cash settlement, if any, with the respective taxing authorities. Accordingly, unrecognized tax benefits of $2,324,000 as of August 31, 2019 have been excluded from the contractual obligations table above. See Note 7 — "Income Taxes" to the Consolidated Financial Statements for further information.

(2) This table does not include the expected payments for our obligations for pension and other post-retirement benefit plans. As of August 31, 2019, we had recognized an accrued benefit plan liability of $12,228,000 representing the unfunded obligations of the pension benefit plans. See Note 9 — "Benefits and Pension Plans" to the Consolidated Financial Statements for further information, including expected pension benefit payments for the next 10 years.

Recently Issued Accounting Standards

For discussion of the newly issued accounting pronouncements see "Recently Issued Accounting Standards" and "Recently Adopted Accounting Standards" in Note 1 — "Summary of Significant Accounting Policies" to the Consolidated Financial Statements included in this Report.

Critical Accounting Policies, Judgments, and Estimates

The U.S. Securities and Exchange Commission ("SEC") requires companies to provide additional disclosure and commentary on their most critical accounting policies. The SEC has defined the most critical accounting policies as the ones that are most important to the portrayal of a company's financial condition and operating results, and requires management to make its most significant estimates and judgments in the preparation of its consolidated financial statements. Our critical accounting policies are described below.

Accounts Receivable

We evaluate the collectability of accounts receivable balances based on a combination of factors. In cases where we are aware of circumstances that may impair a specific customer's ability to meet its financial obligations to us, a specific allowance against amounts due to us is recorded, and thereby reduces the net recognized receivable to the amount we reasonably believe will be collected. For all other customers, we recognize allowances for doubtful accounts based on the length of time the receivables are past due, industry and geographic concentrations, the current business environment and our historical experience. If the financial condition of our customers deteriorates or if economic conditions worsen, additional allowances may be required in the future, which could have an adverse impact on our future operating results.

Inventory

We value inventory at the lower of cost or net realizable value using the first in, first out (FIFO) method. Management assesses the recoverability of inventory based on types and levels of inventory held, forecasted demand and changes in technology. These assessments require management judgments and estimates, and valuation adjustments for excess and obsolete inventory may be recorded based on these assessments. We estimate excess and obsolescence exposures based upon assumptions about future demand, product transitions, and market conditions, and record adjustments to reduce inventories to their estimated net realizable value. The failure to accurately forecast demand may lead to additional excess and obsolete inventory and future charges.

Business Combinations

We assign the value of the consideration transferred to acquire a business to the tangible assets and identifiable intangible assets acquired, and liabilities assumed on the basis of their fair values at the date of acquisition. We assess the fair value of assets, including intangible assets, using a variety of methods, and each asset is measured at fair value from the perspective of a market participant. The method used to estimate the fair values of intangible assets incorporates significant assumptions regarding the estimates a market participant would make in order to evaluate an asset, including a market participant's use of the asset and the appropriate discount rates for a market participant. Assets recorded from the perspective of a market participant that are determined to not have economic use for us are expensed immediately. Any excess purchase price over the fair value of the net tangible and intangible assets acquired is allocated to goodwill. Transaction costs and restructuring costs associated with a transaction to acquire a business are expensed as incurred.

Goodwill, Intangible Assets, and Other Long-Lived Assets

Long-lived assets consist of goodwill, identifiable intangible assets, trademarks, and patents and property, plant, and equipment. Intangible assets and property, plant, and equipment, excluding goodwill, are amortized over their estimated useful life. We review long-lived assets and all intangible assets for impairment whenever events or changes in circumstances indicate the carrying amount of such assets may not be recoverable.

Goodwill is also reviewed at least annually for impairment. We perform our annual goodwill impairment assessment during the fourth fiscal quarter of each year. In fiscal 2017, we early adopted Accounting Standards Update ("ASU") No. 2017-04 "Intangibles — Goodwill and Other Topics (Topic 350): Simplifying the Test for Goodwill Impairment." We assess goodwill for impairment by comparing the fair value of the reporting unit to its carrying amount. If the fair value of a reporting unit is less than its carrying value, an impairment loss, limited to the amount of goodwill allocated to that reporting unit, is recorded. Fair values for reporting units are determined based on the income approach (discounted cash flow method).

Revenue

Effective September 1, 2018, the Company adopted accounting standard ASU No. 2014-09, "Revenue from Contracts with Customers" (ASC 606) using the modified retrospective method for contracts that were not completed as of August 31, 2018. We recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings, whereby the cumulative impact of all prior periods is recorded in retained earnings or other impacted balance sheet line items upon adoption. The comparative information has not been adjusted and continues to be reported under ASC 605. The impact on the Company's consolidated balance sheet and statements of operations, equity and cash flows as of the adoption date as a result of applying ASC 606 have been reflected within those respective financial statements. The Company's accounting policy has been updated to align with ASC 606.

The adoption of ASC 606 represents a change in accounting principle that provides enhanced revenue recognition disclosures. The Company accounts for revenue from contracts with customers when: (a) there is approval and commitment from both parties; (b) the rights of the parties are identified; (c) payment terms are identified; (d) the contract has commercial substance; and (e) collectability of consideration is probable. Revenue is primarily derived from customer purchase orders, master sales agreements, and negotiated contracts, all of which represent contracts with customers. See Note 26 to the Consolidated Financial Statements included in this Report for more information on our accounting for revenue.

Uncertain Tax Positions

We are subject to routine income tax audits that occur periodically in the normal course of business. Our contingent income tax liabilities are estimated based on the methodology prescribed in the guidance for accounting for uncertain tax positions. The guidance prescribes a minimum recognition threshold a tax position is required to meet before being recognized in the financial statements. Our liabilities related to uncertain tax positions require an assessment of the probability of the income tax-related exposures and settlements. Our assessment is based on our historical audit experiences with various state and federal taxing authorities, as well as by current income tax trends. If circumstances change, we may be required to record adjustments that could be material to our reported financial condition and results of operations. See Note 7 to the Consolidated Financial Statements included in this Report for more information on our accounting for uncertain tax positions.

Deferred Income Taxes

We evaluate the need for a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. We have considered future taxable income and ongoing prudent and feasible tax planning strategies in assessing the need for a valuation allowance. Should we determine that we would not be able to realize all or part of our net deferred tax asset in the future, an adjustment to the deferred tax asset would be charged to income in the period such determination was made.

Stock-Based Compensation

We measure compensation cost for share-based compensation at fair value and recognize the expense over the period that the recipient is required to provide service in exchange for the award, which generally is the vesting period. We use the Black-Scholes option pricing model to measure the fair value of stock options. This model requires significant estimates related to the award's expected life and future stock price volatility of the underlying equity security. Historically, in determining the amount of expense to be recorded, we were required to estimate forfeiture rates for awards, based on the probability that employees will complete the required service period. We estimated the forfeiture rate based on historical experience. In fiscal 2017, we early adopted ASU No. 2016-09, "Compensation – Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting." Following the adoption of the new standard, the Company has elected to account for forfeitures as they occur.

Pension Benefits

We sponsor a non-contributory defined benefit pension plan covering employees of certain divisions of the Company. In calculating our retirement plan obligations and related expense, we make various assumptions and estimates. These assumptions include discount rates, benefits earned, expected return on plan assets, mortality rates, and other factors. While we believe that the assumptions used are appropriate, differences in actual experience or changes in assumptions may affect our pension obligations and future expense.

Effective December 1, 2008, the Chase defined benefit pension plan was amended to include a "soft freeze" whereby any employee hired after the effective date of December 1, 2008 will not be admitted to the plan. The only exception related to employees who are members of the International Association of Machinists and Aerospace Workers Union whose contract was amended to include a soft freeze whereby any employees hired after the effective date of July 15, 2012 will not be admitted to the plan. All eligible participants who were previously admitted to the plan prior to the applicable soft freeze dates will continue to accrue benefits as detailed in the plan agreements.

Through our wholly-owned subsidiary NEPTCO, we have another defined benefit pension plan which covered substantially all of our union employees at our Pawtucket, RI plant. This plan was frozen effective October 31, 2006, and as a result, no new participants can enter the plan and the benefits of current participants were frozen as of that date. The benefits are based on years of service and the employee's average compensation during the earlier of five years before retirement, or October 31, 2006. In August 2019, the Board of Directors voted to terminate the NEPTCO defined benefit plan. The Company has established that November 15, 2019 will serve as the plan termination date and is currently performing the administrative actions required to carry out the termination.

We account for our pension plans following the requirements of ASC Topic 715, "Compensation – Retirement Benefits" ("ASC 715"). ASC 715 requires an employer to: (a) recognize in its statement of financial position the funded status of a benefit plan; (b) measure defined benefit plan assets and obligations as of the end of the employer's fiscal year (with limited exceptions); and (c) recognize as a component of other comprehensive income, net of tax, the gains or losses and prior service costs or credits that arise but are not recognized as components of net periodic benefit costs pursuant to prior existing guidance.

Impact of Inflation

Inflation has not had a significant long-term impact on our earnings. In the event of significant inflation, our efforts to recover cost increases would be hampered as a result of the competitive nature of the industries in which we operate.

ITEM 7A – QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We limit the amount of credit exposure to any one issuer. At August 31, 2019, other than our restricted investments (which are restricted for use in a non-qualified retirement savings plan for certain key employees and members of the Board of Directors), all of our funds were either in demand deposit accounts or investment instruments that meet high credit quality standards such as money market funds, government securities, or commercial paper.

Our domestic operations have limited currency exposure since substantially all transactions are denominated in U.S. dollars. However, our European and Asian operations are subject to currency exchange fluctuations. We continue to review our policies and procedures to control this exposure while maintaining the benefit from these operations and sales not denominated in U.S. dollars. The effect of an immediate hypothetical 10% change in the exchange rate between the British pound and the U.S. dollar would not have a material effect on the Company's overall liquidity. As of August 31, 2019, the Company had cash balances in the following foreign currencies (with USD equivalents in thousands):

Currency Code	Currency Name	USD Equivalent at August 31, 2019	
GBP	British Pound	$	8,352
EUR	Euro	$	4,260
CAD	Canadian Dollar	$	874
CNY	Chinese Yuan	$	468
INR	Indian Rupee	$	150

We will continue to review our current cash balances denominated in foreign currency in light of current tax guidelines and potential acquisitions.

We recognized a foreign currency translation loss for the year ended August 31, 2019 in the amount of $1,541,000 related to our European and Indian operations, which is recorded in accumulated other comprehensive income (loss) within our consolidated statement of equity. The functional currency for all our other operations is the U.S. Dollar. We do not have or utilize any derivative financial instruments.

We pay interest on our outstanding long-term debt at interest rates that fluctuate based upon changes in various base interest rates. There was no outstanding balance of long-term debt at August 31, 2019. See "Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Sources of Capital," Note 6 — "Long-Term Debt" and Note 16 — "Fair Value Measurements" to the Consolidated Financial Statements for additional information regarding our outstanding long-term debt. The effect of an immediate hypothetical 10% change in variable interest rates would not have a material effect on our Consolidated Financial Statements.

ITEM 8 – FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The following Consolidated Financial Statements of Chase Corporation are filed as part of this Annual Report on Form 10-K:

Index to Consolidated Financial Statements:

Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders
Chase Corporation

Opinion on the financial statements

We have audited the accompanying consolidated balance sheet of Chase Corporation (a Massachusetts corporation) and subsidiaries (the "Company") as of August 31, 2019, the related consolidated statements of operations, comprehensive income, equity, and cash flows for the year ended August 31, 2019, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of August 31, 2019, and the results of its operations and its cash flows for the year ended August 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of August 31, 2019, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), and our report dated November 13, 2019 expressed an unqualified opinion.

Basis for opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audit included performing procedures to assess the risks of material misstatement of the 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 supporting the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2019.

Boston, Massachusetts
November 13, 2019

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Chase Corporation

Opinion on the Financial Statements

We have audited the consolidated balance sheet of Chase Corporation and its subsidiaries (the "Company") as of August 31, 2018 and the related consolidated statements of operations, of comprehensive income, of equity and cash flows for each of the two years in the period ended August 31, 2018, including the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of August 31, 2018, and the results of its operations and its cash flows for each of the two years in the period ended August 31, 2018 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements 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 of these consolidated financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits 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. We believe that our audits provide a reasonable basis for our opinion.

/s/PricewaterhouseCoopers LLP

Boston, Massachusetts
November 27, 2018, except for the change in composition of reportable segments discussed in Note 11 to the consolidated financial statements, as to which the date is November 13, 2019,

We served as the Company's auditor from 2003 to 2018.

CHASE CORPORATION

CONSOLIDATED BALANCE SHEETS

In thousands, except share and per share amounts

	August 31, 2019	August 31, 2018
ASSETS		
Current Assets		
Cash and cash equivalents	$ 47,771	$ 34,828
Accounts receivable, less allowance for doubtful accounts of $739 and $559	39,324	44,610
Inventory	42,354	39,699
Prepaid expenses and other current assets	2,418	2,581
Due from sale of businesses	—	400
Assets held for sale	1,064	14
Prepaid income taxes	1,451	4,100
Total current assets	134,382	126,232
Property, plant and equipment, less accumulated depreciation of $49,730 and $49,212	29,326	32,845
Other Assets		
Goodwill	81,986	84,696
Intangible assets, less accumulated amortization of $65,862 and $54,039	52,704	65,330
Cash surrender value of life insurance	4,450	4,530
Restricted investments	1,260	1,090
Funded pension plan	—	301
Deferred income taxes	3,804	1,347
Other assets	56	98
Total assets	$ 307,968	$ 316,469
LIABILITIES AND EQUITY		
Current Liabilities		
Accounts payable	$ 12,105	$ 17,810
Accrued payroll and other compensation	6,300	6,639
Accrued expenses	4,035	4,486
Total current liabilities	22,440	28,935
Long-term debt	—	25,000
Deferred compensation	1,275	1,105
Accumulated pension obligation	10,485	10,736
Other liabilities	217	283
Accrued income taxes	2,324	3,654
Commitments and Contingencies (Notes 6, 8, 21)		
Equity		
First Serial Preferred Stock, $1.00 par value: Authorized 100,000 shares; none issued	—	—
Common stock, $.10 par value: Authorized 20,000,000 shares; 9,400,748 shares at August 31, 2019 and 9,396,947 shares at August 31, 2018 issued and outstanding	940	939
Additional paid-in capital	14,351	13,104
Accumulated other comprehensive loss	(14,324)	(12,336)
Retained earnings	270,260	245,049
Total equity	271,227	246,756
Total liabilities and equity	$ 307,968	$ 316,469

See accompanying notes to the Consolidated Financial Statements.

CHASE CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS

In thousands, except share and per share amounts

	Years Ended August 31, 2019	2018	2017
Revenue			
Sales	$ 276,839	$ 278,962	$ 247,877
Royalties and commissions	4,512	5,226	4,683
	281,351	284,188	252,560
Costs and Expenses			
Cost of products and services sold	180,163	175,136	146,036
Selling, general and administrative expenses	52,728	51,643	46,671
Loss on impairment of goodwill (Note 4)	2,410	—	—
Operations optimization costs (Note 20)	986	1,272	70
Acquisition-related costs (Note 14)	—	393	584
Operating income	45,064	55,744	59,199
Interest expense	(519)	(1,172)	(839)
Gain on sale of real estate (Note 19)	—	—	860
Gain on sale of license (Note 15)	—	1,085	—
Gain on sale of businesses (Note 18)	—	1,480	2,013
Other income (expense)	(992)	(172)	(341)
Income before income taxes	43,553	56,965	60,892
Income taxes (Note 7)	10,842	13,822	18,878
Net income	$ 32,711	$ 43,143	$ 42,014
Net income available to common shareholders, per common and common equivalent share (Note 17)			
Basic	$ 3.48	$ 4.60	$ 4.49
Diluted	$ 3.46	$ 4.56	$ 4.44
Weighted average shares outstanding			
Basic	9,334,232	9,296,648	9,249,343
Diluted	9,379,207	9,366,071	9,357,414
Annual cash dividends declared per share	$ 0.80	$ 0.80	$ 0.70

See accompanying notes to the Consolidated Financial Statements.

CHASE CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

In thousands, except share and per share amounts

	Years Ended August 31,		
	2019	2018	2017
Net income	$ 32,711	$ 43,143	$ 42,014
Other comprehensive (loss) income:			
Net unrealized gain on restricted investments, net of tax	28	5	67
Change in funded status of pension plans, net of tax	(475)	385	1,155
Foreign currency translation adjustment	(1,541)	743	788
Total other comprehensive (loss) income	(1,988)	1,133	2,010
Comprehensive income	$ 30,723	$ 44,276	$ 44,024

See accompanying notes to the Consolidated Financial Statements.

CHASE CORPORATION

CONSOLIDATED STATEMENTS OF EQUITY

In thousands, except share and per share amounts

	Common Stock		Additional Paid-In	Accumulated Other Comprehensive	Retained	Total Stockholders'
	Shares	Amount	Capital	Income (Loss)	Earnings	Equity
Balance at August 31, 2016	9,278,486	$ 928	$ 14,719	$ (15,479)	$ 173,921	$ 174,089
Restricted stock grants, net of forfeitures	44,567	4	(4)			—
Amortization of restricted stock grants			1,712			1,712
Amortization of stock option grants			500			500
Exercise of stock options	80,168	8	1,245			1,253
Common stock received for payment of stock option exercises	(15,079)	(2)	(1,156)			(1,158)
Common stock retained to pay statutory minimum withholding taxes on common stock	(34,006)	(3)	(2,956)			(2,959)
Cash dividend paid, $0.70 per share					(6,532)	(6,532)
Change in funded status of pension plans, net of tax $519				1,155		1,155
Foreign currency translation adjustment				788		788
Net unrealized gain on restricted investments, net of tax $30				67		67
Net income					42,014	42,014
Balance at August 31, 2017	9,354,136	$ 935	$ 14,060	$ (13,469)	$ 209,403	$ 210,929
Restricted stock grants, net of forfeitures	16,701	2	(2)			—
Amortization of restricted stock grants			1,669			1,669
Amortization of stock option grants			459			459
Exercise of stock options	64,012	6	1,214			1,220
Common stock received for payment of stock option exercises	(9,693)	(1)	(1,027)			(1,028)
Common stock retained to pay statutory minimum withholding taxes on common stock	(28,209)	(3)	(3,269)			(3,272)
Cash dividend paid, $0.80 per share					(7,497)	(7,497)
Change in funded status of pension plans, net of tax $130				385		385
Foreign currency translation adjustment				743		743
Net unrealized gain on restricted investments, net of tax $2				5		5
Net income					43,143	43,143
Balance at August 31, 2018	9,396,947	$ 939	$ 13,104	$ (12,336)	$ 245,049	$ 246,756
Restricted stock grants, net of forfeitures	8,818	1	(1)			—
Amortization of restricted stock grants			1,673			1,673
Amortization of stock option grants			503			503
Exercise of stock options	7,022	1	300			301
Common stock received for payment of stock option exercises	(954)	—	(119)			(119)
Common stock retained to pay statutory minimum withholding taxes on common stock	(11,085)	(1)	(1,109)			(1,110)
Cash dividend paid, $0.80 per share					(7,522)	(7,522)
Change in funded status of pension plans, net of tax $218				(475)		(475)
Foreign currency translation adjustment				(1,541)		(1,541)
Net unrealized gain on restricted investments, net of tax ($5)				28		28
Adoption of ASC 606 (Note 26)					22	22
Net income					32,711	32,711
Balance at August 31, 2019	9,400,748	$ 940	$ 14,351	$ (14,324)	$ 270,260	$ 271,227

See accompanying notes to the Consolidated Financial Statements.

CHASE CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

In thousands

	Years Ended August 31, 2019	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES			
Net income	$ 32,711	$ 43,143	$ 42,014
Adjustments to reconcile net income to net cash provided by operating activities			
Gain on sale of real estate	—	—	(860)
Gain on sale of license	—	(1,085)	—
Loss on impairment of goodwill	2,410	—	—
Gain on sale of businesses	—	(1,480)	(2,013)
Depreciation	4,762	5,817	5,130
Amortization	12,445	11,807	9,127
Cost of sale of inventory step-up	—	1,070	190
Provision (recovery) for allowance for doubtful accounts	183	101	(359)
Stock-based compensation	2,176	2,128	2,212
Realized gain on restricted investments	(11)	(97)	(127)
Pension curtailment and settlement loss	511	—	14
Deferred taxes	(2,312)	(2,473)	(2,263)
Increase (decrease) from changes in assets and liabilities			
Accounts receivable	4,858	(2,968)	(1,003)
Inventory	(2,864)	(8,845)	116
Prepaid expenses and other assets	356	569	(878)
Accounts payable	(5,493)	2,847	1,420
Accrued compensation and other expenses	(1,536)	(501)	(825)
Accrued income taxes	1,339	(3,962)	37
Net cash provided by operating activities	49,535	46,071	51,932
CASH FLOWS FROM INVESTING ACTIVITIES			
Purchases of property, plant and equipment	(2,488)	(3,488)	(3,199)
Cost to acquire intangible assets	(36)	(18)	(71)
Payments for acquisitions	—	(73,469)	(30,270)
Proceeds from sale of real estate	—	—	2,122
Proceeds from sale of license	—	1,000	—
Proceeds from sale of businesses	400	2,232	3,915
Changes in restricted investments	(122)	(23)	897
Proceeds from settlement of life insurance policies	80	—	1,504
Net cash used in investing activities	(2,166)	(73,766)	(25,102)
CASH FLOWS FROM FINANCING ACTIVITIES			
Borrowings on debt	—	65,000	—
Payments of principal on debt	(25,000)	(40,000)	(43,400)
Dividend paid	(7,522)	(7,497)	(6,532)
Proceeds from exercise of common stock options	182	192	95
Payments of taxes on stock options and restricted stock	(1,110)	(3,272)	(2,959)
Net cash (used in) provided by financing activities	(33,450)	14,423	(52,796)
INCREASE (DECREASE) IN CASH & CASH EQUIVALENTS	13,919	(13,272)	(25,966)
Effect of foreign exchange rates on cash	(976)	746	(91)
CASH AND CASH EQUIVALENTS, BEGINNING OF PERIOD	34,828	47,354	73,411
CASH AND CASH EQUIVALENTS, END OF PERIOD	$ 47,771	$ 34,828	$ 47,354

See Note 13 for supplemental cash flow information including non-cash financing and investing activities
See accompanying notes to the Consolidated Financial Statements.

