
UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM 10-K

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

For the fiscal year ended December 31, 2017

or

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

Commission file number 1-12084

Libbey Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

34-1559357

(IRS Employer Identification No.)

300 Madison Avenue, Toledo, Ohio 43604

(Address of principal executive offices) (Zip Code)

419-325-2100

(Registrant's telephone number, including area code)

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

<u>Title of Each Class</u>	<u>Name of Each Exchange on Which Registered</u>
Common Stock, \$.01 par value	NYSE American

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

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) 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, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer <input type="checkbox"/>	Accelerated Filer <input checked="" type="checkbox"/>
Non-Accelerated Filer <input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company <input type="checkbox"/>
	Emerging growth company <input type="checkbox"/>

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 (based on the consolidated tape closing price on June 30, 2017) of the voting stock beneficially held by non-affiliates of the registrant was approximately \$175,107,046. For the sole purpose of making this calculation, the term "non-affiliate" has been interpreted to exclude directors and executive officers of the registrant. Such interpretation is not intended to be, and should not be construed to be, an admission by the registrant or such directors or executive officers that any such persons are "affiliates" of the registrant, as that term is defined under the Securities Act of 1934.

The number of shares of common stock, \$.01 par value, of the registrant outstanding as of February 23, 2018 was 22,018,876.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required by Items 10, 11, 12, 13 and 14 of Form 10-K is incorporated by reference into Part III hereof from the registrant's Proxy Statement for the Annual Meeting of Shareholders to be held May 16, 2018 ("Proxy Statement").

Certain information required by Part II of this Form 10-K is incorporated by reference from registrant's 2017 Annual Report to Shareholders where indicated.

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This Annual Report on Form 10-K, including “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” contains forward-looking statements regarding future events and future results that are subject to the safe harbors created under the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended. Libbey desires to take advantage of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. These statements are based on current expectations, estimates, forecasts and projections, and the beliefs and assumptions of our management. Words such as “expect,” “anticipate,” “target,” “believe,” “intend,” “may,” “planned,” “potential,” “should,” “will,” “would,” variations of such words, and similar expressions are intended to identify these forward-looking statements. In addition, any statements that refer to projections of our future financial performance, our anticipated growth and trends in our businesses, and other characterizations of future events or circumstances are forward-looking statements. Readers are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions that are difficult to predict. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. We undertake no obligation to revise or update any forward-looking statements for any reason.

PART I

Item 1. Business

General

Libbey Inc. (Libbey or the Company) is a global leader in the design, production and sale of tableware and other products. We manufacture glass tableware and related products at our two plants in the United States as well as our plants located in Mexico (Libbey Mexico), the Netherlands (Libbey Holland), Portugal (Libbey Portugal) and China (Libbey China). We believe that our glass tableware manufacturing, distribution and service network is the largest in the Western Hemisphere and is among the largest in the world. We also source glass tableware, ceramic dinnerware, metal flatware, hollowware and serveware products globally. We sell our products in more than 100 countries across the globe. Our extensive line of tabletop and other products are sold globally under the Libbey[®], Libbey Signature[®], Master’s Reserve[®], World[®] Tableware, Syracuse[®] China, Crisa[®], Royal Leerdam[®], Crisal Glass[®] and other brand names primarily in the foodservice, retail and business-to-business channels. See [note 18](#) to the Consolidated Financial Statements for segment and geographic information.

Libbey was originally founded as the New England Glass Company in 1818. Operations were moved to Toledo, Ohio in 1888, and the Company was incorporated in Delaware in 1987. Our rich heritage now spans 200 years.

Our website can be found at www.libbey.com. We make available, free of charge, at this website all of our reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, including our annual report on Form 10-K, our quarterly reports on Form 10-Q and our current reports on Form 8-K, as well as amendments to those reports. These reports are made available on our website as soon as reasonably practicable after their filing with, or furnishing to, the Securities and Exchange Commission and can also be found at www.sec.gov.

Our shares are traded on the NYSE American exchange under the ticker symbol LBY.

Strategic Initiatives

Our strategy is focused on the following three key areas that we believe are critical to achieving sustainable, profitable growth across all our market segments:

- Profitable growth with innovative new products and world class e-commerce capabilities;
- Operational Excellence through improved utilization of our global network, extending asset life and continuous improvement; and
- Organizational Excellence that develops our talent and culture to the level required to create sustainable value.

