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

FORM 10-K

(Mark One)

- ANNUAL REPORT PURSUANT TO SECTION 13 OR SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018
OR
 TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____

Commission file number: 1-13648

Balchem Corporation

(Exact name of Registrant as specified in its charter)

Maryland
(State or other jurisdiction of incorporation or organization)

13-2578432
(I.R.S. Employer Identification Number)

52 Sunrise Park Road, New Hampton, NY 10958
(Address of principal executive offices) (Zip Code)
Registrant's telephone number, including area code: (845) 326-5600

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

Title of each class	Name of each exchange on which registered
Common Stock, par value \$.06-2/3 per share	Nasdaq Global Market

Securities registered pursuant to Section 12(g) of the Act: None

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

Indicate by check mark whether the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the 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 such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark 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.

(Check one): Large accelerated filer Accelerated filer
Non-accelerated filer Smaller reporting company Emerging growth company

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

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

The aggregate market value of the common stock, par value \$.06-2/3 per share (the “Common Stock”), issued and outstanding and held by non-affiliates of the Registrant, based upon the closing price for the Common Stock on the NASDAQ Global Market on June 30, 2018 was approximately \$3,143,000,000. For purposes of this calculation, shares of the Registrant held by directors and officers of the Registrant and under the Registrant’s 401(k)/profit sharing plan have been excluded.

The number of shares outstanding of the Registrant’s Common Stock was 32,273,661 as of February 21, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

Selected portions of the Registrant’s proxy statement for its 2019 Annual Meeting of Stockholders (the “2019 Proxy Statement”) to be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after Registrant’s fiscal year-end of December 31, 2018 are incorporated by reference in Part III of this Annual Report on Form 10-K to the extent stated therein.

Cautionary Statement Regarding 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. Forward-looking statements are not statements of historical facts, but rather reflect our current expectations or beliefs concerning future events and results. We generally use the words “believes,” “expects,” “intends,” “plans,” “anticipates,” “likely,” “will,” “estimates,” “project” and similar expressions to identify forward-looking statements. Such forward-looking statements, including those concerning our expectations, involve risks, uncertainties and other factors, some of which are beyond our control, which may cause our actual results, performance or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. The risks, uncertainties and factors that could cause our results to differ materially from our expectations and beliefs include, but are not limited to, those factors set forth in this Annual Report on Form 10-K under “Item 1A. - Risk Factors” below.

We cannot assure you that the expectations or beliefs reflected in these forward-looking statements will prove correct. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. You are cautioned not to unduly rely on such forward-looking statements when evaluating the information presented in this Annual Report on Form 10-K and all subsequent written and oral forward-looking statements made by us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained herein.

BALCHEM CORPORATION
ANNUAL REPORT ON FORM 10-K
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PART I

Item 1. Business (All amounts in thousands, except share and per share data)

General:

Balchem Corporation (“Balchem,” the “Company,” “we” or “us”), incorporated in the State of Maryland in 1967, is engaged in the development, manufacture and marketing of specialty performance ingredients and products for the food, nutritional, feed, pharmaceutical, medical sterilization and industrial markets. Our reportable segments are strategic businesses that offer products and services to different markets. We presently have four reportable segments: Human Nutrition & Health; Animal Nutrition & Health; Specialty Products; and Industrial Products.

We sell our products through our own sales force, independent distributors and sales agents. Financial information concerning our business, business segments and geographic information appears in Management’s Discussion and Analysis of Financial Condition and Results of Operations under Item 7 below and in the Notes to our Consolidated Financial Statements included under Item 8 below, which information is incorporated herein by reference.

We operate six wholly-owned domestic subsidiaries: SensoryEffects, Inc. (“SE”), a Delaware corporation, SensoryEffects Cereal Systems, Inc. (“SECS”), a Delaware corporation, Albion Laboratories, Inc. (formerly known as Albion International, Inc.) (“Albion”), a Nevada corporation, BCP Ingredients, Inc. (“BCP”), a Delaware corporation, Aberco, Inc. (“Aberco”), a Maryland corporation, and Innovative Food Processors, Inc. (“IFP”), a Delaware corporation. We operate three wholly-owned subsidiaries in Europe: Balchem BV, a Dutch limited liability company, Balchem Italia Srl and Bioscreen Technologies Srl, two Italian limited liability companies. We also operate one wholly-owned subsidiary in Canada: Balchem LTD, a Canadian corporation. Unless otherwise stated to the contrary, or unless the context otherwise requires, references to us in this report includes Balchem Corporation and its subsidiaries.

Human Nutrition & Health

Our Human Nutrition & Health (“HNH”) segment provides human grade choline nutrients and mineral amino acid chelated products through this segment for wellness applications. Choline is recognized to play a key role in the development and structural integrity of brain cell membranes in infants, processing dietary fat, reproductive development and neural functions, such as memory and muscle function. Our mineral amino acid chelates, specialized mineral salts, and mineral complexes are used as raw materials for inclusion in premier human nutrition products. Proprietary technology has been combined to create an organic molecule in a form the body can readily assimilate. Sales growth for human nutrition applications is reliant on differentiation from lower-cost competitive products through scientific data, intellectual property and customer perceptions of brand value. Consequently, we make investments in such activities for long-term value differentiation. We also serve the food and beverage industry for beverage, bakery, dairy, confectionary, and savory manufacturers. We partner with our customers from ideation through commercialization to bring on-trend beverages, baked goods, confections, dairy and meat products to market. Our expertise in trends analysis and product development, combined with our manufacturing capabilities in customized spray dried and emulsified powders, blended lipid systems, liquid flavor delivery systems, juice and dairy bases, chocolate systems, as well as ice cream bases and variegates makes us a one-stop solutions provider for beverage and dairy product development needs. Additionally, we provide microencapsulation solutions to a variety of applications in food, pharmaceutical and nutritional ingredients to enhance performance of nutritional fortification, processing, mixing, and packaging applications and shelf-life. Major product applications are baked goods, refrigerated and frozen dough systems, processed meats, seasoning blends, confections, and nutritional supplements. We also create cereal systems for ready-to-eat cereals, grain-based snacks, and cereal based ingredients.

Animal Nutrition & Health

Our Animal Nutrition & Health (“ANH”) segment provides nutritional products derived from our microencapsulation and chelation technologies in addition to basic choline chloride. For ruminant animals, our microencapsulated products boost health and milk production, delivering nutrient supplements that are biologically available, providing required nutritional levels. Our proprietary chelation technology provides enhanced nutrient absorption for various species of production and companion animals and is marketed for use in animal feed throughout the world. ANH also manufactures and supplies choline chloride, an essential nutrient for monogastric animal health, predominantly to the poultry, pet and swine industries. Choline, which is manufactured and sold in both dry and aqueous forms, plays a vital role in the metabolism of fat. In poultry, choline deficiency can result in reduced growth rates and perosis in young birds, while in swine production choline is a necessary and required component of gestating and lactating sow diets for both liver health and prevention of leg deformity.

Sales of value-added encapsulated products are highly dependent on overall industry economics as well our ability to leverage the results of university and field research on the animal health benefits of our products. Management believes that success in the

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commodity-oriented basic choline chloride marketplace is highly dependent on our ability to maintain our strong reputation for excellent product quality and customer service. We continue to drive production efficiencies in order to maintain our competitive-cost position to effectively compete in a global marketplace.

Specialty Products

Ethylene oxide, at the 100% level, is sold as a sterilant gas, primarily for use in the health care industry. It is used to sterilize a wide range of medical devices because of its versatility and effectiveness in treating hard or soft surfaces, composites, metals, tubing and different types of plastics without negatively impacting the performance of the device being sterilized. Our 100% ethylene oxide product is distributed in uniquely designed, recyclable, double-walled, stainless steel drums to assure compliance with safety, quality and environmental standards as outlined by the United States Environmental Protection Agency (“EPA”) and the United States Department of Transportation (“DOT”). Our inventory of these specially built drums, along with our two filling facilities, represents a significant capital investment. Contract sterilizers and medical device manufacturers are principal customers for this product. We also sell single use canisters with 100% ethylene oxide for use in sterilizing re-usable devices typically processed in autoclave units in hospitals. As a fumigant, ethylene oxide blends are highly effective in killing bacteria, fungi, and insects in spices and other seasoning materials.

Propylene oxide is marketed and sold as a fumigant to aid in the control of insects and microbiological spoilage; and to reduce bacterial and mold contamination in certain shell and processed nut meats, processed spices, cacao beans, cocoa powder, raisins, figs and prunes. We distribute our propylene oxide product primarily in recyclable, single-walled, carbon steel cylinders according to standards outlined by the EPA and the DOT. Our inventory of these cylinders also represents a significant capital investment. Propylene oxide is also sold to customers seeking smaller (as opposed to bulk) quantities and whose requirements include utilization in various chemical synthesis applications, such as increasing paint durability and manufacturing specialty starches and textile coatings.

Our micronutrient agricultural nutrition business sells chelated minerals primarily into high value crops. We have a unique and patented two-step approach to solving mineral deficiency in plants to optimize health, yield and shelf-life. First, we determine optimal mineral balance for plant health. We then have a foliar applied Metalosate® product range, utilizing patented amino acid chelate technology. Our products quickly and efficiently deliver mineral nutrients. As a result, the farmer/grower gets healthier crops that are more resistant to disease and pests, larger yields and healthier food for the consumer with extended shelf life for produce being shipped long distances.

Industrial Products

Certain derivatives of choline chloride are manufactured and sold into industrial applications predominately as a component for hydraulic fracturing of shale natural gas wells. Our products offer an attractive, effective and more environmentally responsible alternative than other clay stabilizers. Industrial grade choline bicarbonate is completely chloride free and our choline chloride reduces the amount of chlorides released into the environment up to 75% when compared to potassium chloride. The Industrial Products segment also includes the manufacture and sale of methylamines. Methylamines are a primary building block for the manufacture of choline products and are produced at our Italian operation and sold for a wide range of industrial applications in Europe.

Acquisitions

On June 1, 2017, we acquired 100 percent of the outstanding common shares of Innovative Food Processors, Inc. (“IFP”), a privately held manufacturer of agglomerated and microencapsulated food and nutrition ingredients, headquartered in Faribault, Minnesota. We made payments of approximately \$22,975 on the acquisition date and \$635 in September to true-up working capital, amounting to approximately \$16,161 to the former shareholders, adjustments for working capital acquired of \$5,065, and \$2,384 to IFP’s lenders to pay off all IFP bank debt. The acquisition of IFP expanded our Human Nutrition & Health segment’s processing technology and market reach, and brought innovative and value-added systems to food, beverage, and nutrition customers.

We also completed one immaterial acquisition in 2017, Chol-Mix Kft, and another immaterial acquisition in 2018, Bioscreen Technologies Srl.

Raw Materials

The raw materials utilized by us in the manufacture of our products are sourced from suppliers both domestically and internationally. Such raw materials include materials derived from petrochemicals, minerals, metals, agricultural commodities and other readily available commodities and are subject to price fluctuations due to market conditions. We are not experiencing any current difficulties in procuring such materials and do not anticipate any such problems; however, we cannot assure that will always be the case.

Intellectual Property

We currently hold 110 patents in the United States and overseas and use certain trade-names and trademarks. We also use know-how, trade secrets, formulae, and manufacturing techniques that assist in maintaining competitive positions of certain of our products. Formulae and know-how are of particular importance in the manufacture of a number of our proprietary products. We believe that certain of our patents, in the aggregate, are advantageous to our business. However, it is believed that no single patent or related group of patents is currently so material to us that the expiration or termination of any single patent or group of patents would materially affect our business. Our U.S. patents expire between 2019 and 2034. We believe that our sales and competitive position are dependent primarily upon the quality of our products, technical sales efforts and market conditions, rather than on patent protection.

Seasonality

In general, the businesses of our segments are not seasonal to any material extent.

Backlog

At December 31, 2018, we had a total backlog of \$37,021 (including \$26,432 for the HNH segment; \$9,149 for the ANH segment; \$549 for the Specialty Products segment and \$891 for the Industrial Products segment), as compared to a total backlog of \$41,270 at December 31, 2017 (including \$27,098 for the HNH segment; \$11,041 for the ANH segment; \$573 for the Specialty Products segment and \$2,558 for the Industrial Products segment). It has generally been our policy and practice to maintain an inventory of finished products and/or component materials for our segments to enable us to ship products within two months after receipt of a product order. All orders in the current backlog are expected to be filled in the 2019 fiscal year.

Competition

Our competitors include many large and small companies, some of which have greater financial, research and development, production and other resources than us. Competition in the supplement, food and beverage markets we serve are based primarily on product performance, customer support, quality, service and price. The development of new and improved products is important to our success. This competitive environment requires substantial investments in product and manufacturing process research and development. In addition, the winning and retention of customer acceptance of our food and nutrition products involve substantial expenditures for application testing, either internally or at customer/prospect sites, and sales efforts. Our competition in this market includes a variety of ingredient and nutritional supplement companies many of which are privately-held. Therefore, it is difficult to assess the size of all of our segment competitors or where we rank in comparison to such privately-held competitors.

Competition in the animal feed and industrial markets we serve are based primarily on product performance, customer support, quality, service and price. The markets for our products are subject to competitive risks because these markets are highly price competitive. Our competition in this market includes a variety of animal nutrition and health ingredient companies, along with certain industrial companies, many of which are privately-held. Therefore, we are unable to assess the size of all of our competitors or where we rank in comparison to such privately-held competitors.

In the Specialty Products segment, our products face competition from alternative sterilizing technologies and products. Competition in this marketplace is based primarily on medical device compositions, product performance, customer support, quality, service and price. Our competition in this market includes sterilization companies, a number of which are privately-held. Therefore, we are unable to assess the size of all of our competitors or where we rank in comparison to such privately-held competitors. We are focused on the North American market due to EPA, United States Food and Drug Administration (“FDA”) and DOT regulations that are not yet required globally.

Research & Development

During the years ended December 31, 2018, 2017 and 2016, we incurred research and development expenses of approximately \$11,592, \$9,305, and \$7,325, respectively, on Company-sponsored research and development for new products, improvements to existing products, and manufacturing processes. We have historically funded our research and development programs with funds available from current operations with the intent of recovering those costs from profits derived from future sales of products resulting from, or enhanced by, the research and development effort.

We prioritize our product development activities in an effort to allocate resources to those product candidates that, we believe, have the greatest commercial potential. Factors we consider in determining the products to pursue include projected markets and needs, status of our proprietary rights, technical feasibility, expected and known product attributes, and estimated costs to bring the product to market.

Capital Projects

We continue to invest in projects across all production facilities and capital expenditures were approximately \$19,170, \$27,526, and \$23,034 for 2018, 2017 and 2016, respectively. In 2018, we invested \$5,662 to expand capacity in key product lines in the Human Nutrition & Health segment along with upgrading automation systems in our manufacturing sites to drive efficiencies. In addition, we invested \$3,137 for environmental, health, safety, and security upgrades to our facilities. In 2017, we spent approximately \$13,200 to expand manufacturing capacity at our AMT facility in Utah to accommodate production previously manufactured in Clearfield, UT prior to the site fire. In 2016, capital expenditures of \$1,800 were related to expanding our Animal Nutrition & Health capacity in the manufacturing facility located in Verona, Missouri. Additionally, we invested \$6,800 in agglomeration production equipment during 2016. Capital expenditures are projected to range from \$30,000 to \$40,000 for 2019.

Environmental / Regulatory Matters

The Federal Insecticide, Fungicide and Rodenticide Act (“FIFRA”), a health and safety statute, requires that certain products within our specialty products segment must be registered with the EPA because they are considered pesticides. In order to obtain a registration, an applicant typically must demonstrate, through extensive test data, that its product will not cause unreasonable adverse effects on human health or the environment. We hold EPA registrations permitting us to sell ethylene oxide as a medical device sterilant and spice fumigant, and propylene oxide as a fumigant of nuts and spices.

In April 2008, the EPA issued an RED (“Reregistration Eligibility Decision”) for ethylene oxide which permitted the continued use of ethylene oxide “to sterilize medical or laboratory equipment, pharmaceuticals, and aseptic packaging, or to reduce microbial load on musical instruments, cosmetics, whole and ground spices and other seasoning materials and artifacts, archival material or library objects”. Currently, the EPA has initiated a new registration review of ethylene oxide, in line with and part of the registration review scheduled for a large number of other pesticides. A Final Work Plan was issued in March 2014. The EPA anticipates this registration review process will take approximately seven years. As part of this review process, the EPA identified several testing requirements. To date, after discussion with EPA staff and submission of pertinent information, the EPA has issued waivers for four studies and one required study was submitted and accepted. Several waiver requests are still under consideration, and additional information has been requested. In December 2016, the EPA issued its Integrated Risk Information System (“IRIS”) assessment of EO, another aspect of EPA’s safety review of EO. To date, we have no knowledge of how this IRIS assessment will impact the registration review process. While some additional testing will be necessary, we believe that the use of ethylene oxide will continue to be permitted. The product, when used as a sterilant for certain medical devices, has no known equally effective substitute. Management believes the lack of availability of this product could not be easily tolerated by various medical device manufacturers or the health care industry due to the resultant infection potential.

Similarly, the EPA issued a RED for propylene oxide in August 2006. At that time, the EPA “determined that products containing the active ingredient PPO [propylene oxide] are eligible for reregistration provided that...risk mitigation measures...are adopted.” Our product label was amended as required to reflect these mitigation measures and also to show that propylene oxide has been reclassified as a restricted use pesticide. Currently, the EPA has initiated a new registration review of propylene oxide, in line with and part of the registration review scheduled for a large number of other pesticides. A Final Work Plan was issued in March 2014. The EPA anticipates this review process will take approximately seven years. As part of the process, the EPA has identified several potential additional testing requirements. We have completed six of the required studies and they were submitted to the EPA for evaluation. Two of those studies have been deemed accepted, and the other four are still being evaluated. A waiver has been granted for one study. We are currently in discussions with the EPA regarding other studies. While it is possible that we will be required to perform additional testing, we believe that the use of propylene oxide to treat nuts and spices will continue to be permitted.

Our facility in Verona, Missouri, while held by a prior owner, was designated by the EPA as a Superfund site and placed on the National Priorities List in 1983, because of dioxin contamination on portions of the site. Remediation was conducted by the prior owner under the oversight of the EPA and the Missouri Department of Natural Resources (“MDNR”). While we must maintain the integrity of the capped areas in the remediation areas on the site, the prior owner is responsible for completion of any further Superfund remedy. We are indemnified by the sellers under our May 2001 asset purchase agreement covering our acquisition of the Verona facility for potential liabilities associated with the Superfund site and one of the sellers, in turn, has the benefit of certain contractual indemnification by the prior owner that executed the above-described Superfund remedy.

In connection with normal operations at our plant facilities, we are required to maintain environmental and other permits, including those relating to the ethylene oxide operations.

We believe we are in compliance in all material respects with federal, state, local and international provisions that have been enacted or adopted regulating the discharge of materials into the environment or otherwise relating to the protection of the environment. Such compliance includes the maintenance of required permits under air pollution regulations and compliance with requirements of the

Occupational Safety and Health Administration. The cost of such compliance has not had a material effect upon the results of our operations or our financial condition.

We produce products which are required to be manufactured in conformity with current Good Manufacturing Practice (“cGMP”) regulations as interpreted and enforced by the FDA, through third party contract arrangement. Modifications, enhancements or changes in contracted manufacturing facilities or procedures relating to our pharmaceutical products are, in many circumstances, subject to FDA approval, which may be subject to a lengthy application process or which we may be unable to obtain. Any contracted manufacturing facilities that manufacture our pharmaceutical products are periodically subject to inspection by the FDA and other governmental agencies, and operations at these facilities could be interrupted or halted if the results of these inspections are unsatisfactory.

Employees

As of January 31, 2019, the Company employed approximately 1,135 persons. Approximately 108 employees at our Marano, Ticino, Italy facility are covered by a national collective bargaining agreement, which expires in 2022. Approximately 79 employees at the Company’s Verona, Missouri facility are covered by a collective bargaining agreement, which expires in 2020.

Available Information

Our headquarters is located at 52 Sunrise Park Road, New Hampton, NY 10958. Our telephone number is (845) 326-5600 and our Internet website address is www.balchem.com. We make available through our website, free of charge, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, and amendments to such reports, as soon as reasonably practicable after they have been electronically filed with the Securities and Exchange Commission (SEC). Such reports are available via a link from the Investor Relations page on our website to a list of our reports on the Securities and Exchange Commission’s EDGAR website.

Item 1A. Risk Factors

Our business is subject to a high degree of risk and uncertainty, including the following risks and uncertainties, which could adversely affect our business, financial condition, results of operation, cash flows and the trading price of our Common Stock:

Global economic conditions may adversely affect our business, operating results and financial condition.

Unfavorable changes in economic conditions, including inflation, recession, changes in tariffs and trade relations amongst international trading partners, or other changes in economic conditions, may adversely impact the markets in which we operate. These conditions may make it extremely difficult for our customers, our vendors and us to accurately forecast and plan future business activities, and they could cause U.S. and foreign businesses to slow spending on our products which would reduce our revenues and profitability. Furthermore, during challenging economic times our customers may face issues gaining timely access to sufficient credit, which could result in an impairment of their ability to make timely payments to us. If that were to occur, we may be required to increase our allowance for doubtful accounts and cash flow would be negatively impacted. We cannot predict the timing, depth or duration of any economic slowdown or subsequent economic recovery, worldwide, or in the markets in which we operate. Also, at any point in time we have funds in our cash accounts that are with third party financial institutions. These balances in the U.S. and Italy exceed the Federal Deposit Insurance Corporation (“FDIC”) and Fondo Interbancario di Tutela dei Depositi (“FITD”) insurance limits, respectively. While we monitor the cash balances in our accounts, these balances could be impacted if the underlying financial institutions fail or could be subject to other adverse conditions in the financial markets. Additionally, our future results of operations could be adversely affected by changes in the effective tax rate as a result of a change in the mix of earnings in jurisdictions with differing statutory tax rates, changes in tax laws, regulations and judicial rulings or changes in the interpretation thereof.

Increased competition could hurt our business and financial results.

We face competition in our markets from a number of large and small companies, some of which have greater financial, research and development, production and other resources than we do. Our competitive position is based principally on performance, quality, customer support, service, breadth of product line, manufacturing or packaging technology and the selling prices of our products. Our competitors may improve the design and performance of their products and introduce new products with competitive price and performance characteristics. We expect to do the same to maintain our current competitive position and market share.

The loss of governmental permits and approvals would materially harm some of our businesses.

Pursuant to applicable environmental and safety laws and regulations, we are required to obtain and maintain certain governmental permits and approvals, including EPA registrations under FIFRA for two of our products. We maintain EPA FIFRA registrations for

ethylene oxide as a medical device sterilant and spice fumigant and for propylene oxide as a fumigant of nuts and spices. The EPA has issued Reregistration Eligibility Decisions for both products in recent years and these uses have been approved for the time being. The EPA may re-examine the registrations in the future in accordance with the provisions of FIFRA. Any future failure of the EPA to allow reregistration of ethylene oxide or propylene oxide would have a material adverse effect on our business and financial results.