Note 1—Summary of Significant Accounting Policies

The principal accounting policies of Chase Corporation (the "Company") and its subsidiaries are as follows:

Products and Markets

Our principal products are specialty tapes, laminates, adhesives, sealants, coatings and chemical intermediates that are sold by our salespeople, manufacturers' representatives and distributors. In our Adhesives, Sealants and Additives segment, these products consist of:

(i) moisture protective coatings, which are sold to the electronics industry for circuitry manufacturing, including circuitry used in automobiles, industrial controls and home appliances;

(ii) advanced adhesives, sealants, and coatings for automotive and industrial applications that require specialized bonding, encapsulating, environmental protection, or thermal management functionality;

(iii) polymeric microspheres utilized by various industries to allow for weight and density reduction and sound dampening;

(iv) polyurethane dispersions utilized for various coating products; and

(v) superabsorbent polymers, which are utilized for water and liquid management, remediation and protection in diverse markets including wire and cable, medical, environmental, infrastructure, energy and consumer products.

In our Industrial Tapes segment, these products consist of:

(i) insulating and conducting materials for the manufacture of electrical and telephone wire and cable, electrical splicing, and terminating and repair tapes, which are marketed to wire and cable manufacturers;

(ii) laminated film foils, including EMI/RFI shielding tapes, used in communication and local area network (LAN) cables;

(iii) laminated durable papers, including laminated paper with an inner security barrier used in personal and mail-stream privacy protection, which are sold primarily to the envelope converting and commercial printing industries;

(iv) pulling and detection tapes used in the installation, measurement and location of fiber optic cables, water and natural gas lines, and power, data and video cables for commercial buildings; and

(v) cover tapes with reliable adhesive and anti-static properties essential to delivering semiconductor components via tape and reel packaging.

In our Corrosion Protection and Waterproofing segment, these products consist of:

(i) protective coatings, tapes and protectants for pipelines, valves, casings and other metals, which are sold to oil companies, gas companies and water/wastewater utilities for use in both the construction and maintenance of oil, gas, water and wastewater pipelines;

(ii) fluid applied coating and lining systems for use in the water and wastewater industry;

(iii) waterproofing tapes and coatings used in waterproofing of the exterior of both commercial and residential structures;

(iv) waterproofing membranes for highway bridge deck metal supported surfaces, which are sold to municipal transportation authorities, and high-performance polymeric asphalt additives; and

(v) expansion and control joint systems designed for roads, bridges, stadiums and airport runways.

Basis of Presentation

The financial statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany transactions and balances have been eliminated in consolidation. The Company uses the U.S. dollar as the functional currency for financial reporting. Certain reclassifications have been made to the prior year amounts to conform to the current year's presentation.

During the second half of 2019, Chase began moving the pulling and detection operations currently housed in its Granite Falls, NC location to its Hickory, NC facility. This is in line with the Company's ongoing initiative to consolidate its manufacturing plants and streamline its processes. Currently, the pulling and detection operations are the only Chase-owned production operations in Granite Falls, NC, with the remaining portions of the building being either utilized for research and development or leased to a third party (see Note 18 to the consolidated financial statements for additional information on this lease). The process of moving continued subsequent to the fourth quarter of fiscal 2019 and is anticipated to be completed during the first half of fiscal 2020. The Company recognized $526 in expense related to the move in fiscal 2019. Future costs related to this move are currently anticipated to be approximately $700, and the Company plans to disclose these amounts within operations optimization costs in the consolidated statement of operations in future periods.

During the fourth quarter of fiscal 2019, the Company commissioned engineering studies of certain legacy operations, machinery and locations in relation to the Company's facility rationalization and consolidation initiative. Chase is currently reviewing the data and recommendations provided by the study and may further utilize third party engineering, IT and other professional services firms in the future for similar work, as well as work on optimizing our computer systems. The Company recognized $200 in expense related to these services in fiscal 2019; but given ongoing review, an estimate of future costs cannot currently be determined.

On June 25, 2018, the Company announced to its employees the planned closing of its Pawtucket, RI manufacturing facility effective August 31, 2018. This is in line with the Company's ongoing efforts to consolidate its manufacturing plants and streamline its existing processes. The manufacturing of products previously produced in the Pawtucket, RI facility was moved to Company facilities in Oxford, MA and Lenoir, NC during a two-month transition period. The Company expensed $1,272 in the fourth quarter of fiscal 2018 related to the closure, including: (a) cash-related employee-related, logistics and uncapitalized facilities improvement costs of $590; and (b) non-cash-related accelerated depreciation expense of $682. The Company also recognized $260 in expenses related to this move in the three-month period ended November 30, 2018, with no additional expense recognized in the final nine months of fiscal 2019. Future costs related to this move are not anticipated to be significant to the Consolidated Financial Statements.

On April 20, 2018, Chase finalized an agreement with an unrelated party to sell all inventory, operational machinery and equipment and intangible assets of the Company's structural composites rod business, as well as a license related to the production and sale of rod, for proceeds of $2,232, net of transaction costs and following certain working capital adjustments. This business, which was part of the structural composites product line within the Industrial Tapes segment, had limited growth and profitability prospects as part of the Company, and was outside the areas Chase has identified for strategic emphasis. The resulting pre-tax gain on sale of $1,480 was recognized in the third quarter of fiscal 2018 as a gain on sale of businesses within the consolidated statement of operations. Chase received $2,075, net of transaction costs, in the third quarter of fiscal 2018, with the remaining $157 received in the fourth quarter of fiscal 2018 as a result of a working capital true-up. Chase will provide certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services. The purchaser also entered into a royalty agreement with the Company. The purchaser will make royalty payments to Chase based on future sales of certain structural composite material manufactured by the purchaser.

On December 29, 2017, Chase entered an agreement to acquire Stewart Superabsorbents, LLC ("SSA, LLC"), an advanced superabsorbent polymer (SAP) formulator and solutions provider, with operations located in Hickory and McLeansville, NC. The transaction closed on December 31, 2017. In its most recently completed fiscal year prior to the acquisition, SSA, LLC, and its recently-acquired Zappa-Tec business (collectively "Zappa Stewart") had combined revenue in excess of $24,000. This acquisition proved to be immediately accretive to the Company's earnings in the period of acquisition, after adjusting for nonrecurring costs associated with the transaction and financing cost. The business was acquired for a purchase price of $73,469, after final working capital adjustments and excluding acquisition-related costs. As part of this transaction, Chase acquired all assets of the business, and entered multiyear leases at both locations. The Company expensed $393 of acquisition-related costs during the second quarter of fiscal 2018. The purchase was funded from a combination of Chase's existing revolving credit facility and available cash on hand. Zappa Stewart's protective materials technology complements Chase's current specialty chemicals offerings. This acquisition is aligned with the Company's core strategies and extends its reach into growing medical, environmental and consumer applications. The Company finalized purchase accounting in the first quarter of fiscal 2019, without any adjustment to amounts recorded at August 31, 2018. Following the effective date of the acquisition the financial results of Zappa Stewart's operations have been included in the Company's financial statements in the specialty chemical intermediates product line, contained within the Adhesives, Sealants and Additives operating segment.

On April 3, 2017, Chase executed an agreement with an unrelated party to sell all inventory, machinery and equipment and intangible assets of the Company's fiber optic cable components product line for proceeds of $3,858 net of transaction costs and following certain working capital adjustments. The resulting pre-tax gain on sale of $2,013 was recognized in the third quarter of fiscal 2017 as gain on sale of businesses within the consolidated statement of operations. Further, the purchaser entered a multiyear lease for a portion of the manufacturing space at the Company's Granite Falls, NC facility. Chase will provide certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services. The Company's fiber optic cable components product line's historical results are included as part of the Company's Industrial Tapes operating segment.

On September 30, 2016, the Company acquired certain assets of Resin Designs, LLC ("Resin Designs"), an advanced adhesives and sealants manufacturer, with locations in Woburn, MA and Newark, CA. The business was acquired for a purchase price of $30,270 after final working capital adjustments and excluding acquisition-related costs. As part of this transaction, Chase acquired all working capital and fixed assets of the business, and entered multiyear leases at both locations. The Company expensed $584 of acquisition-related costs during the first quarter of fiscal 2017 associated with this acquisition. The purchase was funded entirely with available cash on hand. Resin Designs is a formulator of customized adhesive and sealant systems used in high-reliability electronic applications. The acquisition broadens the Company's adhesives and sealants product offering and manufacturing capabilities, and expands its market reach. Since the effective date of the acquisition, the financial results of Resin Designs' operations have been included in the Company's financial statements within the electronic and industrial coatings product line, contained within the Adhesives, Sealants and Additives operating segment. Purchase accounting was completed in the fourth quarter of fiscal 2017 with no material adjustments made to the initial amounts recorded.

The Company has evaluated events and transactions subsequent to the balance sheet date. Based on this evaluation, and other than: (a) the cash dividend announced on November 13, 2019 of $0.80 per share to shareholders of record on November 26, 2019 payable on December 4, 2019; and (b) the establishment of November 15, 2019 as the termination date for the NEPTCO Pension Plan discussed in Note 9, the Company is not aware of any other events or transactions that occurred subsequent to the balance sheet date, but prior to filing, that would require recognition or disclosure in its Consolidated Financial Statements.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

Cash and cash equivalents consist primarily of demand deposit accounts or investment instruments that meet high credit quality standards such as money market funds, government securities, or commercial paper. The Company considers all highly liquid debt instruments purchased with a maturity of three months or less from the date of purchase to be cash equivalents.

Accounts Receivable

The Company evaluates the collectability of accounts receivable balances based on a combination of factors. In cases where the Company is aware of circumstances that may impair a specific customer's ability to meet its financial obligations to it, a specific allowance against amounts due to the Company is recorded, and thereby reduces the net recognized receivable to the amount the Company reasonably believes will be collected. For all other customers, the Company recognizes allowances for doubtful accounts based on the length of time the receivables are past due, industry and geographic factors, the current business environment and its historical experience. Receivables are written off against these reserves in the period they are determined to be uncollectable.

Inventory

The Company values inventory at the lower of cost or net realizable value using the first in, first out (FIFO) method. Management assesses the recoverability of inventory based on types and levels of inventory held, forecasted demand and changes in technology. These assessments require management judgments and estimates, and valuation adjustments for excess and obsolete inventory may be recorded based on these assessments. The Company estimates excess and obsolescence exposures based upon assumptions about future demand, product transitions and market conditions, and records reserves to reduce inventories to their estimated net realizable value. The failure to accurately forecast demand may lead to additional excess and obsolete inventory and future charges.

In thousands, except share and per share amounts

Goodwill

The Company accounts for goodwill in accordance with ASC Topic 350, "Intangibles — Goodwill and Other." The Company performs impairment reviews annually each fourth quarter and whenever events or circumstances indicate the carrying value of goodwill may not be recoverable.

During the three-month period ended February 28, 2019, the ordering patterns of our polyurethane dispersions reporting unit's customers, especially those in the automotive industry, combined with a decrease in the reporting unit's backlog of customer orders believed to be firm as of February 28, 2019, indicated that an impairment in the carrying value of the reporting unit might have occurred. We performed an impairment test on our indefinite-lived and long-lived assets related to our polyurethane dispersions reporting unit, now part of the Adhesives, Sealants and Additives operating segment (part of the former Industrial Materials segment during the second fiscal quarter), in accordance with ASC Topic 350, "Intangibles — Goodwill and Other" and ASC Topic 360, "Disclosure — Impairment or Disposal of Long-Lived Assets." As a result of impairment testing, which included first testing long-lived assets other than goodwill for impairment under applicable guidance, the Company recorded a charge of $2,410 to loss on impairment of goodwill within the consolidated statement of operations during the quarter ended February 28, 2019. Our polyurethane dispersions reporting unit's fair value was determined based on the income approach (discounted cash flow method).

For the annual fiscal 2019 fourth quarter review, the Company first performed such reviews on its legacy twelve reporting units (as constituted prior to the Company's reorganization into three operating segments and three reporting units in the fourth quarter), and then on the three post-reorganization reporting units. The Company's reviews indicated no impairment of goodwill, or at-risk reporting units, as of August 31, 2019

In fiscal 2017, the Company early adopted ASU No. 2017-04 "Intangibles—Goodwill and Other Topics (Topic 350): Simplifying the Test for Goodwill Impairment." The Company assesses goodwill for impairment by comparing the fair value of the reporting unit to its carrying amount. If the fair value of a reporting unit is less than its carrying value, an impairment loss, limited to the amount of goodwill allocated to that reporting unit, is recorded. Fair values for reporting units are determined based on the income approach (discounted cash flow method).

Intangible Assets

Intangible assets consist of patents, formulas, trade names, customer relationships and trademarks. The Company capitalizes costs related to patent applications and technology agreements. The costs of these assets are amortized over the lesser of the useful life of the asset or its statutory life. Capitalized costs are periodically reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable.

Property, Plant and Equipment

Property, plant and equipment are stated at cost and depreciated using the straight-line method over the assets' estimated useful lives. Expenditures for maintenance repairs and minor renewals are charged to expense as incurred. Betterments and major renewals are capitalized. Upon retirement or other disposition of assets, related allowances for depreciation and amortization are eliminated from the accounts and any resulting gain or loss is included in the determination of income or loss. The estimated useful lives of property, plant and equipment are as follows:

Buildings and improvements	15	to	40	years
Machinery and equipment	3	to	10	years

Leasehold improvements are depreciated over the lesser of the useful life or the term of the lease.

Restricted Investments and Deferred Compensation

The Company has a non-qualified deferred savings plan that covers its Board of Directors and a separate plan covering selected employees. Participants may elect to defer a portion of their compensation for payment in a future tax year. The plans are funded by trusteed assets that are restricted to the payment of deferred compensation or satisfaction of the Company's general creditors. The Company's restricted investments and corresponding deferred compensation liability under the plans were $1,260 and $1,090 at August 31, 2019 and 2018, respectively. The Company accounts for the restricted investments as available for sale by recording net unrealized gains or losses in other comprehensive income as a component of stockholders' equity.

Revenue

Effective September 1, 2018, the Company adopted accounting standard ASU No. 2014-09, "Revenue from Contracts with Customers" (ASC 606) using the modified retrospective method for contracts that were not completed as of August 31, 2018. We recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings, whereby the cumulative impact of all prior periods is recorded in retained earnings or other impacted balance sheet line items upon adoption. The comparative information has not been adjusted and continues to be reported under ASC 605. The impact on the Company's consolidated balance sheets, and statements of operations, equity or cash flows as of the adoption date as a result of applying ASC 606 have been reflected within those respective financial statements. The Company's accounting policy has been updated to align with ASC 606.

The adoption of ASC 606 represents a change in accounting principle that provides enhanced revenue recognition disclosures. The Company accounts for revenue from contracts with customers when: (a) there is approval and commitment from both parties; (b) the rights of the parties are identified; (c) payment terms are identified; (d) the contract has commercial substance; and (e) collectability of consideration is probable. Revenue is primarily derived from customer purchase orders, master sales agreements, and negotiated contracts, all of which represent contracts with customers. See Note 26 to the consolidated financial statements for more information on our accounting for revenue.

Research and Product Development Costs

Research and product development costs are expensed as incurred and include primarily engineering salaries, overhead and materials used in connection with research and development projects. Research and development expense amounted to $4,021, $3,940 and $3,696 for the years ended August 31, 2019, 2018 and 2017, respectively, and was recorded within selling, general and administrative expenses.

Pension Plan

The Company accounts for its pension plans following the requirements of ASC Topic 715, "Compensation — Retirement Benefits" ("ASC 715"). ASC 715 requires an employer to: (a) recognize in its statement of financial position the funded status of a benefit plan; (b) measure defined benefit plan assets and obligations as of the end of the employer's fiscal year (with limited exceptions); and (c) recognize as a component of other comprehensive income, net of tax, the gains or losses and prior service costs or credits that arise but are not recognized as components of net periodic benefit costs pursuant to prior existing guidance.

In thousands, except share and per share amounts

Stock-Based Compensation

In accordance with the accounting for stock-based compensation guidance, ASC Topic 718 "Compensation – Stock Compensation" ("ASC 718"), the Company measures and recognizes compensation expense for all share-based payment awards made to employees and directors based on estimated fair values. This includes restricted stock, restricted stock units and stock options. The guidance allows for the continued use of the simplified method as the Company has concluded that its historical share option exercise experience does not provide a reasonable basis for estimating expected term.

Stock-based compensation expense recognized in fiscal years 2019, 2018 and 2017 was $2,176, $2,128 and $2,212, respectively.

The fair value of options granted was estimated on the date of grant using the Black-Scholes option pricing model with the following weighted average assumptions for the years ending August 31, 2019, 2018 and 2017:

	2019	2018	2017
Expected dividend yield	0.7 %	0.9 %	1.5 %
Expected life	6.0 years	6.0 years	6.0 years
Expected volatility	31.4 %	34.7 %	38.7 %
Risk-free interest rate	2.7 %	1.9 %	1.3 %

Expected volatility is determined by looking at a combination of historical volatility over the past six years as well as implied future volatility.

Translation of Foreign Currency

The financial position and results of operations of the Company's HumiSeal Europe Ltd and Chase Protective Coatings Ltd businesses are measured using the British pound as the functional currency. The financial position and results of operations of the Company's HumiSeal Europe SARL business in France are measured using euros as the functional currency. The financial position and results of the Company's HumiSeal India Private Limited business in India are measured using the Indian rupee as the functional currency. The functional currency for all our other operations is the U.S. dollar. Revenue and expenses of these international businesses have been translated at average exchange rates. Foreign currency translation gains and losses are determined using current exchange rates for monetary items and historical exchange rates for other balance sheet items, and are recorded as a change in other comprehensive income (a component of stockholders' equity). Transaction gains and losses generated from the remeasurement of assets and liabilities denominated in currencies other than the functional currency of these international operations are included in other income (expense) on the consolidated statements of operations and were gains (losses) of ($48), $85 and $307 for the fiscal years ended August 31, 2019, 2018 and 2017, respectively.

Income Taxes

The Company accounts for income taxes under the asset and liability method. Under this method, a deferred tax asset or liability is determined based upon the differences between the financial statement and tax bases of assets and liabilities as measured by the enacted tax rates that will be in effect when these differences reverse. Tax credits are recorded as a reduction in income taxes. Valuation allowances are provided if, based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company estimates contingent income tax liabilities based on the guidance for accounting for uncertain tax positions as prescribed in ASC Topic 740, "Income Taxes." See Note 7 for more information on the Company's income taxes, including information on the effects of the Tax Cuts and Jobs Act of 2017 (the "Tax Act") on our financial position and results of operations, including adjustments that were recorded during fiscal 2018 and 2019 related to the Tax Act.

Net Income Per Share

The Company has unvested share-based payment awards with a right to receive nonforfeitable dividends, which are considered participating securities under ASC Topic 260, "Earnings Per Share" ("ASC 260"). The Company allocates earnings to participating securities and computes earnings per share using the two-class method.

Comprehensive Income

Comprehensive income is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources, including foreign currency translation adjustments, unrealized gains and losses on marketable securities and adjustments related to the change in the funded status of the pension plans.

Segments

ASC Topic 280 "Segment Reporting" of the Financial Accounting Standards Board ("FASB") codification establishes standards for reporting information about operating segments. In the fourth quarter of its 2019 fiscal year, the Company reorganized into three reportable operating segments, an Adhesives, Sealants and Additives segment, an Industrial Tapes segment and a Corrosion Protection and Waterproofing segment. The segments are distinguished by the nature of the products manufactured and how they are delivered to their respective markets.

The Adhesives, Sealants and Additives segment offers innovative and specialized product offerings consisting of both end-use products and intermediates that are used in, or integrated into, another company's products. Demand for the segment's product offerings is typically dependent upon general economic conditions. The Adhesives, Sealants and Additives segment leverages the core specialty chemical competencies of the Company, and serves diverse markets and applications. The segment sells predominantly into the transportation, appliances, medical, general industrial and environmental market verticals. The segment's products include moisture protective coatings and customized sealant and adhesive systems for electronics, polymeric microspheres, polyurethane dispersions and superabsorbent polymers. Beginning September 30, 2016 and December 31, 2017, the Adhesives, Sealants and Additives segment includes the acquired operations of Resin Designs, LLC and Zappa Stewart, respectively. The operations of Resin Designs, LLC are included in the Company's electronic and industrial coatings product line and the operations of Zappa Stewart are included in the Company's specialty chemicals intermediates product line.

The Industrial Tapes segment features legacy wire and cable materials, specialty tapes, and other laminated and coated products. The segment derives its competitive advantage through its proven chemistries, diverse specialty offerings and the reliability its supply chain offers to end customers. These products are generally used in the assembly of other manufacturers' products, with demand typically dependent upon general economic conditions. The Industrial Tapes segment sells mostly to established markets, with some exposure to growth opportunities through further development of existing products. Markets served include cable manufacturing, utilities and telecommunications, and electronics packaging. The segment's offerings include insulating and conducting materials for wire and cable manufacturers, laminated durable papers, laminates for the packaging and industrial laminate markets, custom manufacturing services, pulling and detection tapes used in the installation, measurement and location of fiber optic cables and water and natural gas lines, and cover tapes essential to delivering semiconductor components via tape and reel packaging, and composite materials and elements. Prior to the April 3, 2017 sale of the fiber optic cable components business, the segment's products also included glass-based strength elements, designed to allow fiber optic cables to withstand mechanical and environmental strain and stress. Following the April 20, 2018 sale of the structural composites rod business, future product sales of composite materials and elements are not anticipated to be significant to the consolidated financial statements.