In order to improve our capabilities to drive growth through innovation, we have augmented our marketing organization to drive enhanced market insight and established improved new product development capabilities.

In the U.S. and Canada we believe we have competitive advantages, including leading market share and best-in-class service in the foodservice channel. We expect to extend these advantages by enhancing customer focus and introducing differentiated new products as we seek to increase our share in existing product categories, such as ceramicware and metalware, and to extend our presence to an even broader range of foodservice venues than we have served historically. We are also an established foodservice supplier in the regions of Latin America; Europe, the Middle East and Africa (EMEA); and Asia Pacific. We expect all of these areas to benefit from our enhanced customer focus, new products and adjacencies tailored to increase share.

We made significant investments in 2017 to establish new capabilities to support e-commerce in our retail channel in the U.S. In 2018, we will continue to build on these capabilities to better support our customers as we expand these efforts to other channels and geographic regions. In addition, we are beginning to upgrade our internal processes and systems infrastructure to simplify business processes and improve capabilities across many functional areas.

In 2017, we made good progress in consolidating our manufacturing footprint in Europe by reducing the number of furnaces in our Libbey Holland production facility, which enabled us to sell more selectively and improve margins. As a glass manufacturer, we have a capital-intensive business, with our investments in our furnaces being long-term in nature. Over time we will continue to seek opportunities to optimize our manufacturing footprint globally in order to serve profitable sectors of our markets. We intend to continue to invest in technologies that can extend the useful lives of some assets to deliver improved overall returns.

We are on a mission to become more market-driven as we seek to become one of the most innovative tabletop companies. In 2018, we intend to create momentum executing on our growth and operational and organizational excellence strategies.

Products

Our products include glassware products that we produce at our six manufacturing facilities globally, as well as glass tableware, ceramicware, metalware and other tabletop products that we source globally. Glass tableware products include products such as tumblers, stemware, mugs, bowls, vases, salt and pepper shakers, shot glasses, canisters, candleholders and other items. Other glass products include storageware, serveware, bakeware, handmade glass tableware and components sold to original equipment manufacturers (OEMs), such as blender jars and mixing bowls. We also offer a wide range of ceramic dinnerware products. These include plates, bowls, platters, cups, saucers and other tabletop accessories. In addition, we offer an extensive selection of metal flatware, including knives, forks, spoons and serving utensils, and metal hollowware, which includes such items as serving trays, pitchers and other metal tabletop accessories.

In recent years, we have invested in proprietary ClearFire[®] technology at our Shreveport, Louisiana, facility to manufacture premium glass tableware suitable for fine dining, household and consumer use. We sell these products in the foodservice channel under the Master's Reserve[®] brand and in retail under the Libbey Signature[®] brand.

We have developed a complete premium tabletop offering called the Artistry Collection[™] that is targeted to serve fine dining establishments and event venues in the foodservice channel. It combines our Master's Reserve[®] brand glassware with other leading brands of fine tabletop products sourced through the following exclusive distribution agreements:

- Spiegelau and Nachtmann glassware and serveware products in the U.S. foodservice channel. Spiegelau is known for its fine stemware and other drinkware assortments. Nachtmann offers a variety of upscale serveware, decorative products, stemware and drinkware for finer dining establishments.
- Schönwald dinnerware products in the U.S. and Canada. Schönwald is one of the world's leading providers of high-end porcelain and bone china for food service.
- Reed & Barton flatware products in the U.S. and Canada. Reed & Barton is one of the oldest and largest privately held tabletop and giftware companies.
- VIVA Scandinavia offers high-trend teaware that is designed in Denmark and handcrafted in China. The VIVA Scandinavia collection includes tea pots, cups, saucers and infusers featuring combinations of shock-resistant, tempered glass, stainless steel and porcelain.

Customers

We believe that our regional market segment organization allows us to better understand and serve our customers' needs.

In the U.S. and Canada, customers for our tableware products include approximately 400 foodservice distributors in the United States and Canada and around the world who sell primarily to restaurants, bars, hotels and other foodservice venues. In retail, we sell to mass merchants, department stores, pure play e-commerce retailers or marketers, retail distributors, national retail chains and specialty housewares stores. Additionally, in the business-to-business channel, we sell to a variety of customers, including companies using glass in candle, floral and other OEM applications.

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In Latin America, we sell to retail customers including mass merchants and wholesale distributors; to a wide variety of business-to-business customers who use glass products in promotions, catalogues, candles, food packing and various OEM uses; and to foodservice distributors.