Commercial supply of pharmaceutical products that we may develop, subject to cGMP manufacturing regulations, will be performed by third-party cGMP manufacturers. Modifications, enhancements or changes in third-party manufacturing facilities or procedures of our pharmaceutical products are, in many circumstances, subject to FDA approval, which may be subject to a lengthy application process or which we may be unable to obtain. Any third-party cGMP manufacturers that we may use are periodically subject to inspection by the FDA and other governmental agencies, and operations at these facilities could be interrupted or halted if the results of these inspections are unsatisfactory. Failure to comply with the FDA or other governmental regulations can result in fines, unanticipated compliance expenditures, recall or seizure of products, total or partial suspension of production, enforcement actions, injunctions and criminal prosecution, which could have a material adverse effect on our business and financial results.

Permits and approvals may be subject to revocation, modification or denial under certain circumstances. Our operations or activities (including the status of compliance by the prior owner of the Verona, Missouri facility under Superfund remediation) could result in administrative or private actions, revocation of required permits or licenses, or fines, penalties or damages, which could have an adverse effect on us. In addition, we cannot predict the extent to which any legislation or regulation may affect the market for our products or our cost of doing business.

Raw material shortages or price increases could adversely affect our business and financial results.

The principal raw materials that we use in the manufacture of our products can be subject to price fluctuations due to market conditions. Such raw materials include materials derived from petrochemicals, minerals, metals, agricultural commodities and other commodities. While the selling prices of our products tend to increase or decrease over time with the cost of raw materials, these changes may not occur simultaneously or to the same degree. At times, we may be unable to pass increases in raw material costs through to our customers due to certain contractual obligations. Such increases in the price of raw materials, if not offset by product price increases, or substitute raw materials, would have an adverse impact on our profitability. We believe we have reliable sources of supply for our raw materials under normal market conditions. We cannot, however, predict the likelihood or impact of any future raw material shortages. Any shortages or unforeseen price increases could have a material adverse impact on our results of operations.

Our financial success depends in part on the reliability and sufficiency of our manufacturing facilities.

Our revenues depend on the effective operation of our manufacturing, packaging, and processing facilities. The operation of our facilities involves risks, including the breakdown, failure, or substandard performance of equipment, power outages, the improper installation or operation of equipment, explosions, fires, natural disasters, failure to achieve or maintain safety or quality standards, work stoppages, supply or logistical outages, and the need to comply with environmental and other directives of governmental agencies. The occurrence of material operational problems, including, but not limited to, the above events, could adversely affect our profitability during the period of such operational difficulties.

Our business exposes us to potential product liability claims and recalls, which could adversely impact our financial condition and performance.

Our development, manufacture and sales of food ingredient, pharmaceutical and nutritional supplement products involve an inherent risk of exposure to product liability claims, product recalls, product seizures and related adverse publicity. A product liability judgment against us could also result in substantial and unexpected expenditures, affect consumer confidence in our products, and divert management's attention from other responsibilities. Although we maintain product liability insurance coverage in amounts we believe are customary within the industry, there can be no assurance that this level of coverage is adequate or that we will be able to continue to maintain our existing insurance or obtain comparable insurance at a reasonable cost, if at all. A product recall or a partially or completely uninsured judgment against us could have a material adverse effect on results of operations and financial condition.

We face risks associated with our sales to customers and manufacturing operations outside the United States.

For the year ended December 31, 2018, approximately 25% of our net sales consisted of sales outside the United States. In addition, we conduct a portion of our manufacturing outside the United States. The majority of our foreign sales occur through our foreign subsidiaries and the remainder of our foreign sales result from exports to foreign distributors, resellers and customers. Our foreign sales and operations are subject to a number of risks, including: longer accounts receivable collection periods; the impact of recessions and other economic conditions in economies outside the United States; export duties and quotas; changes in tariffs and trade relations including but not limited to those associated with the North American Free Trade Agreement and the pending exit of the United Kingdom from the European Union; unexpected changes in regulatory requirements; certification requirements; environmental

regulations; reduced protection for intellectual property rights in some countries; potentially adverse tax consequences; political and economic instability; and preference for locally produced products. These factors could have a material adverse impact on our ability to increase or maintain our international sales.

We may, from time to time, experience problems in our labor relations.

In North America, approximately 79 employees, or 7% of our North American workforce, as of December 31, 2018, are represented by a union under a single collective bargaining agreement, which was re-negotiated and is effective as of November 14, 2017. It will expire in 2020. In Europe, approximately 108 employees are covered by a collective bargaining agreement that will expire in 2022. We believe that our present labor relations with all of our union employees are satisfactory, however, our failure to renew these agreements on reasonable terms could result in labor disruptions and increased labor costs, which could adversely affect our financial performance. Similarly, if our relations with the union portion of our workforce do not remain positive, such employees could initiate a strike, work stoppage or slowdown in the future. In the event of such an action, we may not be able to adequately meet the needs of our customers using our remaining workforce and our operations and financial condition could be adversely affected. Additionally, other portions of our workforce could become subject to union campaigns.

Our international operations subject us to currency translation risk and currency transaction risk which could cause our results to fluctuate from period to period.

The financial condition and results of operations of our foreign subsidiaries are reported in Euros and Canadian Dollars and then translated into U.S. dollars at the applicable currency exchange rate for inclusion in our consolidated financial statements. Exchange rates between these currencies in recent years have fluctuated and may do so in the future. Furthermore, we incur currency transaction risk whenever we enter into either a purchase or a sales transaction using a currency different than the functional currency. Given the volatility of exchange rates, we may not be able to effectively manage our currency transactions and/or translation risks. Volatility in currency exchange rates could impact our business and financial results.

Our debt instruments impose operating and financial restrictions which could have an adverse impact on our business and results of operations.

Our incurrence of indebtedness could have negative consequences to us, including limiting our ability to borrow additional monies for our working capital, capital expenditures, acquisitions, debt service requirements or other general corporate purposes; limiting our flexibility in planning for, or reacting to, changes in our operations, our business or the industries in which we compete; our leverage may place us at a competitive disadvantage by limiting our ability to invest in the business or in further research and development; making us more vulnerable to downturns in our business or the economy; and there would be a material adverse effect on our business and financial condition if we were unable to service our indebtedness or obtain additional financing, as needed.

Our ability to make payments on our indebtedness depends on our ability to generate cash in the future. If we do not generate sufficient cash flow to meet our debt service and working capital requirements, we may need to seek additional financing or sell assets. This may make it more difficult for us to obtain financing on terms that are acceptable to us, or at all. Without any such financing, we could be forced to sell assets to make up for any shortfall in our payment obligations under unfavorable circumstances.

Interest payable in accordance with our five-year senior secured revolving credit agreement (the "Credit Agreement") is based on a fluctuating rate. In light of potential fluctuations, we are exposed to risk resulting from adverse changes in interest rates.

Adverse publicity or consumer concern regarding the safety or quality of food products containing our products, or health concerns, whether with our products, products in the same general class as our products or for food products containing our products, may result in the loss of sales. Also, consumer preferences for products containing our products may change.

We are dependent upon consumers' perception of the safety, quality and possible dietary benefits of products containing our food ingredient products. As a result, substantial negative publicity concerning our products or other foods and beverages in which our products are used could lead to a loss of consumer confidence in those products, removal of those products from retailers' shelves and reduced sales and prices of our products. Product quality issues, actual or perceived, or allegations of product contamination, even when false or unfounded, could hurt the image of our products or of brands of products containing our products, and cause consumers to choose other products. Further, any product recall, whether our own or by a third party, whether due to real or unfounded allegations, could impact demand on food products containing our products or even our products. Any of these events could have a material adverse effect on our business, results of operations and financial condition. Consumer preferences, as well as trends, within the food industries change often and our failure to anticipate, identify or react to changes in these preferences and trends could, among other things, lead to reduced demand and price reductions, and could have an adverse effect on our business, results of operations and financial condition. While we continue to diversify our product offerings, developing new products entails risks

and we cannot be certain that demand for our products and products containing our products will continue at current levels or increase in the future.

Demand for certain of our products is dependent on the levels of productivity by the oil and gas industry, particularly as it relates to shale gas fracturing. A substantial or an extended decline in oil and gas prices could result in lower expenditures by the oil and gas industry, which could have an adverse effect on our results of operations.

The oil and gas industry historically experiences periodic downturns. Demand for certain of our products depends on the level of expenditures by the oil and gas industry for the exploration, development and production of oil and natural gas reserves. These expenditures are generally dependent on the industry's view of future oil and natural gas prices and are sensitive to the industry's view of future economic growth and the resulting impact on demand for oil and natural gas. Declines in oil and gas prices could result in significant downturn in the oil and gas industry and thereby result in a reduction in demand for oilfield services and related products, which could lead to reduced demand for our products and downward pressure on the prices we charge. These effects could have an adverse effect on our results of operations and cash flows.

We may not be able to successfully consummate and manage acquisition, joint venture and divestiture activities which could have an impact on our results.

From time to time, we may acquire other businesses, enter into joint ventures and, based on an evaluation of our business portfolio, divest existing businesses. These acquisitions, joint ventures and divestitures may present financial, managerial and operational challenges, including diversion of management attention from existing businesses, difficulty with integrating or separating personnel and financial and other systems, increased expenses, assumption of unknown liabilities and indemnities, and potential disputes with the buyers or sellers. In addition, we may be required to incur asset impairment charges (including charges related to tangible assets, goodwill and other intangible assets) in connection with acquired businesses which may reduce our profitability. If we are unable to consummate such transactions, or successfully integrate and grow acquisitions and achieve contemplated revenue synergies and cost savings, our financial results could be adversely affected. Additionally, joint ventures inherently involve a lesser degree of control over business operations, thereby potentially increasing the financial, legal, operational and/or compliance risks.

Technology failures or cyber security breaches could have an adverse effect on the Company's operations.

We rely on information technology systems to process, transmit, store, and protect electronic information. For example, a significant portion of the communications between our personnel, customers, and suppliers depend on information technology. Our information technology systems may be vulnerable to a variety of interruptions due to events beyond our control including, but not limited to, natural disasters, terrorist attacks, telecommunications failures, computer viruses, hackers, and other security issues. We have technology and information security processes and disaster recovery plans in place to mitigate our risk to these vulnerabilities; however, these measures may not be adequate to ensure that our operations will not be disrupted, should such an event occur.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We and our affiliates own or lease several manufacturing facilities and sales offices throughout the United States, and we own two manufacturing facilities in Europe and a single manufacturing facility in Canada. The following table sets forth a list of our principal offices, production and other facilities throughout the world as of December 31, 2018.

Site	Leased/Owned	Products/Functions
Corporate Offices		
New Hampton, NY	Leased	corporate headquarters
Middletown, NY	Leased	administrative offices
St. Louis, MO	Leased (SensoryEffects)	administrative offices SensoryEffects
Layton, UT	Leased (Albion)	administrative offices Albion
Manufacturing Facilities		
Verona, MO	Owned (BCP)	aqueous and dry choline chloride, animal feed products, human choline nutrients, repackaging for Specialty Products, and warehousing
Slate Hill, NY	Owned	encapsulated products, blending and repackaging for Specialty Products, and warehousing
Green Pond, SC	Owned	repackaging for Specialty Products and warehousing
Salt Lake City, UT	Owned	chelated mineral nutrients and warehousing
Covington, VA	Owned	encapsulated animal feed products and warehousing
Marano Ticino, Italy	Owned (Balchem Italia)	methylamines, metam sodium, animal, human and industrial grade choline, and warehousing
Bertinoro, Italy	Owned (Balchem Bioscreen)	encapsulated and fermented animal feed products
Sleepy Eye, MN	Owned (SensoryEffects)	spray drying of dairy creamers and cocoa blends, and warehousing
Bridgeton, MO	Owned (SensoryEffects)	creamer products, cocoa powders, liquid and solid flavor inclusions, and warehousing
Marshfield, WI	Owned (SensoryEffects)	spray drying of lipid based powders, blending, and warehousing
Reading, PA	Owned (SensoryEffects)	spray drying of human nutritional products and warehousing
Defiance, OH	Owned (SensoryEffects)	spray drying of creamer products, solid flavor inclusions for baking, blending and warehousing
Lincoln, NE	Leased (SensoryEffects)	cereal products and warehousing
Morrisburg, Canada	Owned (Balchem LTD)	dry choline chloride and warehousing
Roy, UT	Leased (Albion)	quality control lab
Ogden, UT	Owned (Albion)	human mineral spray drying and packaging
Ogden, UT	Leased (Albion)	human mineral warehousing
Ogden, UT	Leased (Albion)	Albion liquid product warehousing
Ogden, UT	Owned (Albion)	plant mineral liquid production and packaging
Ogden, UT	Owned (Albion)	raw land adjacent to the AMT manufacturing site
Whittemore, IA	Leased (Albion)	plant and animal spray drying and packaging
Faribault, MN	Owned (IFP)	manufacturing and processing of powdered products for the food and nutrition industries

Item 3. Legal Proceedings

We are involved in legal proceedings through the normal course of business. Management believes that any unfavorable outcome related to these proceedings will not have a material effect on our financial position, results of operations or liquidity.

Item 4. Mine Safety Disclosures

None.

PART II

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

(a) Market Information.

Our Common Stock is listed on the Nasdaq Global Market under the symbol “BCPC.”

On February 21, 2019 the closing price for the Common Stock on the Nasdaq Global Market was \$86.36.

(b) Record Holders.

As of February 21, 2019, the approximate number of holders of record of our Common Stock was 79. Such number does not include stockholders who hold their stock in street name. As of February 21, 2019, the total number of beneficial owners of our Common Stock is estimated to be approximately 28,001.

(c) Dividends.

We declared cash dividends of \$0.47 and \$0.42 per share on our Common Stock during our fiscal years ended December 31, 2018 and 2017, respectively.

(d) Issuer Purchase of Equity Securities

The following table summarizes the share repurchase activity for the three months ended December 31, 2018:

	Total Number of Shares Purchased ⁽¹⁾	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Programs ⁽¹⁾	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs
October 1 – 31, 2018	1,187	\$ 96.42	1,187	\$ 151,665,960
November 1 – 30, 2018	—	\$ —	—	\$ 151,665,960
December 1 – 31, 2018	706	\$ 78.91	706	\$ 124,066,486
	<u>1,893</u>		<u>1,893</u>	

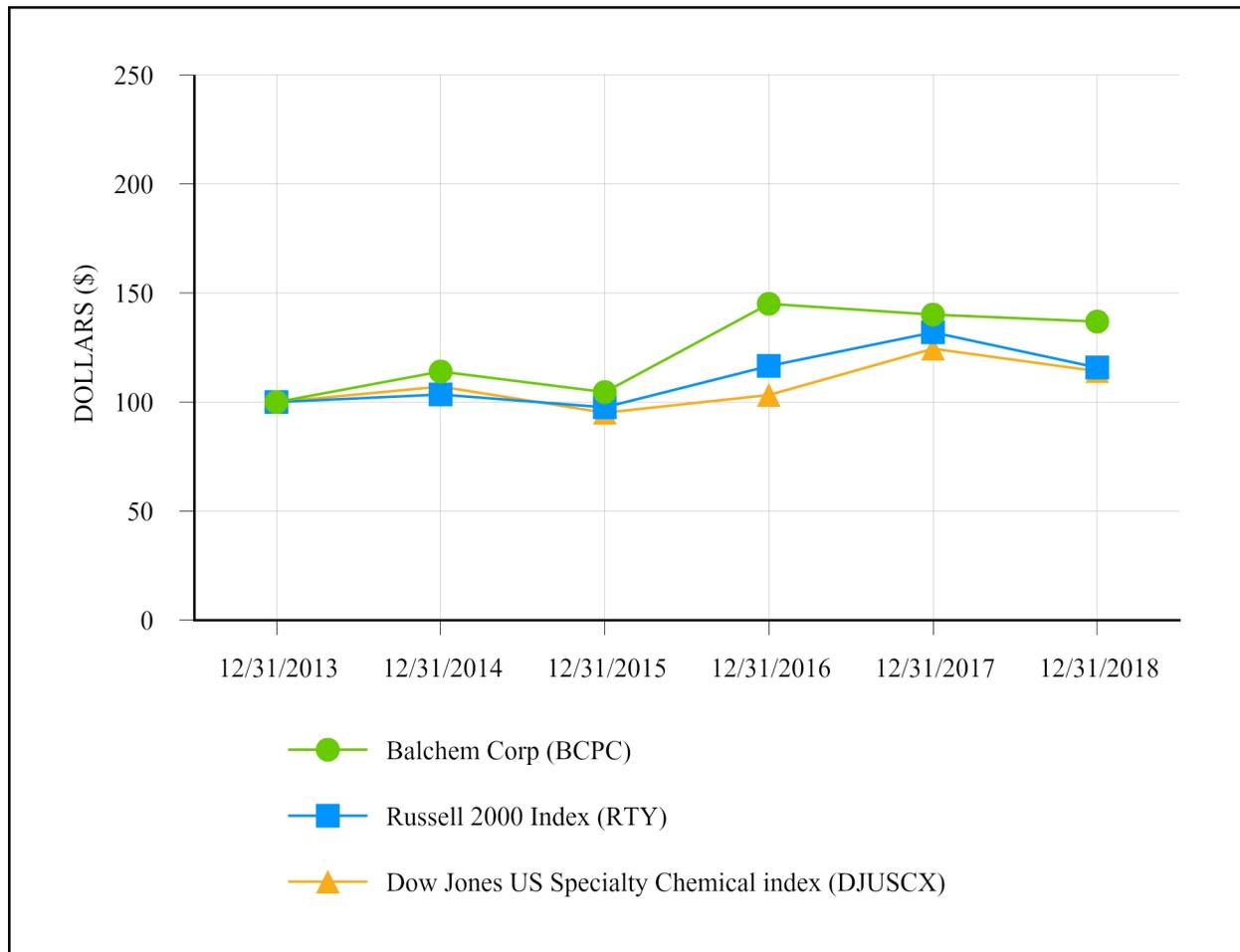
(1) We have an approved stock repurchase program. The total authorization under this program is 3,763,038 shares. Since the inception of the program in June 1999, a total of 2,190,772 shares have been purchased, of which 706 shares remained in treasury at December 31, 2018. There is no expiration for this program.

(e) Securities Authorized for Issuance Under Equity Compensation Plans.

For information concerning prior stockholder approval of and other matters relating to our equity incentive plans, see Item 12 in this Annual Report on Form 10-K.

(f) Performance Graph.

The graph below sets forth the cumulative total stockholder return on our Common Stock (referred to in the table as “BCPC”) for the five years ended December 31, 2018, the overall stock market return during such period for shares comprising the Russell 2000® Index (which we believe includes companies with market capitalization similar to that of us), and the overall stock market return during such period for shares comprising the Dow Jones U.S. Specialty Chemicals Index, in each case assuming a comparable initial investment of \$100 on December 31, 2013 and the subsequent reinvestment of dividends. The Russell 2000® Index measures the performance of the shares of the 2000 smallest companies included in the Russell 3000® Index. In light of our industry segments, we do not believe that published industry-specific indices are necessarily representative of stocks comparable to us. Nevertheless, we consider the Dow Jones U.S. Specialty Chemicals Index to be potentially useful as a peer group index with respect to us. The performance of our Common Stock shown on the graph below is historical only and not necessarily indicative of future performance.



Item 6. Selected Financial Data

The selected statements of operations data set forth below for the years ended December 31, 2018, 2017 and 2016 and the selected balance sheet data as of December 31, 2018 and 2017 have been derived from our Consolidated Financial Statements included elsewhere herein. The selected financial data for the years ended December 31, 2015 and 2014 and as of December 31, 2016, 2015 and 2014 have been derived from audited Consolidated Financial Statements not included herein, but which were previously filed with the SEC. The following information should be read in conjunction with Item 7 — “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the Consolidated Financial Statements and notes thereto included elsewhere herein.

(In thousands, except per share data)

Year ended December 31, Statement of Operations Data	2018	2017	2016	2015	2014
Net sales	\$ 643,679	\$ 594,790	\$ 553,204	\$ 552,492	\$ 541,383
Earnings before income tax expense	99,030	88,488	82,934	87,063	77,052
Income tax expense	20,457	(1,583)	26,962	27,341	24,226
Net earnings	78,573	90,071	55,972	59,722	52,826
Basic net earnings per common share	\$ 2.45	\$ 2.83	\$ 1.78	\$ 1.92	\$ 1.74
Diluted net earnings per common share	\$ 2.42	\$ 2.79	\$ 1.75	\$ 1.89	\$ 1.69

At December 31, Balance Sheet Data	2018	2017	2016	2015	2014
Total assets	\$ 981,355	\$ 963,636	\$ 948,626	\$ 879,686	\$ 861,531
Long-term debt (including current portion)	156,000	218,964	280,490	295,963	332,500
Other long-term obligations	7,372	5,847	6,896	6,683	5,950
Total Stockholders' equity	691,618	616,881	521,033	463,705	391,898
Dividends per common share	\$ 0.47	\$ 0.42	\$ 0.38	\$ 0.34	\$ 0.30

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations *(All amounts in thousands, except share and per share data)*

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with Item 6 — “Selected Financial Data” and our Consolidated Financial Statements and the related notes included in this report. Those statements in the following discussion that are not historical in nature should be considered to be forward-looking statements that are inherently uncertain. See “Cautionary Statement Regarding Forward-Looking Statements.”

Overview

We develop, manufacture, distribute and market specialty performance ingredients and products for the nutritional, food, pharmaceutical, animal health, medical device sterilization, plant nutrition and industrial markets. Our four reportable segments are strategic businesses that offer products and services to different markets: Human Nutrition & Health, Animal Nutrition & Health, Specialty Products, and Industrial Products.

Acquisitions

On June 1, 2017, we acquired 100 percent of the outstanding common shares of Innovative Food Processors, Inc. (“IFP”), a privately held manufacturer of agglomerated and microencapsulated food and nutrition ingredients, headquartered in Faribault, Minnesota. We made payments of approximately \$22,975 on the acquisition date and subsequently \$635 in September 2017 to true-up working capital, amounting to approximately \$16,161 to the former shareholders, adjustments for working capital acquired of \$5,065 and \$2,384 to IFP’s lenders to pay off all IFP bank debt. The acquisition of IFP expanded our Human Nutrition & Health segment’s processing technology and market reach, and has brought innovative and value-added systems to food, beverage, and nutrition customers.

We also completed one immaterial acquisition in 2017, Chol-Mix Kft, and another immaterial acquisition in 2018, Bioscreen Technologies Srl.

Human Nutrition & Health

Our Human Nutrition & Health segment provides human grade choline nutrients and mineral amino acid chelated products through this segment for wellness applications. Choline is recognized to play a key role in the development and structural integrity of brain cell membranes in infants, processing dietary fat, reproductive development and neural functions, such as memory and muscle function. The Human Nutrition & Health segment’s mineral amino acid chelates, specialized mineral salts, and mineral complexes are used as raw materials for inclusion in premier human nutrition products. Proprietary technology has been combined to create an organic molecule in a form the body can readily assimilate. Sales growth for human nutrition applications is reliant on differentiation from lower-cost competitive products through scientific data, intellectual property and customer perceptions of brand value.