The Corrosion Protection and Waterproofing segment is principally composed of project-oriented product offerings that are primarily sold and used as "Chase" branded products. End markets include new and existing infrastructure projects on oil, gas, water and wastewater pipelines, highways and bridge decks, water and wastewater containment systems, and commercial buildings. The segment's products include protective coatings for pipeline applications, coating and lining systems for waterproofing and liquid storage applications, adhesives and sealants used in architectural and building envelope waterproofing applications, high-performance polymeric asphalt additives, and expansion joint systems for waterproofing applications in transportation and architectural markets. With sales generally dependent on outdoor project work, the segment experiences highly seasonal sales patterns.

Recently Issued Accounting Standards

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." Under the new guidance, lessees will be required to recognize the following for all leases (with the exception of short-term leases) at the commencement date: (a) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis; and (b) a right-of-use asset, which represents the lessee's right to use, or control the use of, a specified asset for the lease term. The ASU will be effective for the Company beginning September 1, 2019 (fiscal 2020). In July 2018, the FASB issued ASU 2018-11, "Leases (Topic 842) Targeted Improvements." The updated guidance provides an optional transition method, which allows for the application of the standard as of the adoption date with no restatement of prior period amounts. We plan to adopt the standard on September 1, 2019 under the optional transition method described above. Consequently, financial information will not be updated, and the disclosures required under the new standard will not be provided for dates and periods prior to September 1, 2019.

The new standard provides several optional practical expedients in transition. The Company has elected to apply the "package of practical expedients" which allow us to not reassess i) whether existing or expired arrangements contain a lease, ii) the lease classification of existing or expired leases, or iii) whether previous initial direct costs would qualify for capitalization under the new lease standard. In preparation for adoption of the standard, the Company is enhancing internal controls to enable the preparation of financial information including the assessment of the impact of the standard. While we are still assessing the impacts of the new standard, we currently expect the adoption to result in the recognition of additional lease liabilities of approximately $8,000 to $12,000, and right-of-use assets of approximately $8,000 to $12,000 as of September 1, 2019 on the consolidated balance sheet as it relates to the Company's operating leases. The Company does not currently expect that the new standard will have a material impact on the Company's consolidated statement of operations or cash flows.

In February 2018, the FASB issued ASU No. 2018-02, “Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.” Under previously existing U.S. GAAP, the effects of changes in tax rates and laws on deferred tax balances are recorded as a component of income tax expense in the period in which the law was enacted. When deferred tax balances related to items originally recorded in accumulated other comprehensive income are adjusted, certain tax effects become stranded in accumulated other comprehensive income. The amendments in ASU 2018-02 allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017 (the “Tax Act”). The guidance is required for fiscal years beginning after December 15, 2018 (our fiscal year 2020), and interim periods within those fiscal years. The Company is currently evaluating the effect that ASU No. 2018-02 will have on its financial statements and related disclosures and which methodology the Company will use in its adoption. See Note 7 to the consolidated financial statements for additional information on the effects of the Tax Act on our financial position and result of operations, including provisional transitional adjustments that were recorded during fiscal 2018 related to the Tax Act, and complete and final adjustments during the quarter ended February 28, 2019 (the second quarter of fiscal 2019).

Recently Adopted Accounting Standards

Fiscal 2019

In May 2014, the FASB issued ASU No. 2014-09, “Revenue from Contracts with Customers (Topic 606).” The amended guidance establishes a single comprehensive model for companies to use in accounting for revenue arising from contracts with customers and supersedes most of the existing revenue recognition guidance, including industry-specific guidance.

The amended guidance clarifies that an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In applying the amended guidance, an entity will (1) identify the contract(s) with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the contract’s performance obligations; and (5) recognize revenue when (or as) the entity satisfies a performance obligation. ASC 606 was effective for the Company’s interim and annual reporting periods beginning September 1, 2018 (fiscal 2019), and could have been adopted using either a full retrospective or modified retrospective transition method.

The Company adopted the amended guidance and all related amendments using the modified retrospective approach on September 1, 2018. The Company recognized the cumulative effect of initially applying the new revenue standard to all open contracts requiring recognition over time that were not completed on the date of adoption as an adjustment to the opening balance of retained earnings.

At the adoption date, the cumulative impact of revenue that would have been recognized over time was $80. The related adoption impact to retained earnings was $22, net of tax. The impact to net sales and net income as a result of applying ASC 606 was an increase of $67 and $5, respectively, for the year ended August 31, 2019. See Note 26 — “Revenue from Contracts with Customers” for further discussion of the effects of adoption.

In August 2016, the FASB issued ASU No. 2016-15, “Statement of Cash Flows (Topic 230).” This ASU provides guidance on the presentation and classification of specific cash flow items to improve consistency within the statement of cash flows. The Company adopted ASU No. 2016-15 on September 1, 2018, and the adoption did not have a material effect on its financial statements and related disclosures.

In January 2017, the FASB issued ASU No. 2017-01, "Business Combinations (Topic 805): Clarifying the Definition of a Business." The new guidance dictates that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, it should be treated as an acquisition or disposal of an asset. The Company adopted the ASU on September 1, 2018. The adoption had no material effect on the financial statements and related disclosures in fiscal 2019. The effect ASU No. 2017-01 will have on the financial statements and related disclosures of the Company in future periods will be dependent on the nature of potential future acquisitions and divestitures.

In March 2017, the FASB issued ASU No. 2017-07, "Compensation — Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." This ASU applies to all employers that offer to their employees defined benefit pension plans, other postretirement benefit plans, or other types of benefits accounted for under Topic 715, Compensation — Retirement Benefits. The ASU requires that an employer report the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. If a separate line item or items are used to present the other components of net benefit cost, that line item or items must be appropriately described. If a separate line item or items are not used, the line item or items used in the income statement to present the other components of net benefit cost must be disclosed. The ASU also allows only the service cost component to be eligible for capitalization when applicable (e.g., as a cost of internally manufactured inventory or a self-constructed asset). The Company adopted ASU No. 2017-07 on September 1, 2018, which resulted in the reclassification of $654 and $1,065, previously reported in selling, general and administrative expense, to other income (expense) for the years ended August 31, 2018 and 2017 (prior years), respectively.

Fiscal 2018

The Company did not adopt any new accounting standards in fiscal 2018.

Fiscal 2017

In March 2016, the FASB issued ASU No. 2016-09, “Compensation — Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting.” This ASU simplifies the accounting for stock-based payment transactions including the accounting for income taxes, forfeitures, statutory tax withholding requirements and classification in the statement of cash flows. The required effective date for adoption of this guidance was our fiscal year beginning September 1, 2017 (fiscal 2018), with early adoption allowed. The updated standard no longer requires cash flows related to excess tax benefits to be presented as a financing activity separate from other income tax cash flows. The update also allows entities to repurchase more of an employee's shares for tax withholding purposes without triggering liability accounting, clarifies that all cash payments to taxing authorities made on an employee's behalf for withheld shares should be presented as a financing activity on the statement of cash flows, and provides for an accounting policy election to account for forfeitures as they occur. The Company early adopted this standard as of September 1, 2016 (fiscal 2017) and during the years ended August 31, 2019, 2018 and 2017 recognized an excess tax benefit from stock-based compensation of $157, $1,921 and $1,917, respectively, within income tax expense on the consolidated statement of operations (adopted prospectively). The adoption did not impact the existing classification of the awards. Excess tax benefits from stock-based compensation are now classified in net income in the statement of cash flows instead of being separately stated in financing activities for fiscal 2017, 2018 and 2019 (adopted prospectively). Given the Company’s historical practice of including employee withholding taxes paid within financing activities in the statement of cash flows, no prior period reclassifications were required by the clarifications on classification provided by ASU No. 2016-09. The Company anticipates the potential for increased periodic volatility in future effective tax rates based on the continued application of ASU No. 2016-09. Following the adoption of the new standard, the Company has elected to account for forfeitures as they occur.

In January 2017, the FASB issued ASU No. 2017-04, “Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment.” This ASU simplifies the subsequent measurement of goodwill and eliminates Step 2 from the goodwill impairment test. Per ASU No. 2017-04, the annual, or interim, goodwill impairment test is performed by comparing the fair value of a reporting unit with its carrying amount, and an impairment charge should be recognized for the amount by which the carrying amount exceeds the reporting unit’s fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. In addition, income tax effects from any tax-deductible goodwill on the carrying amount of the reporting unit should be considered when measuring the goodwill impairment loss, if applicable. The amendments also eliminate the requirements for any reporting unit with a zero or negative carrying amount to perform a qualitative assessment and, if it fails that qualitative test, to perform Step 2 of the goodwill impairment test. An entity still has the option to perform the qualitative assessment for a reporting unit to determine if the quantitative impairment test is necessary. The amendments are to be applied on a prospective basis. The required effective date for adoption of this guidance for the Company will be our fiscal year beginning September 1, 2020 (fiscal 2021), with early adoption permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company early adopted this standard during the second quarter of fiscal 2017; the adoption did not have a material effect on the Company’s Consolidated Financial Statements or related disclosures.

In thousands, except share and per share amounts

In April 2015, the FASB issued ASU No. 2015-03, “Simplifying the Presentation of Debt Issuance Costs,” which requires that debt issue costs related to a recognized debt liability be presented on the balance sheet as a direct deduction from the amount of the debt liability, consistent with debt discounts and premiums. Amortization of such costs is still reported as interest expense. ASU 2015-03 is effective for fiscal years, and interim periods therein, beginning after December 15, 2015 (fiscal year 2017 for the Company). In August 2015, the FASB issued ASU 2015-15, "Presentation and Subsequent Measurement of Debt Issue Costs Associated with Line-of-Credit Arrangements." ASU 2015-15 supplements the requirements of ASU 2015-03 by allowing an entity to defer and present debt issue costs related to a line of credit arrangement as an asset and subsequently amortize the deferred costs ratably over the term of the line of credit arrangement. The adoption of ASU 2015-03 and ASU 2015-15, which occurred in the first quarter of fiscal 2017, did not have a material effect on the Company’s Consolidated Financial Statements.

In August 2014, the FASB issued ASU No. 2014-15 “Presentation of Financial Statements: Going Concern (Subtopic 205-40)” which provides guidance on determining when and how to disclose going-concern uncertainties in the financial statements. The new standard requires management to perform interim and annual assessments of an entity’s ability to continue as a going concern within one year of the date the financial statements are issued. An entity must provide certain disclosures if “conditions or events raise substantial doubt about the entity’s ability to continue as a going concern.” The guidance applies to all entities and is effective for annual periods ending after December 15, 2016, and interim periods thereafter (fiscal year 2017 for the Company). The adoption of ASU 2014-15, which occurred in the first quarter of fiscal 2017, did not have a material effect on the Company’s Consolidated Financial Statements.

Note 2—Inventory

Inventory consisted of the following as of August 31, 2019 and 2018:

	2019	2018
Raw materials	$ 20,325	$ 21,998
Work in process	8,748	7,653
Finished goods	13,281	10,048
Total Inventory	$ 42,354	$ 39,699

Note 3—Property, Plant and Equipment

Property, plant and equipment consisted of the following as of August 31, 2019 and 2018:

	2019	2018
Land and improvements	$ 6,079	$ 6,499
Buildings	17,900	19,484
Machinery and equipment	51,934	52,259
Leasehold improvements	1,828	1,612
Construction in progress	1,315	2,203
	79,056	82,057
Accumulated depreciation	(49,730)	(49,212)
Property, plant and equipment, net	$ 29,326	$ 32,845

In thousands, except share and per share amounts

Note 4—Goodwill and Intangible Assets

The changes in the carrying value of goodwill, by operating segment, were as follows:

	Adhesives, Sealants and Additives	Industrial Tapes	Corrosion Protection and Waterproofing	Consolidated
Balance at August 31, 2017	$ 18,646	$ 21,445	$ 10,693	$ 50,784
Acquisition of Zappa Stewart	34,138	—	—	34,138
Sale of the structural composites rod business	—	(230)	—	(230)
Foreign currency translation adjustment	3	—	1	4
Balance at August 31, 2018	$ 52,787	$ 21,215	$ 10,694	$ 84,696
Loss on impairment of polyurethane dispersions business	(2,410)	—	—	(2,410)
Foreign currency translation adjustment	(287)	—	(13)	(300)
Balance at August 31, 2019	$ 50,090	$ 21,215	$ 10,681	$ 81,986

The Company's goodwill is allocated to each reporting unit based on the nature of the products manufactured by the respective business combinations that originally created the goodwill. The Company has identified three reporting units in total within its three reportable operating segments that are used to evaluate the possible impairment of goodwill. Goodwill impairment exists when the carrying amount of goodwill exceeds its fair value. Assessments of possible impairment of goodwill are made when events or changes in circumstances indicate that the carrying value of the asset may not be recoverable through future operations. Additionally, testing for possible impairment of recorded goodwill and certain intangible asset balances is required annually. The amount and timing of any impairment charges based on these assessments require the estimation of future cash flows and the fair market value of the related assets based on management's best estimates of certain key factors, including future selling prices and volumes; operating, raw material and energy costs; and various other projected operating and economic factors. When testing, fair values of the reporting units and the related implied fair values of their respective goodwill are established using discounted cash flows.

In fiscal 2017, the Company early adopted ASU No. 2017-04 "Intangibles — Goodwill and Other Topics (Topic 350): Simplifying the Test for Goodwill Impairment." We assess goodwill for impairment by comparing the fair value of the reporting unit to its carrying amount. If the fair value of a reporting unit is less than its carrying value, an impairment loss, limited to the amount of goodwill allocated to that reporting unit, is recorded.

During the three-month period ended February 28, 2019, the ordering patterns of our polyurethane dispersions reporting unit's customers, especially those in the automotive industry, combined with a decrease in the reporting unit's backlog of customer orders believed to be firm as of February 28, 2019, indicated that an impairment in the carrying value of the reporting unit might have occurred. We performed an impairment test on our indefinite-lived and long-lived assets related to our polyurethane dispersions reporting unit, now part of the Adhesives, Sealants and Additives operating segment (part of the former Industrial Materials segment during the second fiscal quarter), in accordance with ASC Topic 350, "Intangibles — Goodwill and Other" and ASC Topic 360, "Disclosure — Impairment or Disposal of Long-Lived Assets." As a result of impairment testing, which included first testing long-lived assets other than goodwill for impairment under applicable guidance, the Company recorded a charge of $2,410 to loss on impairment of goodwill within the consolidated statement of operations during the quarter ended February 28, 2019. Our polyurethane dispersions reporting unit's fair value was determined based on the income approach (discounted cash flow method).

The Company performs impairment reviews annually each fourth quarter and whenever events or circumstances indicate the carrying value of goodwill may not be recoverable. For fiscal 2019, the Company first performed such reviews on its legacy twelve reporting units (as constituted prior to the Company's reorganization into three operating segments and three reporting units in the fourth quarter), and then on the three post-reorganization reporting units. The Company's reviews indicated no impairment of goodwill.

In thousands, except share and per share amounts

As of August 31, 2019, the Company had a total goodwill balance of $81,986 related to its acquisitions, of which $39,227 remains deductible for income taxes.

Intangible assets subject to amortization consisted of the following as of August 31, 2019 and 2018:

	Weighted Average Amortization Period	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
August 31, 2019				
Patents and agreements	14.6 years	$ 1,760	$ 1,693	$ 67
Formulas and technology	7.8 years	10,164	7,969	2,195
Trade names	5.8 years	8,503	7,261	1,242
Customer lists and relationships	9.1 years	98,139	48,939	49,200
		$ 118,566	$ 65,862	$ 52,704
August 31, 2018				
Patents and agreements	14.4 years	$ 1,863	$ 1,681	$ 182
Formulas and technology	7.8 years	10,225	6,690	3,535
Trade names	5.8 years	8,554	6,866	1,688
Customer lists and relationships	9.1 years	98,727	38,802	59,925
		$ 119,369	$ 54,039	$ 65,330

Aggregate amortization expense related to intangible assets for the years ended August 31, 2019, 2018 and 2017 was $12,445, $11,807 and $9,127, respectively. As of August 31, 2019 estimated amortization expense for the next five fiscal years is as follows:

Years ending August 31,	
2020	11,555
2021	11,026
2022	10,023
2023	6,768
2024	5,659

Note 5—Cash Surrender Value of Life Insurance

The Company recognized cash surrender value of life insurance policies, net of loans of $5 at August 31, 2018, secured by the policies, with the following carriers as of August 31, 2019 and 2018:

	2019	2018
John Hancock	$ 4,450	$ 4,450
Other life insurance carriers	—	80
Cash surrender value of life insurance policies	$ 4,450	$ 4,530

The remaining policy is subject to periodic review. The Company currently intends to maintain the existing policy through the life or retirement of the insured.

In thousands, except share and per share amounts

Note 6—Long-Term Debt

Long-term debt consisted of the following at August 31, 2019 and 2018:

	2019	2018
All-revolving credit facility with a borrowing capacity of $150,000	$ —	$ 25,000
Long-term debt	$ —	$ 25,000

On December 15, 2016, the Company entered an Amended and Restated Credit Agreement (the "Credit Agreement") with Bank of America, acting as administrative agent, and with participation from Citizens Bank and JPMorgan Chase Bank (collectively with Bank of America, the "Lenders"). The Credit Agreement is initially an all-revolving credit facility with a borrowing capacity of $150,000, which can be increased by an additional $50,000 at the request of the Company and the individual or collective option of any of the Lenders. The Credit Agreement contains customary affirmative and negative covenants that, among other things, restrict our ability to incur additional indebtedness and require certain lender approval for acquisitions by the Company and its subsidiaries over a certain size. It also requires us to maintain certain financial ratios on a consolidated basis, including a consolidated net leverage ratio (as defined in the facility) of no more than 3.25 to 1.00, and a consolidated fixed charge coverage ratio (as defined in the facility) of at least 1.25 to 1.00. We were in compliance with our debt covenants as of August 31, 2019. The Credit Agreement is guaranteed by all of Chase's direct and indirect domestic subsidiaries, which collectively had a carrying value of $241,581 at August 31, 2019. The Credit Agreement was entered both to refinance our previously existing term loan and revolving line of credit, and to provide for additional liquidity to finance potential acquisitions, working capital, capital expenditures, and for other general corporate purposes.

The applicable interest rate for the revolver portion of the Credit Agreement (the "Revolving Facility") and any Term Loan (defined below) is based on the effective London Interbank Offered Rate (LIBOR) plus an additional amount in the range of 1.00% to 1.75%, depending on the consolidated net leverage ratio of Chase and its subsidiaries. At August 31, 2019, there was no outstanding principal balance, and therefore no applicable interest rate. The Credit Agreement has a five-year term with interest payments due at the end of the applicable LIBOR period (but in no event less frequently than the three-month anniversary of the commencement of such LIBOR period) and principal payment due at the expiration of the agreement, December 15, 2021. As such, no portion of the debt was classified as short-term as of August 31, 2019 or 2018. The Company may elect a base rate option for all or a portion of the Revolving Facility, in which case, interest payments shall be due with respect to such portion of the Revolving Facility on the last business day of each quarter.

Subject to certain conditions set forth in the Credit Agreement, the Company may elect to convert all or a portion of the outstanding Revolving Facility into a term loan (each, a "Term Loan"), which shall be payable quarterly in equal installments sufficient to amortize the original principal amount of such Term Loan on a seven year amortization schedule; provided, however, that the final principal repayment installment shall be repaid on December 15, 2021 and in any event shall be in an amount equal to the aggregate principal amount of all Term Loans outstanding on such date. Prepayment is allowed by the Credit Agreement at any time during the term of the agreement, subject to customary notice requirements.

In connection with entry into the Credit Agreement, Chase applied proceeds to refinance in full the outstanding principal balance of its preexisting term debt, simultaneously terminating both our previously existing term loan agreement and the previously existing revolving line of credit, which was fully available as of December 15, 2016.

In December 2017 (fiscal year 2018), the Company utilized $65,000 of the Credit Agreement to finance the majority of the acquisition cost of Zappa Stewart. See Note 14 to the consolidated financial statements for additional information on this acquisition. The Company paid down $40,000 of the outstanding balance in fiscal 2018, and made additional principal payments totaling $25,000 in fiscal 2019, resulting in an outstanding balance of $0 at August 31, 2019.

Note 7—Income Taxes

On December 22, 2017, President Trump signed into law the Tax Cuts and Jobs Act of 2017 (the "Tax Act"). The Tax Act impacted the U.S. statutory Federal tax rate that the Company will use going forward, reducing it from 35% to 21%. As the Company has an August 31 fiscal year-end, the lower corporate income tax rate was phased in, resulting in a U.S. statutory Federal rate of 25.7% for our fiscal year ended August 31, 2018, and a rate of 21% for fiscal 2019. During fiscal 2017, Chase utilized the old 35% corporate income tax rate.

To transition to the reduced U.S. corporate tax rate, we were required to make an adjustment to our net U.S. deferred tax assets. During fiscal 2018, predominantly in the three months ended February 28, 2018 (the second fiscal quarter of 2018), the Company recorded initial provisional adjustments to the U.S. deferred tax assets and liabilities and uncertain tax positions resulting in a net discrete tax expense of $681 recorded to the consolidated statement of operations. This net discrete tax expense recorded in fiscal 2018 is the result of the following: (a) a $379 tax benefit resulting from the remeasurement and reclassification of our existing deferred tax liability related to unrepatriated foreign earnings to accrued income tax balance (discussed in more detail below); (b) a $917 tax expense for the remeasurement of the remaining net U.S. deferred tax assets in recognition of the new lower Federal rate; and (c) a $143 tax expense recorded as the result of remeasuring the Federal benefit on our uncertain tax positions. During fiscal 2019, no additional transitional adjustments were made related to the adoption of the Tax Act in the quarters ended November 30, 2018, May 31, 2019 and August 31, 2019, and only immaterial adjustments were made in the quarter ended February 28, 2019.