In EMEA, we sell glass tableware to retailers, distributors and decorators that service the retail, foodservice and business-to-business channels, including large breweries and distilleries decorating products with company logos for promotional and resale purposes.

We also sell glass tableware products in the Asia Pacific region primarily to distributors and wholesalers.

No single customer accounts for 10 percent or more of our sales, although the loss of any of our major customers could have a meaningful impact on us.

Competition

The markets for our products are highly competitive in all our geographic segments. Our competitors include other glass tableware manufacturers, including large multinational companies such as Arc International (a French company) and Paşabahçe (a unit of Şişecam Holdings, a Turkish company), The Oneida Group (a U.S. company), AnHui DeLi Glassware Co., Ltd. (a Chinese company), Vidrieria Y Cristaleria De Lamiaco, S.A. - VICRILA (a Spanish company) and various other manufacturers in Europe, Asia Pacific and the Americas; ceramic dinnerware and metalware manufacturers throughout the world, including Homer Laughlin, The Oneida Group, Steelite and others; and a variety of sourcing or marketing companies. In addition, other products such as plastic and melamine compete with our glass and ceramic tabletop products. Our principal competitive advantages are our installed base, customer service, price, product quality, new product development, brand name, responsiveness, delivery time and breadth of product offerings.

Throughout much of 2017, we continued to experience softer global demand and broad scale industry overcapacity among glass tableware manufacturers, with conditions improving somewhat later in the year. In the U.S., the relative strength of the dollar versus other world currencies has improved the ease with which foreign manufacturers can sell products into the U.S. at competitive prices.

Sales, Marketing and Distribution

In 2017, approximately 76 percent of our sales were to customers located in North America (U.S., Canada and Mexico), and approximately 24 percent of our sales were to customers in other countries. We sell our products in over 100 countries around the world. We employ our own sales force to call on customers and distributors. In addition, we occasionally retain the services of manufacturer's representative organizations to assist in selling our products. We have marketing staff located at our corporate headquarters in Toledo, Ohio, as well as in Mexico, Portugal, the Netherlands and China.

We operate distribution centers located at or near each of our manufacturing facilities (see "[Properties](#)," below). In addition, we operate a distribution center in Laredo, Texas, and one in West Chicago, Illinois, and we have contracts with third-party logistics providers to service our on-line customers and consumers. Our warehouse and distribution centers are strategically located to enable us to supply significant quantities of our product to customers on a timely and cost effective basis.

The majority of our sales are in the foodservice, retail and business-to-business channels, which are further detailed below.

Foodservice

We have, according to our estimates, the leading market share in glass tableware sales in the U.S. and Canadian foodservice channel, placing us among the leading glass tableware suppliers around the globe. A majority of our sales of tabletop products to foodservice establishments are made through a network of foodservice distributors. Our strong foodservice distributor network and in-house sales force provide broad coverage of a wide variety of foodservice establishments, including restaurants, bars, hotels and other travel and tourism venues.

Retail

Our primary customers in the retail channel include mass merchants, specialty housewares stores, pure play e-commerce retailers and value-oriented retailers in the U.S. and around the globe. Based on data from the Beverageware Consumer Tracking Services of NPD Group, management estimates that we maintain the leading share of the U.S. retail market for glass beverageware. We believe that our established relationships with major retailers, particularly in the U.S. and Canada, Latin

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America and EMEA regions, position us to successfully introduce differentiated new retail products to pursue increased share and profitability. We also operate outlet stores in the U.S. and Mexico and make sales via internet retailers.

Business-to-Business

We supply glass tableware to the business-to-business channel of distribution. Our customers for products sold in the business-to-business channel in the U.S. and Canada and Latin America include drink companies and custom decorators of glassware for promotional purposes and resale. In addition, sales of our products in the business-to-business channel in the U.S. and Canada include sales of products for candle and floral applications, as well as blender jars in Latin America. The craft industries and gourmet food-packing companies are also among our business-to-business glassware customers. In Europe, our customers in the business-to-business channel include marketers who decorate our glassware with company logos and resell these products to large breweries and distilleries, which redistribute the glassware for promotional purposes and resale.

Seasonality

Our sales and operating income tend to be stronger in the last three quarters of each year and weaker in the first quarter of each year, primarily due to the impact of consumer buying patterns and production activity. This seasonal pattern causes accounts receivable to be higher in the second half of the year and lower during the first half of the year.