Consequently, we make investments in such activities for long-term value differentiation. This segment also serves the food and beverage industry for beverage, bakery, dairy, confectionary, and savory manufacturers. We partner with our customers from ideation through commercialization to bring on-trend beverages, baked goods, confections, dairy and meat products to market. Our expertise in trends analysis and product development, combined with manufacturing capabilities in customized spray dried and emulsified powders, blended lipid systems, liquid flavor delivery systems, juice and dairy bases, chocolate systems, as well as ice cream bases and variegates makes us a one-stop solutions provider for beverage and dairy product development needs. Additionally, this segment provides microencapsulation solutions to a variety of applications in food, pharmaceutical and nutritional ingredients to enhance performance of nutritional fortification, processing, mixing, and packaging applications and shelf-life. Major product applications are baked goods, refrigerated and frozen dough systems, processed meats, seasoning blends, confections, and nutritional supplements. We also create cereal systems for ready-to-eat cereals, grain-based snacks, and cereal based ingredients.

Animal Nutrition & Health

Our Animal Nutrition & Health segment provides nutritional products derived from our microencapsulation and chelation technologies in addition to basic choline chloride. For ruminant animals, our microencapsulated products boost health and milk production, delivering nutrient supplements that are biologically available, providing required nutritional levels. Our proprietary chelation technology provides enhanced nutrient absorption for various species of production and companion animals and is marketed for use in animal feed throughout the world. ANH also manufactures and supplies choline chloride, an essential nutrient for monogastric animal health, predominantly to the poultry, pet and swine industries. Choline, which is manufactured and sold in both dry and aqueous forms, plays a vital role in the metabolism of fat. In poultry, choline deficiency can result in reduced growth rates and perosis in young birds, while in swine production choline is a necessary and required component of gestating and lactating sow diets for both liver health and prevention of leg deformity.

Sales of value-added encapsulated products are highly dependent on overall industry economics as well as our ability to leverage the results of university and field research on the animal health and production benefits of our products. Management believes that success in the commodity-oriented basic choline chloride marketplace is highly dependent on our ability to maintain our strong reputation for excellent product quality and customer service. We continue to drive production efficiencies in order to maintain our competitive-cost position to effectively compete in a global marketplace.

Specialty Products

Ethylene oxide, at the 100% level, is sold as a sterilant gas, primarily for use in the health care industry. It is used to sterilize a wide range of medical devices because of its versatility and effectiveness in treating hard or soft surfaces, composites, metals, tubing and different types of plastics without negatively impacting the performance of the device being sterilized. Specialty Products' 100% ethylene oxide product is distributed in uniquely designed, recyclable, double-walled, stainless steel drums to assure compliance with safety, quality and environmental standards as outlined by the EPA and the DOT. Our inventory of these specially built drums, along with two filling facilities, represents a significant capital investment. Contract sterilizers and medical device manufacturers are principal customers for this product. We also sell single use canisters with 100% ethylene oxide for use in sterilizing re-usable devices typically processed in autoclave units in hospitals. As a fumigant, ethylene oxide blends are highly effective in killing bacteria, fungi, and insects in spices and other seasoning materials.

Propylene oxide is marketed and sold as a fumigant to aid in the control of insects and microbiological spoilage; and to reduce bacterial and mold contamination in certain shell and processed nut meats, processed spices, cacao beans, cocoa powder, raisins, figs and prunes. We distribute propylene oxide product primarily in recyclable, single-walled, carbon steel cylinders according to standards outlined by the EPA and the DOT. The inventory of these cylinders also represents a significant capital investment. Propylene oxide is also sold to customers seeking smaller (as opposed to bulk) quantities and whose requirements include utilization in various chemical synthesis applications, such as increasing paint durability and manufacturing specialty starches and textile coatings.

The micronutrient agricultural nutrition business sells chelated minerals primarily into high value crops. We have a unique and patented two-step approach to solving mineral deficiency in plants to optimize health, yield and shelf-life. First, we determine optimal mineral balance for plant health. We then have a foliar applied Metalosate product range, utilizing patented amino acid chelate technology. Our specialty products quickly and efficiently deliver mineral nutrients. As a result, the farmer/grower gets healthier crops that are more resistant to disease and pests, larger yields and healthier food for the consumer with extended shelf life for produce being shipped long distances.

Industrial Products

Certain derivatives of choline chloride are manufactured and sold into industrial applications predominately as a component for hydraulic fracturing of shale natural gas wells. Our products offer an attractive, effective and more environmentally responsible alternative than other clay stabilizers. Our industrial grade choline bicarbonate is completely chloride free and our choline chloride

reduces the amount of chlorides released into the environment up to 75% when compared to potassium chloride. The Industrial Products segment also includes the manufacture and sale of methylamines. Methylamines are a primary building block for the manufacture of choline products and are produced at our Italian operation and sold for a wide range of industrial applications in Europe.

We sell products for all four segments through our own sales force, independent distributors, and sales agents.

The following tables summarize consolidated net sales by segment and business segment earnings from operations for the three years ended December 31, 2018, 2017 and 2016 (in thousands):

Business Segment Net Sales:

	2018	2017	2016
Human Nutrition & Health	\$ 341,237	\$ 315,796	\$ 297,134
Animal Nutrition & Health	175,693	157,688	161,119
Specialty Products	75,808	73,355	70,126
Industrial Products	50,941	47,951	24,825
Total	\$ 643,679	\$ 594,790	\$ 553,204

Business Segment Earnings From Operations:

	2018	2017	2016
Human Nutrition & Health	\$ 48,490	\$ 44,010	\$ 38,156
Animal Nutrition & Health	26,673	22,292	28,686
Specialty Products	25,361	24,949	22,862
Industrial Products	9,013	6,413	1,949
Transaction and integration costs	(1,786)	(2,496)	(815)
Indemnification settlement	—	2,087	—
Total	\$ 107,751	\$ 97,255	\$ 90,838

RESULTS OF OPERATIONS

(All amounts in thousands, except share and per share data)

Fiscal Year 2018 compared to Fiscal Year 2017

Net Sales

Net sales for 2018 were \$643,679 as compared with \$594,790 for 2017 an increase of \$48,889 or 8.2%. Net sales for the Human Nutrition & Health segment were \$341,237, compared with \$315,796 for the year ended December 31, 2017, an increase of \$25,441 or 8.1%. Sales from Powder Systems were up \$20,990 or 18.2% and Encapsulates' sales were up \$5,231 or 15.1%, with the acquired IFP business contributing to both product lines' increases. Net sales for the Animal Nutrition & Health segment were \$175,693 for 2018 compared with \$157,688 for the prior year, an increase of 18,005 or 11.4%, partly driven by a temporary reduction in Chinese competitive activity, particularly in Europe. Sales of global feed grade choline products increased \$16,958 or 16.9%, primarily the result of higher sales volumes and increased average selling prices. Specialty Products segment sales for 2018 were \$75,808 compared to sales of \$73,355 for 2017, an increase of \$2,453 or 3.3%, primarily driven by increased volumes and average selling prices for sterilization gases. Net sales for the Industrial Products segment were \$50,941 for the year ended December 31, 2018, an increase of \$2,990 or 6.2%. The increase is principally due to higher average selling prices of various choline and choline derivatives used in shale fracking applications.

Gross Margin

Gross margin for 2018 increased to \$204,252 compared to \$189,009 for 2017, an increase of \$15,243 or 8.1%. Gross margin as a percentage of sales for 2018 decreased to 31.7% from 31.8% in the prior year comparative period. Gross margin percentage for the Human Nutrition & Health segment decreased 1.2% in 2018 as compared to 2017 primarily due to mix and increases in raw material prices. Gross margin percentage for the Animal Nutrition & Health segment increased 1.4% compared to 2017, due to increased volumes and average selling prices in monogastric species products, partly driven by a temporary reduction in Chinese competitive

activity, particularly in Europe. Gross margin percentage for the Specialty Products segment increased 0.4%, due to increased average selling prices for sterilization gases. Gross margin percentage for the Industrial Products segment increased 3.9% from the prior year comparative period, primarily due to higher average selling prices of various choline and choline derivatives used in shale fracking applications.

Operating Expenses

Operating expenses for 2018 were \$96,501 or 15.0% of net sales as compared to \$91,754 or 15.4% of net sales for 2017. The increase was primarily due to increased expenses relating to research and development efforts in 2018 of \$2,287, a favorable indemnification settlement of \$2,087 in 2017 related to the SensoryEffects acquisition, impairment charges recorded in connection with the IFP integration of \$1,718, increased outside services in selling & marketing of \$1,112, and increased compensation related expenses of \$2,649. These increases were partially offset by insurance proceeds associated with the Clearfield fire of \$4,165 and lower amortization of \$2,091.

Earnings From Operations

Principally as a result of the above-noted details, earnings from operations for 2018 were \$107,751 as compared to \$97,255 for 2017, an increase of \$10,496 or 10.8%. Earnings from operations as a percentage of sales (“operating margin”) for 2018 and 2017 were 16.7% and 16.4%, respectively. We are continuing to focus on leveraging our plant capabilities, driving efficiencies from core volume growth, and broadening product applications of human and animal health specialty ingredients into both the domestic and international markets. Earnings from operations for the Human Nutrition & Health segment were \$48,490, an increase of 4,480 or 10.2% primarily due to the aforementioned higher sales and the contribution of IFP. Animal Nutrition & Health segment earnings from operations were \$26,673, an increase of \$4,381 or 19.7%, primarily due to the aforementioned higher volumes and average selling prices in monogastric species products. Earnings from operations for the Specialty Products segment were \$25,361, an increase of \$412 or 1.7%, primarily the result of aforementioned increased volumes and average selling prices for sterilization gases. Earnings from operations from the Industrial Products segment of \$9,013 increased \$2,600, primarily due to the aforementioned higher sales and stronger gross margins due to the higher average selling prices.

Other Expenses (Income)

Interest expense for 2018 and 2017 was \$7,611 and \$7,532, respectively, and was primarily related to outstanding borrowings under our credit facility and includes a write-off of \$363 of deferred financing costs in connection with the extinguished debt in 2018. Other expense was \$1,110 and \$1,235 for 2018 and 2017, respectively.

Income Tax Expense

The Company’s effective tax rate for 2018 and 2017 was 20.7% and (1.8)% respectively. For 2017, the effective tax rate was significantly affected by recording the impact of the Tax Cuts and Jobs Act (the “U.S. Tax Reform” or “TCJA”), enacted on December 22, 2017.

U.S. Tax Reform made broad and complex changes to the U.S. tax code by, among other things, lowering the U.S. corporate tax rate from 35% to 21% effective January 1, 2018, while also repealing the deduction for domestic production activities, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. In addition, the Internal Revenue Service (“IRS”) issued guidance, regulations and interpretations of U.S. Tax Reform during 2018. This guidance impacted various sections of the tax code relating to the use of foreign tax credits. Prior to enactment of the U.S. Tax Reform, foreign income taxes paid by Balchem’s foreign subsidiaries were generally available to mitigate potential additional U.S. tax on foreign earnings. Proposed regulations relating to foreign tax credits released in November 2018 clarified that deemed paid foreign tax credits related to Global Intangible Low-Taxed Income, or GILTI, would generally be available to offset only a portion of the foreign income taxes paid. Pending revisions or changes to the proposed regulations, foreign income taxes deemed paid are not expected to fully offset potential additional U.S. tax liability on earnings of foreign subsidiaries, creating a larger impact on the US tax rate from GILTI than anticipated prior to the passage of these regulations. Balchem accrued \$4,185 of current foreign income tax expense in foreign jurisdictions in 2018. Of this amount only \$1,135 is expected to be allowable under the currently proposed regulations as a foreign tax credit in the U.S. Future potential U.S. tax liability related to GILTI may not be fully offset by foreign tax credits.

U.S. GAAP requires that the impact of tax legislation be recognized in the period in which the law was enacted. However, in March 2018, the FASB issued ASU No. 2018-05, “Amendments to SEC Paragraph Pursuant to SEC Staff Accounting Bulletin No. 118” (“ASU 2018-05”), which clarifies the income tax accounting implications of the Tax Reform Act. Staff Accounting Bulletin No. 118 (“SAB 118”) was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary

information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Reform Act.

In the fourth quarter of 2018, the company completed its analysis of the impact of U.S. Tax Reform. In total, the company recorded a tax benefit of \$26,761 related to U.S. Tax Reform. This benefit is comprised of a provisional estimate of \$25,791 recorded in the fourth quarter of 2017, and an additional \$970 benefit recorded in the fourth quarter of 2018. Although the analysis for the impact of U.S. Tax Reform under the requirements of SAB 118 are complete, the IRS has issued and will continue to issue regulations related to U.S. Tax Reform. Due to the complexity and breadth of new tax law, implementation of the regulations may have an impact on the Company's income tax.

In accordance with SAB 118, the U.S. Tax Reform-related income tax effects that were initially reported as provisional estimates were refined as additional analysis was performed. The provisional amounts were also affected by guidance issued subsequent to the passage of U.S. Tax Reform. This guidance included regulations and interpretations issued by the IRS, changes in accounting standards, and federal and state legislation.

Per SAB 118, the following U.S. Tax Reform-related impacts were recorded in the company's financial statements:

- In the fourth quarter of 2017, an estimated current tax expense of \$1,389 was recorded for the deemed repatriation under Section 965, net of available foreign tax credits. In August of 2018, the IRS issued proposed regulations that clarified the computation of the deemed repatriation. In the fourth quarter of 2018, the company recorded a reduction to the tax of \$970 related to the regulations, adjustments to foreign tax credit calculations, and the interaction of those calculations with other aspects of the tax code. The total amount recorded for the deemed repatriation tax was \$419.
- In the fourth quarter of 2017, an estimated deferred tax benefit of \$27,255 was recorded to revalue the company's net deferred tax liabilities from the 35% previous federal tax rate to the 21% federal tax rate in effect as of January 1, 2018. This was a non-cash benefit recorded to deferred tax expense. The rate impact of temporary item true-ups for amounts filed on tax returns was considered insignificant. The total amount recorded for the revaluation of deferred tax amounts to 21% was a benefit of \$27,255.
- In the fourth quarter of 2017, an estimated tax expense of \$75 was recorded to reduce deferred tax assets associated with historic GAAP expensing of stock options issued to covered employees for purposes of the \$1 million cap on wage deductibility under Section 162(m). The deferred tax asset ("DTA") was reduced to its expected realizable amount, after anticipation of the 162(m) limit in future years. This estimate was not subsequently adjusted.
- The company did not estimate any deferred taxes related to the Global Intangible Low-Taxed Income, or GILTI, in the fourth quarter of 2017, as an analysis of the GILTI provisions were still underway. Additional guidance from the IRS on the computation of GILTI was issued in September and November of 2018, with more guidance still anticipated. The FASB noted that companies should make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or to include the tax expense in the year incurred. As of the fourth quarter 2018, the company has elected to include GILTI as tax expense in the period incurred. This resulted in no adjustment, since no deferred tax impact was recorded in the fourth quarter of 2017.

The company analyzed any potential Base Erosion and Anti-Abuse Tax ("BEAT") on related-party transactions and determined they met the gross receipts test but did not meet the level of base erosion payments that would subject the company to BEAT in 2018.

On June 21, 2018, the U.S. Supreme Court decided *South Dakota v. Wayfair, Inc.* ("Wayfair") overturning the previous ruling of *Quill Corp. v. North Dakota* which required physical presence in a state before the collection and remittance of sales and use taxes would be required. As a result of this ruling, numerous states have undertaken the process to reevaluate their nexus requirements in order to capture increased revenue through both sales and use taxes and income taxes. Many states are still evaluating the application and effects of Wayfair and many are expected to issue changes to their nexus rules in the coming months. These changes may require us to increase the number of state jurisdictions in which we file, and we continue to evaluate the impact of these changes as they come into effect for each state.

Net Earnings

Principally as a result of the above-noted details, net earnings were \$78,573 for 2018, as compared with \$90,071 for 2017, a decrease of 12.8%, primarily due to the aforementioned favorable impact of U.S. Tax Reform in 2017, partially offset by the aforementioned higher earnings from operations.

Fiscal Year 2017 compared to Fiscal Year 2016

Net Sales

Net sales for 2017 were \$594,790 as compared with \$553,204 for 2016, an increase of \$41,586 or 7.5%. Net sales for the Human Nutrition & Health segment were \$315,796, compared with \$297,134, for the year ended December 31, 2016, an increase of \$18,662 or 6.3%. Sales from Powder Systems were up \$10,427 or 9.5% and Encapsulates' sales were up \$5,113 or 17.3%, with the acquired IFP business contributing to both product lines' increases. The sales from the acquired Albion business contributed \$4,269 to the overall increase, as a result of having one additional month in 2017. Net sales for the Animal Nutrition & Health segment were \$157,688 for 2017 compared with \$161,119 for the prior year, a decrease of \$3,431 or 2.1%. Sales of products targeted for ruminant animal feed markets decreased 12.3% or \$6,619 from the prior period. The decline was primarily the result of lower sales volumes of rumen-protected products and chelated minerals. Global feed grade choline product sales increased \$2,517 or 2.6% primarily due to higher average selling prices. Specialty Products segment sales for 2017 were \$73,355 compared to sales of \$70,126 for 2016, an increase of \$3,229 or 4.6%. Plant nutrition sales increased 23.9% through strong volumes into both the domestic and international markets, while the sales from the additional month of the acquired Albion business contributed \$775 to the overall increase. Net sales for the Industrial Products segment were \$47,951 for the year ended December 31, 2017, an increase of \$23,126 or 93.2%. The increase is principally due to higher sales of various choline and choline derivatives used in shale fracking applications. Prior to the St. Gabriel CC Company, LLC joint venture becoming operational, we sold aqueous choline to our partner in the joint venture directly. As such, these sales no longer occurred in the year ended December 31, 2017, which partially offset the overall increase in sales for the segment (See Note 7).

Gross Margin

Gross margin for 2017 increased to \$189,009 compared to \$180,861 for 2016, an increase of \$8,148 or 4.5%. Gross margin as a percentage of sales for 2017 decreased to 31.8% from 32.7% in the prior year comparative period. Gross margin percentage for the Human Nutrition & Health segment increased 0.7% in 2017 as compared to 2016, primarily due to the valuation of acquired Albion inventory to fair value in 2016, which increased cost of goods sold by \$3,214, as it was sold during the year ended December 31, 2016. Gross margin percentage for the Animal Nutrition & Health segment decreased 4.1% compared to 2016, due to decreased volumes of products targeting ruminant species animals, increases in raw material costs, and increased competition in monogastric species products. Gross margin percentage for the Specialty Products segment increased 0.7%, primarily due to the valuation of acquired Albion inventory to fair value in 2016, which increased cost of goods sold by \$2,149, as it was sold during the year ended December 31, 2016. This was partially offset by increases in raw material prices for sterilization gases and an unfavorable mix. Gross margin percentage for the Industrial Products segment increased 3.9% from the prior year comparative period, primarily due a more favorable customer mix, improved cost structure, and increased volumes.

Operating Expenses

Operating expenses for 2017 were \$91,754 or 15.4% of net sales as compared to \$90,023 or 16.7% of net sales for 2016. The increase was primarily due to increased expenses relating to research and development efforts in 2017 of \$1,980, inclusion of IFP expenses of \$1,876, increased transaction costs of \$981 when compared to 2016, and a favorable legal settlement in 2016. These increases were partially offset by an indemnification settlement of \$2,087 in 2017, which was a favorable settlement received relating to the SensoryEffects acquisition and lower amortization costs.

Earnings From Operations

Principally as a result of the above-noted details, earnings from operations for 2017 were \$97,255 as compared to \$90,838 for 2016, an increase of \$6,417 or 7.1%. Earnings from operations as a percentage of sales ("operating margin") for both 2017 and 2016 was 16.4%. The Company is continuing to focus on leveraging its plant capabilities, driving efficiencies from core volume growth, and broadening product applications of human and animal health specialty ingredients into both the domestic and international markets. Earnings from operations for the Human Nutrition & Health segment were \$44,010, an increase of \$5,854 or 15.3% primarily due to higher sales, the contribution of IFP, the aforementioned impact of valuation of the acquired Albion inventory to fair value in 2016 and higher sales. Animal Nutrition & Health segment earnings from operations were \$22,292, a decrease of \$6,394 or 22.3%, primarily due to an unfavorable product mix and increases in certain petrochemical raw material costs. Earnings from operations for the Specialty Products segment were \$24,949, an increase of \$2,087 or 9.1%, primarily the result of aforementioned valuation of the acquired Albion inventory to fair value in 2016 and increases in sales of chelated minerals for plant nutrition, partially offset by raw material increases related to sterilization gases and an unfavorable mix. Earnings from operations from the Industrial Products segment of \$6,413 increased \$4,464, primarily due to the aforementioned higher sales and stronger gross margins due to a more favorable customer mix and improved cost structure.

Other Expenses (Income)

Interest expense for 2017 and 2016 was \$7,544 and \$7,265, respectively, and is primarily related to the loans entered into on May 7, 2014. Other expense was \$1,235 and \$648 for 2017 and 2016, respectively.

Income Tax Expense

The Company's effective tax rate for 2017 and 2016 was (1.8)% and 32.5% respectively. The effective tax rate was significantly impacted by recording the impact of U.S. Tax Reform, enacted on December 22, 2017 by the U.S. government.

The Tax Reform Act makes broad and complex changes to the U.S. tax code by, among other things, lowering the U.S. corporate tax rate from 35% to 21% effective January 1, 2018, while also repealing the deduction for domestic production activities, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. U.S. GAAP requires that the impact of tax legislation be recognized in the period in which the law was enacted. As a result of the Tax Reform Act, the Company recorded a tax benefit of \$27,255 due to remeasurement of deferred tax assets and liabilities and a tax charge of \$1,389 due to the transition tax on deemed repatriation. In accordance with SAB 118, we have determined that the \$27,255 of the deferred tax benefit recorded in connection with the remeasurement of certain deferred tax assets and liabilities and the \$1,389 of current tax expense recorded in connection with the transition tax on the mandatory deemed repatriation of foreign earnings was a provisional amount and a reasonable estimate at December 31, 2017. The provisional amounts are subject to adjustment during the measurement period of up to one year following the December 2017 enactment of the Tax Reform Act.

The FASB Staff also provided additional guidance to address the accounting for the effects of the provision in the Tax Reform Act related to the taxation of Global Intangible Low-Taxed Income ("GILTI"). Because of the complexity of the GILTI tax rules, the Company continues to evaluate this provision of the Tax Reform Act and the application of ASC 740, Income Taxes. Under U.S. GAAP, the Company is allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the "period cost method") or (2) factoring such amounts into the Company's measurement of its deferred taxes (the "deferred method"). The Company's selection of an accounting policy with respect to the new GILTI tax rules will depend, in part, on analyzing its global income to determine whether it expects to have future U.S. inclusions in taxable income related to GILTI and, if so, what the impact is expected to be. We have not completed our analysis of the effects of the GILTI provisions and will further consider the accounting policy election within the measurement period as provided for under SAB 118.