The Tax Act includes a transition tax or “toll charge,” which is a one-time tax charge on unrepatriated foreign earnings. The calculation of accumulated foreign earnings requires an analysis of each foreign entity’s financial results going back to 1986. During fiscal 2018, the Company recorded a provisional transition tax adjustment associated with its accumulated unrepatriated foreign earnings reducing long-term deferred tax liabilities by $2,298 and increasing short and long-term accrued income taxes by $153 and $1,766, respectively (the short-term payable representing eight percent of the total amount due, the amount payable within the first year as per the Tax Act). The difference between the decrease in the deferred tax liabilities for unrepatriated foreign earnings and the increase in accrued income taxes, $379, was recorded as a discrete tax benefit in fiscal 2018. During fiscal 2019, the Company paid the entire long-term and short-term toll charge balances that had been accrued at August 31, 2018 (prior year end).

Under the guidance set forth in the SEC's Staff Accounting Bulletin No. 118 (“SAB 118”), the Company may record provisional amounts for the impact of the Tax Act. For the second quarter of fiscal 2018, the Company made a provisional and reasonable estimate of the effects of the Tax Act on its existing deferred tax balances, including a provisional adjustment for the toll charge, and made provisional adjustments to these initially recorded amounts in the third and fourth quarters of fiscal 2018. The Company made complete and final adjustments during the quarter ended February 28, 2019 (the second quarter of fiscal 2019), which were not material in nature.

In thousands, except share and per share amounts

In fiscal 2019, the Company began recognizing an additional component of total Federal tax expense, the tax on Global Intangible Low-Taxed Income ("GILTI") provision of the Tax Act, which became applicable to the Company in fiscal 2019. The Company elected to account for GILTI as a period cost, and therefore included GILTI expense in the effective tax rate calculation. This provision did not have a material effect on the effective tax rate for the year ended August 31, 2019.

The Company concluded that the Base Erosion and Anti Abuse Tax ("BEAT") provision of the Tax Act, which also became applicable to the Company in fiscal 2019, had no effect on our effective tax rate for the current year-to-date period. Additionally, the Company is deferring the application of Foreign-Derived Intangible Income ("FDII") for the current period, in anticipation of further guidance and the establishment of industry standards by the U.S. Treasury Department and trade associations.

Domestic and foreign pre-tax income for the years ended August 31, 2019, 2018 and 2017 was:

	Year Ended August 31,		
	2019	2018	2017
United States	$ 37,088	$ 48,962	$ 52,723
Foreign	6,465	8,003	8,169
	$ 43,553	$ 56,965	$ 60,892

The provision (benefit) for income taxes for the years ended August 31, 2019, 2018 and 2017 was:

	Year Ended August 31,		
	2019	2018	2017
Current:			
Federal	$ 9,880	$ 12,872	$ 17,714
State	1,699	1,662	1,872
Foreign	1,575	1,761	1,555
Total current income tax provision	13,154	16,295	21,141
Deferred:			
Federal	(1,699)	(2,214)	(1,984)
State	(529)	(263)	(453)
Foreign	(84)	4	174
Total deferred income tax benefit	(2,312)	(2,473)	(2,263)
Total income tax provision	$ 10,842	$ 13,822	$ 18,878

In thousands, except share and per share amounts

The provision (benefit) for income taxes differs from the amount computed by applying the Federal statutory income tax rate to income before income taxes. The Company's combined federal, state and foreign effective tax rate as a percentage of income before taxes for fiscal 2019, 2018 and 2017, net of offsets generated by federal, state and foreign tax benefits, was 24.9%, 24.3% and 31.0%, respectively. The following is a reconciliation of the effective income tax rate with the U.S. Federal statutory income tax rate for the years ended August 31, 2019, 2018 and 2017:

	Year Ended August 31,		
	2019	2018	2017
Federal statutory rates	21.0 %	25.7 %	35.0 %
Adjustment resulting from the tax effect of:			
State and local taxes, net of federal benefit	2.1 %	1.9 %	1.5 %
Domestic production deduction	0.0 %	(1.6)%	(2.5)%
Foreign tax rate differential	0.1 %	(0.3)%	(1.4)%
Adjustment to uncertain tax position	1.0 %	1.1 %	0.0 %
Research credit generated	(0.3)%	(0.2)%	(0.3)%
Stock Compensation	(0.4)%	(3.4)%	(3.1)%
Permanent items	1.1 %	0.9 %	1.6 %
Tax effect of undistributed earnings	0.6 %	(0.8)%	1.4 %
Other	(0.4)%	(0.8)%	(1.2)%
Change in valuation allowance	0.1 %	0.1 %	0.0 %
Deferred income tax remeasurement	0.0 %	1.7 %	0.0 %
Effective income tax rate	24.9 %	24.3 %	31.0 %

In thousands, except share and per share amounts

The following table summarizes the tax effect of temporary differences on the Company's income tax provision:

	Year Ended August 31, 2019	2018	2017
Current income tax provision	$ 13,154	$ 16,295	$ 21,141
Deferred provision (benefit):			
Allowance for doubtful accounts	(278)	74	8
Inventories	(211)	390	139
Pension expense	4	2,358	(39)
Deferred compensation	(40)	98	250
Loan finance costs	(7)	—	5
Accruals	43	216	(270)
Warranty reserve	28	70	(89)
Depreciation and amortization	(1,677)	(3,726)	(2,714)
Restricted stock grant	91	244	(214)
Non Qualified Grants	(164)	—	—
Unrepatriated earnings	—	(2,395)	832
Valuation allowance	48	60	24
Foreign amortization	1	17	(2)
Other accrued expenses	(150)	121	(193)
Total deferred income tax benefit	(2,312)	(2,473)	(2,263)
Total income tax provision	$ 10,842	$ 13,822	$ 18,878

In thousands, except share and per share amounts

The following table summarizes the tax effects of temporary differences that give rise to significant portions of the deferred tax assets and liabilities:

	As of August 31, 2019	2018
Deferred tax assets:		
Allowance for doubtful accounts	$ 432	$ 154
Inventories	1,193	982
Accruals	541	584
Warranty reserve	22	50
Pension accrual	2,623	2,567
Deferred compensation	300	260
Foreign currency loss on previously taxed income	96	96
Loan finance costs	34	27
Restricted stock grants	456	547
Non-qualified stock options	258	94
Other	353	296
	6,308	5,657
Deferred tax liabilities:		
Prepaid liabilities	(8)	(25)
Unrealized gain/loss on restricted investments	—	(112)
Depreciation and amortization	(2,496)	(4,173)
	(2,504)	(4,310)
Net deferred tax assets (liabilities)	$ 3,804	$ 1,347

During fiscal 2018 (the prior year), the Company recorded a transition tax adjustment associated with its accumulated unrepatriated foreign earnings reducing long-term deferred tax liabilities by $2,298 and increasing short- and long-term accrued income taxes by $153 and $1,766, respectively. Consistent to prior to the passage of the Tax Act, we do not currently take the position that undistributed foreign subsidiaries' earnings are considered to be permanently reinvested.

A summary of the Company's adjustments to its uncertain tax positions, included within long-term accrued income taxes on the consolidated balance sheet, in fiscal years ended August 31, 2019, 2018 and 2017 are as follows:

	2019	2018	2017
Balance, at beginning of the year	$ 1,889	$ 1,257	$ 1,229
Increase for tax positions related to the current year	55	47	65
Increase for tax positions related to prior years	300	595	16
Increase for interest and penalties	106	71	6
Decreases for lapses of statute of limitations	(26)	(81)	(59)
Balance, at end of year	$ 2,324	$ 1,889	$ 1,257

The unrecognized tax benefits mentioned above include an aggregate of $877 of accrued interest and penalty balances related to uncertain tax positions. The Company recognizes interest and penalties related to uncertain tax positions in income tax expense. An increase in accrued interest and penalty charges of approximately $106, net of Federal tax expense, was recorded as a tax expense during the current fiscal year. The Company does not anticipate that its accrual for uncertain tax positions will change by a material amount over the next twelve-month period, as it does not expect to settle any potential disputed items with the appropriate taxing authorities nor does it expect the statute of limitations to expire for any material items.

In thousands, except share and per share amounts

The Company is subject to U.S. Federal income tax, as well as to income tax of multiple state, local and foreign tax jurisdictions. The statute of limitations for all material U.S. Federal, state, and local tax filings remains open for fiscal years subsequent to 2015. For foreign jurisdictions, the statute of limitations remains open in the U.K. for fiscal years subsequent to 2015 and in France for fiscal years subsequent to 2018.

Note 8—Operating Leases

The Company is obligated under various operating leases, primarily for real property and equipment. Future minimum lease payments under noncancelable operating leases (with initial or remaining lease terms in excess of one year) as of August 31, 2019, are as follows:

Year ending August 31,	Future Operating Lease Payments
2020	$ 2,468
2021	2,059
2022	1,371
2023	1,187
2024	1,200
2025 and thereafter	2,608
Total future minimum lease payments	$ 10,893

Total rental expense for all operating leases amounted to $3,734, $3,114 and $2,516 for the years ended August 31, 2019, 2018 and 2017, respectively.

Note 9—Benefits and Pension Plans

401(k) Plans

The Company has a defined contribution plan adopted pursuant to section 401(k) of the Internal Revenue Code of 1986 (the "Chase 401(k) Plan"). Any qualified employee who has attained age 21 and has been employed by the Company for at least six months may contribute a portion of his or her salary to the plan and the Company will match 100% of the first one percent of salary contributed and 50% thereafter, up to an amount equal to three and one-half percent of such employee's annual salary.

Through our wholly owned subsidiary NEPTCO, the Company had two additional 401(k) savings plans, one for union employees and one for nonunion employees (the nonunion plan was merged into the Chase 401(k) Plan effective January 1, 2018 and the union plan was merged into the Chase 401(k) Plan effective November 15, 2018). Under these plans, substantially all employees of NEPTCO were eligible to participate by making pre-tax contributions to these plans. Participants could elect to defer between 1% and 10% of their annual compensation. The Company could contribute $0.75 for each $1.00 of participant deferrals up to 6% of the nonunion participant's compensation. The Company could match union employee contributions by $0.50 for each $1.00 of participant deferrals up to 6% of the participant's compensation.

The Company's contribution expense for all 401(k) plans was $787, $702 and $519 for the years ended August 31, 2019, 2018 and 2017, respectively.

Non-Qualified Deferred Savings Plans

The Company has a non-qualified deferred savings plan covering the Board of Directors and a separate plan covering selected employees. Participants may elect to defer a portion of their compensation for future payment. The plans are funded by trusteed assets that are restricted to the payment of deferred compensation or satisfaction of the Company's general creditors. The Company's liability under the plans was $1,275 and $1,105 at August 31, 2019 and 2018, respectively.

Pension Plans

The Company has noncontributory defined benefit pension plans covering employees of certain divisions of the Company. The Company has a funded, qualified plan ("Qualified Plan") and an unfunded supplemental plan ("Supplemental Plan") designed to maintain benefits for certain employees at the plan formula level. The plans provide for pension benefits determined by a participant's years of service and final average compensation. The Qualified Plan assets consist of separate pooled investment accounts with a trust company. The measurement date for the plans is August 31, 2019.

Effective December 1, 2008, a "soft freeze" in the Qualified Plan was adopted whereby no new employees hired will be admitted to the Qualified Plan, with the exception of employees who are members of the International Association of Machinists and Aerospace Workers Union whose contract was amended in June 2012 to include a soft freeze with an effective date of July 15, 2012. All eligible participants who were admitted to the plan prior to the applicable soft freeze dates will continue to accrue benefits as detailed in the plan agreements.

Through our wholly-owned subsidiary NEPTCO, the Company has a third defined benefit pension plan ("NEPTCO Pension Plan") covering our union employees at our Pawtucket facility. This plan was frozen effective October 31, 2006, and as a result, no new participants can enter the plan and the benefits of current participants were frozen as of that date. The benefits are based on years of service and the employee's average compensation during the earlier of five years before retirement, or October 31, 2006. The NEPTCO Pension Plan assets consist of separate pooled investment accounts with a trust company. The measurement date for the NEPTCO Pension Plan is August 31, 2019. In August 2019, the Board of Directors approved a plan to terminate the NEPTCO Pension Plan. The Company has established that November 15, 2019 will serve as the plan termination date and is currently performing the administrative actions required to carry out the termination. In relation to the Company's intention to terminate the plan in less than one year following the balance sheet date, the liability associated with the NEPTCO Pension Plan has been classified as a current liability, within accrued payroll and other compensation, on the consolidated balance sheet as of August 31, 2019.

In thousands, except share and per share amounts

The following tables reflect the status of the Company's pension plans for the years ended August 31, 2019, 2018 and 2017:

	Year Ended August 31, 2019	2018	2017
Change in benefit obligation			
Projected benefit obligation at beginning of year	$ 21,860	$ 22,673	$ 23,636
Service cost	283	283	288
Interest cost	696	629	681
Actuarial (gain) loss	995	17	(533)
Settlements	—	—	(313)
Benefits paid	(3,747)	(1,742)	(1,086)
Projected benefit obligation at end of year	$ 20,087	$ 21,860	$ 22,673
Change in plan assets			
Fair value of plan assets at beginning of year	$ 9,855	$ 9,003	$ 8,440
Actual return on plan assets	181	509	757
Employer contribution	1,570	2,085	1,205
Settlements	—	—	(313)
Benefits paid	(3,747)	(1,742)	(1,086)
Fair value of plan assets at end of year	$ 7,859	$ 9,855	$ 9,003
Funded status at end of year	$ (12,228)	$ (12,005)	$ (13,670)

	Year Ended August 31, 2019	2018	2017
Amounts recognized in consolidated balance sheets			
Noncurrent assets	$ —	$ 301	$ 566
Current liabilities	(1,743)	(1,570)	(1,570)
Noncurrent liabilities	(10,485)	(10,736)	(12,666)
Net amount recognized in consolidated balance sheets	$ (12,228)	$ (12,005)	$ (13,670)
Actuarial present value of benefit obligation and funded status			
Accumulated benefit obligations	$ 18,244	$ 20,075	$ 21,007
Projected benefit obligations	$ 20,087	$ 21,858	$ 22,673
Plan assets at fair value	$ 7,859	$ 9,855	$ 9,003
Amounts recognized in accumulated other comprehensive income			
Prior service cost	$ 47	$ 54	$ 54
Net actuarial loss	9,638	9,377	9,890
Adjustment to pre-tax accumulated other comprehensive income	$ 9,685	$ 9,431	$ 9,944

In thousands, except share and per share amounts

	Year Ended August 31,		
	2019	2018	2017
Other changes in plan assets and benefit obligations recognized in other comprehensive income			
Net (gain)/loss	$ 1,863	$ (704)	$ 1,277
Amortization of loss	(472)	(484)	(895)
Supplemental plan assumption change	(620)	676	(2,038)
Amortization of prior service cost	(3)	(3)	(3)
Effect of settlement on accumulated other comprehensive income	(511)	—	(14)
Total recognized in other comprehensive income	257	(515)	(1,673)
Net periodic pension cost	1,537	937	1,353
Total recognized in net periodic pension cost and other comprehensive income	$ 1,794	$ 422	$ (320)
Estimated amounts that will be amortized from accumulated comprehensive income over the next fiscal year			
Prior service cost	$ 3	$ 3	$ 3
Net actuarial loss	500	475	485

Prior service cost arose from the amendment of the plan's benefit schedules to comply with the Tax Reform Act of 1986 and adoption of the unfunded supplemental pension plan.

In thousands, except share and per share amounts

Components of net periodic pension cost for the fiscal years ended August 31, 2019, 2018 and 2017 included the following:

	2019	2018	2017
Components of net periodic benefit cost			
Service cost	$ 283	$ 283	$ 288
Interest cost	696	629	681
Expected return on plan assets	(428)	(462)	(528)
Amortization of prior service cost	3	3	3
Amortization of accumulated loss	472	484	895
Settlement and curtailment loss	511	—	14
Net periodic benefit cost	$ 1,537	$ 937	$ 1,353

Weighted average assumptions used to determine benefit obligations as of August 31, 2019, 2018 and 2017 are as follows:

	2019	2018	2017
Discount rate			
Qualified plan	2.58 %	3.80 %	3.30 %
Supplemental plan	2.37 %	3.57 %	2.73 %
NEPTCO plan	2.29 %	3.59 %	2.95 %
Rate of compensation increase			
Qualified and Supplemental plan	3.50 %	3.50 %	3.50 %
NEPTCO plan	— %	— %	— %

Weighted average assumptions used to determine net periodic benefit cost for the years ended August 31, 2019, 2018 and 2017 are as follows:

	2019	2018	2017
Discount rate			
Qualified plan	3.80 %	3.30 %	2.90 %
Supplemental plan	3.57 %	2.73 %	2.97 %
NEPTCO plan	3.59 %	2.95 %	2.55 %
Expected long-term return on plan assets			
Qualified plan	5.60 %	5.40 %	6.50 %
Supplemental plan	— %	— %	— %
NEPTCO plan	5.40 %	5.20 %	6.50 %
Rate of compensation increase			
Qualified and Supplemental plan	3.50 %	3.50 %	3.50 %
NEPTCO plan	— %	— %	— %

It is the Company's policy to evaluate, on an annual basis, the discount rate used to determine the projected benefit obligation to approximate rates on high quality, long-term obligations. The Moody's Corporate Aa Bond index has generally been used as a benchmark for this purpose, with adjustments made if the duration of the index differed from that of the plan. The discount rate is determined by matching the expected payouts from the respective plans to the spot rates inherent in the FTSE Pension Discount Curve (formerly Citigroup Pension Discount Curve). A single rate is then developed, that when applied to the expected cash flows, results in the same present value as determined using the various spot rates. The Company believes that this approach produces the most appropriate approximation of the plan liability.

In thousands, except share and per share amounts

The Company estimates that each 100-basis point reduction in the discount rate would result in additional net periodic pension cost, the Company's primary pension obligation, of approximately $23 for the Qualified Plan and $54 for the Supplemental Plan. For the current fiscal year, the NEPTCO Pension Plan expense is insignificant so sensitivity disclosure is not presented. The expected return on plan assets is derived from a periodic study of long-term historical rates of return on the various asset classes included in the Company's targeted pension plan asset allocation. The Company estimates that each 100-basis point reduction in the expected return on plan assets would result in additional net periodic pension cost of approximately $78 for the Qualified Plan. No rate of return is assumed for the Supplemental Plan since that plan is currently not funded. The rate of compensation increase is also evaluated and is adjusted by the Company, if necessary, periodically.

Qualified Plan Assets

The investment policy for the Qualified Plan is based on ERISA standards for prudent investing. The fundamental goal underlying the investment policy is to ensure that the assets of the plans are invested in a prudent manner to meet the obligations of the plans as these obligations come due. The primary investment objectives include providing a total return which will promote the goal of benefit security by attaining an appropriate ratio of plan assets to plan obligations, to provide for real asset growth while also tracking plan obligations, to diversify investments across and within asset classes, to reduce the impact of losses in single investments, and to follow investment practices that comply with applicable laws and regulations.

The primary policy objectives will be met by investing assets to achieve a reasonable tradeoff between return and risk relative to the plan's obligations. This includes investing a portion of the assets in funds selected in part to hedge the interest rate sensitivity to plan obligations.

The Qualified Plan assets are invested in a diversified mix of both domestic and foreign equity investments and fixed income securities. Asset manager performance is reviewed at least annually and benchmarked against the peer universe for the given investment style. The Company's expected return for the Qualified Plan is 5.6%. To determine the expected long-term rate of return on the assets for the Qualified Plan, the Company considered the historical and expected return on the plan assets, as well as the current and expected allocation of the plan assets.

Asset allocation is monitored on an ongoing basis relative to the established asset class targets. The interaction between plan assets and benefit obligations is periodically studied to assist in the establishment of strategic asset allocation targets. The investment policy permits variances from the targets within certain parameters. Asset rebalancing occurs when the underlying asset class allocations move outside these parameters, at which time the asset allocation is rebalanced back to the policy target weight.

The Qualified Plan has the following target allocation and weighted average asset allocations as of August 31, 2019, 2018 and 2017:

Asset Category	Target Allocation Range	Percentage of Plan Assets as of August 31, 2019	2018	2017
Equity securities	10-80 %	44 %	46 %	39 %
Debt securities	20-70 %	56 %	54 %	61 %
Other	0-100 %	— %	— %	— %
Total	100 %	100 %	100 %	100 %

In thousands, except share and per share amounts

NEPTCO Pension Plan Assets

The investment policy for the NEPTCO Pension Plan is based on ERISA standards for prudent investing. The fundamental goal underlying the investment policy is to ensure that the assets of the plans are invested in a prudent manner to meet the obligations of the plan as these obligations come due. The primary investment objectives include maximization of return within reasonable and prudent levels of risk, provision of returns comparable to returns for similar investment options, provision of exposure to a wide range of investment opportunities in various asset classes and vehicles, control administrative and management costs, provision of appropriate diversification within investment vehicles, and govern investment manager's adherence to stated investment objectives and style.

The primary policy objectives will be met by investing assets to achieve a reasonable tradeoff between return and risk relative to the plan's obligations. This includes investing a portion of the assets in funds selected in part to hedge the interest rate sensitivity to plan obligations.

The NEPTCO Pension Plan assets are invested in a diversified mix of fixed income, and both domestic and foreign equity investments. The ongoing monitoring of investments is a regular and disciplined process and confirms that the criteria remain satisfied. The process of monitoring investment performance relative to specified guidelines is consistently applied.

The Company's expected return for the NEPTCO Pension Plan is 5.4%. To determine the expected long-term rate of return on the assets for the NEPTCO Pension Plan, the Company considered the historical and expected return on the plan assets, as well as the current and expected allocation of the plan assets.

The NEPTCO Pension Plan has the following target allocation and weighted average asset allocations as of August 31, 2019, 2018 and 2017:

Asset Category	Target Allocation Range	Percentage of Plan Assets as of August 31, 2019	2018	2017
Equity securities	10-80 %	44 %	46 %	43 %
Debt securities	20-70 %	56 %	54 %	51 %
Other	0-100 %	— %	— %	6 %
Total	100 %	100 %	100 %	100 %

In thousands, except share and per share amounts

Fair Market Value of Pension Plan Assets

The Company is required to categorize pension plan assets using a three-tier fair value hierarchy, which classifies the inputs used in measuring fair values. These tiers include: Level 1, defined as observable inputs such as quoted prices for identical instruments in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

The following table presents the Company's pension plan assets at August 31, 2019 and 2018 by asset category:

		Fair value measurements at August 31, 2019				Fair value measurements at August 31, 2018		
	August 31, 2019	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	August 31, 2018	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Asset Category								
Equity securities	$ 3,474	$ 3,474	$ —	$ —	$ 4,533	$ 4,533	$ —	$ —
Debt securities	4,385	4,385	—	—	5,322	5,322	—	—
Total	$ 7,859	$ 7,859	$ —	$ —	$ 9,855	$ 9,855	$ —	$ —

Level 1 Assets: The fair values of the common stocks, corporate bonds and U.S. Government securities included in this tier are based on the closing price reported on the active market where the individual securities are traded.

Estimated Future Benefit Payments

The following pension benefit payments (which include expected future service) are assumed to be paid in each of the following fiscal years based on the participants' normal retirement age, and giving consideration to the termination of the NEPTCO Pension plan:

Year ending August 31,	Pension Benefits
2020	$ 3,386
2021	1,758
2022	1,758
2023	2,380
2024	1,896
2025-2029	$ 6,353

The Company contributed $1,570, $2,085 and $1,205 to fund its obligations under the pension plans for the years ended August 31, 2019, 2018 and 2017, respectively. The Company plans to make the necessary contributions during fiscal 2020 to ensure its pension plans continue to be adequately funded given the current market conditions and does not anticipate a material change from amounts contributed during the current fiscal year.

Note 10—Stockholders' Equity

2013 Equity Incentive Plan

In October 2012, the Company adopted, and the stockholders subsequently approved, the 2013 Equity Incentive Plan (the "2013 Plan"). The 2013 Plan permits the grant of restricted stock, stock options, deferred stock, stock payments or other awards to employees, participating officers, directors, consultants and advisors who are linked directly to increases in shareholder value. The aggregate number of shares available for grant under the 2013 Plan was initially 1,200,000. Additional shares may become available in connection with share splits, share dividends or similar transactions. As of August 31, 2019, 1,057,892 shares remained available for future grant under the 2013 Plan.

2005 Incentive Plan

In November 2005, the Company adopted, and the stockholders subsequently approved, the 2005 Incentive Plan (the "2005 Plan"). The 2005 Plan permits the grant of restricted stock, stock options, deferred stock, stock payments or other awards to employees, participating officers, directors, consultants and advisors who are linked directly to increases in shareholder value. The aggregate number of shares available for grant under the 2005 Plan was initially 1,000,000. The Company is no longer granting equity awards under the 2005 Plan. Options to purchase 42,005 shares of common stock remained outstanding under the 2005 as of August 31, 2019.

Restricted Stock

<u>Employees and Executive Management</u>

In August 2014, the Board of Directors of the Company approved the fiscal year 2015 Long Term Incentive Plan ("2015 LTIP") for the executive officers and other members of management. The 2015 LTIP was an equity-based plan with a grant date of September 1, 2014. In addition to the stock option component described below, the plan contained the following restricted stock components: (a) a performance and service-based restricted stock grant of 6,993 shares in the aggregate, subject to adjustment based on fiscal 2015 results, with a vesting date of August 31, 2017, for which compensation expense was recognized on a ratable basis over the vesting period based on quarterly probability assessments; and (b) a time-based restricted stock grant of 7,005 and 1,127 shares (total of 8,132 shares) in the aggregate, with vesting dates of August 31, 2017 and September 1, 2014, respectively, for which compensation expense was being recognized on a ratable basis over the vesting period.

Based on the fiscal year 2015 financial results, 5,685 additional shares of restricted stock (total of 12,678 shares) were earned and granted subsequent to the end of fiscal year 2015 in accordance with the performance measurement criteria. No further performance-based measurements apply to this award.

During the third quarter of fiscal 2015, an additional 16,000 restricted shares were issued to non-executive members of management; 15,000 with a vesting date of April 16, 2020 and 1,000 with a vesting date of January 31, 2018. Compensation expense is being recognized on a ratable basis over the vesting period.

In August 2015, the Board of Directors of the Company approved the fiscal year 2016 LTIP for the executive officers and other members of management. The 2016 LTIP was an equity-based plan with a grant date of September 1, 2015. In addition to the stock option component described below, the plan contains the following restricted stock components: (a) a performance and service-based restricted stock grant of 6,962 shares in the aggregate, subject to adjustment based on fiscal 2016 results, with a vesting date of August 31, 2018 for which compensation expense was recognized on a ratable basis over the vesting period based on quarterly probability assessments; and (b) a time-based restricted stock grant of 7,683 shares in the aggregate, with a vesting date of August 31, 2018, for which compensation expense was recognized on a ratable basis over the vesting period.

Based on the fiscal year 2016 financial results, 6,277 additional shares of restricted stock (total of 13,239 shares) were earned and granted subsequent to the end of fiscal year 2016 in accordance with the performance measurement criteria. No further performance-based measurements apply to this award.

During the first quarter of fiscal 2016, an additional grant of 5,000 restricted shares was made to a non-executive member of management with a vesting date of October 20, 2020. Compensation expense is being recognized on a ratable basis over the vesting period.

In August 2016, the Board of Directors of the Company approved the fiscal year 2017 LTIP for the executive officers and other members of management. The 2017 LTIP is an equity-based plan with a grant date of September 1, 2016. In addition to the stock option component described below, the plan contains the following restricted stock components: (a) a performance and service-based restricted stock grant of 5,399 shares in the aggregate, subject to adjustment based on fiscal 2017 results, with a vesting date of August 31, 2019, for which compensation expense was recognized on a ratable basis over the vesting period based on quarterly probability assessments; and (b) a time-based restricted stock grant of 5,367 shares in the aggregate, with a vesting date of August 31, 2019, for which compensation expense was recognized on a ratable basis over the vesting period.

Based on the fiscal year 2017 financial results, 5,399 additional shares of restricted stock (total of 10,798 shares) were earned and granted subsequent to the end of fiscal year 2017 in accordance with the performance measurement criteria. No further performance-based measurements apply to this award.

In August 2016, the Board of Directors of the Company approved equity retention agreements with certain executive officers. The equity-based retention agreements had a grant date of September 1, 2016. In addition to the stock option component described below, the equity retention agreements contain a time-based restricted stock grant of 16,312 shares in the aggregate, with 7,768 shares having a vesting date of August 31, 2019, and 8,544 shares initially having a vesting date of August 31, 2021. The latter award was amended in August 2017 to vest in five equal annual installments over the five-year period following the grant date. Compensation expense is being recognized on a ratable basis over the vesting period.

During the first quarter of fiscal 2017, additional grants totaling 8,805 shares of restricted stock were issued to non-executive members of management with a vesting date of August 31, 2021. Compensation expense is being recognized on a ratable basis over the vesting period.

In August 2017, the Board of Directors of the Company approved the fiscal year 2018 LTIP for the executive officers and other members of management. The 2018 LTIP is an equity-based plan with a grant date of September 1, 2017. In addition to the stock option component described below, the plan contains the following restricted stock components: (a) a performance and service-based restricted stock grant of 4,249 shares in the aggregate, subject to adjustment based on fiscal 2018 results, with a vesting date of August 31, 2020, for which compensation expense is being recognized on a ratable basis over the vesting period based on quarterly probability assessments; and (b) a time-based restricted stock grant of 3,473 shares in the aggregate, with a vesting date of August 31, 2020. Compensation expense is being recognized on a ratable basis over the vesting period.

Based on the fiscal year 2018 financial results, 572 additional shares of restricted stock (total of 4,821 shares) were earned and granted subsequent to the end of fiscal year 2018 in accordance with the performance measurement criteria. No further performance-based measurements apply to this award.

During the third quarter of fiscal 2018, an additional grant totaling 192 shares of restricted stock was issued to a non-executive member of management with a vesting date of August 31, 2020. Compensation expense is being recognized on a ratable basis over the vesting period.

During the fourth quarter of fiscal 2018, an additional grant totaling 609 shares of restricted stock was issued to an executive member of management with a vesting date of August 20, 2019. Compensation expense was recognized on a ratable basis over the vesting period.

In August 2018, the Board of Directors of the Company approved the fiscal year 2019 LTIP for the executive officers and other members of management. The 2019 LTIP is an equity-based plan with a grant date of September 1, 2018. In addition to the stock option component described below, the plan contains the following restricted stock components: (a) a performance and service-based restricted stock grant of 3,541 shares in the aggregate, subject to adjustment based on fiscal 2019 results, with a vesting date of August 31, 2021, for which compensation expense is recognized on a ratable basis over the vesting period based on quarterly probability assessments; and (b) a time-based restricted stock grant of 3,068 shares in the aggregate, with a vesting date of August 31, 2021. Compensation expense is recognized on a ratable basis over the vesting period.

In September 2018, restricted stock in the amount of 2,472 shares related to a first quarter of fiscal 2017 grant was forfeited in conjunction with the termination of employment of a non-executive member of management of the Company.

During the fourth quarter of fiscal 2019, an additional grant of restricted stock was made related to the 2019 LTIP grant in conjunction with an amendment to the equity compensation program for a promoted employee. The additional grant contains the following restricted stock components: (a) a performance and service-based restricted stock grant of 211 shares in the aggregate, subject to adjustment based on fiscal 2019 results, with a vesting date of August 31, 2021, for which compensation expense is recognized on a ratable basis over the vesting period based on quarterly probability assessments; and (b) a time-based restricted stock grant of 132 shares in the aggregate, with a vesting date of August 31, 2021, for which compensation expense is recognized on a ratable basis over the vesting period.

In August 2019, restricted stock in the amount of 833 shares related to the 2019 LTIP grant was forfeited in conjunction with an amendment in the equity compensation agreement of an employee.

Non-employee Board of Directors

In February 2016, as part of their standard compensation for board service, non-employee members of the Board received a total grant of 4,554 shares of restricted stock for service for the period from January 31, 2016 through January 31, 2017. The shares of restricted stock vested at the conclusion of this service period. Compensation expense was recognized on a ratable basis over the twelve-month vesting period.

In February 2017, as part of their standard compensation for board service, non-employee members of the Board received a total grant of 2,407 shares of restricted stock for service for the period from January 31, 2017 through January 31, 2018. The shares of restricted stock vested at the conclusion of this service period. Compensation expense was recognized on a ratable basis over the twelve-month vesting period.

In February 2018, as part of their standard compensation for board service, non-employee members of the Board received a total grant of 2,779 shares of restricted stock for service for the period from January 31, 2018 through January 31, 2019. The shares of restricted stock vested at the conclusion of this service period. Compensation was recognized on a ratable basis over the twelve-month vesting period.

In February 2019, as part of their standard compensation for board service, non-employee members of the Board received a total grant of 4,599 shares of restricted stock for service for the period from January 31, 2019 through January 31, 2020. The shares of restricted stock will vest at the conclusion of this service period. Compensation is being recognized on a ratable basis over the twelve-month vesting period.

In thousands, except share and per share amounts

A summary of the transactions of the Company's restricted stock plans for the years ended August 31, 2019, 2018 and 2017 is presented below:

	Non Employee Directors		Weighted Average Grant Date Fair Value	Officers and Employees		Weighted Average Grant Date Fair Value
Unvested restricted stock at August 31, 2016	4,554	$	48.12	55,328	$	39.20
Granted	2,407	$	91.05	42,160	$	60.67
Vested	(4,554)	$	48.12	(23,516)	$	38.81
Forfeited or cancelled	—			—		
Unvested restricted stock at August 31, 2017	2,407	$	91.05	73,972	$	51.56
Granted	2,779	$	101.05	13,922	$	83.65
Vested	(2,407)	$	91.05	(22,315)	$	41.35
Forfeited or cancelled	—			—		
Unvested restricted stock at August 31, 2018	2,779	$	101.05	65,579	$	61.85
Granted	4,599	$	101.92	7,524	$	121.64
Vested	(2,779)	$	101.05	(25,443)	$	65.79
Forfeited or cancelled	—			(3,305)		79.39
Unvested restricted stock at August 31, 2019	4,599	$	101.92	44,355	$	67.18

Stock Options

In August 2014, the Board of Directors of the Company approved the fiscal year 2015 LTIP for the executive officers and other members of management. The 2015 LTIP was an equity-based plan with a grant date of September 1, 2014 and included options to purchase 22,750 shares of common stock in the aggregate with an exercise price of $35.50 per share. The options vested in three equal annual installments ending on August 31, 2017. Of the options granted, 7,438 will expire on August 31, 2024 and 15,312 will expire on September 1, 2024. Compensation expense was recognized over the period of the award on an annual basis consistent with the vesting terms.

In August 2015, the Board of Directors of the Company approved the fiscal year 2016 LTIP for the executive officers and other members of management. The 2016 LTIP was an equity-based plan with a grant date of September 1, 2015 and included options to purchase 21,275 shares of common stock in the aggregate with an exercise price of $39.50 per share. The options vested in three equal annual installments ending on August 31, 2018. The options granted will expire on September 1, 2025. Compensation expense was recognized over the period of the award consistent with the vesting terms.

In August 2016, the Board of Directors of the Company approved the fiscal year 2017 LTIP for the executive officers and other members of management. The 2017 LTIP is an equity-based plan with a grant date of September 1, 2016 and included options to purchase 15,028 shares of common stock in the aggregate with an exercise price of $64.37 per share. The options vested in three equal annual installments ending on August 31, 2019. Of the options granted, 5,596 options will expire on August 31, 2026, and 9,432 options will expire on September 1, 2026. Compensation expense was recognized over the period of the award consistent with the vesting terms.

In August 2016, the Board of Directors of the Company approved equity retention agreements with certain executive officers. The equity-based retention agreements have a grant date of September 1, 2016 and included options to purchase 23,563 shares of common stock in the aggregate with an exercise price of $64.37 per share. These options cliff vested on August 31, 2019 and will expire on August 31, 2026. Compensation expense was recognized over the period of the award consistent with the vesting terms.

In thousands, except share and per share amounts

In August 2017, the Board of Directors of the Company approved the fiscal year 2018 LTIP for the executive officers and other members of management. The 2018 LTIP is an equity-based plan with a grant date of September 1, 2017 and included options to purchase 9,622 shares of common stock in the aggregate with an exercise price of $93.50 per share. The options vest in three equal annual installments ending on August 31, 2020. Of the options granted, 4,591 options will expire on August 31, 2027, and 5,031 options will expire on September 1, 2027. Compensation expense is recognized over the period of the award consistent with the vesting terms.

During the third quarter of fiscal 2018, an additional grant of options to purchase 606 shares of common stock in the aggregate with an exercise price of $104.00 was issued to a non-executive member of management. The options vest in three equal annual installments ending on August 31, 2020 and will expire on March 1, 2028. Compensation expense is being recognized on a ratable basis over the vesting period.

In August 2018, the Board of Directors of the Company approved the fiscal year 2019 LTIP for the executive officers and other members of management. The 2019 LTIP is an equity-based plan with a grant date of September 1, 2018 and included options to purchase 8,603 shares of common stock in the aggregate with an exercise price of $123.95 per share. The options vest in three equal annual installments ending on August 31, 2021. Of the options granted, 3,927 options will expire on August 31, 2028, and 4,676 options will expire on September 1, 2028. Compensation expense is recognized over the period of the award consistent with the vesting terms.

During the fourth quarter of fiscal 2019, an additional grant of 483 options to purchase shares of common stock in the aggregate with an exercise price of $99.38 per share was made related to the 2019 LTIP grant and in conjunction with an amendment to the equity compensation program for a promotion of an employee. The options vest in three equal installments on August 31, 2019, 2020 and 2021, and will expire on August 31, 2028. Compensation expense is being recognized on a ratable basis over the vesting period.

The following table summarizes information about stock options outstanding as of August 31, 2019:

	Options Outstanding				Options Exercisable		
Exercise Prices	Number Outstanding	Weighted Avg. Remaining Contractual Life	Weighted Average Exercise Price	Aggregate Intrinsic Value	Number Exercisable	Weighted Average Exercise Price	Aggregate Intrinsic Value
$ 16.00	7,597	3.1	$ 16.00	$ 640	7,597	$ 16.00	$ 640
$ 29.72	13,790	4.0	$ 29.72	$ 972	13,790	$ 29.72	$ 972
$ 35.50	13,372	5.0	$ 35.50	$ 865	13,372	$ 35.50	$ 865
$ 39.50	12,753	6.0	$ 39.50	$ 774	12,753	$ 39.50	$ 774
$ 64.37	34,887	7.0	$ 64.37	$ 1,251	34,887	$ 64.37	$ 1,251
$ 93.50	9,163	8.0	$ 93.50	$ 62	5,954	$ 93.50	$ 40
$ 99.38	483	9.0	$ 99.38	$ —	161	$ 99.38	$ —
$ 104.00	606	8.5	$ 104.00	$ —	404	$ 104.00	$ —
$ 123.95	8,603	9.0	$ 123.95	$ —	2,865	$ 123.95	$ —
	101,254	6.2	$ 57.18	$ 4,564	91,783	$ 51.48	$ 4,542

Options are granted with an exercise price that is equal to the closing market value of the Company's common stock on the day preceding the grant date, which is determined not to be materially different from the opening market value on the date of grant.

In thousands, except share and per share amounts

A summary of the transactions of the Company's stock option plans for the years ended August 31, 2019, 2018 and 2017 is presented below:

	Officers and Employees	Weighted Average Exercise Price
Options outstanding at August 31, 2016	194,551	$ 20.57
Granted	38,591	$ 64.37
Exercised	(80,168)	$ 15.62
Forfeited or cancelled	—	
Options outstanding at August 31, 2017	152,974	$ 34.21
Granted	10,228	$ 94.12
Exercised	(64,012)	$ 19.06
Forfeited or cancelled	—	
Options outstanding at August 31, 2018	99,190	$ 57.18
Granted	9,086	$ 122.64
Exercised	(7,022)	$ 42.86
Forfeited or cancelled	—	
Options outstanding at August 31, 2019	101,254	$ 57.18
Options exercisable at August 31, 2019	91,783	$ 51.48

The weighted average grant date fair value of options granted in the years ended August 31, 2019, 2018 and 2017 was $40.12, $30.99 and $21.22 per share, respectively.

The total pretax intrinsic value of stock options exercised was $403, $6,714 and $6,243 for the years ended August 31, 2019, 2018, and 2017, respectively.

Excluding the effects of common stock reserved for issuance upon exercise of the 101,254 outstanding options, there were 1,057,892 shares of common stock available for future issuance under the Company's 2013 Equity Incentive Plan on August 31, 2019. Based on historic experience, management estimates all outstanding stock options will vest.

The income tax benefit realized from stock options exercised, vesting of restricted stock and issuance of stock pursuant to grants of restricted stock units was $157, $1,921 and $1,917 for the years ended August 31, 2019, 2018 and 2017, respectively.

As of August 31, 2019, unrecognized expense related to all stock-based compensation described above was $1,451 (including $1,270 for restricted stock and $181 for stock options), which will be recognized over the next two fiscal years.

Note 11—Segment Data

Due to the recent changes in our business structure, including several recent acquisitions and divestitures within the previously existing Industrial Materials segment, changes in senior management and the establishment of our Chief Executive Officer as our sole chief operating decision maker, the Company's management team has restructured its internal and external reporting process to more accurately reflect the manner in which the current business is being managed and operated. In the fourth quarter of fiscal 2019, the Company reorganized into three reportable operating segments: an Adhesives, Sealants and Additives segment, an Industrial Tapes segment and a Corrosion Protection and Waterproofing segment. The segments are distinguished by the nature of the products manufactured and how they are delivered to their respective markets.

The Adhesives, Sealants and Additives segment (formerly included within the Industrial Materials segment) offers innovative and specialized product offerings consisting of both end-use products and intermediates that are used in, or integrated into, another company’s product. Demand for the segment’s product offerings is typically dependent upon general economic conditions. The Adhesives, Sealants and Additives segment leverages the core specialty chemical competencies of the Company, and serves diverse markets and applications. The segment sells predominantly into the transportation, appliances, medical, general industrial and environmental market verticals. The segment’s products include moisture protective coatings and customized sealant and adhesive systems for electronics, polymeric microspheres, polyurethane dispersions and superabsorbent polymers. Beginning September 30, 2016 and December 31, 2017, the Adhesives, Sealants and Additives segment includes the acquired operations of Resin Designs, LLC and Zappa Stewart, respectively. The operations of Resin Designs, LLC are included in the Company’s electronic and industrial coatings product line and the operations of Zappa Stewart are included in the Company’s specialty chemicals intermediates product line.

The Industrial Tapes segment (formerly included within the Industrial Materials segment) features legacy wire and cable materials, specialty tapes, and other laminated and coated products. The segment derives its competitive advantage through its proven chemistries, diverse specialty offerings and the reliability its supply chain offers to end customers. These products are generally used in the assembly of other manufacturers’ products, with demand typically dependent upon general economic conditions. The Industrial Tapes segment sells mostly to established markets, with some exposure to growth opportunities through further development of existing products. Markets served include cable manufacturing, utilities and telecommunications, and electronics packaging. The segment’s offerings include insulating and conducting materials for wire and cable manufacturers, laminated durable papers, laminates for the packaging and industrial laminate markets, custom manufacturing services, pulling and detection tapes used in the installation, measurement and location of fiber optic cables and water and natural gas lines, cover tapes essential to delivering semiconductor components via tape and reel packaging, and composite materials and elements. Prior to the April 3, 2017 sale of the fiber optic cable components business, the segment’s products also included glass-based strength elements, designed to allow fiber optic cables to withstand mechanical and environmental strain and stress. Following the April 20, 2018 sale of the structural composites rod business, product sales of composite materials and elements are not anticipated to be significant to the consolidated financial statements.