The Tax Reform Act also changed the individuals whose compensation is subject to a \$1 million cap on deductibility under Section 162(m) and includes performance-based compensation such as stock options, restricted shares, and performance shares in the calculation. The provision generally applies to taxable years beginning after December 31, 2017 and provides a transition for compensation paid pursuant to a written binding contract that is in effect on November 2, 2017. The Company will need to carefully review the terms of its compensation plans and agreements to assess whether such plans and agreements are considered to be written binding contracts in effect on November 2, 2017. Due to the complexity of applying this new provision and the limited time to consider tax reform, the Company has not yet completed its analysis of these new provisions and will finalize its analysis during the measurement period provided under SAB 118.

Net Earnings

Principally as a result of the above-noted details, net earnings were \$90,071 for 2017, as compared with \$55,972 for 2016, an increase of 60.9%.

LIQUIDITY AND CAPITAL RESOURCES*(All amounts in thousands, except share and per share data)***Contractual Obligations**

The Company's contractual obligations as of December 31, 2018, are summarized in the table below:

Contractual Obligations	Payments due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Operating lease obligations (1)	\$ 16,628	\$ 3,445	\$ 4,913	\$ 2,583	\$ 5,687
Purchase obligations (2)	23,435	23,435	—	—	—
Debt obligations (3)	156,000	—	—	156,000	—
Interest payment obligations (4)	25,955	5,773	17,319	2,863	—
Total	\$ 222,018	\$ 32,653	\$ 22,232	\$ 161,446	\$ 5,687

- (1) Principally includes obligations associated with future minimum non-cancelable operating lease obligations.
- (2) Principally includes open purchase orders with vendors for inventory not yet received or recorded on our balance sheet.
- (3) Consists of contractual obligations under the Credit Agreement, which was effective on June 27, 2018 and expires on June 27, 2023.
- (4) Includes interest payments on debt obligations based on interest rates at December 31, 2018, and it is assumed that there will be no prepayments of principal. This interest is related to the Credit Agreement that expires on June 27, 2023, and the Contractual Obligations table reflects this expiration date and related current contractual obligations.

The table above excludes a \$5,709 liability for uncertain tax positions, including the related interest and penalties, recorded in accordance with ASC 740-10, as we are unable to reasonably estimate the timing of settlement, if any.

We know of no current or pending demands on, or commitments for, our liquid assets that will materially affect our liquidity.

We expect our operations to continue generating sufficient cash flow to fund working capital requirements and necessary capital investments. We are actively pursuing additional acquisition candidates. We could seek additional bank loans or access to financial markets to fund such acquisitions, our operations, working capital, necessary capital investments or other cash requirements should we deem it necessary to do so.

Cash

Cash and cash equivalents increased to \$54,268 at December 31, 2018 from \$40,416 at December 31, 2017. At December 31, 2018, we had \$19,203 of cash and cash equivalents held by our foreign subsidiaries. It is our intention to permanently reinvest these funds in our foreign operations by continuing to make additional plant related investments, and potentially invest in partnerships or acquisitions; therefore, we do not currently expect to repatriate these funds in order to fund our U.S. operations or obligations. However, if these funds are needed for our U.S. operations, we could be required to pay additional taxes to repatriate these funds. Working capital was \$144,258 at December 31, 2018 as compared to \$90,940 at December 31, 2017, an increase of \$53,318.

Operating Activities

Cash flows from operating activities were \$118,697 as of December 31, 2018 as compared to \$110,618 as of December 31, 2017 and \$107,612 as of December 31, 2016. In 2018, cash flows from operating activities increased compared to 2017, primarily due to changes to deferred income taxes and improved accounts payable and accrued expenses, partially offset by lower net earnings and an increase in accounts receivable and inventory levels. In 2017, cash flows from operating activities increased compared to 2016 was primarily due to higher net earnings and improved accounts receivable, partially offset by changes to deferred income taxes as a result of the Tax Reform Act and less favorable accounts payable and accrued expenses.

Investing Activities

As previously noted, on June 1, 2017, we acquired 100 percent of the outstanding common shares of IFP, a privately held manufacturer of agglomerated and microencapsulated food and nutrition ingredients, headquartered in Faribault, Minnesota, for a purchase price of \$23,610. We also completed one immaterial acquisition in 2017, Chol-Mix Kft, and another immaterial acquisition in 2018, Bioscreen Technologies Srl.

We continue to invest in projects across all production facilities and capital expenditures were \$19,170, \$27,526, and \$23,034, for 2018, 2017, and 2016, respectively. In 2018, we invested \$5,662 to expand capacity in key product lines in the Human Nutrition & Health segment along with upgrading automation systems in our manufacturing sites to drive efficiencies. In addition, we invested \$3,137 for environmental, health, safety, and security upgrades to our facilities. In 2017, we spent approximately \$13,225 to expand manufacturing capacity at our AMT facility in Utah to accommodate production previously manufactured in Clearfield, UT prior to the site fire. In 2016, we spent approximately \$6,800 towards its agglomeration production equipment initiative, as well as approximately \$1,825 related to expanding our Animal Nutrition & Health capacity in our manufacturing facility located in Verona, Missouri.

Financing Activities

On June 27, 2018, we entered into a Credit Agreement with a bank syndicate, which replaced the existing credit facility that had provided for a senior secured term loan A of \$350,000 and a revolving loan of \$100,000. The initial proceeds from the Credit Agreement were used to repay the outstanding balance of \$210,750 on our senior secured term loan A, which was due May 2019. In addition to the repayment of the outstanding balance on June 27, 2018, we made total debt payments of \$8,750 related to the senior secured term loan and \$54,750 related to the revolving loan in 2018. During 2017, we made debt payments of \$43,000 related to the senior secured term loan and net payments of \$19,000 related to the revolving loan. During 2016, we borrowed \$65,000 from the revolving loan to finance the acquisition of Albion International, Inc. We also made debt payments of \$35,000 related to the senior secured term loan and net payments of \$46,000 related to the revolving loan during 2016.

We have an approved stock repurchase program. The total authorization under this program is 3,763,038 shares. Since the inception of the program in June 1999, a total of 2,190,772 shares have been purchased, and we had 706 shares remaining in treasury at December 31, 2018. We intend to acquire shares from time to time at prevailing market prices if and to the extent we deem it is advisable to do so based on our assessment of corporate cash flow, market conditions and other factors.

Proceeds from stock options exercised were \$8,272, \$9,732, and \$7,192 as of December 31, 2018, 2017, and 2016, respectively. Dividend payments were \$13,432, \$12,069, and \$10,720 as of December 31, 2018, 2017, and 2016, respectively.

Other Matters Impacting Liquidity

We currently provide postretirement benefits in the form of two retirement medical plans, as discussed in Note 15 - Employee Benefit Plans. The liability recorded in other long-term liabilities on the consolidated balance sheet as of December 31, 2018 and December 31, 2017 was \$1,174 and \$1,573, respectively, and the plans are not funded. Historical cash payments made under these plans have typically been less than \$100 per year. We do not anticipate any changes to the payments made in the current year for the plans.

On June 1, 2018, we established an unfunded, nonqualified deferred compensation plan maintained for the benefit of a select group of management or highly compensated employees. Assets of the plan are held in a rabbi trust, which are subject to additional risk of loss in the event of our bankruptcy or insolvency. The deferred compensation liability as of December 31, 2018 was \$265 and is included in other long-term obligations on our balance sheet.

Related Party Transactions

We were engaged in related party transactions with St. Gabriel CC Company, LLC for the year ended December 31, 2018. See Note 18.

Critical Accounting Policies

Our management is required to make certain estimates and assumptions during the preparation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America. These estimates and assumptions impact the reported amount of assets and liabilities and disclosures of contingent assets and liabilities as of the date of the consolidated financial statements. Estimates and assumptions are reviewed periodically, and the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary. Actual results could differ from those estimates.

Our “critical accounting policies” are those that require application of management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain and that may change in subsequent periods. Management considers the following accounting policies to be critical.

Revenue Recognition

Revenue for each of our business segments is recognized when control of the promised goods is transferred to our customers, in an amount that reflects the consideration we expect to realize in exchange for those goods. We report amounts billed to customers related to shipping and handling as revenue and includes costs incurred for shipping and handling in cost of sales. Amounts received for unshipped merchandise are not recognized as revenue but rather they are recorded as customer deposits and are included in current liabilities. In instances of shipments made on consignment, revenue is recognized when control is transferred to the customer. We do not charge our customers rental fees on cylinders or drums used to ship our products.

The new accounting standard for the recognition of revenue, ASC 606, *Revenue from Contracts with Customers*, was adopted for the fiscal year beginning on January 1, 2018. Per the new standard, revenue-generating contracts are assessed to identify distinct performance obligations, allocating transaction prices to those performance obligations, and criteria for satisfaction of a performance obligation. The new standard allows for recognition of revenue only when we have satisfied a performance obligation through transferring control of the promised good or service to a customer. Control, in this instance, may mean the ability to prevent other entities from directing the use of, and receiving benefit from, a good or service. The standard indicates that an entity must determine at contract inception whether it will transfer control of a promised good or service over time or satisfy the performance obligation at a point in time through analysis of the following criteria: (i) the entity has a present right to payment, (ii) the customer has legal title, (iii) the customer has physical possession, (iv) the customer has the significant risks and rewards of ownership and (v) the customer has accepted the asset. We assess collectability based primarily on the customer's payment history and on the creditworthiness of the customer. Overall, the adoption of the new standard did not significantly alter our methodology for recognition of revenue. Although the new revenue standard had an immaterial impact on ongoing net income, we did implement changes to processes related to revenue recognition and the control activities within them. These included the development of new policies based on the five-step model provided in the new revenue standard, new training, ongoing contract review requirements, and gathering of information provided for disclosures.

There have been no material changes in internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Act) during the year ended December 31, 2018, that have materially affected, or are reasonably likely to materially affect, internal control over financial reporting. We implemented internal controls to ensure we adequately evaluated the Company's contracts and properly assessed the impact of the new accounting standard related to revenue recognition on our financial statements to facilitate adoption of the standard on January 1, 2018.

Inventories

Inventories are valued at the lower of cost (first in, first out or average) or net realizable value and have been reduced by an allowance for excess or obsolete inventories. The write-down of potentially obsolete or slow-moving inventory is recorded based on management's assumptions about future demand and market conditions.

Long-lived assets

Long-lived assets, such as property, plant, and equipment and intangible assets with finite lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value of the asset, which is generally based on discounted cash flows. For the year ended December 31, 2018, we recorded certain immaterial impairment charges in connection with the IFP integration, however there were no other triggering events which required asset impairment reviews.

Goodwill represents the excess of costs over fair value of assets of businesses acquired. ASC 350, “Intangibles-Goodwill and Other,” requires the use of the acquisition method of accounting for a business combination and defines an intangible asset. Goodwill and intangible assets acquired in a business combination and determined to have an indefinite useful life are not amortized but are instead assessed for impairment annually and more frequently if events and circumstances indicate that the asset might be impaired, in accordance with the provisions of ASC 350. We performed our annual test as of October 1. ASC 350 also requires that intangible assets with estimable useful lives be amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment if events and circumstances indicate that the asset might be impaired.

In accordance with ASU No. 2011-08, “Intangibles-Goodwill and Other (Topic 350): Testing Goodwill for Impairment” (“ASU 2011-08”), we first assess qualitative factors to determine whether it is “more likely than not” (i.e. a likelihood of more than 50%) that the fair values of our reporting units are less than their respective carrying amounts, including goodwill, as a basis for determining whether it is necessary to perform the two step goodwill impairment test. If determined to be necessary, the two-step impairment test shall be used to identify potential goodwill impairment and measure the amount of a goodwill impairment loss to be recognized (if any). We have an unconditional option to bypass the qualitative assessment and proceed directly to performing the first step of the goodwill impairment test.

In January 2017, the FASB issued ASU No. 2017-04, “Simplifying the Test for Goodwill Impairment” (“ASU 2017-04”), which addresses changes to the testing for goodwill impairment by eliminating Step 2 of the process. The guidance is effective for annual and interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted; however we have elected not to adopt early as this ASU will not have a significant impact on our consolidated financial statements.

As of October 1, 2018 and 2017, we opted to bypass the qualitative assessment and proceeded directly to performing the first step of the goodwill impairment test. We assessed the fair values of our reporting units by utilizing the income approach, based on a discounted cash flow valuation model as the basis for our conclusions, as well as the market approach and cost approach. Our estimates of future cash flows included significant management assumptions such as revenue growth rates, operating margins, discount rates, estimated terminal values and future economic and market conditions. Our assessment concluded that the fair values of the reporting units exceeded their carrying amounts, including goodwill. Accordingly, the goodwill of the reporting units was not considered impaired. We may perform the qualitative assessment in subsequent periods.

Accounts Receivable

We market our products worldwide to a diverse customer base, principally throughout the Americas, Europe, and Asia. We grant credit terms in the normal course of business to our customers. We perform on-going credit evaluations of our customers and adjust credit limits based upon payment history and the customer's current credit worthiness, as determined through review of their current credit information. We continuously monitor collections and payments from customers and maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. Estimated losses are based on historical experience and any specific customer collection issues identified. If the financial condition of our customers were to deteriorate resulting in an impairment of their ability to make payments, additional allowances and related bad debt expense may be required.

Post-employment Benefits

We provide life insurance and health care benefits for certain eligible retirees and health care benefits for certain retirees' eligible survivors. The costs and obligations related to these benefits reflect our assumptions as to general economic conditions and health care cost trends. The cost of providing plan benefits also depends on demographic assumptions including retirements, mortality, turnover, and plan participation. If actual experience differs from these assumptions, the cost of providing these benefits could increase or decrease.

In accordance with ASC 715, “Compensation-Retirement Benefits,” we are required to recognize the over funded or underfunded status of a defined benefit post retirement plan (other than a multiemployer plan) as an asset or liability in our statement of financial position, and to recognize changes in that funded status in the year in which the changes occur through comprehensive income.

Intangible Assets with Finite Lives

The useful life of an intangible asset is based on our assumptions regarding expected use of the asset; the relationship of the intangible asset to another asset or group of assets; any legal, regulatory or contractual provisions that may limit the useful life of the asset or that enable renewal or extension of the asset's legal or contractual life without substantial cost; the effects of obsolescence, demand, competition and other economic factors; and the level of maintenance expenditures required to obtain the expected future cash flows from the asset and their related impact on the asset's useful life. If events or circumstances indicate that the life of an intangible asset has changed, it could result in higher future amortization charges or recognition of an impairment loss. For the year ended December 31, 2018, we recorded certain immaterial impairment charges in connection with the IFP integration, however there were no other triggering events which required asset impairment reviews.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the fiscal year in which those temporary differences are expected to be recovered or settled. Valuation allowances would be established when necessary to reduce deferred tax assets to the amount expected to be realized. In evaluating our ability to recover our deferred tax assets, in full or in part, we consider all available positive and negative evidence, including our past operating results, our forecast of future market growth, forecasted earnings, future taxable income, and prudent and feasible tax planning strategies. The assumptions utilized in determining future taxable income require significant judgment and are consistent with the plans and estimates we are using to manage the underlying businesses.

We recognize uncertain income tax positions taken on income tax returns at the largest amount that is more likely than not to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained.

Our policy for recording interest and penalties associated with uncertain tax positions is to record such items as a component of our income tax provision.

As of December 31, 2018, we have state income tax net operating loss (NOL) carryforwards of \$10,114, which will expire in 2031. We believe that the benefit from the state NOL carryforwards will be realized. Therefore, a valuation allowance is not required to be established.

Stock-based Compensation

We account for stock-based compensation in accordance with the provisions of ASC 718, "Compensation-Stock Compensation." Under the fair value recognition provisions of this statement, share-based compensation cost is measured at the grant date based on the value of the award and is recognized as expense over the vesting period. Determining the fair value of share-based awards at the grant date requires judgment, including estimating our stock price volatility, employee stock option exercise behaviors and employee option forfeiture rates. Expected volatilities are based on historical volatility of our stock. The expected term of the options is based on our historical experience of employees' exercise behavior. As stock-based compensation expense recognized in the Consolidated Statements of Earnings is based on awards ultimately expected to vest, the amount of expense has been reduced for estimated forfeitures. ASC 718 allows for forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Forfeitures were estimated based on historical experience. If factors change and we employ different assumptions in the application of ASC 718, the compensation expense that we record in future periods may differ significantly from what we have recorded in the current period. See Note 3 in Notes to Consolidated Financial Statements for additional information.

New Accounting Pronouncements

See Note 1 in Notes to Consolidated Financial Statements regarding recent accounting pronouncements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Cash and cash equivalents are held primarily in certificates of deposit and money market investment funds. We have no derivative financial instruments or derivative commodity instruments, nor do we have any financial instruments entered into for trading or hedging purposes. As of December 31, 2018, our borrowings were under a revolving loan bearing interest at a fluctuating rate as defined by the Credit Agreement plus an applicable rate. The applicable rate is based upon our consolidated net leverage ratio, as defined in the Credit Agreement. A 100 basis point increase or decrease in interest rates, applied to our borrowings at December 31, 2018, would result in an increase or decrease in annual interest expense and a corresponding reduction or increase in cash flow of approximately \$1,560. We are exposed to market risks for changes in foreign currency rates and has exposure to commodity price risks, including prices of our primary raw materials. Our objective is to seek a reduction in the potential negative earnings impact of changes in foreign exchange rates and raw material pricing arising in our business activities. We manage these financial exposures, where possible, through pricing and operational means. Our practices may change as economic conditions change.

Item 8. Financial Statements and Supplementary Data

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Balchem Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Balchem Corporation and subsidiaries (the Company) as of December 31, 2018 and 2017, and the related consolidated statements of earnings, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and the financial statement schedule of Balchem Corporation listed at Item 8 (collectively, the financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013.

As described in Management's Report on Internal Control Over Financial Reporting, management has excluded Bioscreen Technologies Srl (Bioscreen) from its assessment of internal control over financial reporting as of December 31, 2018, because it was acquired by the Company in a purchase business combination in the third quarter of 2018. We have also excluded Bioscreen from our audit of internal control over financial reporting. Bioscreen is a wholly owned subsidiary whose total assets and net sales represent approximately 2.0 percent and 0.2 percent, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2018.

Basis for Opinions

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

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

Our audits of the financial statements 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 regarding the amounts and disclosures in the 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 financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (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/ RSM US LLP

We have served as the Company's auditor since 2004.

New York, New York

February 28, 2019

BALCHEM CORPORATION
Consolidated Balance Sheets
December 31, 2018 and 2017
(Dollars in thousands, except share and per share data)

	<u>2018</u>	<u>2017</u>
Current assets:		
Cash and cash equivalents	\$ 54,268	\$ 40,416
Accounts receivable, net of allowance for doubtful accounts of \$610 and \$431 at December 31, 2018 and 2017, respectively	99,545	91,226
Inventories	67,187	60,696
Prepaid expenses	3,830	4,774
Other current assets	1,484	2,224
Total current assets	<u>226,314</u>	<u>199,336</u>
Property, plant and equipment, net	194,339	189,793
Goodwill	447,995	441,361
Intangible assets with finite lives, net	105,985	128,073
Other assets	6,722	5,073
Total assets	<u>\$ 981,355</u>	<u>\$ 963,636</u>
<u>Liabilities and Stockholders' Equity</u>		
Current liabilities:		
Trade accounts payable	\$ 33,789	\$ 28,451
Accrued expenses	22,025	22,930
Accrued compensation and other benefits	11,022	8,531
Dividends payable	15,220	13,484
Current portion of long-term debt	—	35,000
Total current liabilities	<u>82,056</u>	<u>108,396</u>
Long-term debt	—	183,964
Revolver loan - long-term	156,000	—
Deferred income taxes	44,309	48,548
Other long-term obligations	7,372	5,847
Total liabilities	<u>289,737</u>	<u>346,755</u>
Commitments and contingencies (note 16)		
Stockholders' equity:		
Preferred stock, \$25 par value. Authorized 2,000,000 shares; none issued and outstanding	—	—
Common stock, \$.0667 par value. Authorized 120,000,000 shares; 32,256,915 shares issued and 32,256,209 outstanding at December 31, 2018 and 32,019,605 shares issued and outstanding at December 31, 2017	2,151	2,135
Additional paid-in capital	165,098	151,749
Retained earnings	528,027	464,639
Accumulated other comprehensive loss	(3,602)	(1,642)
Treasury stock, at cost: 706 and 0 shares at December 31, 2018 and 2017, respectively	(56)	—
Total stockholders' equity	<u>691,618</u>	<u>616,881</u>
Total liabilities and stockholders' equity	<u>\$ 981,355</u>	<u>\$ 963,636</u>

See accompanying notes to consolidated financial statements.

BALCHEM CORPORATION
Consolidated Statements of Earnings
Years Ended December 31, 2018, 2017 and 2016
(In thousands, except per share data)

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Net sales	\$ 643,679	\$ 594,790	\$ 553,204
Cost of sales	439,427	405,781	372,343
Gross margin	204,252	189,009	180,861
Operating expenses:			
Selling expenses	57,219	54,720	55,172
Research and development expenses	11,592	9,305	7,325
General and administrative expenses	27,690	27,729	27,526
	<u>96,501</u>	<u>91,754</u>	<u>90,023</u>
Earnings from operations	<u>107,751</u>	<u>97,255</u>	<u>90,838</u>
Other expenses:			
Interest expense, net	7,611	7,532	7,256
Other, net	1,110	1,235	648
Earnings before income tax expense	<u>99,030</u>	<u>88,488</u>	<u>82,934</u>
Income tax expense/(benefit)	<u>20,457</u>	<u>(1,583)</u>	<u>26,962</u>
Net earnings	<u>\$ 78,573</u>	<u>\$ 90,071</u>	<u>\$ 55,972</u>
Basic net earnings per common share	<u>\$ 2.45</u>	<u>\$ 2.83</u>	<u>\$ 1.78</u>
Diluted net earnings per common share	<u>\$ 2.42</u>	<u>\$ 2.79</u>	<u>\$ 1.75</u>

See accompanying notes to consolidated financial statements.

BALCHEM CORPORATION
Consolidated Statements of Comprehensive Income
Years Ended December 31, 2018, 2017 and 2016
(In thousands)

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Net earnings	\$ 78,573	\$ 90,071	\$ 55,972
Other comprehensive (loss)/income, net of tax:			
Net foreign currency translation adjustment	(2,982)	5,404	(1,390)
Net change in postretirement benefit plan, net of taxes of \$434, \$207, and \$49 at December 31, 2018, 2017 and 2016, respectively	1,022	(197)	(345)
Other comprehensive (loss)/income	<u>(1,960)</u>	<u>5,207</u>	<u>(1,735)</u>
Comprehensive income	<u>\$ 76,613</u>	<u>\$ 95,278</u>	<u>\$ 54,237</u>

See accompanying notes to consolidated financial statements.