The Corrosion Protection and Waterproofing segment (formerly known as the Construction Materials segment) is principally composed of project-oriented product offerings that are primarily sold and used as “Chase” branded products. End markets include new and existing infrastructure projects on oil, gas, water and wastewater pipelines, highways and bridge decks, water and wastewater containment systems, and commercial buildings. The segment’s products include protective coatings for pipeline applications, coating and lining systems for waterproofing and liquid storage applications, adhesives and sealants used in architectural and building envelope waterproofing applications, high-performance polymeric asphalt additives, and expansion joint systems for waterproofing applications in transportation and architectural markets. With sales generally dependent on outdoor project work, the segment experiences highly seasonal sales patterns.

In thousands, except share and per share amounts

The following tables summarize information about the Company's segments:

	Years Ended August 31, 2019	2018	2017
Revenue			
Adhesives, Sealants and Additives	$ 104,796	$ 101,690	$ 78,933
Industrial Tapes	129,845	130,598	124,023
Corrosion Protection and Waterproofing	46,710	51,900	49,604
Total	$ 281,351	$ 284,188	$ 252,560
Income before income taxes			
Adhesives, Sealants and Additives	$ 27,142 (a)	$ 35,190 (e)	$ 32,237 (h)
Industrial Tapes	28,216 (b)	30,886 (f)	35,324 (i)
Corrosion Protection and Waterproofing	15,909 (c)	18,178	18,205
Total for reportable segments	71,267	84,254	85,766
Corporate and common costs	(27,714)(d)	(27,289)(g)	(24,874)(j)
Total	$ 43,553	$ 56,965	$ 60,892
Includes the following costs by segment:			
Adhesives, Sealants and Additives			
Interest	$ 177	$ 422	$ 252
Depreciation	1,467	1,285	1,174
Amortization	9,359	7,895	5,235
Industrial Tapes			
Interest	$ 216	$ 516	$ 377
Depreciation	1,755	2,748	2,249
Amortization	1,800	2,604	2,604
Corrosion Protection and Waterproofing			
Interest	$ 126	$ 234	$ 210
Depreciation	674	753	718
Amortization	1,286	1,308	1,288

(a) Includes $2,410 of loss on impairment of goodwill related to the Company's polyurethane dispersions business
(b) Includes $260 of expense related to the closure and exit of our Pawtucket, RI location recognized in the first quarter of fiscal 2019, and $526 in exit costs related to the movement of the pulling and detection business out of the Granite Falls, NC location and into the Hickory, NC location during the second half of fiscal 2019
(c) Includes $200 of expense related to engineering studies performed to assess potential future operational changes and further plant rationalization and consolidation
(d) Includes $511 of pension-related settlement costs due to the timing of lump-sum distributions
(e) Includes $1,070 of expense related to inventory step-up in fair value attributable to the acquisition of Zappa Stewart
(f) Includes $1,085 gain on sale of license related to the structural composites product line recorded in the second quarter of fiscal 2018, $1,480 gain on sale of business related to the April 2018 sale of the structural composites rod business and $1,272 of expense related to the exit of our Pawtucket, RI location in the fourth quarter of fiscal 2018
(g) Includes $393 in acquisition-related expense attributable to the December 2017 acquisition of Zappa Stewart
(h) Includes $190 of expense related to inventory step-up in fair value attributable to the Resin Designs acquisition
(i) Includes a $2,013 gain on sale of our fiber optic cable components business
(j) Includes $584 in acquisition-related expense attributable to the September 2016 acquisition of certain assets of Resin Designs, facility exit and demolition costs of $70 related to the Company's Randolph, MA location, a $792 gain related to the November 2016 sale of the Company's Paterson, NJ location, a $68 gain related to the December 2016 sale of the Company's former corporate headquarters in Bridgewater, MA and $14 of pension-related settlement costs due to the timing of lump-sum distributions

In thousands, except share and per share amounts

	August 31, 2019	August 31, 2018
Total Assets		
Adhesives, Sealants and Additives	$ 135,583	$ 153,114
Industrial Tapes	77,085	76,445
Corrosion Protection and Waterproofing	32,478	36,757
Total for reportable segments	245,146	266,316
Corporate and common assets	62,822	50,153
Total	$ 307,968	$ 316,469

Note 12—Export Sales and Foreign Operations

Export sales from continuing domestic operations to unaffiliated third parties were $30,582, $42,883 and $36,719 for the years ended August 31, 2019, 2018 and 2017, respectively. The decrease in export sales in fiscal 2019 against fiscal 2018 resulted from decreased export sales into China and Europe. The increase in export sales in fiscal 2018 against fiscal 2017 resulted from increased export sales into China and Europe

The Company's products are sold worldwide. Revenue for the years ended August 31, 2019, 2018 and 2017, are attributed to operations located in the following countries:

	Years Ended August 31, 2019	2018	2017
Revenue			
United States	$ 248,281	$ 244,225	$ 217,745
United Kingdom	17,504	20,598	16,691
All other foreign (1)	15,566	19,365	18,124
Total	$ 281,351	$ 284,188	$ 252,560

(1) Inclusive of sales originated from our Paris, France location, royalty revenue attributable to our licensed manufacturer in Asia, and Chase foreign manufacturing operations.

In thousands, except share and per share amounts

As of August 31, 2019 and 2018, the Company had long-lived assets (defined as tangible assets providing the Company with a future economic benefit beyond the current year or operating period, including buildings, equipment and leasehold improvements) and goodwill and intangible assets, less accumulated amortization in the following countries:

	August 31, 2019	August 31, 2018
Long-Lived Assets		
United States		
Property, plant and equipment, net	$ 24,993	$ 28,770
Goodwill and Intangible assets, less accumulated amortization	129,057	143,539
United Kingdom		
Property, plant and equipment, net	2,493	2,911
Goodwill and Intangible assets, less accumulated amortization	4,446	5,239
All other foreign		
Property, plant and equipment, net	1,840	1,164
Goodwill and Intangible assets, less accumulated amortization	1,187	1,248
Total		
Property, plant and equipment, net	$ 29,326	$ 32,845
Goodwill and Intangible assets, less accumulated amortization	$ 134,690	$ 150,026

Note 13—Supplemental Cash Flow Data

Supplemental cash flow information for the years ended August 31, 2019, 2018 and 2017 is as follows:

	2019	2018	2017
Income taxes paid	$ 11,714	$ 20,142	$ 21,025
Interest paid	$ 728	$ 915	$ 786
Noncash Investing and Financing Activities			
Common stock received for payment of stock option exercises	$ 119	$ 1,028	$ 1,158
Property, plant and equipment additions included in accounts payable	$ 67	$ 197	$ 220

CHASE CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
In thousands, except share and per share amounts

Supplemental cash flow information as related to acquisitions and divestitures for the years ended August 31, 2019, 2018 and 2017 is as follows:

	2019	2018	2017
Acquisition of Zappa Stewart			
Current assets		$ 10,478	
Property, plant & equipment		1,872	
Goodwill and Intangible assets		64,378	
Deferred tax liability		(2,626)	
Accounts payable and accrued liabilities		(633)	
Payments for acquisitions		(73,469)	
Sale of Structural Composites Rod Business			
Inventory		$ (522)	
Goodwill		(230)	
Gain on sale of business		(1,480)	
Cash received from sale of business, net of transaction costs		2,232	
Sale of Structural Composites License			
Property and equipment		$ (26)	
Gain on sale of license		(1,085)	
Accrued income taxes		111	
Cash received from sale of license		1,000	
Acquisition of Resin Designs			
Current assets			$ 3,240
Property, plant & equipment			623
Goodwill and Intangible assets			27,042
Accounts payable and accrued liabilities			(635)
Payments for acquisitions			(30,270)
Sale of Fiber Optic Cable Components product line			
Inventory			$ (1,167)
Property, plant and equipment			(166)
Goodwill and Intangible assets			(512)
Gain on sale of business			(2,013)
Due from sale of business	$ (400)		400
Cash received from sale of product line, net of transaction costs	400		3,458
Sale of RodPack Business			
Due from sale of business			$ (457)
Cash received from sale of business			457

In thousands, except share and per share amounts

Note 14—Acquisitions

Acquisition of Zappa Stewart

On December 31, 2017, the Company acquired Zappa Stewart, an advanced superabsorbent polymer (SAP) formulator and solutions provider, with operations located in Hickory and McLeansville, NC. The business was acquired for a purchase price of $73,469, after final working capital adjustments and excluding acquisition-related costs. Chase acquired all equity of the business and entered multiyear leases at both locations. The purchase was funded by a combination of a $65,000 draw on Chase's existing revolving credit facility and available cash on hand. Zappa Stewart's protective materials technology is complementary to Chase's current specialty chemicals offerings. This acquisition is in line with our core strategies and extends our reach into growing medical and consumer applications.

Since the effective date for this acquisition, December 31, 2017, the financial results of the acquired business have been included in the Company's financial statements within the Adhesives, Sealants and Additives operating segment, in the specialty chemicals intermediates product line. The acquisition was accounted for as a business combination under ASC Topic 805, "Business Combinations." In accordance with this accounting standard, the Company expensed $393 of acquisition-related costs during the second quarter of 2018 to acquisition-related costs.

The Company finalized purchase accounting in the three-month period ended November 30, 2018 (the first quarter of fiscal 2019), with no adjustments made to the preliminary amounts recorded at August 31, 2018. The purchase price has been allocated to the acquired tangible and identifiable intangible assets assumed, based on their fair values as of the date of the acquisition:

Assets and Liabilities		Amount
Accounts receivable	$	3,670
Inventory		6,796
Prepaid expenses and other current assets		12
Property, plant & equipment		1,872
Goodwill		34,138
Intangible assets		30,240
Deferred tax liability		(2,626)
Accounts payable and accrued expenses		(633)
Total purchase price	$	73,469

The excess of the purchase price over the net tangible and intangible assets acquired resulted in goodwill of $34,138 that is largely attributable to the synergies and economies of scale from combining the operations, technologies and research and development capabilities of Zappa Stewart and Chase, particularly as it pertains to the expansion of the Company's product and service offerings, the established workforce and marketing efforts. A portion of this goodwill, $23,990, is deductible for income tax purposes.

In thousands, except share and per share amounts

All assets, including goodwill, acquired as part of the Zappa Stewart acquisition are included in the Adhesives, Sealants and Additives operating segment. Identifiable intangible assets purchased with this transaction are as follows:

Intangible Asset	**Amount**	**Weighted Average Useful Life**
Customer relationships	$ 28,500	7.9 years
Technology	900	7 years
Trade names	840	4 years
Total intangible assets	$ 30,240	

Supplemental Pro Forma Data (unaudited)

The following table presents the pro forma results of the Company for the years ended August 31, 2018 and 2017 as though the Zappa Stewart acquisition described above occurred on September 1, 2016 (the first day of fiscal 2017). The actual revenue and expenses for the acquired business are included in the Company's consolidated results beginning on December 31, 2017. From the date of acquisition (December 31, 2017) through August 31, 2018, revenue and net income for the Zappa Stewart operations included in the consolidated statement of operations were $16,324 and $578, respectively, with results inclusive of sale of $1,070 in inventory step-up cost, $393 in acquisition-related costs and amortization expense of $2,672 recognized related to intangible assets recorded as part of the transaction, but not inclusive of any interest or financing costs. The pro forma results include adjustments for the estimated amortization of intangibles, acquisition-related costs, sale of inventory step-up cost, interest expense assuming the entire $65,000 draw remained outstanding through December 31, 2017 (at the interest rate effective at the date of borrowing) and the income tax impact of the pro forma adjustments at the statutory rate of 35% for fiscal 2017 and 26% for fiscal 2018. The following pro forma information is not necessarily indicative of the results that would have been achieved if the acquisition had been effective on September 1, 2016.

	Years Ended August 31,	
	2018	**2017**
Revenue	$ 292,609	$ 276,646
Net income	44,508	41,603
Net income available to common shareholders, per common and common equivalent share		
Basic earnings per share	$ 4.75	$ 4.45
Diluted earnings per share	$ 4.70	$ 4.40

In thousands, except share and per share amounts

Acquisition of Resin Designs, LLC

On September 30, 2016, the Company acquired certain assets of Resin Designs, LLC, an advanced adhesives and sealants manufacturer, with locations in Woburn, MA and Newark, CA. This business was acquired for a purchase price of $30,270, after final working capital adjustments and excluding acquisition-related costs. As part of this transaction, Chase acquired all working capital and fixed assets of the business and entered into multiyear leases at both locations. Resin Designs is a formulator of customized adhesive and sealant systems used in high-reliability electronic applications. The acquisition broadens the Company's adhesives and sealants product offering and manufacturing capabilities, and expands its market reach. The purchase was funded entirely with available cash on hand.

Since the effective date for this acquisition, September 30, 2016, the financial results of the acquired business have been included in the Company's financial statements within the Adhesives, Sealants and Additives operating segment, within the electronic and industrial coatings product line. The acquisition was accounted for as a business combination under ASC Topic 805, "Business Combinations." In accordance with this accounting standard, the Company expensed $584 of acquisition-related costs during the first fiscal quarter of 2017 to acquisition-related costs.

Purchase accounting was completed in the fourth quarter of fiscal 2017 with no material adjustments made to the initial amounts recorded. The purchase price has been allocated to the acquired tangible and identifiable intangible assets assumed, based on their fair values as of the date of the acquisition:

Assets & Liabilities	Amount
Accounts receivable	$ 1,877
Inventory	1,300
Prepaid expenses and other current assets	63
Property, plant & equipment	623
Goodwill	7,592
Intangible assets	19,450
Accounts payable and accrued expenses	(635)
Total purchase price	$ 30,270

The excess of the purchase price over the net tangible and intangible assets acquired resulted in goodwill of $7,592 that is largely attributable to the synergies and economies of scale from combining the operations, technologies and research and development capabilities of Resin Designs and Chase, particularly as it pertains to the expansion of the Company's product and service offerings, the established workforce and marketing efforts. This goodwill is deductible for income tax purposes.

All assets, including goodwill, acquired as part of the Resin Designs acquisition are included in the Adhesives, Sealants and Additives operating segment. Identifiable intangible assets purchased with this transaction are as follows:

Intangible Asset	Amount	Useful life
Customer relationships	$ 17,500	10 years
Technology	1,200	4 years
Trade names	750	7 years
Total intangible assets	$ 19,450	

In thousands, except share and per share amounts

Supplemental Pro Forma Data (unaudited)

The following table presents the pro forma results of the Company for the year ended August 31, 2017 as though the Resin Designs acquisition described above occurred on September 1, 2015 (the first day of fiscal 2016). The actual revenue and expenses for the acquired business are included in the Company's fiscal 2017 consolidated results beginning on September 30, 2016. From the date of acquisition (September 30, 2016) through August 31, 2017, revenue and net income for the Resin Designs operations included in the consolidated statement of operations were $14,868 and $669, respectively, including the effects of $584 in acquisition-related costs, $190 in sale of inventory step-up cost, and additional amortization expense recognized related to intangible assets recorded as part of the transaction. The pro forma results include adjustments for the estimated amortization of intangibles, acquisition-related costs, sale of inventory step-up cost and the income tax impact of the pro forma adjustments at the then statutory rate of 35%. The following pro forma information is not necessarily indicative of the results that would have been achieved if the acquisition had been effective on September 1, 2015.

		Year Ended August 31, 2017
Revenue	$	254,145
Net income		42,685
Net income available to common shareholders, per common and common equivalent share		
Basic earnings per share	$	4.56
Diluted earnings per share	$	4.51

Note 15—Sale of License

In November 2017, the Company entered a license agreement with an unrelated party to sell a license, including intellectual property, and certain construction in process assets, with a net book value of $26 and all related to the manufacturing of certain structural composite materials. In the second fiscal quarter of 2018, the transaction was finalized for gross consideration of $1,111 comprising cash proceeds of $1,000 and $111 in foreign tax consideration paid by the buyer on Chase's behalf. This transaction resulted in a gain of $1,085, which was recorded in the Company's consolidated statement of operations as a gain on sale of license during the fiscal quarter ended February 28, 2018.

In relation to this license agreement, the purchaser also entered into a royalty agreement with the Company. The purchaser will make royalty payments to Chase based on the volume of future sales of certain structural composite material manufactured by the purchaser. Revenue recognized related to this royalty agreement was not material in fiscal 2019 and 2018, and this royalty agreement was terminated in fiscal 2019.

In thousands, except share and per share amounts

Note 16—Fair Value Measurements

The Company defines fair value as the price that would be received to sell an asset or paid to transfer a liability (exit price) in an orderly transaction between market participants at the measurement date. The Company uses a three-tier fair value hierarchy, which classifies the inputs used in measuring fair values. These tiers are: Level 1, defined as observable inputs such as quoted prices for identical instruments in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

Financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company has determined that it does not have any financial liabilities measured at fair value other than long-term debt and that its financial assets are currently all classified within Level 1 or Level 2 in the fair value hierarchy. The financial assets classified as Level 1 and Level 2 as of August 31, 2019 and 2018 represent investments which are restricted for use in non-qualified retirement savings plans for certain key employees and directors.

The following table sets forth the Company's financial assets that were accounted for at fair value on a recurring basis as of August 31, 2019 and 2018:

			Fair value measurement category		
	Fair value measurement date	Total	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Assets:					
Restricted investments	August 31, 2019	$ 1,260	$ 1,091	$ 169	$ —
Restricted investments	August 31, 2018	$ 1,090	$ 961	$ 129	$ —

The following table presents the fair values of the Company's long-term debt as of August 31, 2019 and 2018 which is recorded at its carrying amount:

			Fair value measurement category		
	Fair value measurement date	Total	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Liabilities:					
Long-term debt	August 31, 2019	$ —	$ —	$ —	$ —
Long-term debt	August 31, 2018	$ 25,000	$ —	$ 25,000	$ —

The carrying value of the long-term debt approximates its fair value, as the interest rate is set based on the movement of the underlying market rates. See Note 6 for additional information on long-term debt.

In thousands, except share and per share amounts

Note 17—Net Income Per Share

The determination of earnings per share under the two-class method is as follows:

	Years Ended August 31,		
	2019	2018	2017
Net income	$ 32,711	$ 43,143	$ 42,014
Less: Allocated to participating securities	257	410	454
Available to common shareholders	$ 32,454	$ 42,733	$ 41,560
Basic weighted average shares outstanding	9,334,232	9,296,648	9,249,343
Additional dilutive common stock equivalents	44,975	69,423	108,071
Diluted weighted average shares outstanding	9,379,207	9,366,071	9,357,414
Net income available to common shareholders, per common and common equivalent share			
Basic	$ 3.48	$ 4.60	$ 4.49
Diluted	$ 3.46	$ 4.56	$ 4.44

For the years ended August 31, 2019 and 2018, stock options to purchase 12,901 and 404 shares of common stock were outstanding but were not included in the calculation of diluted net income per share because their inclusion would be antidilutive. No stock options were excluded from the calculation for the year ended August 31, 2017. Included in the calculation of dilutive common stock equivalents are the unvested portion of restricted stock and stock options.

Note 18—Sale of Businesses

Sale of Structural Composites Rod Business

On April 20, 2018, Chase finalized an agreement with an unrelated party to sell all inventory, operational machinery and equipment and intangible assets of the Company's structural composites rod business, as well as a license related to the production and sale of rod, for proceeds of $2,232, net of transaction costs and following all working capital adjustments. This business, which was part of the structural composites product line within the Industrial Tapes segment (previously within the former Industrial Materials segment), had limited growth and profitability prospects as part of the Company, and was outside the areas Chase has identified for strategic emphasis. The divestiture was accounted for under ASC Topic 360, "Disclosure—Impairment or Disposal of Long-Lived Assets." In accordance with this accounting standard, the resulting pre-tax gain on sale of $1,480 was recognized in the third quarter of fiscal 2018 as a gain on sale of businesses within the consolidated statement of operations. Chase received $2,075, net of transaction costs, in the third quarter of fiscal 2018, with the remaining $157 received in the fourth quarter of fiscal 2018 as a result of a working capital true-up.

Related to this transaction, the purchaser entered into a royalty agreement with the Company. The purchaser will make royalty payments to Chase based on future sales of certain structural composite material manufactured by the purchaser. Royalty revenue recognized in fiscal 2019 and 2018 related to this agreement was not material.

The sale of the structural components rod business follows the Company's sale of the RodPack® wind blade components business in November 2015, and the licensing of certain composite technologies during the second quarter of fiscal 2018 (see further discussion in Note 15 to the consolidated financial statements). Subsequent to the third quarter of fiscal 2018, Chase will include the results of its remaining structural composites wind energy business (inclusive of the royalties and the custom manufacturing services further discussed below) within the specialty products product line.

Sale of Fiber Optic Cable Components Product Line

On April 3, 2017, Chase executed an agreement with an unrelated party to sell all inventory, machinery and equipment and intangible assets of the Company's fiber optic cable components product line for proceeds of $3,858, net of transaction costs and following certain working capital adjustments. Given its low-growth and low-margin prospects, and a customer, supplier and equipment base separate from the Company's other businesses, the fiber optic cable components product line, which was formerly part of the Company's Industrial Tapes segment, was determined to not be part of Chase's long-term strategy. The divestiture was accounted for under ASC Topic 360, "Disclosure—Impairment or Disposal of Long-Lived Assets." In accordance with this accounting standard, the resulting pre-tax gain on sale of $2,013 was recognized in fiscal 2017 as gain on sale of businesses within the consolidated statement of operations. Chase received $3,458, net of transaction costs, in the third quarter of fiscal 2017, with the remaining $400 placed in escrow; the portion of the sale price held in escrow was recorded as a current asset (due from sale of businesses) as of August 31, 2018, and was available to resolve any submitted claims or adjustments up to 18 months from the closing date of the sale. Chase collected the full $400 escrow amount in October 2018 (during the first fiscal quarter of 2019).