BALCHEM CORPORATION
Consolidated Statements of Stockholders' Equity
Years Ended December 31, 2018, 2017 and 2016
(Dollars in thousands, except share and per share data)

	Total Stockholders' Equity	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Common Stock		Treasury Stock		Additional Paid-in Capital
				Shares	Amount	Shares	Amount	
Balance - December 31, 2015	\$ 463,705	\$ 344,197	\$ (5,114)	31,528,449	\$ 2,102	(1,089)	(74)	\$ 122,594
Net earnings	55,972	55,972	—	—	—	—	—	—
Other comprehensive loss	(1,735)	—	(1,735)	—	—	—	—	—
Dividends (\$.38 per share)	(12,080)	(12,080)	—	—	—	—	—	—
Treasury shares purchased	(1,588)	—	—	—	—	(24,912)	(1,588)	—
Shares and options issued under stock plans and an income tax benefit of \$2,546	16,759	—	—	229,412	15	26,001	1,662	15,082
Balance - December 31, 2016	521,033	388,089	(6,849)	31,757,861	2,117	—	—	137,676
Net earnings	90,071	90,071	—	—	—	—	—	—
Other comprehensive income, net of cumulative effect of accounting change	5,150	(57)	5,207	—	—	—	—	—
Dividends (\$.42 per share)	(13,464)	(13,464)	—	—	—	—	—	—
Treasury shares purchased	(1,905)	—	—	—	—	(23,182)	(1,905)	—
Shares and options issued under stock plans	15,996	—	—	261,744	18	23,182	1,905	14,073
Balance - December 31, 2017	616,881	464,639	(1,642)	32,019,605	2,135	—	—	151,749
Net earnings	78,573	78,573	—	—	—	—	—	—
Other comprehensive loss	(1,960)	—	(1,960)	—	—	—	—	—
Dividends (\$.47 per share)	(15,185)	(15,185)	—	—	—	—	—	—
Treasury shares purchased	(1,394)	—	—	—	—	(16,755)	(1,394)	—
Shares and options issued under stock plans	14,703	—	—	236,604	16	16,049	1,338	13,349
Balance - December 31, 2018	\$ 691,618	\$ 528,027	\$ (3,602)	32,256,209	\$ 2,151	(706)	(56)	\$ 165,098

See accompanying notes to consolidated financial statements.

BALCHEM CORPORATION
Consolidated Statements of Cash Flows
Years Ended December 31, 2018, 2017 and 2016
(In thousands)

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Cash flows from operating activities:			
Net earnings	\$ 78,573	\$ 90,071	\$ 55,972
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation and amortization	44,666	44,379	46,202
Stock compensation expense	6,413	6,264	7,024
Deferred income taxes	(5,403)	(28,777)	(6,881)
Provision for doubtful accounts	43	69	258
Foreign currency transaction (gain)/loss	(141)	340	(16)
Asset impairment charge	1,801	—	—
(Gain)/Loss on disposal of assets	(3,244)	254	320
Changes in assets and liabilities, net of acquired balances			
Accounts receivable	(7,773)	(3,906)	(15,659)
Inventories	(6,016)	(319)	4,745
Prepaid expenses and other current assets	1,517	(439)	240
Accounts payable and accrued expenses	5,988	1,511	17,841
Income taxes	1,121	449	(2,765)
Other	1,152	722	331
Net cash provided by operating activities	<u>118,697</u>	<u>110,618</u>	<u>107,612</u>
Cash flows from investing activities:			
Capital expenditures	(19,170)	(27,526)	(23,034)
Cash paid for acquisitions, net of cash acquired	(17,399)	(17,393)	(110,601)
Proceeds from sale of property, plant and equipment	966	22	4
Proceeds from insurance	4,165	2,792	1,000
Intangible assets acquired	(553)	(591)	(963)
Net cash used in investing activities	<u>(31,991)</u>	<u>(42,696)</u>	<u>(133,594)</u>
Cash flows from financing activities:			
Proceeds from revolving loan	210,750	25,000	72,500
Principal payments on revolving loan	(54,750)	(44,000)	(53,500)
Principal payments on long-term debt	(219,500)	(43,000)	(35,000)
Principal payment on acquired debt	(19)	(2,384)	(884)
Cash paid for financing costs	(1,374)	—	—
Proceeds from stock options exercised	8,272	9,732	7,192
Excess tax benefits from stock compensation	—	—	2,546
Dividends paid	(13,432)	(12,069)	(10,720)
Purchase of treasury stock	(1,394)	(1,905)	(1,588)
Net cash used in by financing activities	<u>(71,447)</u>	<u>(68,626)</u>	<u>(19,454)</u>
Effect of exchange rate changes on cash	(1,407)	2,477	(716)
Increase/(Decrease) in cash and cash equivalents	<u>13,852</u>	<u>1,773</u>	<u>(46,152)</u>
Cash and cash equivalents beginning of period	<u>40,416</u>	<u>38,643</u>	<u>84,795</u>
Cash and cash equivalents end of period	<u>\$ 54,268</u>	<u>\$ 40,416</u>	<u>\$ 38,643</u>

Supplemental Cash Flow Information - see Note 13
See accompanying notes to consolidated financial statements.

BALCHEM CORPORATION

Notes to Consolidated Financial Statements

(All amounts in thousands, except share and per share data)

NOTE 1 - BUSINESS DESCRIPTION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Business Description

Balchem Corporation (including, unless the context otherwise requires, its wholly-owned subsidiaries, SensoryEffects, Inc., SensoryEffects Cereal Systems, Inc., Albion Laboratories, Inc. (formerly known as Albion International, Inc.), BCP Ingredients, Inc., Aberco, Inc., Balchem BV, Balchem Italia Srl, Bioscreen Technologies Srl, Innovative Food Processors, Inc., and Balchem LTD (“Balchem” or the “Company”)), incorporated in the State of Maryland in 1967, is engaged in the development, manufacture and marketing of specialty performance ingredients and products for the food, nutritional, feed, pharmaceutical, agricultural, and medical sterilization industries.

Principles of Consolidation

The consolidated financial statements include the financial statements of the Company and its subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Revenue Recognition

Revenue for each of the Company’s business segments is recognized when control of the promised goods is transferred to our customers, in an amount that reflects the consideration we expect to realize in exchange for those goods. The Company reports amounts billed to customers related to shipping and handling as revenue and includes costs incurred for shipping and handling in cost of sales. Amounts received for unshipped merchandise are not recognized as revenue but rather they are recorded as customer deposits and are included in current liabilities. In instances of shipments made on consignment, revenue is recognized when control is transferred to the customer. The Company does not charge its customers rental fees on cylinders or drums used to ship its products.

The new accounting standard for the recognition of revenue, Accounting Standards Codification (“ASC”) 606, *Revenue from Contracts with Customers*, was adopted for the fiscal year beginning on January 1, 2018. Per the new standard, revenue-generating contracts are assessed to identify distinct performance obligations, allocating transaction prices to those performance obligations, and criteria for satisfaction of a performance obligation. The new standard allows for recognition of revenue only when we have satisfied a performance obligation through transferring control of the promised good or service to a customer. Control, in this instance, may mean the ability to prevent other entities from directing the use of, and receiving benefit from, a good or service. The standard indicates that an entity must determine at contract inception whether it will transfer control of a promised good or service over time or satisfy the performance obligation at a point in time through analysis of the following criteria: (i) the entity has a present right to payment, (ii) the customer has legal title, (iii) the customer has physical possession, (iv) the customer has the significant risks and rewards of ownership and (v) the customer has accepted the asset. The Company assesses collectability based primarily on the customer’s payment history and on the creditworthiness of the customer. Overall, the adoption of the new standard did not significantly alter our methodology for recognition of revenue.

The Company adopted ASC 606 using the modified retrospective method applied to those contracts that were in progress as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported in accordance with the Company’s historical accounting under ASC 605. The impact to revenues as a result of applying ASC 606 was an increase of \$338 for the year ended December 31, 2018.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less to be cash equivalents. The Company has funds in its cash accounts that are with third party financial institutions, primarily in certificates of deposit and money market funds. The Company’s U.S. and Italy cash balances at these financial institutions exceed the Federal Deposit Insurance Corporation (“FDIC”) and Fondo Interbancario di Tutela dei Depositi (“FITD”) insurance limits.

Accounts Receivable

Credit terms are granted in the normal course of business to the Company’s customers. On-going credit evaluations are performed on the Company’s customers and credit limits are adjusted based upon payment history and the customer's current credit worthiness,

as determined through review of their current credit information. Collections and payments from customers are continuously monitored and allowances for doubtful accounts for estimated losses resulting from the inability of the Company's customers to make required payments are maintained. Estimated losses are based on historical experience and any specific customer collection issues identified.

Inventories

Inventories are valued at the lower of cost (first in, first out or average) or net realizable value and have been reduced by an allowance for excess or obsolete inventories. Cost elements include material, labor and manufacturing overhead.

Property, Plant and Equipment and Depreciation

Property, plant and equipment are stated at cost.

Depreciation of plant and equipment is calculated using the straight-line method over the estimated useful lives of the assets as follows:

Buildings	15-25 years
Equipment	2-28 years

Expenditures for repairs and maintenance are charged to expense. Alterations and major overhauls that extend the lives or increase the capacity of plant assets are capitalized. When assets are retired or otherwise disposed of, the cost of the assets and the related accumulated depreciation are removed from the accounts and any resultant gain or loss is included in earnings.

For the year ended December 31, 2018, we recorded certain immaterial impairment charges in connection with the IFP integration.

Business Concentrations

Financial instruments that subject the Company to credit risk consist primarily of accounts receivable and money market investments. Investments are managed within established guidelines to mitigate risks. Accounts receivable subject the Company to credit risk partially due to the concentration of amounts due from customers. The Company extends credit to its customers based upon an evaluation of the customers' financial condition and credit histories. The majority of the Company's customers are major national or international corporations. In 2018, 2017 and 2016, no customer accounted for more than 10% of total net sales.

Goodwill and Acquired Intangible Assets

Goodwill represents the excess of costs over fair value of assets of businesses acquired. ASC 350, "Intangibles-Goodwill and Other," requires the use of the acquisition method of accounting for a business combination and defines an intangible asset. Goodwill and intangible assets acquired in a business combination and determined to have an indefinite useful life are not amortized but are instead assessed for impairment annually and more frequently if events and circumstances indicate that the asset might be impaired, in accordance with the provisions of ASC 350. The Company performs its annual test as of October 1. ASC 350 also requires that intangible assets with estimable useful lives be amortized over their respective estimated useful lives to their estimated residual values and reviewed for impairment if events and circumstances indicate that the asset might be impaired.

In accordance with ASC 350, the Company first assesses qualitative factors to determine whether it is "more likely than not" (i.e. a likelihood of more than 50%) that the fair values of its reporting units are less than their respective carrying amounts, including goodwill, as a basis for determining whether it is necessary to perform the two-step goodwill impairment test. If determined to be necessary, the two-step impairment test shall be used to identify potential goodwill impairment and measure the amount of a goodwill impairment loss to be recognized (if any). The Company has an unconditional option to bypass the qualitative assessment and proceed directly to performing the first step of the goodwill impairment test.

As of October 1, 2018 and 2017, the Company opted to bypass the qualitative assessment and proceeded directly to performing the first step of the goodwill impairment test. As of October 1, 2018, it assessed the fair values of its reporting units by utilizing the income approach, based on a discounted cash flow valuation model as the basis for its conclusions. As of October 1, 2017, the Company assessed the fair values of its reporting units by utilizing the income approach, based on a discounted cash flow valuation model as the basis for its conclusions, as well as market approaches for certain reporting units. The Company's estimates of future cash flows included significant management assumptions such as revenue growth rates, operating margins, discount rates, estimated terminal values and future economic and market conditions. The Company's assessment concluded that the fair values of the reporting units exceeded their carrying amounts, including goodwill. Accordingly, the goodwill of the reporting units is not considered impaired. The Company may resume performing the qualitative assessment in subsequent periods.

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The Company had goodwill in the amount of \$447,995 and \$441,361 as of December 31, 2018 and December 31, 2017, respectively, subject to the provisions of ASC 350, “Intangibles-Goodwill and Other.”

Goodwill at December 31, 2016	\$	439,811	
Goodwill as a result of the Acquisitions - see Note 2		1,550	
Goodwill at December 31, 2017		441,361	
Goodwill as a result of the Acquisitions – see Note 2		6,838	
Impact due to change in foreign exchange rates		(204)	
Goodwill at December 31, 2018	\$	447,995	
		December 31,	December 31,
		2018	2017
Human Nutrition & Health	\$	405,527	\$ 405,334
Animal Nutrition & Health		18,578	12,137
Specialty Products		22,662	22,662
Industrial Products		1,228	1,228
Total	\$	447,995	\$ 441,361

The following intangible assets with finite lives are stated at cost and are amortized either on an accelerated basis or on a straight-line basis over the following estimated useful lives:

	Amortization Period (in years)
Customer relationships and lists	10
Trademarks & trade names	5 - 17
Developed technology	5
Regulatory registration costs	5 - 10
Patents & trade secrets	15 - 17
Other	3 - 18

For the year ended December 31, 2018, we recorded certain immaterial impairment charges in connection with the IFP integration.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the fiscal year in which those temporary differences are expected to be recovered or settled. Valuation allowances would be established when necessary to reduce deferred tax assets to the amount expected to be realized. In evaluating our ability to recover our deferred tax assets, in full or in part, we consider all available positive and negative evidence, including our past operating results, our forecast of future market growth, forecasted earnings, future taxable income, and prudent and feasible tax planning strategies. The assumptions utilized in determining future taxable income require significant judgment and are consistent with the plans and estimates we are using to manage the underlying businesses.

We recognize uncertain income tax positions taken on income tax returns at the largest amount that is more likely than not to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained.

Our policy for recording interest and penalties associated with uncertain tax positions is to record such items as a component of our income tax provision.

Use of Estimates

Management of the Company is required to make certain estimates and assumptions during the preparation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America. These estimates and assumptions impact the reported amount of assets and liabilities and disclosures of contingent assets and liabilities as of the date of the consolidated financial statements and revenues and expenses during the reporting period. Estimates and assumptions are reviewed

periodically, and the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary. Actual results could differ from those estimates.

Fair Value of Financial Instruments

The Company has a number of financial instruments, none of which are held for trading purposes. The Company estimates that the fair value of all financial instruments at December 31, 2018 and 2017 does not differ materially from the aggregate carrying values of its financial instruments recorded in the accompanying consolidated balance sheets. The estimated fair value amounts have been determined by the Company using available market information and appropriate valuation methodologies. Considerable judgment is necessarily required in interpreting market data to develop the estimates of fair value, and, accordingly, the estimates are not necessarily indicative of the amounts that the Company could realize in a current market exchange. The carrying value of debt approximates fair value as the interest rate is based on market and the Company's consolidated leverage ratio. The Company's financial instruments also include cash equivalents, accounts receivable, accounts payable and accrued liabilities, and are carried at cost which approximates fair value due to the short-term maturity of these instruments.

Cost of Sales

Cost of sales are primarily comprised of raw materials and supplies consumed in the manufacture of product, as well as manufacturing labor, maintenance labor, depreciation expense, and direct overhead expense necessary to convert purchased materials and supplies into finished product. Cost of sales also includes inbound freight costs, outbound freight costs for shipping products to customers, warehousing costs, quality control and obsolescence expense.

Selling, General and Administrative Expenses

Selling expenses consist primarily of compensation and benefit costs, amortization of customer relationships and lists, trade promotions, advertising, commissions and other marketing costs. General and administrative expenses consist primarily of payroll and benefit costs, occupancy and operating costs of corporate offices, depreciation and amortization expense on non-manufacturing assets, information systems costs and other miscellaneous administrative costs.

Research and Development

Research and development costs are expensed as incurred.

Net Earnings Per Common Share

Basic net earnings per common share is calculated by dividing net income by the weighted average number of common shares outstanding during the period. Diluted net earnings per common share is calculated in a manner consistent with basic net earnings per common share except that the weighted average number of common shares outstanding also includes the dilutive effect of stock options outstanding, unvested restricted stock, and unvested performance shares (using the treasury stock method).

Stock-based Compensation

The Company has stock-based employee compensation plans, which are described more fully in Note 3. The Company accounts for stock-based compensation in accordance with ASC 718, "Compensation-Stock Compensation," which requires all share-based payments, including grants of stock options, to be recognized in the income statement as an operating expense, based on their fair values. The Company estimates the fair value of each option award on the date of grant using a Black-Scholes based option-pricing model. Estimates of and assumptions about forfeiture rates, terms, volatility, interest rates and dividend yields are used to calculate stock-based compensation. A significant change to these estimates could materially affect the Company's operating results.

Impairment of Long-lived Assets

Long-lived assets, such as property, plant, and equipment, and purchased intangibles subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value of the asset, which is generally based on discounted cash flows. For the year ended December 31, 2018, we recorded certain immaterial impairment charges in connection with the IFP integration.

New Accounting Pronouncements

Recently Issued Accounting Standards

In August 2018, the FASB issued ASU 2018-15, “Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract.” The guidance requires implementation costs incurred by customers in cloud computing arrangements to be deferred over the noncancelable term of the cloud computing arrangements plus any optional renewal periods (1) that are reasonably certain to be exercised by the customer or (2) for which exercise of the renewal option is controlled by the cloud service provider. The effective date of this pronouncement is for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted, and the standard may be adopted either using the prospective or retrospective transition approach. The Company is currently evaluating the impact of this pronouncement on the Company’s consolidated financial statements and disclosures.

In August 2018, the FASB issued ASU 2018-14, “Disclosure Framework-Changes to the Disclosure Requirements for Defined Benefit Plans”, which modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement benefit plans. The guidance removes disclosures that are no longer considered cost beneficial, clarifies the specific requirements of disclosures and adds disclosure requirements identified as relevant. This update should be applied on a retrospective basis to all periods presented and is effective for fiscal years ending after December 31, 2020. Early adoption is permitted. The Company expects this new guidance will have minimal impact on its financial reporting.

In January 2017, the FASB issued ASU No. 2017-04, “Simplifying the Test for Goodwill Impairment” (“ASU 2017-04”), which addresses changes to the testing for goodwill impairment by eliminating Step 2 of the process. The guidance is effective for annual and interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted; however, the Company has elected not to adopt early as this ASU will not have a significant impact on the Company’s consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, “Leases” (“ASU 2016-02”), which was further clarified by ASU 2018-11 and addresses the recognition of assets and liabilities that arise from all leases. The guidance requires lessees to recognize right-of-use assets (“ROU”) and lease liabilities for most leases in the Consolidated Balance Sheets. The guidance is effective for annual and interim periods beginning after December 15, 2018 and early adoption is permitted. The standard can be applied using the modified retrospective method, with elective reliefs, which requires application of the new guidance for all periods presented. Entities may also elect the optional transition method provided under ASU 2018-11, “Leases, Topic 842: Targeted Improvement”, issued in July 2018, allowing for application of the standard at the adoption date, with recognition of a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. The Company will adopt the new standard on January 1, 2019 and has elected the optional transition method to account for the impact of the adoption with a cumulative-effect adjustment in the period of adoption. The new standard provides a number of optional practical expedients in transition. The Company has elected the “package of practical expedients”, which permits it not to reassess under the new standard its prior conclusions about lease identification, lease classification and initial direct costs. The Company has not elected the use-of-hindsight or the practical expedient pertaining to land easements, the latter not being applicable to the Company. The Company is substantially complete with its evaluation of the effect that the adoption of this ASU will have on the financial statements. While the Company continues to assess all of the effects of adoption, it currently believes the most significant effects will be related to (1) the recognition of new right-of-use assets and lease liabilities on its balance sheet for its operating leases, and (2) providing significant new disclosures about its leasing activities. In connection with the adoption of this standard, the Company expects to recognize additional operating liabilities of approximately \$12,900 with corresponding ROU assets of approximately \$12,700 based on the present value of the remaining minimum rental payments under current leasing standards for existing operating leases. The Company does not anticipate any material impact to the Consolidated Statements of Earnings when compared to reporting under historical guidance and does not expect any impact to cash flows from or used in operating, financing, or investing on our Consolidated Statements of Cash Flows. The new standard also provides practical expedients for an entity’s ongoing accounting. The Company has elected the short-term lease recognition exemption for all leases that qualify, which means for those leases that qualify, the Company will not recognize ROU assets or lease liabilities. The Company has also elected the practical expedient to not separate lease and non-lease components for all of its leases.

In May 2014, the FASB issued a comprehensive new revenue recognition standard that superseded existing revenue recognition guidance under U.S. GAAP. The core principle of the new guidance is that a company should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The standard creates a five-step model that requires companies to exercise judgment when considering the terms of a contract and all relevant facts and circumstances. The standard allows for several transition methods: (a) a full retrospective adoption in which the standard is applied to all of the periods presented, or (b) a modified retrospective adoption in which the standard is applied only to the most current period presented in the financial statements with a cumulative-effect

adjustment reflected in retained earnings. The standard also requires expanded disclosures regarding the qualitative and quantitative information of an entity's nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. This new revenue recognition standard is effective for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. The Company performed a detailed review of its contract portfolio representative of its different businesses and compared historical accounting policies and practices to the new standard. Because the standard impacts its business processes, systems and controls, the Company also developed a comprehensive change management project plan to guide the implementation. Over the course of 2017, the Company conducted training sessions for those in its global organization that are impacted by the new standard. The Company's primary business is the sale of products, and the adoption of the new revenue recognition standard did not have a material impact on its financial statements. The Company adopted the new standard effective January 1, 2018 utilizing the modified retrospective method. The cumulative-effect adjustment to retained earnings upon adoption was not material.

In January 2017, the FASB issued ASU No. 2017-01, "Clarifying the Definition of a Business" ("ASU 2017-01"), which addresses the definition of what constitutes a business by providing clarification of the three elements that constitute a business. The guidance is effective for annual and interim periods beginning after December 15, 2017. The Company adopted ASU 2017-01 on January 1, 2018 prospectively (prior periods have not been restated). There was no significant impact on the Company's consolidated financial statements.

In October 2016, the FASB issued ASU 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory" ("ASU 2016-16"). The standard requires that an entity recognize the income tax consequences of an intra-entity transfer of an asset when the transfer occurs as opposed to when the asset is transferred to an outside party as required under current U.S. GAAP. The standard does not apply to intra-entity transfers of inventory, which will continue to follow current U.S. GAAP. The guidance is effective for annual and interim periods beginning after December 15, 2017. The Company adopted ASU 2016-16 on January 1, 2018 utilizing the modified retrospective method. There was no impact on the Company's consolidated financial statements.

In March 2018, the FASB issued ASU No. 2018-05, "Amendments to SEC Paragraph Pursuant to SEC Staff Accounting Bulletin No. 118" ("ASU 2018-05"), which clarifies the income tax accounting implications of the Tax Cuts and Jobs Act. The guidance is effective immediately. In the 4th quarter of 2018, the company completed its analysis of the impact of U.S. Tax Reform.

NOTE 2 – SIGNIFICANT ACQUISITIONS

Acquisition of Innovative Food Processors, Inc.

On June 1, 2017, the Company acquired 100 percent of the outstanding common shares of Innovative Food Processors, Inc. ("IFP"), a privately held manufacturer of agglomerated and microencapsulated food and nutrition ingredients, headquartered in Faribault, Minnesota. The Company made payments of approximately \$22,975 on the acquisition date and \$635 in September to true-up working capital, amounting to approximately \$16,161 to the former shareholders, adjustments for working capital acquired of \$5,065, and \$2,384 to IFP's lenders to pay off all IFP bank debt. The acquisition of IFP expands the Company's Human Nutrition & Health segment's processing technology and market reach, while bringing innovative and value-added systems to food, beverage, and nutrition customers.

Management has completed its accounting for the acquisition. As a result, the fair values of the assets acquired and liabilities assumed have been determined and \$1,340 of estimated goodwill has been recorded.

The following table summarizes the fair values of the assets acquired and liabilities assumed:

Cash and cash equivalents	\$	5,065
Accounts receivable		2,860
Inventories		2,537
Prepaid expenses		186
Property, plant and equipment		12,219
Customer relationships		2,942
Developed technology		1,078
Trademark & trade name		1,388
Covenant not to compete		126
Goodwill		1,340
Trade accounts payable		(844)
Accrued expenses		(1,416)
Bank debt		(2,384)
Deferred income taxes		(3,871)
Amount paid to shareholders		21,226
IFP bank debt paid on purchase date		2,384
Total amount paid	\$	<u>23,610</u>

The goodwill of \$1,340 arising from the IFP Acquisition consists largely of expected synergies, including the combined entities' experience and technical problem solving capabilities, and acquired workforce. The goodwill is assigned to the Human Nutrition & Health segment, and is not tax deductible for income tax purposes.

The valuation of the fair value of tangible and intangible assets acquired and liabilities assumed are based on management's estimates and assumptions. In preparing the Company's fair value of the intangible assets and certain tangible assets acquired, management, among other things, consulted an independent advisor. Additionally, certain intangible assets are not tax deductible.

Customer relationships are amortized over a 10-year period utilizing an accelerated method based on the estimated average customer attrition rate. Trademark, trade name, covenant not to compete, and developed technology are amortized over 10 years, 5 years, 3 years, and 5 years, respectively, utilizing the straight-line method as the consumption pattern of the related economic benefits cannot be reliably determined.

The Company is indemnified for tax liabilities prior to the acquisition date. Indemnified tax liabilities will create an indemnification asset (receivable). At this time, an indemnification asset (receivable) balance has not been established.

The Company also completed one immaterial acquisition in 2017, Chol-Mix Kft, and another immaterial acquisition in 2018, Bioscreen Technologies Srl.

Transaction and integration costs related to recent acquisitions are included in general and administrative expenses and amounted to \$1,786 and \$2,163 for the years ended December 31, 2018 and 2017, respectively.

NOTE 3 - STOCKHOLDERS' EQUITY

STOCK-BASED COMPENSATION

All share-based payments, including grants of stock options, are recognized in the income statement as an operating expense, based on their fair values.

The Company has made an estimate of expected forfeitures, based on its historical experience, and is recognizing compensation cost only for those stock-based compensation awards expected to vest.

The Company's results for the years ended December 31, 2018, 2017 and 2016 reflected the following compensation cost and such compensation cost had the following effects on net earnings:

**Increase/(Decrease) for the
Years Ended December 31,**

	2018	2017	2016
Cost of sales	\$ 973	\$ 524	\$ 1,040
Operating expenses	5,440	5,736	5,984
Net earnings	(4,965)	(3,990)	(4,473)

On December 31, 2018, the Company had one share-based compensation plan under which awards may be granted, which is described below (the “2017 Plan”).

In June 2017, the Company adopted the Balchem Corporation 2017 Omnibus Incentive Plan (“2017 Plan”) for officers, employees and directors of the Company and its subsidiaries. The 2017 Plan replaced the 1999 Stock Plan and amendments and restatements thereto (collectively to be referred to as the “1999 Plan”), which expired on April 9, 2018. No further awards will be made under the 1999 Plan, and the shares that remained available for grant under the 1999 Plan will only be used to settle outstanding awards granted under the 1999 Plan and will not become available under the 2017 Plan. The 2017 Plan is administered by the Compensation Committee of the Board of Directors of the Company. The 2017 Plan provides as follows: i) for a termination date of June 13, 2027; (ii) to authorize 1,600,000 shares reserved for future grants, a reduction from the 6,000,000 shares authorized for grant under the 1999 Plan; (iii) for the making of grants of stock options, stock appreciation rights, restricted stock awards, restricted stock units, and other stock-based awards, as well as for the making of cash performance awards; (iv) except as provided in an employment agreement as in effect on the effective date of the 2017 Plan, no automatic acceleration of outstanding awards upon the occurrence of a change in control of the Company; (v) certain annual limits on the number of shares and amount of cash that may be granted; (vi) for dividends or dividend equivalents otherwise payable on an unvested award to accrue and be paid only at such time as the vesting conditions applicable to the underlying award have been satisfied; (vii) for certain discretionary compensation recovery if the Company is required to prepare an accounting restatement of its financial statements due to the Company’s material noncompliance with any financial reporting requirements under the securities laws; and (viii) for compliance with the requirements of Section 409A of the Internal Revenue Code of 1986, as amended (the “Internal Revenue Code” or the “Code”). No option will be exercisable for longer than ten years after the date of grant.

The shares to be issued upon exercise of the outstanding options have been approved, reserved and are adequate to cover all exercises. As of December 31, 2018, the 2017 Plan had 1,377,544 shares available for future awards.

The Company has Restricted Stock Grant Agreements with the Company's non–employee directors and certain employees. Under the Restricted Stock Grant Agreements, certain shares of the Company’s Common Stock have been granted, ranging from 70 shares to 54,000 shares, to its non-employee directors and certain employees, subject to time-based vesting requirements.

The Company also has performance share (“PS”) awards, which provide the recipients the right to receive a certain number of shares of the Company’s common stock in the future, subject to an (1) EBITDA performance hurdle, where vesting is dependent upon the Company achieving a certain EBITDA percentage growth over the performance period, and (2) relative total shareholder return (“TSR”) where vesting is dependent upon the Company’s TSR performance over the performance period relative to a comparator group consisting of the Russell 2000 index constituents.

The fair value of each option award issued under the Company’s stock plans is estimated on the date of grant using a Black-Scholes based option-pricing model that uses the assumptions noted in the following table. Expected volatilities are based on historical volatility of the Company’s stock. The expected term of the options is based on the Company’s historical experience of employees’ exercise behavior. Dividend yields are based on the Company’s historical dividend yields. Risk-free interest rates are based on the implied yields currently available on U.S. Treasury zero coupon issues with a remaining term equal to the expected life.

Weighted Average Assumptions:	Year Ended December 31,		
	2018	2017	2016
Expected Volatility	26.8%	30.1%	34.4%
Expected Term (in years)	4.4	4.6	5.0
Risk-Free Interest Rate	2.6%	1.8%	1.2%
Dividend Yield	0.6%	0.5%	0.5%

The value of the restricted shares is based on the fair value of the award at the date of grant.

PS expense is measured based on the fair value at the date of grant utilizing a Black-Scholes methodology to produce a Monte-Carlo simulation model which allows for the incorporation of the performance hurdles that must be met before the PS vests. The assumptions

used in the fair value determination were risk free interest rates of 2.4%, 1.5%, and 0.88%; dividend yields of 0.5%, 0.6%, and 0.6%; volatilities of 27%, 32%, 32%; and initial TSR's of -10.5%, 8.2%, and -6.6% in each case for the years ended December 31, 2018, 2017, and 2016, respectively. Expense is based on the estimated number of shares expected to vest, assuming the requisite service period is rendered and the probable outcome of the performance condition is achieved. The estimate is revised if subsequent information indicates that the actual number of shares likely to vest differs from previous estimates. Expense is ultimately adjusted based on the actual achievement of service and performance targets. The PS will cliff vest 100% at the end of the third year following the grant in accordance with the performance metrics set forth.

Compensation expense for stock options and stock awards is recognized on a straight-line basis over the vesting period, generally three years for stock options, three to four years for employee restricted stock awards, three years for employee performance share awards, and four years for non-employee director restricted stock awards.

A summary of stock option plan activity for 2018, 2017, and 2016 for all plans is as follows:

2018	# of Shares (000s)	Weighted Average Exercise Price
Outstanding at beginning of year	946	\$ 55.44
Granted	148	74.57
Exercised	(198)	41.71
Forfeited	(6)	74.90
Cancelled	(3)	48.54
Outstanding at end of year	887	\$ 61.59
Exercisable at end of year	490	\$ 50.50

2017	# of Shares (000s)	Weighted Average Exercise Price
Outstanding at beginning of year	1,066	\$ 45.32
Granted	222	85.22
Exercised	(268)	36.36
Forfeited	(52)	72.29
Cancelled	(22)	57.48
Outstanding at end of year	946	\$ 55.44
Exercisable at end of year	493	\$ 41.01

2016	# of Shares (000s)	Weighted Average Exercise Price
Outstanding at beginning of year	1,017	\$ 37.29
Granted	341	60.92
Exercised	(236)	30.44
Forfeited	(56)	58.23
Outstanding at end of year	1,066	\$ 45.32
Exercisable at end of year	604	\$ 34.77

The aggregate intrinsic value for outstanding stock options was \$16,192, \$24,714 and \$41,161 at December 31, 2018, 2017 and 2016, respectively, with a weighted average remaining contractual term of 6.3 years at December 31, 2018. Exercisable stock options at December 31, 2018 had an aggregate intrinsic value of \$13,887 with a weighted average remaining contractual term of 5.0 years.

Other information pertaining to option activity during the years ended December 31, 2018, 2017 and 2016 is as follows:

	Years Ended December 31,		
	2018	2017	2016
Weighted-average fair value of options granted	\$ 18.62	\$ 23.20	\$ 18.48
Total intrinsic value of stock options exercised (\$000s)	\$ 10,456	\$ 11,900	\$ 8,609

Additional information related to stock options outstanding under all plans at December 31, 2018 is as follows:

Range of Exercise Prices	Shares Outstanding (000s)	Options Outstanding		Options Exercisable	
		Weighted Average Remaining Contractual Term	Weighted Average Exercise Price	Number Exercisable (000s)	Weighted Average Exercise Price
\$13.61 - \$34.81	134	2.0 years	\$ 28.03	134	\$ 28.03
\$38.10 - \$59.95	195	5.2 years	52.51	191	52.39
\$60.01 - \$85.40	558	7.7 years	72.82	165	66.61
	<u>887</u>	6.3 years	\$ 61.59	<u>490</u>	\$ 50.50

Non-vested restricted stock activity for the years ended December 31, 2018, 2017 and 2016 is summarized below:

	Shares (000s)	Weighted Average Grant Date Fair Value
Non-vested balance as of December 31, 2017	66	\$ 65.66
Granted	42	77.50
Vested	(27)	62.74
Forfeited	(2)	74.57
Non-vested balance as of December 31, 2018	<u>79</u>	\$ 72.75

	Shares (000s)	Weighted Average Grant Date Fair Value
Non-vested balance as of December 31, 2016	102	\$ 54.18
Granted	21	83.43
Vested	(53)	51.39
Forfeited	(4)	55.45
Non-vested balance as of December 31, 2017	<u>66</u>	\$ 65.66

	Shares (000s)	Weighted Average Grant Date Fair Value
Non-vested balance as of December 31, 2015	150	\$ 47.46
Granted	19	61.22
Vested	(66)	40.96
Forfeited	(1)	56.77
Non-vested balance as of December 31, 2016	<u>102</u>	\$ 54.18

Non-vested performance share activity for the years ended December 31, 2018, 2017 and 2016 is summarized below:

	Shares (000s)	Weighted Average Grant Date Fair Value
Non-vested balance as of December 31, 2017	39	\$ 72.62
Granted	32	71.27
Vested	(15)	58.78
Forfeited	(3)	72.55
Non-vested balance as of December 31, 2018	<u>53</u>	\$ 75.61

	Shares (000s)	Weighted Average Grant Date Fair Value
Non-vested balance as of December 31, 2016	34	\$ 61.06
Granted	16	93.85
Vested	—	—
Forfeited	(11)	69.25
Non-vested balance as of December 31, 2017	<u>39</u>	<u>\$ 72.62</u>

	Shares (000s)	Weighted Average Grant Date Fair Value
Non-vested as of December 31, 2015	20	\$ 58.77
Granted	22	63.15
Vested	—	—
Forfeited	(8)	60.88
Non-vested as of December 31, 2016	<u>34</u>	<u>\$ 61.06</u>

As of December 31, 2018, 2017 and 2016, there was \$8,565, \$7,742 and \$8,260, respectively, of total unrecognized compensation cost related to non-vested share-based compensation arrangements granted under the plans. As of December 31, 2018, the unrecognized compensation cost is expected to be recognized over a weighted-average period of approximately 1.6 years. We estimate that share-based compensation expense for the year ended December 31, 2019 will be approximately \$7,700.

REPURCHASE OF COMMON STOCK

The Company has an approved stock repurchase program. The total authorization under this program is 3,763,038 shares. Since the inception of the program in June 1999, a total of 2,190,772 shares have been purchased, of which 706 shares remained in treasury at December 31, 2018. No shares remained in treasury at December 31, 2017. During 2018 and 2017, a total of 16,755 and 23,182 shares, respectively, have been purchased at an average cost of \$83.08 and \$82.19 per share, respectively. The Company intends to acquire shares from time to time at prevailing market prices if and to the extent it deems it advisable to do so based on its assessment of corporate cash flow, market conditions and other factors. The Company also repurchases shares from employees in connection with settlement of transactions under the Company's equity incentive plans.

NOTE 4 - INVENTORIES

Inventories at December 31, 2018 and 2017 consisted of the following:

	2018	2017
Raw materials	\$ 23,661	\$ 20,520
Work in progress	4,649	6,308
Finished goods	38,877	33,868
Total inventories	<u>\$ 67,187</u>	<u>\$ 60,696</u>

On a regular basis, the Company evaluates its inventory balances for excess quantities and obsolescence by analyzing demand, inventory on hand, sales levels and other information. Based on these evaluations, inventory balances are reserved, if necessary. The reserve for inventory was \$2,575 and \$2,315 at December 31, 2018 and 2017, respectively.

NOTE 5 - PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment at December 31, 2018 and 2017 are summarized as follows:

	2018	2017
Land	\$ 7,965	\$ 7,262
Building	67,702	63,224
Equipment	213,909	201,341
Construction in progress	18,170	13,860
	<u>307,746</u>	<u>285,687</u>
Less: Accumulated depreciation	113,407	95,894
Property, plant and equipment, net	<u>\$ 194,339</u>	<u>\$ 189,793</u>

Geographic Area Data - Long-Lived Assets (excluding intangible assets):

	2018	2017
North America	\$ 170,830	\$ 175,027
Europe	23,509	14,766
Total	<u>194,339</u>	<u>189,793</u>

Depreciation expense was \$18,998, \$17,121 and \$15,907 for the years ended December 31, 2018, 2017 and 2016, respectively.

For the year ended December 31, 2018, the Company recorded certain immaterial impairment charges in connection with the IFP integration.

NOTE 6 - INTANGIBLE ASSETS

The Company had goodwill in the amount of \$447,995 and \$441,361 as of December 31, 2018 and 2017 subject to the provisions of ASC 350, "Intangibles-Goodwill and Other."

As of December 31, 2018 and 2017, the Company had identifiable intangible assets as follows:

	Amortization Period (In years)	2018 Gross Carrying Amount	2018 Accumulated Amortization	2017 Gross Carrying Amount	2017 Accumulated Amortization
Customer relationships & lists	10	\$ 192,185	\$ 122,545	\$ 190,061	\$ 105,573
Trademarks & trade names	5-17	39,934	16,755	40,630	12,895
Developed technology	5	13,338	8,604	13,338	5,936
Other	3-18	14,913	6,481	13,466	5,018
		<u>\$ 260,370</u>	<u>\$ 154,385</u>	<u>\$ 257,495</u>	<u>\$ 129,422</u>

Amortization of identifiable intangible assets was \$24,988, \$26,784 and \$29,768 for 2018, 2017 and 2016, respectively. Assuming no change in the gross carrying value of identifiable intangible assets, the estimated amortization expense is approximately \$22,928 in 2019, \$20,870 in 2020, \$17,639 in 2021, \$16,156 in 2022, and \$14,861 in 2023. At December 31, 2018 and 2017, there were no identifiable intangible assets with indefinite useful lives as defined by ASC 350, "Intangibles-Goodwill and Other." Identifiable intangible assets are reflected in the Company's consolidated balance sheets under Intangible assets with finite lives, net. There were no changes to the useful lives of intangible assets subject to amortization in 2018 and 2017. For the year ended December 31, 2018, the Company recorded certain immaterial impairment charges in connection with the IFP integration.

The Federal Insecticide, Fungicide and Rodenticide Act, ("FIFRA"), a health and safety statute, requires that certain products within our specialty products segment must be registered with the U.S. Environmental Protection Agency ("EPA") because they are considered pesticides. Costs of such registrations are included as other in the table above.

NOTE 7 – EQUITY-METHOD INVESTMENT

In 2013, the Company and Eastman Chemical Company (formerly Taminco Corporation) formed a joint venture (66.66% / 33.34% ownership), St. Gabriel CC Company, LLC, to design, develop, and construct an expansion of the Company's St. Gabriel aqueous choline chloride plant. The Company contributed the St. Gabriel plant, at cost, and expansion will be funded by the owners. The joint venture became operational as of July 1, 2016. St. Gabriel CC Company, LLC is a Variable Interest Entity (VIE) because the total equity at risk is not sufficient to permit the joint venture to finance its own activities without additional subordinated financial support. Additionally, voting rights (2 votes each) are not proportionate to the owners' obligation to absorb expected losses or receive the expected residual returns of the joint venture. The Company will receive up to 2/3 of the production offtake capacity and absorbs operating expenses approximately proportional to the actual percentage of offtake. The joint venture is accounted for under the equity method of accounting since the Company is not the primary beneficiary, because it does not have the power to direct the activities of the joint venture that most significantly impact its economic performance. The Company recognized a loss of \$569, \$546, and \$293 for the years ended December 31, 2018, 2017, and 2016, respectively, relating to its portion of the joint venture's expenses in other expense. The carrying value of the joint venture at December 31, 2018 and 2017 is \$4,902 and \$4,804, respectively, and is recorded in other assets.

NOTE 8 – REVOLVING LOAN

On June 27, 2018, the Company and a bank syndicate entered into a five-year senior secured revolving credit agreement ("Credit Agreement"), which replaced the existing credit facility that had provided for a senior secured term loan A of \$350,000 and a revolving loan of \$100,000. The Credit Agreement, which expires on June 27, 2023, provides for revolving loans up to \$500,000 (collectively referred to as the "loans"). The loans may be used for working capital, letters of credit, and other corporate purposes and may be drawn upon at the Company's discretion. The initial proceeds from the Credit Agreement were used to repay the outstanding balance of \$210,750 on its senior secured term loan A, which was due May 2019. There are no installment payments required on the revolving loans; they may be voluntarily prepaid in whole or in part without premium or penalty, and all outstanding amounts are due on the maturity date. As of December 31, 2018, the balance outstanding amounted to \$156,000.

Amounts outstanding under the Credit Agreement are subject to an interest rate equal to a fluctuating rate as defined by the Credit Agreement plus an applicable rate. The applicable rate is based upon the Company's consolidated net leverage ratio, as defined in the Credit Agreement, and the interest rate was 3.647% at December 31, 2018. The Company is also required to pay a commitment fee on the unused portion of the revolving loan, which is based on the Company's consolidated net leverage ratio as defined in the Credit Agreement and ranges from 0.15% to 0.275% (0.175% at December 31, 2018). The unused portion of the revolving loan amounted to \$344,000 at December 31, 2018. The Company is also required to pay, as applicable, letter of credit fees, administrative agent fees, and other fees to the arrangers and lenders.

Costs associated with the issuance of the revolving loans are capitalized and amortized on a straight-line basis over the term of the Credit Agreement. Costs associated with the issuance of the extinguished debt instrument were capitalized and amortized over the term of the respective financing arrangement using the effective interest method. Capitalized costs net of accumulated amortization totaled \$1,268 at December 31, 2018 and are included in other assets on the balance sheet. Capitalized costs net of accumulated amortization totaled \$536 at December 31, 2017 and are recorded as a reduction of long-term debt on the balance sheet. Amortization expense pertaining to these costs totaled \$680, \$474, and \$526 for the years ended December 31, 2018, 2017 and 2016, respectively, and is included in interest expense in the accompanying condensed consolidated statements of earnings. In 2018, such interest expense included the write off \$363 of deferred financing costs in connection with the extinguished debt in the second quarter of 2018.

The Credit Agreement contains quarterly covenants requiring the consolidated leverage ratio to be less than a certain maximum ratio and the consolidated interest coverage ratio to exceed a certain minimum ratio. At December 31, 2018, the Company was in compliance with these covenants. Indebtedness under the Company's loan agreements are secured by assets of the Company.

NOTE 9 - NET EARNINGS PER COMMON SHARE

The following presents a reconciliation of the net earnings and shares used in calculating basic and diluted net earnings per common share:

2018	Earnings (Numerator)	Number of Shares (Denominator)	Per Share Amount
Basic EPS – Net earnings and weighted average common shares outstanding	\$ 78,573	32,093,037	\$ 2.45
Effect of dilutive securities – stock options, restricted stock, and performance shares		351,858	
Diluted EPS – Net earnings and weighted average common shares outstanding and effect of stock options, restricted stock, and performance shares	<u>\$ 78,573</u>	<u>32,444,895</u>	<u>\$ 2.42</u>
2017	Earnings (Numerator)	Number of Shares (Denominator)	Per Share Amount
Basic EPS – Net earnings and weighted average common shares outstanding	\$ 90,071	31,838,641	\$ 2.83
Effect of dilutive securities – stock options, restricted stock, and performance shares		391,165	
Diluted EPS – Net earnings and weighted average common shares outstanding and effect of stock options, restricted stock, and performance shares	<u>\$ 90,071</u>	<u>32,229,806</u>	<u>\$ 2.79</u>
2016	Earnings (Numerator)	Number of Shares (Denominator)	Per Share Amount
Basic EPS – Net earnings and weighted average common shares outstanding	\$ 55,972	31,521,667	\$ 1.78
Effect of dilutive securities – stock options, restricted stock, and performance shares		400,971	
Diluted EPS – Net earnings and weighted average common shares outstanding and effect of stock options, restricted stock, and performance shares	<u>\$ 55,972</u>	<u>31,922,638</u>	<u>\$ 1.75</u>

The Company had 188,470, 199,010, and 2,500 stock options outstanding at December 31, 2018, 2017 and 2016, respectively that could potentially dilute basic earnings per share in future periods that were not included in diluted earnings per share because their effect on the period presented was anti-dilutive.