Post-Sale Services Provided to the Buyer of the Structural Composites Rod Business and the Fiber Optic Cable Components Product Line

The structural composites rod business and the fiber optic cable components product line, which both operated out of the Company's Granite Falls, NC facility, were both sold to the same otherwise unrelated purchaser. Subsequent to the sales, Chase has provided certain transitional manufacturing and administrative support to the purchaser for which the Company will receive additional consideration upon the performance of services. In the year ended August 31, 2019, Chase charged the purchaser $2,062 for manufacturing services, which the Company recognized as revenue within the Industrial Tapes segment, and $169 for selling and administrative services, which the Company recognized as an offset to selling, general and administrative expenses. In the year ended August 31, 2018, Chase charged the purchaser $2,186 for manufacturing services, and $275 for selling and administrative services. Further, the purchaser entered a multiyear lease for a portion of the manufacturing space at the Company's Granite Falls, NC facility. Chase received $130 in rental income during both the year ended August 31, 2019 and the year ended August 31, 2018 related to this lease, which the Company recognized within other income (expense) on the consolidated statements of operations

Note 19—Sale of Real Estate

Sale of Paterson, NJ Location

In November 2016 (the first quarter of fiscal 2017), the Company finalized the sale of its Paterson, NJ property for cash proceeds in the amount of $1,382. This transaction resulted in a gain of $792, which was recorded in the Company's consolidated statement of operations as a gain on sale of real estate during the fiscal quarter ended November 30, 2016.

Sale of Former Corporate Headquarters in Bridgewater, MA

In October 2016, Chase entered into an agreement to sell its former corporate headquarters and executive offices in Bridgewater, MA. In December 2016, during the second fiscal quarter of 2017, the sale was finalized for gross cash proceeds in the amount of $740, resulting in a gain on sale of $68. See Note 22 of the consolidated financial statements for additional information on the sale of the Bridgewater, MA location.

Note 20—Operations Optimization Costs

Relocation of Pulling and Detection Manufacturing to Hickory, NC

During the second half of fiscal 2019, Chase began moving the pulling and detection operations housed in its Granite Falls, NC location to its Hickory, NC facility. This is in line with the Company's ongoing initiative to consolidate its manufacturing plants and streamline its existing processes. As of August 31, 2019, the pulling and detection operations are the only Chase-owned production operations in Granite Falls, NC, with the remaining portions of the building being either utilized for research and development or leased to a third party. The process of moving has continued subsequent to the fourth quarter of fiscal 2019 and is anticipated to be completed during the first half of fiscal 2020. The Company recognized $526 in expense related to the move in fiscal 2019. Future costs related to this move are currently anticipated to be approximately $700, and the Company plans to disclose these amounts separately on the consolidated financial statements in future periods.

Engineering Studies Related to Facility Consolidation and Rationalization Initiative

During the fourth quarter of fiscal 2019, Chase commissioned engineering studies of certain legacy operations, machinery and locations in relation to the Company's facility rationalization and consolidation initiative. Chase is currently reviewing the data and recommendations provided by the study and may further utilize third party engineering, IT and other professional services firms in the future for similar work, as well as work around optimizing our computer systems. The Company recognized $200 in expense related to these services in fiscal 2019; but given the ongoing nature of the review, an estimate of future costs cannot currently be determined.

Closure of Pawtucket, RI Facility

On June 25, 2018, the Company announced to its employees the planned closing of its Pawtucket, RI manufacturing facility effective August 31, 2018. This is in line with the Company's ongoing efforts to consolidate its manufacturing plants and streamline its existing processes. The manufacturing of products previously produced in the Pawtucket, RI facility was moved to Company facilities in Oxford, MA and Lenoir, NC during a two-month transition period. The Company expensed $1,272 in the fourth quarter of fiscal 2018 related to the closure, including:
(a) cash-related employee-related, logistics and uncapitalized facilities improvement costs of $590; and
(b) non-cash-related accelerated depreciation expense of $682. The Company expensed $260 in the three-month period ended November 30, 2018 related to the move, with no additional expense recognized in fiscal 2019. Future costs related to this move are not anticipated to be significant to the consolidated financial statements.

Demolition of Idle Randolph, MA Facility

In fiscal 2017, the Company recognized $70 in expenses to raze its Randolph, MA facility, which had been idle regarding production for several years. The Company began marketing the site for sale during the second quarter of fiscal 2016. The Company substantially completed the demolition of the structure in the fourth fiscal quarter of 2016, and completed other environmental aspects of the project during fiscal 2017. The sale of the property is anticipated to follow in a subsequent period, and any future expenses related to the project are not anticipated to be material.

Note 21—Commitments and Contingencies

The Company is involved from time to time in litigation incidental to the conduct of its business. Although the Company does not expect that the outcome in any of these matters, individually or collectively, will have a material adverse effect on its financial condition, results of operations or cash flows, litigation is inherently unpredictable. Therefore, judgments could be rendered, or settlements agreed to that could adversely affect the Company's operating results or cash flows in a particular period. The Company routinely assesses all its litigation and threatened litigation as to the probability of ultimately incurring a liability and records its best estimate of the ultimate loss in situations where we assess the likelihood of loss as probable.

Note 22—Related Party Agreements

Reimbursements Related to Life Insurance Policies

The Edward L. Chase Trust (the "Trust"), owners of two insurance policies on the life of Claire E. Chase, reimbursed the Company for premiums paid on the policies in exchange for the Company's release of any claims on them. In August 2016 (fiscal 2016), the Company received $1,238 related to the John Hancock (formerly Manufacturers' Life Insurance Company) policy, the full value of premiums paid to date by the Company. In September 2016 (fiscal 2017), the Company received $1,504 related to the Metropolitan Life Insurance policy, its then cash surrender value, plus an additional prepaid related to the policy. Claire E. Chase is the spouse of a former executive of the Company, Edward L. Chase (deceased), and who in each case are the parents of Peter R. Chase (the Executive Chairman of the Company) and Mary Claire Chase (Director) and the grandparents of Adam P. Chase (the President and CEO of the Company). The Trust is the beneficial owner of more than 5% of the Company's common stock. Terms and conditions of these transactions were reviewed and approved by the independent members of the Company's Board of Directors in advance. See Note 5 of the consolidated financial statements for additional information on the cash surrender value of life insurance policies held by the Company at August 31, 2019 and 2018.

Sale of Former Corporate Headquarters in Bridgewater, MA

In October 2016 (fiscal 2017), Chase entered an agreement to sell its former corporate headquarters and executive offices in Bridgewater, MA. In December 2016, the sale was finalized for gross proceeds of $740, resulting in a gain on sale of $68, which was recognized in the second quarter of fiscal 2017. The buyer, Bridgewater State University Foundation, Inc., was deemed a related party because of previously existing professional connections between it and two members of the Company's Board of Directors, Peter R. Chase and Dana Mohler-Faria (Director). The terms and conditions of the proposed transaction were reviewed and approved by all members of the Company's Board of Directors who were not parties related to the potential buyer, prior to entering the October 2016 agreement. They concluded that the sale price was appropriate, after considering a recent market appraisal of the land and building performed by an independent third-party valuation firm.

In thousands, except share and per share amounts

Note 23—Selected Quarterly Financial Data (Unaudited)

The following table presents unaudited operating results for each of the Company's quarters in the years ended August 31, 2019 and 2018:

	Fiscal Year 2019 Quarters				
	First	Second	Third	Fourth	Year
Net Sales	$ 71,364	$ 65,442	$ 70,883	$ 69,150	$ 276,839
Gross Profit on Sales	24,789	22,229	24,477	25,181	96,676
Net income	$ 8,823	$ 5,273	$ 8,541	$ 10,074	$ 32,711
Net income available to common shareholders, per common and common equivalent share:					
Basic	$ 0.94	$ 0.56	$ 0.91	$ 1.07	$ 3.48
Diluted	$ 0.93	$ 0.56	$ 0.90	$ 1.07	$ 3.46

	Fiscal Year 2018 Quarters				
	First	Second	Third	Fourth	Year
Net Sales	$ 60,577	$ 64,735	$ 77,653	$ 75,997	$ 278,962
Gross Profit on Sales	23,682	22,744	29,401	27,999	103,826
Net income	$ 8,315	$ 10,122	$ 13,543	$ 11,163	$ 43,143
Net income available to common shareholders, per common and common equivalent share:					
Basic	$ 0.89	$ 1.08	$ 1.44	$ 1.19	$ 4.60
Diluted	$ 0.88	$ 1.07	$ 1.43	$ 1.18	$ 4.56

Note 24—Valuation and Qualifying Accounts

The following table sets forth activity in the Company's accounts receivable and sales return reserve:

Year ended	Balance at Beginning of Year	Charges to Operations	Deductions to Reserves	Balance at End of Year
August 31, 2019	$ 559	$ 1,775	$ (1,595)	$ 739
August 31, 2018	$ 456	$ 1,138	$ (1,035)	$ 559
August 31, 2017	$ 830	$ 197	$ (571)	$ 456

The following table sets forth activity in the Company's warranty reserve (the warranty reserve is included within accrued expenses on the consolidated balance sheet):

Year ended	Balance at Beginning of Year	Charges to Operations	Deductions to Reserves	Balance at End of Year
August 31, 2019	$ —	$ 37	$ —	$ 37
August 31, 2018	$ 220	$ —	$ (220)	$ —
August 31, 2017	$ —	$ 220	$ —	$ 220

In thousands, except share and per share amounts

Note 25—Accumulated Other Comprehensive Income

The changes in accumulated other comprehensive income (loss), net of tax, were as follows:

	Restricted Investments	Change in Funded Status of Pension Plans	Foreign Currency Translation Adjustment	Total
Balance at August 31, 2017	$ 121	$ (6,181)	$ (7,409)	$ (13,469)
Other comprehensive gains (losses) before reclassifications	77	(314)	743	506
Reclassifications to net income of previously deferred (gains) losses	(72)	699	—	627
Other comprehensive income (loss)	5	385	743	1,133
Balance at August 31, 2018	$ 126	$ (5,796)	$ (6,666)	$ (12,336)
Other comprehensive gains (losses) before reclassifications	36	(1,629)	(1,541)	(3,134)
Reclassifications to net income of previously deferred (gains) losses	(8)	1,154	—	1,146
Other comprehensive income (loss)	28	(475)	(1,541)	(1,988)
Balance at August 31, 2019	$ 154	$ (6,271)	$ (8,207)	$ (14,324)

The following table summarizes the reclassifications from accumulated other comprehensive income (loss) to the consolidated statements of income:

	Amount of Gain (Loss) Reclassified from Accumulated Other Comprehensive Income (Loss) into Income		
	Year Ended August 31, 2019	Year Ended August 31, 2018	Location of Gain (Loss) Reclassified from Accumulated Other Comprehensive Income (Loss) into Income
Gains on Restricted Investments:			
Realized loss (gain) on sale of restricted investments	$ (11)	$ (97)	Selling, general and administrative expenses
Tax expense (benefit)	3	25	
Gain net of tax	$ (8)	$ (72)	
Loss on Funded Pension Plan adjustments:			
Change in funded status of pension plans	$ 283	$ 117	Selling, general and administrative expenses
Change in funded status of pension plans	1,254	820	Other income (expense)
Tax expense (benefit)	(383)	(238)	
Loss net of tax	$ 1,154	$ 699	
Total net loss reclassified for the period	$ 1,146	$ 627	

Note 26—Revenue from Contracts with Customers

The Company accounts for revenue in accordance with ASC 606, "Revenue from Contracts with Customers." This revenue is generated from the manufacture of specialty chemical products including coatings, linings, adhesives, sealants, specialty tapes, polymers and laminates. Certain of these manufactured products can consist fully or partially of customer-owned materials. The Company also recognizes, to a lesser extent, revenue through royalties and commissions from licensed manufacturers and from providing custom manufacturing-related services. The Company's revenue recognition policies require the Company to make significant judgments and estimates. In applying the Company's revenue recognition policy, determinations must be made as to when control of products passes to the Company's customers, which can be either at a point in time or over time based on contractual terms with customers. As described in more detail below, revenue is generally recognized at a point in time when control passes, upon either shipment to or receipt by the customer of the Company's products, while revenue is generally recognized over time when control of the Company's products transfers to customers during the manufacturing process.

The Company accounts for revenue from contracts with customers when there is approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. Revenue is primarily derived from customer purchase orders, master sales agreements, and negotiated contracts, all of which represent contracts with customers.

The Company next identifies the performance obligations in the contract. A performance obligation is a promise to provide distinct goods or services. Performance obligations are the unit of account for purposes of applying the revenue standard and therefore determine when and how revenue is recognized. The Company determines the performance obligations at contract inception based on the goods or services that are promised in a contract with a customer. Typical performance obligations include our promise to manufacture and the fulfillment of orders of specialty chemical products including coatings, linings, adhesives, sealants, specialty tapes, polymers and laminates, as well as custom manufacturing-related services.

The transaction price in the contract is determined based on the consideration to which the Company will be entitled in exchange for transferring products and services to the customer, excluding amounts collected on behalf of third parties (for example, sales taxes). The transaction price is typically stated on the purchase order or in a negotiated agreement. Certain contracts may include variable consideration in the transaction price, such as rebates, pricing discounts, sales incentives, or other provisions that can decrease the transaction price. Estimates of variable consideration and determination of whether to include estimated amounts in the transaction price are based on reasonably available information (customer historical, current and forecasted data). In certain circumstances where a particular outcome is probable, the Company utilizes the most likely amount to which the Company expects to be entitled. The Company accounts for consideration payable to a customer as a reduction of the transaction price which reduces the amount of revenue recognized. Consideration payable to a customer includes cash amounts that the Company pays, or expects to pay, to a customer based on certain contract requirements.

Performance Obligation

The Company recognizes revenue as performance obligations are satisfied, which can be either over time or at a point in time, depending on when control of the Company's products transfers to its customers.

Manufactured goods and, to a lesser extent, right of use of our intellectual property and custom manufacturing-related services are our performance obligations. Revenue related to our performance obligations is predominantly recognized at a point in time consistent with our shipping terms (upon shipment to or receipt by our customer).

For certain products we manufacture, which consist partially or fully of customer-owned material and which meet the criteria of having no alternative use whereby the Company has the right to payment without regard to title, we recognize revenue over time. In these circumstances, the Company makes significant judgments which include, but are not limited to, estimated costs to completion and costs incurred to date, and assesses risks related to changes in estimates of revenue and costs. In doing so, management must make assumptions regarding the work required to fulfill the performance obligations.

The selection of a method to measure progress toward completion of a contract requires judgment and is based on the nature of the products or services to be provided. We use the cost-to-cost method to measure the progress of our contracts with no-alternative-use products (given they consist partially or fully of customer-owned material) whereby the Company has the right to payment as we believe it is the best depiction of the transfer of value to the customer. Under the cost-to-cost method, the extent of progress toward completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the contract. Contract costs include labor, materials and subcontractors costs, as well as an allocation of indirect costs. Revenue, including estimated fees or profits, is recorded as costs are incurred. Specialty manufacturing runs for customers of products which are composed partially or fully of customer-owned material predominantly occur over relatively short periods of time (less than one month) and consist of a one-step process (such as coating or laminating), promptly followed by shipment to the end customer. Ongoing custom manufacturing-related services performed for customers are recognized in the period the services are rendered, and as such do not carry over from period to period. Royalty revenue, derived from right of use of our intellectual property, is recognized when the subsequent sale of the licensed intellectual property occurs.

Because performance obligations are typically satisfied within one month of receipt of a customer order, a change in cost estimates will not have a material impact on the percentage of completion noted at the prior quarter end. Our typical payment terms with customers are net 30 days, with consideration given to geographic and industry norms.

Contract Balances

The Company's contract assets primarily relate to unbilled revenue for products currently in production at the Company's facilities and which consist partially or fully of customer-owned material. Revenue is recognized in advance of billing to the customer in these specific circumstances, whereas billing is typically performed at the time of shipment to or receipt by the customer.

In thousands, except share and per share amounts

Contract assets are included in prepaid expenses and other current assets on the Company's consolidated balance sheets. The following table presents contract assets by reportable operating segment as of August 31, 2019 and September 1, 2018 (date of adoption):

	August 31, 2019	September 1, 2018
Contract Assets		
Adhesives, Sealants and Additives	$ 42	$ 15
Industrial Tapes	26	1
Corrosion Protection and Waterproofing	79	64
Total	$ 147	$ 80

The Company did not have any contract liabilities as of September 1, 2018 and August 31, 2019.

Impacts on Financial Statements

The cumulative effect of the changes made to the Company's consolidated September 1, 2018 balance sheet for the adoption of ASC 606 was as follows:

	August 31, 2018	Adjustments for Adoption of ASC 606	September 1, 2018
Assets:			
Contract assets	$ —	$ 80	$ 80
Inventory	$ 39,699	$ (50)	$ 39,649
Prepaid income taxes	$ 4,100	$ (8)	$ 4,092
Stockholders' equity:			
Retained earnings	$ 245,049	$ 22	$ 245,071

The cumulative effect of the changes made to the Company's condensed consolidated August 31, 2019 balance sheet for the adoption of ASC 606 was as follows:

	August 31, 2019		
	Balances Without Adoption of ASC 606	ASC 606 Adjustments	As Reported
Assets:			
Contract assets	$ —	$ 147	$ 147
Inventory	$ 42,464	$ (110)	$ 42,354
Prepaid income taxes	$ 1,461	$ (10)	$ 1,451
Stockholders' equity:			
Retained earnings	$ 270,233	$ 27	$ 270,260

In thousands, except share and per share amounts

The cumulative effect of the changes made to the Company's condensed consolidated statement of operations for the adoption of ASC 606 for the year ended August 31, 2019 were as follows:

	Year Ended August 31, 2019		
	Results Without Adoption of ASC 606	**Effect of Change Higher (Lower)**	**As Reported**
Revenue			
Sales	$ 276,772	$ 67	$ 276,839
Royalties and commissions	4,512	—	4,512
	281,284	67	281,351
Costs and Expenses			
Cost of products and services sold	180,103	60	180,163
Selling, general and administrative expenses	52,728	—	52,728
Loss on impairment of goodwill	2,410	—	2,410
Operations optimization costs	986	—	986
Operating income	45,057	7	45,064
Interest expense	(519)	—	(519)
Other income (expense)	(992)	—	(992)
Income before income taxes	43,546	7	43,553
Income taxes	10,840	2	10,842
Net income	$ 32,706	$ 5	$ 32,711
Net income available to common shareholders, per common and common equivalent share			
Basic	$ 3.48	$ —	$ 3.48
Diluted	$ 3.46	$ —	$ 3.46
Weighted average shares outstanding			
Basic	9,334,232	—	9,334,232
Diluted	9,379,207	—	9,379,207

In thousands, except share and per share amounts

Disaggregated Revenue

The Company disaggregates revenue from customers by geographic region, as it believes this disclosure best depicts how the nature, amount, timing and uncertainty of the Company's revenue and cash flows are affected by economic factors. Disaggregated revenue by geographical region for the year ended August 31, 2019 was as follows:

	Year August 31, 2019			
	Adhesives, Sealants and Additives	**Industrial Tapes**	**Corrosion Protection and Waterproofing**	**Consolidated Revenue**
Revenue				
North America	$ 70,320	$ 117,955	$ 37,463	$ 225,738
Asia	19,430	7,126	6,524	33,080
Europe	14,773	2,637	2,455	19,865
All other foreign	273	2,127	268	2,668
Total Revenue	$ 104,796	$ 129,845	$ 46,710	$ 281,351

Practical Expedients and Policy Elections

Shipping and Handling Policy Election — the Company has made an accounting policy election to record shipping and handling activities occurring after control has passed to the customer to be treated as a fulfillment cost rather than as a distinct performance obligation. Shipping and handling expenses consist primarily of costs incurred to deliver products to customers and internal costs related to preparing products for shipment and are recorded within cost of products and services sold. Amounts billed to customers as shipping and handling are classified as revenue when services are performed.

Considering Existence of a Significant Financing Component — as a practical expedient, an entity need not adjust the promised amount of consideration for the effects of a significant financing component if the entity expects, at contract inception, that the period between when the entity transfers a promised good or service to the customer and when the customer pays for that good or service will be one year or less. Given the time between the Company transferring a promised good or service to the customer and the customer paying for that good or service is less than one year based on the terms of arrangements with customers, the Company does not adjust the promised amount of consideration for effects of a significant financing component.

In thousands, except share and per share amounts

Note 27—Assets Held for Sale

The Company periodically reviews long-lived assets against its plans to retain or ultimately dispose of these assets. If the Company decides to dispose of an asset and commits to a plan to actively market and sell the asset, it will be moved to assets held for sale. The Company analyzes market conditions each reporting period, and, if applicable, records additional impairments due to declines in market values of like assets. The fair value of the asset is determined by observable inputs such as appraisals and prices of comparable assets in active markets for assets like the Company's. Gains are not recognized until the assets are sold.

Assets held for sale as of August 31, 2019 and 2018 were:

	August 31, 2019	August 31, 2018
Pawtucket, RI - Property, plant and equipment	$ 1,050	$ —
Randolph, MA - Property	14	14
Total	$ 1,064	$ 14

See Note 20 to the consolidated financial statements for additional information on the Pawtucket, RI and Randolph, MA locations assets held for sale as of August 31, 2019.

ITEM 9 - CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A – CONTROLS AND PROCEDURES

DISCLOSURE CONTROLS AND PROCEDURES

The Company maintains disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in the Company's reports under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms and that such information is accumulated and communicated to the Company's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

The Company carries out a variety of ongoing procedures, under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, to evaluate the effectiveness of the design and operation of the Company's disclosure controls and procedures. Based on the foregoing, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective at a reasonable assurance level as of the end of the period covered by this report.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, our principal executive and principal financial officers, or persons performing similar functions, and effected by our Board of Directors, management and other personnel, 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.

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.

Under the supervision and with the participation of management, including the Chief Executive Officer and Chief Financial Officer, the Company conducted an evaluation of the effectiveness of the Company's internal control over financial reporting based on the framework in "Internal Control — Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, our management concluded that our internal control over financial reporting was effective as of August 31, 2019. Grant Thornton LLP, an independent registered public accounting firm, audited the effectiveness of our internal control over financial reporting as of August 31, 2019.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

As previously disclosed in our Annual Report on Form 10-K for the year ended August 31, 2018, we determined that we did not maintain adequate and effective internal control over the review of the cash flow forecasts used in the valuation of customer relationship intangible assets acquired in a business combination. Specifically, the review of certain assumptions, including those related to revenue and gross margin, related to the development of the cash flow forecasts used in valuing the customer relationship intangible assets was not designed to operate at an appropriate level of precision. The Company took actions in 2019 to remediate the material weakness related to our internal control over financial reporting. We developed and implemented a process to appropriately identify key assumptions, including those related to revenue and gross margin, related to the development of the cash flow forecasts used in valuing the customer relationship intangible assets. Testing of these remedial actions was completed as of the end of the period covered by this report and management has concluded that this material weakness has been remediated.

Except as noted in the preceding paragraphs, there were no changes in the Company's internal control over financial reporting (as defined in Exchange Act Rule 13a-15(f)) during the quarter ended August 31, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Shareholders
Chase Corporation

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of Chase Corporation (a Massachusetts corporation) and subsidiaries (the "Company") as of August 31, 2019, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of August 31, 2019, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated financial statements of the Company as of and for the year ended August 31, 2019, and our report dated November 13, 2019 expressed an unqualified opinion on those financial statements.

Basis for opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

/s/ GRANT THORNTON LLP

Boston, Massachusetts
November 13, 2019

ITEM 9B – OTHER INFORMATION

Not applicable.

PART III

ITEM 10 – DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by Item 10 of Form 10-K, relating to Directors of the Company, compliance with the reporting obligations under Section 16(a) of the Exchange Act, the Company's code of ethics applicable to senior management, procedures for shareholder nominations to the Company's Board of Directors, and the Company's Audit Committee is incorporated by reference from the information contained in the Definitive Proxy Statement for the Annual Meeting of Stockholders, which is expected to be filed within 120 days after the Company's fiscal year ended August 31, 2019. Information regarding the Company's executive officers found in the section captioned "Information About Out Executive Officers" in Item 4A of Part I hereof is also incorporated by reference into this Item 10.

ITEM 11 – EXECUTIVE COMPENSATION

The information required by Item 11 of Form 10-K, relating to executive and director compensation and certain matters relating to the Company's Compensation and Management Development Committee, is incorporated by reference from the information contained in the Definitive Proxy Statement for the Annual Meeting of Stockholders, which is expected to be filed within 120 days after the Company's fiscal year ended August 31, 2019.

ITEM 12 – SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by Item 12 of Form 10-K, relating to the stock ownership of certain beneficial owners and management, is incorporated by reference from the information contained in the Definitive Proxy Statement for the Annual Meeting of Stockholders, which is expected to be filed within 120 days after the Company's fiscal year ended August 31, 2019.

The following table summarizes the Company's equity compensation plans as of August 31, 2019. Further details on the Company's equity compensation plans are discussed in the notes to the Consolidated Financial Statements. The adoption of each of the Company's equity compensation plans was approved by its shareholders.

	Number of shares of Chase common stock to be issued upon the exercise of outstanding options	Weighted average exercise price of outstanding options	Number of shares of Chase common stock remaining available for future issuance
2005 Incentive Plan	42,005	$ 30.77	—
2013 Equity Incentive Plan	59,249	75.91	1,057,892
Total	101,254	$ 57.18	1,057,892

ITEM 13 – CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by Item 13 of Form 10-K, relating to transactions with related persons and the independence of members of the Company's Board of Directors, is incorporated by reference from the information contained in the Definitive Proxy Statement for the Annual Meeting of Stockholders, which is expected to be filed within 120 days after the Company's fiscal year ended August 31, 2019.

ITEM 14 – PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by Item 14 of Form 10-K, relating to fees paid to the Company's independent registered public accounting firm and pre-approval policies of the Company's Audit Committee, is incorporated by reference from the information contained in the Definitive Proxy Statement for the Annual Meeting of Stockholders, which is expected to be filed within 120 days after the Company's fiscal year ended August 31, 2019.

PART IV

ITEM 15 – EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a)(1) and (2) Financial Statements and Schedules:

The financial statements are set forth under Item 8 of this Annual Report on Form 10-K. Financial statement schedules have been omitted since they are either not required, not applicable, or the information is otherwise included.

(a)(3) Exhibit Index:

Exhibit Number	Description
3.1.1	Articles of Organization of Chase Corporation (incorporated by reference from Exhibit 3.1 to the Company's Annual Report on Form 10-K for the fiscal year ended August 31, 2004, filed on November 24, 2004 (the "2004 Form 10-K")).
3.1.2	Articles of Amendment to Articles of Organization of Chase Corporation (incorporated by reference from Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended February 29, 2008, filed on April 9, 2008).
3.2	Amended and Restated By-Laws (incorporated by reference from Exhibit 3.1 to the Company's current report on Form 8-K filed on April 12, 2016).
4.1	Description of the Company's Capital Stock.
10.1	Amended and Restated Stock Agreement dated as of August 31, 2004, between the Company and Peter R. Chase (incorporated by reference to Exhibit 10 to the Company's current report on Form 8-K filed on September 2, 2004).*
10.2	Chase Corporation Employee's Supplemental Pension Plan effective January 1, 2008 (incorporated by reference from Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended May 31, 2008, filed on July 10, 2008). *
10.3	Chase Corporation Employee's Supplemental Savings Plan effective January 1, 2008 (incorporated by reference from Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended May 31, 2008, filed on July 10, 2008). *
10.4	Chase Corporation Non-Qualified Retirement Savings Plan for the Board of Directors, amended and restated effective January 1, 2009 (incorporated by reference from Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended February 28, 2009, filed on April 9, 2009). *
10.5	Severance Agreement between the Company and Peter R. Chase dated July 10, 2006 (incorporated by reference from Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended May 31, 2006, filed on July 17, 2006).*
10.6	Amended and Restated Severance Agreement between the Company and Adam P. Chase dated January 2, 2018 (incorporated by reference from Exhibit 10.1 to the Company's current report on Form 8-K on January 8, 2018). *
10.7.1	Offer letter dated August 19, 2014 by and between Chase Corporation and Kenneth J. Feroldi (incorporated by reference from Exhibit 10.5.4 to the Company's Annual Report on Form 10-K for the fiscal year ended August 31, 2014, filed on November 14, 2014 (the "2014 Form 10-K"). *

10.7.2	Severance Agreement between the Company and Kenneth J. Feroldi dated February 15, 2018 (incorporated by reference from Exhibit 10.1 to the Company’s current report on Form 8-K on February 16, 2018). *
10.8.1	Offer letter dated August 1, 2018 by and between Chase Corporation and Christian J. Talma (incorporated by reference from Exhibit 10.1 to the Company’s current report on Form 8-K on August 24, 2018).*
10.8.2	Severance Agreement between the Company and Christian J. Talma dated August 17, 2018 (incorporated by reference from Exhibit 10.2 to the Company’s current report on Form 8-K on August 24, 2018).*
10.9.1	2005 Equity Incentive Plan of Chase Corporation (incorporated by reference from Exhibit 10.1 to the Company's current report on Form 8-K filed on February 9, 2006).*
10.9.2	2013 Equity Incentive Plan of Chase Corporation (incorporated by reference from Exhibit A to the Company’s 2012 Proxy Statement filed on December 21, 2012).*
10.9.3	Form of restricted stock unit award issued for non-executive members of the Board of Directors (incorporated by reference from Exhibit 10.4 to the Company’s Quarterly Report on Form 10-Q for the period ended February 28, 2007, filed on April 16, 2007).*
10.9.4	Form of restricted stock unit award issued for members of Executive Management (incorporated by reference from Exhibit 10.5 to the Company’s Quarterly Report on Form 10-Q for the period ended February 28, 2007, filed on April 16, 2007).*
10.9.5	Form of restricted stock agreement issued for 2013 Equity Incentive Plan.*
10.9.6	Form of stock option award issued (incorporated by reference from Exhibit 10.11.6 to the Company’s Annual Report on Form 10-K for the fiscal year ended August 31, 2009, filed on November 16, 2009). *
10.10.1	Split Dollar Agreement between Chase Corporation and Peter R. Chase dated January 10, 2005 (incorporated by reference from Exhibit 10.2 to the Company’s current report on Form 8-K filed on January 14, 2005).*
10.10.2	Split Dollar Endorsement dated January 10, 2005 (incorporated by reference from Exhibit 10.3 to the Company’s current report on Form 8-K filed on January 14, 2005).*
10.11.1	FY 2019 Chase Corporation Annual Incentive Plan (incorporated by reference from Exhibit 99.1 to the Company's current report on Form 8-K filed on September 5, 2018).*
10.11.2	FY 2019 Chase Corporation Long Term Incentive Plan (incorporated by reference from Exhibit 99.2 to the Company's current report on Form 8-K filed on September 5, 2018).*
10.11.3	Amendment of Chase Corporation Annual Incentive Plan for Fiscal Year 2019 and Chase Corporation Long Term Incentive Plan for Fiscal Year 2019 for Christian J. Talma (incorporated by reference from Exhibit 99.3 to the Company's current report on Form 8-K/A filed on September 4, 2019).*
10.11.4	FY 2020 Chase Corporation Annual Incentive Plan (incorporated by reference from Exhibit 99.1 to the Company's current report on Form 8-K filed on August 23, 2019).*
10.11.5	FY 2020 Chase Corporation Long Term Incentive Plan (incorporated by reference from Exhibit 99.2 to the Company's current report on Form 8-K filed on August 23, 2019).*

10.11.6	Modification of Restricted Stock Agreement (equity retention agreement) between Chase Corporation and Kenneth J. Feroldi dated August 23, 2017 (incorporated by reference from Exhibit 10.10.8 to the Company's Annual Report on Form 10-K for the fiscal year ended August 31, 2017, filed on November 9, 2017). *
10.12.1	Endorsement Split-Dollar Agreement among the Company, Edward L. Chase, and Sarah Chase as trustee of the ELC Irrevocable Life Insurance Trust (incorporated by reference from Exhibit 10.25 to the Company's Annual Report on Form 10-K for the fiscal year ended August 31, 1998, filed on November 27, 1998).
10.12.2	Amendment to Endorsement Split-Dollar Agreement between the Company and Sarah Chase as trustee of the ELC Irrevocable Life Insurance Trust (incorporated by reference from Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the period ended February 28, 2009, filed on April 9, 2009).
10.13.1	Amended and Restated Credit Agreement dated as of December 15, 2016 by and among Chase Corporation, NEPTCO Incorporated, the Guarantors named therein, Bank of America, N.A., as administrative agent, and the Lenders party thereto (incorporated by reference from Exhibit 10.1 to the Company's current report on Form 8-K filed December 20, 2016)
10.13.2	First Amendment to Amended and Restated Credit Agreement, dated as of February 6, 2017 by and among Chase Corporation, NEPTCO Incorporated, the Guarantors, the Lenders party thereto and Bank of America, N.A., as administrative agent (incorporated by reference from Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended February 28, 2017, filed on April 7, 2017).
10.14	Asset Purchase Agreement, dated September 30, 2016, between Chase Corporation and Resin Designs, LLC (incorporated by reference from Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended November 30, 2016, filed on January 6, 2017).
10.15	Membership Interest and Stock Purchase Agreement by and among Chase Corporation, The Stewart Group Limited, Explortec, Inc., Zappa-Tec, LLC, Stewart Superabsorbents, LLC, Stewart SA, Inc. and William Morris. (incorporated by reference from Exhibit 10.2 to the Company's current report on Form 8-K/A filed on March 9, 2018).
21	Subsidiaries of the Registrant
23.1	Consent of Independent Registered Public Accounting Firm – Grant Thornton LLP
23.2	Consent of Independent Registered Public Accounting Firm – PricewaterhouseCoopers LLP
31.1	Certification of principal executive officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of principal financial officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of principal executive officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of principal financial officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

* Identifies management plan or compensatory plan or arrangement.

(b) See (a)(3) above.

(c) None.

ITEM 16 – FORM 10-K SUMMARY

None.

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.

Chase Corporation

By: /s/ Adam P. Chase
Adam P. Chase
President and Chief Executive Officer
November 13, 2019

By: /s/ Christian J. Talma
Christian J. Talma
Chief Financial Officer
November 13, 2019

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/ Peter R. Chase Peter R. Chase	Executive Chairman	November 13, 2019
/s/ Adam P. Chase Adam P. Chase	Director, President and Chief Executive Officer (Principal Executive Officer)	November 13, 2019
/s/ Christian J. Talma Christian J. Talma	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	November 13, 2019
/s/ Mary Claire Chase Mary Claire Chase	Director	November 13, 2019
/s/ Thomas DeByle Thomas DeByle	Director	November 13, 2019
/s/ John H. Derby III John H. Derby III	Director	November 13, 2019
/s/ Lewis P. Gack Lewis P. Gack	Director	November 13, 2019
/s/ Chad A. McDaniel Chad A. McDaniel	Director	November 13, 2019
/s/Dana Mohler-Faria Dana Mohler-Faria	Director	November 13, 2019
/s/ Thomas Wroe, Jr Thomas Wroe, Jr.	Director	November 13, 2019

CHASE Corporation Officers

Peter R. Chase
Executive Chairman

Adam P. Chase
President & Chief Executive Officer

Christian J. Talma
Chief Financial Officer

George M. Hughes
Corporate Secretary

Independent Registered Public Accounting Firm

Grant Thornton LLP
75 State Street, 13th floor
Boston, MA 02109

Registrar & Transfer Agent

American Stock Transfer &
Trust Company
Operations Center
6201 15th Avenue
Brooklyn, NY 11219

Corporate Headquarters

295 University Avenue
Westwood, MA 02090
Phone (781) 332-0700
Fax (781) 332-0701
Toll Free (800) 323-4182

Operating Facilities

OXFORD, MA
24 Dana Road
Oxford, MA 01540
Phone (508) 731-2710
Fax (508) 987-1092

PRODUCTS/SERVICES: Shielding & binding tapes for electronic & telecommunication cable. Laminated papers used for a variety of durable paper applications and RFID protection. Specialty laminates for automotive, packaging and medical products. Converting services include specialized laminating, slitting and traverse winding. Insulating, flame barrier, binder and semi-conducting tapes for power and telecommunications.

PITTSBURGH, PA
201 Zeta Drive and 128 First Street
Pittsburgh, PA 15238
Phone (412) 828-1500
Fax (412) 828-3487

PRODUCTS/SERVICES: HumiSeal® conformal coatings, protective coatings for underground gas, oil and water pipelines, waterproofing membranes, high-performance polymer additives for asphalt, expansion joints and accessories, and water blocking compounds for power and telecommunications.

EVANSTON, IL
1527 Lyons Street
Evanston, IL 60201
Phone (847) 866-8500
Fax (847) 866-8596

PRODUCTS/SERVICES: Innovative products for the protection against corrosion for underground gas, oil and water pipelines and marine industries, waterproofing tapes, as well as private label manufacturing.

HOUSTON, TX
C.I.M. Industries, Inc.
6900 Nelms Street
Houston, TX 77061
Phone (713) 242-9015

PRODUCTS/SERVICES: High performance industrial coatings and linings providing a seamless, impermeable, abrasion-resistant barrier against water and chemicals.

WOBURN, MA
Resin Designs
11 State Street
Woburn, MA 01801
Phone (781) 935-3133
Fax (781) 935-3144

PRODUCTS/SERVICES: Customized advanced adhesives and coatings for automotive and industrial applications that require specialized bonding, encapsulating, environmental protection, or thermal management functionality.

NEWARK, CA
Resin Designs
39714 Eureka Drive
Newark, CA 94560
Phone (510) 413-0115

PRODUCTS/SERVICES: Customized advanced sealants and coatings for automotive and industrial applications that require specialized bonding, encapsulating, environmental protection, or thermal management functionality.

GREENVILLE, SC
9 Furman Hall Ct.
Greenville, SC 29609
Phone (846) 232-3893

PRODUCTS/SERVICES: Polymeric microspheres, sold under the Dualite® brand, which are utilized for weight and density reduction and sound dampening across varied industries.

LENOIR, NC
NEPTCO, INC.
2012 Hickory Boulevard
Lenoir, NC 28645
Phone (828) 728-5951
Fax (828) 728-5115

PRODUCTS/SERVICES: Laminated film foils for the electronics and cable industries and cover tapes essential to delivering semiconductor components via tape-and- reel packaging. Provider of coating, laminating and converting services for original equipment manufacturers.

GRANITE FALLS, NC
NEPTCO, INC.
3908 Hickory Boulevard
Granite Falls, NC 28630
Phone (828) 396-2121
Fax (828) 396-6978

PRODUCTS/SERVICES: Pulling and detection tapes used in the installation, measurement and location of fiber optic cables, water and natural gas lines. Custom manufacturing services.

HICKORY, NC
Stewart Superabsorbents
1954 Main Avenue SE
Hickory, NC 28602
Phone (828) 855-9316
Fax (828) 855-9319

PRODUCTS/SERVICES: Superabsorbent polymers, which are utilized for water and liquid management, remediation and protection in diverse markets including wire and cable, medical, environmental, infrastructure, energy and consumer products. Pulling and detection tapes used in the installation, measurement and location of fiber optic cables, water and natural gas lines.

MCLEANSVILLE, NC
Zappa-Tec
828 Knox Road
McLeansville, NC 27301
Phone (336) 378-6004

PRODUCTS/SERVICES: Superabsorbent polymers, which are utilized for water and liquid management, remediation and protection in diverse markets including wire and cable, medical, environmental, infrastructure, energy and consumer products.

SUZHOU, JIANGSU, CHINA
NEPTCO, INC.
D-10 #19 Datong Road
Suzhou New District Processing Zone
Suzhou, Jiangsu, China 215151
Phone 86-512-6269-6298
SKYPE 828-398-0641

PRODUCTS/SERVICES: Cover tapes essential to delivering semiconductor components via tape-and-reel packaging.

WINNERSH, WOKINGHAM, ENGLAND
505 Eskdale Road
Winnersh, Wokingham, Berkshire
RG41 5TU UK
Phone +44 (0) 1189 442 333
Fax +44 (0) 1189 335 799

PRODUCTS/SERVICES: HumiSeal insulating conformal coatings, potting compounds and specialty accessory products for the protection of printed circuit assembly and electronic components.

PARIS, FRANCE
4/6 Avenue Eiffel
78420 Carrieres-Sur-Seine France
Phone +33 (0) 1 30 09 86 86
Fax +33 (0) 1 09 86 87

PRODUCTS/SERVICES: HumiSeal insulating conformal coatings, potting compounds and specialty accessory products for the protection of printed circuit assembly and electronic components.

PUNE, INDIA
HumiSeal India Private Limited
J-154, M.I.D.C.
Bhosari, Pune-411 026
Maharashtra, India
Phone +91 20 66308098

PRODUCTS/SERVICES: HumiSeal insulating conformal coatings, potting compounds and specialty accessory products for the protection of printed circuit assembly and electronic components.

RYE, EAST SUSSEX, ENGLAND
Harbour Road
Rye, East Sussex
TN31 7TE UK
Phone +44 (0) 1797 223561
Fax +44 (0) 1797 224530

PRODUCTS/SERVICES: Waterproofing and corrosion protection systems for oil, gas and water pipelines as well as high-performance tapes, epoxies and cathodic protection accessory products.

SHAREHOLDER INFORMATION

Common Stock

Common Stock of Chase Corporation is traded on the NYSE American under the symbol "CCF".

Annual Meeting of Shareholders

The Annual Meeting of Shareholders will be held at 9:30 a.m. on Tuesday, February 4, 2020 at the Courtyard Boston Dedham/Westwood, 64 University Avenue, Westwood, MA 02090

When shares owned by one shareholder are held in different forms of the same name (e.g., John Doe, J. Doe) or when new accounts are established for shares purchased at different times, duplicate mailings of shareholder information may result. The Company, by law, is required to mail to each name on the shareholder list unless the shareholder requests that duplicate mailings be eliminated or consolidates all accounts into one. Such requests should be directed, in writing, to the Shareholder Services Department, American Stock Transfer & Trust Company, Operations Center, 6201 15th Avenue, Brooklyn, NY 11219.

Contact: investorrelations@chasecorp.com

CHASE CORPORATION BOARD OF DIRECTORS

From left to right:

Thomas Wroe, Jr.
Chairman of Apex Tool Group, LLC,
Chairman of the Compensation & Management Development Committee of CHASE Corporation

Chad A. McDaniel
Executive Vice President, General Counsel and Chief Administrative Officer Lydall Inc.

Adam P. Chase
President and Chief Executive Officer
CHASE Corporation

Peter R. Chase
Executive Chairman CHASE Corporation

Mary Claire Chase
President, Founder of Chase Partners

Dana Mohler-Faria
President Emeritus,
Bridgewater State University,
Chairman of the Nominating & Governance Committee of CHASE Corporation

Thomas D. DeBlye
Senior Vice President and
Chief Financial Officer at NN, Inc.

John H. Derby III
President of Derby Management

Lewis P. Gack
Managing Partner of LPG Consulting,
Chairman of the Audit Committee of CHASE Corporation

Printed on recycled paper

At Chase Corporation we make a material difference by manufacturing protective materials that are used in a wide variety of applications where long lasting protection is critical to a product's success and is a material part of enhancing a product's value to its user.

CHASE CORPORATE HEADQUARTERS AND GLOBAL OPERATIONS CENTER
295 University Ave., Westwood, MA 02090
Tel: 781-332-0700 • Fax: 781-332-0701
www.chasecorp.com • NYSE American: CCF