The Company has some share-based payment awards that have non-forfeitable dividend rights. These awards are restricted shares and they participate on a one-for-one basis with holders of Common Stock. These awards have an immaterial impact as participating securities with regard to the calculation using the two-class method for determining earnings per share.

NOTE 10 - INCOME TAXES

The Company's effective tax rate for 2018 and 2017 was 20.7% and (1.8)% respectively. The 2017 effective tax rate was significantly affected by recording the impact of the Tax Cuts and Jobs Act (the "U.S. Tax Reform" or "TCJA"), enacted on December 22, 2017.

U.S. Tax Reform made broad and complex changes to the U.S. tax code by, among other things, lowering the U.S. corporate tax rate from 35% to 21% effective January 1, 2018, while also repealing the deduction for domestic production activities, implementing a

territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. In addition, the Internal Revenue Service (“IRS”) issued guidance, regulations, and interpretations of U.S. Tax Reform during 2018. This guidance impacted various sections of the tax code relating to the use of foreign tax credits. Prior to enactment of U.S. Tax Reform, foreign income taxes paid by Balchem’s foreign subsidiaries were generally available to mitigate additional U.S. tax on foreign earnings. Proposed regulations relating to foreign tax credits released in November 2018 clarified that deemed paid foreign tax credits related to Global Intangible Low-Taxed Income, or GILTI, would generally only be available to offset a portion of the foreign income taxes paid. Pending revisions or changes to the proposed regulations, foreign income taxes deemed paid are not expected to fully offset potential additional U.S. tax liability on earnings of foreign subsidiaries. Balchem accrued \$4,185 of current foreign income tax expense in foreign jurisdictions in 2018. Of this amount only \$1,136 is expected to be allowable under the currently proposed regulations as a foreign tax credit in the U.S. Future potential U.S. tax liability related to GILTI may not be fully offset by foreign tax credits.

U.S. GAAP requires that the impact of tax legislation be recognized in the period in which the law was enacted. However, in March 2018, the FASB issued ASU No. 2018-05, “Amendments to SEC Paragraph Pursuant to SEC Staff Accounting Bulletin No. 118” (“ASU 2018-05”), which clarifies the income tax accounting implications of the Tax Reform Act. Staff Accounting Bulletin No. 118 (“SAB 118”) was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Reform Act.

In the fourth quarter of 2018, the company completed its analysis of the impact of U.S. Tax Reform. In total, the company recorded a tax benefit of \$26,761 related to U.S. Tax Reform. This benefit is comprised of a provisional estimate of \$25,791 recorded in the fourth quarter of 2017, and an additional \$970 benefit recorded in the fourth quarter of 2018.

In accordance with SAB 118, the U.S. Tax Reform-related income tax effects that were initially reported as provisional estimates were refined as additional analysis was performed. The provisional amounts were also affected by guidance issued subsequent to the passage of U.S. Tax Reform. This guidance included regulations and interpretations issued by the IRS, changes in accounting standards, and federal and state legislation. Although the analysis for the impact of U.S. Tax Reform under the requirements of SAB 118 are complete, the IRS has issued and will continue to issue regulations related to U.S. Tax Reform. Due to the complexity and breadth of new tax law, implementation of the regulations may have an impact on the Company’s income tax.

Per SAB 118, the following U.S. Tax Reform-related impacts were recorded in the company’s financial statements:

- In the fourth quarter of 2017, an estimated current tax expense of \$1,389 was recorded for the deemed repatriation under Section 965, net of available foreign tax credits. In August of 2018, the IRS issued proposed regulations that clarified the computation of the deemed repatriation. In the fourth quarter of 2018, the company recorded a reduction to the tax of \$970 related to the regulations, adjustments to foreign tax credit calculations, and the interaction of those calculation with other aspects of the tax code. The total amount recorded for the deemed repatriation tax was \$419.
- In the fourth quarter of 2017, an estimated deferred tax benefit of \$27,255 was recorded to revalue the company’s net deferred tax liabilities from the 35% previous federal tax rate to the 21% federal tax rate in affect as of January 1, 2018. This was a non-cash benefit recorded to deferred tax expense. The rate impact of temporary item true-ups for amounts filed on tax returns was considered insignificant. The total amount recorded for the revaluation of deferred tax amounts to 21% was a benefit of \$27,255.
- In the fourth quarter of 2017, an estimated tax expense of \$75 was recorded to reduce deferred tax assets associated with historic GAAP expensing of stock options issued to covered employees for purposes of the \$1 million cap on wage deductibility under Section 162(m). The DTA was reduced to its expected realizable amount, after anticipation of the 162(m) limit in future years. This estimate was not subsequently adjusted.
- The company did not estimate any deferred taxes related to the Global Intangible Low-Taxed Income, or GILTI, in the fourth quarter of 2017, as an analysis of the GILTI provisions were still underway. Additional guidance from the IRS on the computation of GILTI was issued in September and November of 2018, with more guidance still anticipated. The FASB noted that companies should make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or to include the tax expense in the year incurred. As of the fourth quarter 2018, the company has elected to include GILTI as tax expense in the period incurred. This resulted in no adjustment, since no deferred tax impact was recorded in the fourth quarter of 2017.

The company analyzed any potential Base Erosion and Anti-Abuse Tax (“BEAT”) on related-party transactions and determined they met the gross receipts test but did not meet the level of base erosion payments that would subject the company to BEAT in 2018.

We consider the earnings of certain non-U.S. subsidiaries to be indefinitely invested outside the United States on the basis of estimates that future domestic cash generation will be sufficient to meet future domestic cash needs and our specific plans for reinvestment of

those subsidiary earnings. It is not practicable to estimate the amount of tax that might be payable if some or all of such earnings were to be repatriated, and the amount of foreign tax credits that would be available to reduce or eliminate the resulting U.S. income tax liability.

On June 21, 2018, the U.S. Supreme Court decided *South Dakota v. Wayfair, Inc.* (“Wayfair”) overturning the previous ruling of *Quill Corp. v. North Dakota* which required physical presence in a state before the collection and remittance of sales and use taxes would be required. As a result of this ruling, numerous states have undertaken the process to reevaluate their nexus requirements in order to capture increased revenue through both sales and use taxes and income taxes. Many states are still evaluating the application and effects of Wayfair and many are expected to issue changes to their nexus rules in the coming months. These changes may require us to increase the number of state jurisdictions in which we file, and we continue to evaluate the impact of these changes as they come into effect for each state.

Income tax expense consists of the following:

	2018	2017	2016
Current:			
Federal	\$ 18,296	\$ 20,102	\$ 28,765
Foreign	4,060	3,015	2,670
State	3,880	2,790	2,483
Deemed Repatriation	(970)	1,389	—
Deferred:			
Federal	(3,788)	(1,302)	(7,114)
Foreign	(69)	62	52
State	(952)	(384)	106
Federal Rate Change	—	(27,255)	—
Total income tax provision	<u>\$ 20,457</u>	<u>\$ (1,583)</u>	<u>\$ 26,962</u>

The provision for income taxes differs from the amount computed by applying the Federal statutory rate of 21% for 2018 and 35% for 2017 and 2016 to earnings before income tax expense due to the following:

	2018	2017	2016
Income tax at Federal statutory rate	\$ 20,796	\$ 30,971	29,027
State income taxes, net of Federal income taxes	2,742	708	1,510
Federal Rate Change	—	(27,255)	—
Stock Options	(1,293)	(2,927)	—
GILTI & FDII	1,027	—	—
Deemed Repatriation	(970)	1,389	—
Foreign Tax Credits	(1,136)	—	—
Domestic production activities deduction	—	(2,382)	(3,299)
Other	(709)	(2,087)	(276)
Total income tax provision	<u>\$ 20,457</u>	<u>\$ (1,583)</u>	<u>26,962</u>

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities at December 31, 2018 and 2017 were as follows:

	2018	2017
Deferred tax assets:		
Inventories	\$ 1,260	\$ 1,297
Restricted stock and stock options	3,567	3,248
Other	2,885	1,764
Total deferred tax assets	<u>7,712</u>	<u>6,309</u>
Deferred tax liabilities:		
Amortization	\$ 27,080	\$ 31,311
Depreciation	23,837	22,172
Other	1,104	1,374
Total deferred tax liabilities	<u>52,021</u>	<u>54,857</u>
Net deferred tax liability	<u>\$ 44,309</u>	<u>\$ 48,548</u>

There is no valuation allowance for deferred tax assets at December 31, 2018 and 2017. In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based upon the level of historical taxable income and projections for future taxable income over the periods in which the deferred tax assets are deductible, management believes it is more likely than not the Company will realize the benefits of these deductible differences. The amount of deferred tax asset realizable, however, could change if management's estimate of future taxable income should change.

As of December 31, 2018, we have state income tax net operating loss (NOL) carryforwards of \$10,114, which will expire in 2031. We believe that the benefit from the state NOL carryforwards will be realized. Therefore, a valuation allowance is not required to be established.

Provisions of ASC 740-10 clarify whether or not to recognize assets or liabilities for tax positions taken that may be challenged by a tax authority. A reconciliation of the beginning and ending amount of unrecognized tax benefits, which is included in other long-term obligations on the Company's consolidated balance sheets, is as follows:

	2018	2017	2016
Balance at beginning of period	\$ 4,781	\$ 6,637	\$ 6,570
Increases for tax positions of prior years	1,366	393	332
Decreases for tax positions of prior years	(1,185)	(2,711)	(406)
Increases for tax positions related to current year	747	462	141
Balance at end of period	<u>\$ 5,709</u>	<u>\$ 4,781</u>	<u>\$ 6,637</u>

All of the Company's unrecognized tax benefits, if recognized in future periods, would impact the Company's effective tax rate in such future periods.

The Company recognizes both interest and penalties as part of the income tax provision. During the years ended December 31, 2018, 2017 and 2016, the Company recognized approximately \$207, \$94 and \$94 in interest and penalties, respectively. As of December 31, 2018 and 2017, accrued interest and penalties were \$1,839 and \$1,882, respectively.

The Company files income tax returns in the U.S. and in various states and foreign countries. In the major jurisdictions where the Company operates, it is generally no longer subject to income tax examinations by tax authorities for years before 2014. The Company does not anticipate any material change in the total amount of unrecognized tax benefits to occur within the next twelve months.

NOTE 11 - SEGMENT INFORMATION

Human Nutrition & Health

The Company's Human Nutrition & Health ("HNNH") segment provides human grade choline nutrients and mineral amino acid chelated products through this segment for wellness applications. Choline is recognized to play a key role in the development and structural integrity of brain cell membranes in infants, processing dietary fat, reproductive development and neural functions, such as memory and muscle function. The Company's mineral amino acid chelates, specialized mineral salts, and mineral complexes are used as raw materials for inclusion in premier human nutrition products. Proprietary technology has been combined to create an organic molecule in a form the body can readily assimilate. Sales growth for human nutrition applications is reliant on differentiation from lower-cost competitive products through scientific data, intellectual property and customer perceptions of brand value. Consequently, the Company makes investments in such activities for long-term value differentiation. This segment also serves the food and beverage industry for beverage, bakery, dairy, confectionary, and savory manufacturers. The Company partners with our customers from ideation through commercialization to bring on-trend beverages, baked goods, confections, dairy and meat products to market. The Company's expertise in trends analysis and product development, combined with manufacturing capabilities in customized spray dried and emulsified powders, blended lipid systems, liquid flavor delivery systems, juice and dairy bases, chocolate systems, as well as ice cream bases and variegates makes the Company a one-stop solutions provider for beverage and dairy product development needs. Additionally, this segment provides microencapsulation solutions to a variety of applications in food, pharmaceutical and nutritional ingredients to enhance performance of nutritional fortification, processing, mixing, and packaging applications and shelf-life. Major product applications are baked goods, refrigerated and frozen dough systems, processed meats, seasoning blends, confections, and nutritional supplements. The Company also creates cereal systems for ready-to-eat cereals, grain-based snacks, and cereal based ingredients.

Animal Nutrition & Health

The Company's Animal Nutrition & Health ("ANH") segment provides nutritional products derived from its microencapsulation and chelation technologies in addition to basic choline chloride. For ruminant animals, the Company's microencapsulated products boost health and milk production, delivering nutrient supplements that are biologically available, providing required nutritional levels. The Company's proprietary chelation technology provides enhanced nutrient absorption for various species of production and companion animals and is marketed for use in animal feed throughout the world. ANH also manufactures and supplies choline chloride, an essential nutrient for monogastric animal health, predominantly to the poultry, pet and swine industries. Choline, which is manufactured and sold in both dry and aqueous forms, plays a vital role in the metabolism of fat. In poultry, choline deficiency can result in reduced growth rates and perosis in young birds, while in swine production choline is a necessary and required component of gestating and lactating sow diets for both liver health and prevention of leg deformity.

Sales of value-added encapsulated products are highly dependent on overall industry economics as well as the Company's ability to leverage the results of university and field research on the animal health and production benefits of our products. Management believes that success in the commodity-oriented basic choline chloride marketplace is highly dependent on the Company's ability to maintain its strong reputation for excellent product quality and customer service. The Company continues to drive production efficiencies in order to maintain its competitive-cost position to effectively compete in a competitive global marketplace.

Specialty Products

Ethylene oxide, at the 100% level, is sold as a sterilant gas, primarily for use in the health care industry. It is used to sterilize a wide range of medical devices because of its versatility and effectiveness in treating hard or soft surfaces, composites, metals, tubing and different types of plastics without negatively impacting the performance of the device being sterilized. The Company's 100% ethylene oxide product is distributed in uniquely designed, recyclable, double-walled, stainless steel drums to assure compliance with safety, quality and environmental standards as outlined by the EPA and the DOT. The Company's inventory of these specially built drums, along with its two filling facilities, represents a significant capital investment. Contract sterilizers and medical device manufacturers are principal customers for this product. The Company also sells single use canisters with 100% ethylene oxide for use in sterilizing re-usable devices typically processed in autoclave units in hospitals. As a fumigant, ethylene oxide blends are highly effective in killing bacteria, fungi, and insects in spices and other seasoning materials.

Propylene oxide is marketed and sold as a fumigant to aid in the control of insects and microbiological spoilage; and to reduce bacterial and mold contamination in certain shell and processed nut meats, processed spices, cacao beans, cocoa powder, raisins, figs and prunes. The Company distributes its propylene oxide product primarily in recyclable, single-walled, carbon steel cylinders according to standards outlined by the EPA and the DOT. Its inventory of these cylinders also represents a significant capital investment. Propylene oxide is also sold to customers seeking smaller (as opposed to bulk) quantities and whose requirements include utilization

in various chemical synthesis applications, such as increasing paint durability and manufacturing specialty starches and textile coatings.

The Company's micronutrient agricultural nutrition business sells chelated minerals primarily into high value crops. The Company has a unique and patented two-step approach to solving mineral deficiency in plants to optimize health, yield and shelf-life. First, the Company determines optimal mineral balance for plant health. The Company then has a foliar applied Metalosate product range, utilizing patented amino acid chelate technology. Its products quickly and efficiently deliver mineral nutrients. As a result, the farmer/grower gets healthier crops that are more resistant to disease and pests, larger yields and healthier food for the consumer with extended shelf life for produce being shipped long distances.

Industrial Products

Certain derivatives of choline chloride are manufactured and sold into industrial applications predominately as a component for hydraulic fracturing of shale natural gas wells. The Company's products offer an attractive, effective and more environmentally responsible alternative than other clay stabilizers. Industrial grade choline bicarbonate is completely chloride free and the Company's choline chloride reduces the amount of chlorides released into the environment up to 75% when compared to potassium chloride. The Industrial Products segment also includes the manufacture and sale of methylamines. Methylamines are a primary building block for the manufacture of choline products and are produced at its Italian operation and sold for a wide range of industrial applications in Europe.

Business Segment Assets:

	2018	2017
Human Nutrition & Health	\$ 702,692	\$ 719,010
Animal Nutrition & Health	136,810	118,418
Specialty Products	59,558	63,141
Industrial Products	22,822	18,471
Other Unallocated	59,473	44,596
Total	<u>\$ 981,355</u>	<u>\$ 963,636</u>

Other unallocated assets consist of certain cash, receivables, prepaid expenses, equipment and leasehold improvements, net of accumulated depreciation, and deferred income taxes, which the Company does not allocate to its individual business segments.

Business Segment Net Sales:

	2018	2017	2016
Human Nutrition & Health	\$ 341,237	\$ 315,796	\$ 297,134
Animal Nutrition & Health	175,693	157,688	161,119
Specialty Products	75,808	73,355	70,126
Industrial Products	50,941	47,951	24,825
Total	<u>\$ 643,679</u>	<u>\$ 594,790</u>	<u>\$ 553,204</u>

Business Segment Earnings Before Income Taxes:

	2018	2017	2016
Human Nutrition & Health	\$ 48,490	\$ 44,010	\$ 38,156
Animal Nutrition & Health	26,673	22,292	28,686
Specialty Products	25,361	24,949	22,862
Industrial Products	9,013	6,413	1,949
Transaction and integration costs	(1,786)	(2,496)	(815)
Indemnification settlement	—	2,087	—
Interest and other income, net	(8,721)	(8,767)	(7,904)
Total	<u>\$ 99,030</u>	<u>\$ 88,488</u>	<u>\$ 82,934</u>

Transaction and integration costs were primarily related to the aforementioned definitive agreement (see Note 2), one immaterial acquisition completed in each of 2018 and 2017, and the acquisition of Albion International, Inc. in 2016.

Depreciation/Amortization:

	2018	2017	2016
Human Nutrition & Health	\$ 33,594	\$ 33,384	\$ 33,796
Animal Nutrition & Health	5,606	5,618	7,243
Specialty Products	4,092	4,097	3,787
Industrial Products	694	806	850
Total	\$ 43,986	\$ 43,905	\$ 45,676

Capital Expenditures:

	2018	2017	2016
Human Nutrition & Health	\$ 8,881	\$ 20,580	\$ 14,470
Animal Nutrition & Health	6,021	4,424	6,577
Specialty Products	2,356	1,306	1,286
Industrial Products	1,912	1,216	701
Total	\$ 19,170	\$ 27,526	\$ 23,034

NOTE 12 - REVENUE

Revenue Recognition

Revenues are recognized when control of the promised goods is transferred to customers, in an amount that reflects the consideration we expect to realize in exchange for those goods.

The following table presents revenues disaggregated by revenue source (in thousands). Sales and usage-based taxes are excluded from revenues.

	2018	2017	2016
Product Sales	\$ 590,790	\$ 542,065	\$ 505,174
Co-manufacturing	41,348	41,658	39,396
Bill and Hold	4,612	4,094	3,061
Consignment	2,442	2,333	2,170
Product Sales Revenue	639,192	590,150	549,801
Royalty Revenue	4,487	4,640	3,403
Total	\$ 643,679	\$ 594,790	\$ 553,204

The following table presents revenues disaggregated by geography, based on the billing addresses of customers (in thousands):

	2018	2017	2016
United States	\$ 482,691	\$ 460,599	\$ 420,821
Foreign Countries	160,988	134,191	132,383
Total	\$ 643,679	\$ 594,790	\$ 553,204

Product Sales Revenues

The Company's primary operation is the manufacturing and sale of health and wellness ingredient products, in which the Company receives an order from a customer and fulfills that order. The Company's product sales have four sub-streams of revenue: product sales, co-manufacturing, bill and hold, and consignment.

Under the co-manufacturing agreements, the Company is responsible for the manufacture of a finished good where the customer provides some or all of the raw materials. The Company controls the manufacturing process and the ultimate end-product before it is shipped to the customer. Based on these factors, the Company has determined that it is the principal in these agreements and therefore revenue is recognized in the gross amount of consideration the Company expects to be entitled for the goods provided.

Royalty Revenues

Royalty revenue consists of agreements with customers to use the Company's intellectual property in exchange for a sales-based royalty. Royalty revenue is recorded as part of the Human Nutrition & Health segment.

Contract Liabilities

The Company records contract liabilities when cash payments are received or due in advance of performance, including amounts which are refundable.

The Company's payment terms vary by the type and location of customers and the products offered. The term between invoicing and when payment is due is not significant. For certain products or services and customer types, the Company requires payment before the products are delivered to the customer.

Practical Expedients and Exemptions

The Company generally expenses sales commissions when incurred because the amortization period would have been one year or less. These costs are recorded within selling and marketing expenses.

The Company does not disclose the value of unsatisfied performance obligations for (i) contracts with an original expected length of one year or less and (ii) contracts for which the Company recognizes revenue at the amount to which it has the right to invoice for products shipped.

NOTE 13 - SUPPLEMENTAL CASH FLOW INFORMATION

Cash paid during the year for:

	2018	2017	2016
Income taxes	\$ 20,593	\$ 25,845	\$ 30,741
Interest	\$ 6,940	\$ 7,021	\$ 6,669

Non-cash financing activities:

	2018	2017	2016
Dividends payable	\$ 15,220	\$ 13,484	\$ 12,088

NOTE 14 – ACCUMULATED OTHER COMPREHENSIVE INCOME

The changes in accumulated other comprehensive income (loss) were as follows:

	Years Ended December 31,		
	2018	2017	2016
Net foreign currency translation adjustment	\$ (2,982)	\$ 5,404	\$ (1,390)
Net change in postretirement benefit plan (see Note 15 for further information)			
Initial adoption of new plan	—	—	(444)
Net gain/(loss) arising during the period	522	(49)	101
Amortization of prior service credit/(cost)	74	74	57
Amortization of (gain)/loss	(8)	(15)	(10)
Total before tax	588	10	(296)
Tax	434	(207)	(49)
Net of tax	1,022	(197)	(345)
Total other comprehensive income (loss)	<u>\$ (1,960)</u>	<u>\$ 5,207</u>	<u>\$ (1,735)</u>

Accumulated other comprehensive income/(loss) at December 31, 2018 consisted of the following:

	Foreign currency translation adjustment	Postretirement benefit plan	Total
Balance December 31, 2017	\$ (1,303)	\$ (339)	\$ (1,642)
Other comprehensive (loss)/gain	(2,982)	1,022	(1,960)
Balance December 31, 2018	<u>\$ (4,285)</u>	<u>\$ 683</u>	<u>\$ (3,602)</u>

NOTE 15 - EMPLOYEE BENEFIT PLANS

During 2017, the Company sponsored two 401(k) savings plans for eligible employees. The plans allow participants to make pretax contributions and the Company matches certain percentages of those pretax contributions. The plans have a discretionary profit sharing portion and one of the plans matches 401(k) contributions with shares of the Company's Common Stock. All amounts contributed to the plans are deposited into a trust fund administered by independent trustees. These plans were merged in January 2018. The merged plan allows participants to make pretax contributions and the Company matches certain percentages of those contributions which is made with shares of the Company's stock. Additionally, this plan has a discretionary profit sharing portion. The Company provided for profit sharing contributions and matching 401(k) savings plan contributions of \$825 and \$3,153 in 2018, \$395 and \$2,594 in 2017, and \$712 and \$2,248 in 2016, respectively.

On June 1, 2018, the Company established an unfunded, nonqualified deferred compensation plan maintained for the benefit of a select group of management or highly compensated employees. Assets of the plan are held in a rabbi trust, which are subject to additional risk of loss in the event of bankruptcy or insolvency of the Company. The deferred compensation liability as of December 31, 2018 was \$265 and is included in Other long-term obligations on the Company's balance sheet.

The Company also provides postretirement benefits in the form of an unfunded retirement medical plan under a collective bargaining agreement covering eligible retired employees of the Verona facility. The Company uses a December 31 measurement date for its postretirement medical plan. In accordance with ASC 715, "Compensation—Retirement Benefits," the Company is required to recognize the over funded or underfunded status of a defined benefit post retirement plan (other than a multiemployer plan) as an asset or liability in its statement of financial position, and to recognize changes in that funded status in the year in which the changes occur through comprehensive income. In addition, during 2016 the Company adopted an unfunded postretirement medical plan for Named Executive Officers.

The actuarial recorded liabilities for such unfunded postretirement benefits are as follows:

Change in benefit obligation:

	2018	2017
Benefit obligation at beginning of year	\$ 1,573	\$ 1,411
Initial adoption of new plan	—	—
Service cost with interest to end of year	78	67
Interest cost	44	46
Participant contributions	40	28
Benefits paid	(136)	(58)
Actuarial (gain)/loss	(425)	79
Benefit obligation at end of year	<u>\$ 1,174</u>	<u>\$ 1,573</u>

Change in plan assets:

	2018	2017
Fair value of plan assets at beginning of year	\$ —	\$ —
Employer (reimbursement)/contributions	96	30
Participant contributions	40	28
Benefits paid	(136)	(58)
Fair value of plan assets at end of year	<u>\$ —</u>	<u>\$ —</u>

Amounts recognized in consolidated balance sheet:

	2018	2017
Accumulated postretirement benefit obligation	\$ (1,174)	\$ (1,573)
Fair value of plan assets	—	—
Funded status	(1,174)	(1,573)
Unrecognized prior service cost	N/A	N/A
Unrecognized net (gain)/loss	N/A	N/A
Net amount recognized in consolidated balance sheet (after ASC 715) (included in other long-term obligations)	\$ 1,174	\$ 1,573
Accrued postretirement benefit cost (included in other long-term obligations)	N/A	N/A

Components of net periodic benefit cost:

	2018	2017	2016
Service cost with interest to end of year	\$ 78	\$ 67	\$ 66
Interest cost	44	46	48
Amortization of prior service credit/(cost)	74	74	57
Amortization of (gain)/loss	(8)	(15)	(10)
Total net periodic benefit cost	<u>\$ 188</u>	<u>\$ 172</u>	<u>\$ 161</u>

Estimated future employer contributions and benefit payments are as follows:

Year	
2019	\$ 127
2020	89
2021	73
2022	90
2023	88
Years 2024-2028	497

Assumed health care cost trend rates have been used in the valuation of postretirement health insurance benefits. The trend rate is 6.26% in 2019 declining to 4.50% in 2038 and thereafter. A one percentage point increase in health care cost trend rates in each year would increase the accumulated postretirement benefit obligation as of December 31, 2018 by \$100 and the net periodic postretirement benefit cost for 2018 by \$19. A one percentage point decrease in health care cost trend rates in each year would decrease the accumulated postretirement benefit obligation as of December 31, 2018 by \$86 and the net periodic postretirement benefit cost for 2018 by \$16. The weighted average discount rate used in determining the accumulated postretirement benefit obligation was 3.50% in 2018 and 2.90% in 2017.

The Company contributes to one multiemployer defined benefit plan under the terms of a collective-bargaining agreement covering its union-represented employees of the Verona facility. The risks of participation in this multiemployer plan are different from single-employer plans in the following aspects: (a) assets contributed to the multiemployer plan by one employer may be used to provide benefits to employees of other participating employers, (b) if a participating employer stops contributing to the plan, the unfunded obligations of the plan may be borne by the remaining participating employers, and (c) if the Company chooses to stop participating in its multiemployer plan, the Company will be required to pay that plan an amount based on the underfunded status of the plan, referred to as the withdrawal liability.

The Company’s participation in this plan for the annual period ended December 31, 2018 is outlined in the table below. The “EIN/Pension Plan Number” column provides the Employee Identification Number (EIN). The zone status is based on information that the Company received from the plan and is certified by the plan’s actuary. Among other factors, plans in the red zone are generally less than 65 percent funded, plans in the yellow zone are less than 80 percent funded, and plans in the green zone are at least 80 percent funded. The “FIP/RP Status Pending/Implemented” column indicates plans for which a financial improvement plan (FIP) or a rehabilitation plan (RP) is either pending or has been implemented. The last column lists the expiration date of the collective-bargaining agreement to which the plan is subject. Finally, the period-to-period comparability of the contributions for 2018 and 2017 was affected by a 4.0% increase in the 2018 contribution rate. There have been no other significant changes that affect the comparability of 2018 and 2017 contributions. The Company does not represent more than 5% of the contributions to this pension fund.

Pension Fund	EIN/ Pension Plan Number	Pension Plan Protection Act Zone Status		FIP/RP Status Pending/Implemented	Contributions of Balchem Corporation			Surcharge Imposed	Expiration Date of Collective-Bargaining Agreement
		2018	2017		2018	2017	2016		
Central States, Southeast and Southwest Areas Pension Fund	36-60442 43	Red as of 1/1/18	Red as of 1/1/17	Implemented	\$614	\$594	\$576	No	7/11/2020

NOTE 16 - COMMITMENTS AND CONTINGENCIES

In 2018, the Company entered into a two (2) year lease extension for approximately 20,000 square feet of office space, which serves as the Company’s corporate headquarters and as a laboratory facility. During 2018, the Company also entered into a two year and three month lease for 7,952 square feet of additional office space, which serves as an expansion of the corporate headquarters. The Company leases various other office, warehousing, and production space under non-cancelable operating leases, which expire at various times through 2031. The Company also leases most of its vehicles and office equipment under non-cancelable operating leases, which expire at various times through 2025. Rent expense charged to operations under such lease agreements for 2018, 2017 and 2016 aggregated approximately \$3,917, \$3,417 and \$3,134, respectively.

Aggregate future minimum rental payments required under non-cancelable operating leases at December 31, 2018 are as follows:

Year

2019	\$	3,445
2020		2,911
2021		2,002
2022		1,401
2023		1,182
Thereafter		5,687
Total minimum lease payments	\$	<u>16,628</u>

The Company's Verona, Missouri facility, while held by a prior owner, was designated by the EPA as a Superfund site and placed on the National Priorities List in 1983, because of dioxin contamination on portions of the site. Remediation was conducted by the prior owner under the oversight of the EPA and the Missouri Department of Natural Resources ("MDNR"). While the Company must maintain the integrity of the capped areas in the remediation areas on the site, the prior owner is responsible for completion of any further Superfund remedy. The Company is indemnified by the sellers under its May 2001 asset purchase agreement covering its acquisition of the Verona, Missouri facility for potential liabilities associated with the Superfund site.

From time to time, the Company is a party to various litigation, claims and assessments. Management believes that the ultimate outcome of such matters will not have a material effect on the Company's consolidated financial position, results of operations, or liquidity.

NOTE 17 – FAIR VALUE OF FINANCIAL INSTRUMENTS

The Company has a number of financial instruments, none of which are held for trading purposes. The Company estimates that the fair value of all financial instruments at December 31, 2018 and December 31, 2017 does not differ materially from the aggregate carrying values of its financial instruments recorded in the accompanying condensed consolidated balance sheets. The estimated fair value amounts have been determined by the Company using available market information and appropriate valuation methodologies. Considerable judgment is necessarily required in interpreting market data to develop the estimates of fair value, and, accordingly, the estimates are not necessarily indicative of the amounts that the Company could realize in a current market exchange. The carrying value of debt approximates fair value as the interest rate is based on market and the Company's consolidated leverage ratio. The Company's financial instruments also include cash equivalents, accounts receivable, accounts payable, and accrued liabilities, which are carried at cost and approximate fair value due to the short-term maturity of these instruments. Cash and cash equivalents at December 31, 2018 and 2017 includes \$793 and \$782 in money market funds. The money market funds are valued using level one inputs, as defined by ASC 820, "Fair Value Measurement."

NOTE 18 – RELATED PARTY TRANSACTIONS

The Company provides services on a contractual agreement to St. Gabriel CC Company, LLC. These services include accounting, information technology, quality control, and purchasing services, as well as operation of the St. Gabriel CC Company, LLC plant. The Company also sells raw materials to St. Gabriel CC Company, LLC. These raw materials are used in the production of finished goods that are, in turn, sold by Saint Gabriel CC Company, LLC to the Company for resale to unrelated parties. As such, the sale of these raw materials to St. Gabriel CC Company, LLC in this scenario lacks economic substance and therefore the Company does not include them in net sales within the consolidated statement of earnings.

The services the Company provided amounted to \$3,694 and \$3,445, respectively, for the years ended December 31, 2018 and 2017. The raw materials sold amounted to \$31,107 and \$23,459, respectively, for the years ended December 31, 2018 and 2017. These services and raw materials are primarily recorded in cost of goods sold net of the finished goods received from St. Gabriel CC Company, LLC of \$22,540 and \$20,827, respectively for the years ended December 31, 2018 and 2017. At December 31, 2018 and 2017, the Company had receivables of \$3,210 and \$6,190, respectively, recorded in accounts receivable from St. Gabriel CC Company, LLC for services rendered and raw materials sold and payables of \$1,943 and \$4,112, respectively, for finished goods received recorded in accrued expenses. In addition, the Company had payables in the amount of \$314 and \$363 related to non-contractual monies owed to St. Gabriel CC Company, LLC, recorded in accrued expenses as of December 31, 2018 and 2017, respectively.

NOTE 19 - QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

(In thousands, except per share data)

	2018				2017			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net sales	\$ 161,410	\$ 163,687	\$ 155,043	\$ 163,539	\$ 137,728	\$ 147,082	\$ 150,716	\$ 159,264
Gross profit	51,459	53,466	48,002	51,325	44,429	46,761	46,181	51,638
Earnings before income taxes	25,177	25,061	23,529	25,263	20,710	22,560	20,697	24,522
Net earnings	19,346	19,679	19,214	20,334	15,518	16,536	16,043	41,975
Basic net earnings per common share	\$.60	\$.61	\$.60	\$.63	\$.49	\$.52	\$.50	\$ 1.31
Diluted net earnings per common share	\$.60	\$.61	\$.59	\$.63	\$.48	\$.51	\$.50	\$ 1.30

BALCHEM CORPORATION
Valuation and Qualifying Accounts
Years Ended December 31, 2018, 2017 and 2016
(In thousands)

Description	Balance at Beginning of Year	Additions Charged (Credited) to Costs and Expenses	Adjustments/ Deductions	Balance at End of Year
Year ended December 31, 2018				
Allowance for doubtful accounts	\$ 431	\$ 43	\$ 136 ^(a)	\$ 610
Inventory reserve	2,315	898	(638) ^(a)	2,575
Year ended December 31, 2017				
Allowance for doubtful accounts	\$ 489	\$ 126	\$ (184) ^(a)	\$ 431
Inventory reserve	2,546	538	(769) ^(a)	2,315
Year ended December 31, 2016				
Allowance for doubtful accounts	\$ 235	\$ 417	\$ (163) ^(a)	\$ 489
Inventory reserve	1,823	905	(182) ^(a)	2,546

^(a) represents write-offs and other adjustments

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

None.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the “Exchange Act”), that are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, management recognized that disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Additionally, in designing disclosure controls and procedures, our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible disclosure controls and procedures. The design of any disclosure controls and procedures also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2018. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of such date, our disclosure controls and procedures were effective.

Management’s Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is a process designed under the supervision of our principal executive and principal financial officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles.

Our internal control over financial reporting includes policies and procedures that pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of assets; provide reasonable assurances that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorizations of our management and our directors; and provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in a cost-effective control system, no evaluation of internal control over financial reporting can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our Company have been detected. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Management does not expect that our disclosure controls and procedures or its internal control over financial reporting will prevent or detect all errors and all fraud.

These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

Balchem Italia Srl completed an acquisition of Bioscreen Technologies Srl during 2018. Management’s assessment of and conclusion on the effectiveness of our internal control over financial reporting excludes the internal controls over financial reporting of Bioscreen

Technologies Srl ("Bioscreen"). The acquisition contributed approximately 0.2% of our net sales for the year ended December 31, 2018, and accounted for approximately 2.0% of our assets as of December 31, 2018. Registrants are permitted to exclude acquisitions from their assessment of internal controls over financial reporting during the first year if, among other circumstances and factors, there is not adequate time between the consummation date of the acquisition and the assessment date for assessing internal controls. Management is in the process of implementing internal control procedures in Bioscreen.

As of December 31, 2018, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in the 2013 *Internal Control-Integrated Framework* (New Framework) to conduct an assessment of the effectiveness of our internal control over financial reporting. Based on this assessment, management has determined that our internal control over financial reporting was effective as of December 31, 2018.

Attestation Report of Registered Public Accounting Firm

The independent registered public accounting firm of RSM US LLP has issued an attestation report on our internal control over financial reporting, which is included herein.

Changes in Internal Control Over Financial Reporting

There has been no significant change in our internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

Pursuant to Section 219 of the Iran Threat Reduction and Syria Human Rights Act of 2012, companies are required, among other things, to disclose certain activities, transactions or dealings with the Government of Iran or entities controlled directly or indirectly by the Government of Iran. Disclosure is generally required even where such activities, transactions or dealings are de minimis. During the year ending December 31, 2017, we sold, in a single sales transaction, 765 twenty-five kilogram bags of ReaShure® encapsulated choline, at a sales price of \$82,238 to Imex Gulf, Inc., a privately held U.S. corporation headquartered in Plano, Texas. Imex Gulf, Inc. exported this product to Pishgaman Taghzieh DTI Co. in Tehran, Iran, for subsequent sale and distribution in Iran. We conducted this product sale in compliance with applicable laws. The sale of ReaShure®, an animal feed ingredient, is permissible pursuant to certain statutory and regulatory exemptions from U.S. sanctions applicable to food products.

PART III

Item 10. Directors, Executive Officers of the Registrant, and Corporate Governance.

(a) Directors of the Company.

The required information is to be set forth in our Proxy Statement for the 2019 Annual Meeting of Stockholders (the "2019 Proxy Statement") under the captions "Nominees for Election as Director" and "Directors Not Standing for Election", which information is hereby incorporated herein by reference.

(b) Executive Officers of the Company.

The required information is to be set forth in the 2019 Proxy Statement under the captions "Nominees for Election as Director" (as to Theodore L. Harris, the Company's President and Chief Executive Officer) and "Executive Officers" (as to the Company's other executive officers), which information is hereby incorporated herein by reference.

(a) Section 16(a) Beneficial Ownership Reporting Compliance.

The required information is to be set forth in the 2019 Proxy Statement under the caption "Section 16(a) Beneficial Ownership Reporting Compliance," which information is hereby incorporated herein by reference.

(d) Code of Ethics.

The required information is to be set forth in the 2019 Proxy Statement under the caption "Code of Business Conduct and Ethics," which information is hereby incorporated herein by reference. Our Code of Ethics for Senior Financial Officers is available on the Corporate Governance page in the Investor Relations section of our website, www.balchem.com.

(e) Corporate Governance.

The required information is to be set forth in the 2019 Proxy Statement under the captions "Nomination of Directors," and "Committees of the Board of Directors," which information is hereby incorporated herein by reference.

Item 11. Executive Compensation.

The information required by this Item is to be set forth in the 2019 Proxy Statement under the captions "Executive Compensation," "Compensation Committee Report," and "Compensation Committee Interlocks and Insider Participation," which information is hereby incorporated herein by reference.

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

The information required by this Item is to be set forth in the 2019 Proxy Statement under the caption "Security Ownership of Certain Beneficial Owners and of Management" and the caption "Equity Compensation Plan Information," all of which information is hereby incorporated herein by reference.

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

The information required by this Item is set forth in the 2019 Proxy Statement under the caption "Related Party Transactions," and "Director Independence," which information is hereby incorporated herein by reference.

Item 14. Principal Accountant Fees and Services.

The information required by this Item is set forth in the 2019 Proxy Statement under the caption "Proposal No. 2 - Ratification of Appointment of Independent Registered Public Accounting Firm," which information is hereby incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

The following documents are filed as part of this Form 10-K:

	Page Number
1. Financial Statements	
Report of Independent Registered Public Accounting Firm	25
Consolidated Balance Sheets as of December 31, 2018 and 2017	27
Consolidated Statements of Earnings for the years ended December 31, 2018, 2017 and 2016	28
Consolidated Statements of Comprehensive Income for the years ended December 31, 2018, 2017 and 2016	29
Consolidated Statements of Stockholders' Equity for the years ended December 31, 2018, 2017 and 2016	30
Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016	31
Notes to Consolidated Financial Statements	32
2. Financial Statement Schedules	
Schedule II – Valuation and Qualifying Accounts for the years ended December 31, 2018, 2017 and 2016	58
3. Exhibits	
3.1 Composite Articles of Incorporation of the Company (incorporated by reference to Exhibit 3.1 to the Company's Annual Report on Form 10-K dated March 16, 2006 for the year ended December 31, 2005).	
3.2 Balchem Corporation Articles of Amendment (incorporated by reference to Exhibit A to the Company's definitive proxy statement on Schedule 14A filed with the Commission on April 25, 2008).	
3.3 Balchem Corporation Articles of Amendment (incorporated by reference to Exhibit A to the Company's definitive proxy statement on Schedule 14A filed with the Commission on April 28, 2011).	
3.4 By-laws of the Company, as amended and restated as of February 21, 2017 (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K dated February 22, 2017), as amended by the amendment thereto effective December 13, 2017 (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K dated December 19, 2017).	
10.1 Balchem Corporation Second Amended and Restated 1999 Stock Plan, (incorporated by reference to the Company's Registration Statement on Form S-8, File No. No. 333-155655, dated November 25, 2008, and to Proxy Statement, dated April 25, 2008, for the Company's 2008 Annual Meeting of Stockholders).*	
10.2 Form of Restricted Stock Grant Agreement and Stock Option Agreement (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K for the year ended December 31, 2012 (the "2011 10-K")).	

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10.3	<u>Balchem Corporation 401(k)/Profit Sharing Plan, dated January 1, 1998 (incorporated by reference to Exhibit 4 to the Company's Registration Statement on Form S-8, File No. 333-118291, dated August 17, 2004).*</u>
10.4	<u>Employment Agreement, dated as of April 22, 2016, between the Company and Theodore L. Harris (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the For the Quarterly Period Ended June 30, 2016).*</u>
10.5	<u>Stock Purchase Agreement, dated as of February 1, 2016, among Albion International, Inc., a Nevada Corporation, and certain equity owners thereof, (incorporated by reference to the Company's Current Report on Form 8-K dated February 4, 2016). (Pursuant to Item 601(b)(2) of Regulation S-K, the schedules to the Stock Purchase Agreement have been omitted and the Company agrees to furnish supplementally a copy of any such omitted schedule to the SEC upon request).</u>
10.6	<u>Stock Purchase Agreement, dated as of March 31, 2014, among Performance Chemicals & Ingredients Company (d/b/a SensoryEffects), a Delaware corporation, certain equity owners thereof, the Company and, solely for the limited purposes described therein, Highlander Partners, L.P. (incorporated by reference to the Company's Current Report on Form 8-K dated April 1, 2014). (Pursuant to Item 601(b)(2) of Regulation S-K, the schedules to the Stock Purchase Agreement have been omitted and the Company agrees to furnish supplementally a copy of any such omitted schedule to the SEC upon request).</u>
10.7	<u>Credit Agreement dated June 27, 2018 among Balchem Corporation, the Domestic Guarantors (as defined in the Credit Agreement), JPMorgan Chase Bank, N.A., as administrative agent, and the Lenders guarantors (as defined in the Credit Agreement) (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K dated July 5, 2018).</u>
10.8	<u>Security and Pledge Agreement dated June 27, 2018 among Balchem Corporation, the Domestic Guarantors and JPMorgan Chase Bank, N.A., (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K dated July 5, 2018).</u>
10.9	<u>2017 Omnibus Incentive Plan of the Company (incorporated by reference to the Company's Registration Statement on Form S-8, File No. 333-219722, dated August 4, 2017 and Appendix A to the Company's Proxy Statement on Schedule 14A, filed April 27, 2017).</u>
10.10	<u>Forms of Restricted Stock Grant Agreement, Performance Share Unit Grant Agreement and Stock Option Agreement.</u>
10.11	<u>Offer Letter, dated as of January 10, 2019, between the Company and Martin Bengtsson (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated February 4, 2019).</u>
21.	<u>Subsidiaries of Registrant.</u>
23.1	<u>Consent of RSM US LLP, Independent Registered Public Accounting Firm.</u>
31.1	<u>Certification of Chief Executive Officer pursuant to Rule 13a-14(a).</u>
31.2	<u>Certification of Chief Financial Officer pursuant to Rule 13a-14(a).</u>
32.1	<u>Certification of Chief Executive Officer pursuant to Rule 13a-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code.</u>
32.2	<u>Certification of Chief Financial Officer pursuant to Rule 13a-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code.</u>
101.INS	XBRL Instance Document

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101.SCH XBRL Taxonomy Extension Schema Document

101.CAL XBRL Taxonomy Extension Calculation Linkbase Document

101.DEF XBRL Taxonomy Extension Definition Linkbase Document

101.LAB XBRL Taxonomy Extension Label Linkbase Document

101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

* Each of the Exhibits noted by an asterisk is a management compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: February 28, 2019

BALCHEM CORPORATION

By: /s/ Theodore L. Harris

Theodore L. Harris, President and
Chief Executive Officer

SIGNATURES

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

/s/ Theodore L. Harris

Theodore L. Harris, President and
Chief Executive Officer (Chairman)

Date: February 28, 2019

/s/ Martin Bengtsson

Martin Bengtsson, Chief Financial Officer
and Treasurer (Principal Financial Officer)

Date: February 28, 2019

/s/ William A. Backus

William A. Backus, Chief Accounting Officer
(Principal Accounting Officer)

Date: February 28, 2019

/s/ Paul D. Coombs

Paul D. Coombs, Director

Date: February 28, 2019

/s/ David B. Fischer

David B. Fischer, Director

Date: February 28, 2019

/s/ Daniel E. Knutson

Daniel E. Knutson, Director

Date: February 28, 2019

/s/ Perry W. Premdas

Perry W. Premdas, Director

Date: February 28, 2019

/s/ Dr. John Televantos

Dr. John Televantos, Director

Date: February 28, 2019

/s/ Matthew Wineinger

Matthew Wineinger, Director

Date: February 28, 2019