We typically build inventory during the first half of the year to allow for optimum customer service and timely delivery in the second half of the year, a higher demand period when orders may exceed short-term production capabilities. We also build inventory to service customers during periods of planned downtime for furnace rebuilds or maintenance, as well as maintaining an appropriate level of safety stock of items that we source primarily from the Asia Pacific region and that, as a result, require longer lead times. Accounts payable do not generally fluctuate significantly on a seasonal basis.

Although little information with respect to our competitors is publicly available, we believe that our experience with working capital is generally consistent with the experience of the industry as a whole.

Backlog

As of December 31, 2017, our backlog was approximately \$116.9 million, compared to approximately \$89.7 million at December 31, 2016. The increase was primarily due to a rise in customer orders, currency translation effects and timing of order fulfillment. Backlog includes orders confirmed with a purchase order for products scheduled to be shipped to customers in a future period. Since orders may be changed and/or canceled, we do not believe our backlog is necessarily indicative of actual sales for any future period and expect that the majority of these orders will be fulfilled within the current year.

Manufacturing and Sourcing

In North America, we currently own and operate three glass tableware manufacturing plants, two of which are located in the United States (one in Toledo, Ohio, and one in Shreveport, Louisiana) and one of which is located in Monterrey, Mexico. In Europe, we own and operate two glass tableware manufacturing plants, one of which is located in Leerdam, the Netherlands, and the other of which is located in Marinha Grande, Portugal. In Asia, we own and operate a glass tableware production facility in Langfang, China.

The manufacture of our tableware products involves the use of automated processes and technologies, as well as manual production. We design much of our glass tableware production machinery, and we continuously refine it to incorporate technological advances to create a competitive advantage. We believe that our production machinery and equipment will continue to be adequate for our needs for the foreseeable future, but we continue to invest to further improve our products, gain production efficiencies and reduce our cost profile.

Our glass tableware products generally are produced using one of two manufacturing methods, commonly referred to as "blown" or "pressed". In the case of certain stemware, we may use a combination of these methods. Most of our tumblers, stemware and other glass tableware products are "blown", meaning that they are produced by forming molten glass in molds with the use of compressed air. Our other glass tableware products and the stems of certain stemware are "pressed", meaning that they are produced by pressing molten glass into the desired product shape.

To assist in the manufacturing process, we employ a team of engineers whose responsibilities include efforts to improve and upgrade our manufacturing facilities, equipment and processes. In addition, they provide engineering required to manufacture

new products and implement the large number of innovative changes continuously being made to our product designs, sizes and shapes. See “Research and Development” below for additional information.

Ceramic dinnerware and metal flatware and hollowware are sourced primarily from the Asia Pacific region.

Materials

Our primary materials are sand, lime, soda ash, corrugated packaging and colorants. Historically, these materials have been available in adequate supply from multiple sources. However, there may be temporary shortages of certain materials due to weather or other factors, including disruptions in supply caused by material transportation or production delays. Such shortages have not had, and are not expected in the future to have, a material adverse effect on our operations. Natural gas is the primary source of energy in our production processes, and periodic variability in the price for natural gas has had and could continue to have an impact on our profitability. Historically, we have used natural gas hedging for a portion of our expected purchases to partially mitigate this impact in North America and Europe. We also experience fluctuations in the freight cost to deliver materials due primarily to the cost of diesel fuel and trucking capacity, and such changes may affect our earnings and cash flow.

Research and Development

Our research and development efforts focus on developing new, differentiated and innovative products to meet customers' and consumers' needs. Our product development efforts begin with consumer insights, and we have been investing to strengthen these capabilities. Our focus is to increase the quality of our products and develop innovative new consumer solutions and product offerings that enhance the profitability of our business through research and development, including adjacent technology, safety and risk mitigation techniques. We will continue to invest in strategic research and development projects that will further enhance our ability to compete in our core business.

In addition, our core competencies include our glass engineering excellence and world-class manufacturing development techniques. We employ a team of engineers, in addition to external consultants and university collaboration studies in sciences, to conduct research and development. Our expenditures on research and development activities related to new and/or improved products and processes were \$3.0 million, \$4.3 million and \$6.1 million in 2017, 2016 and 2015, respectively. These costs were expensed as incurred.

Patents, Trademarks and Licenses

Based upon market research and surveys, we believe that our trade names and trademarks, as well as our product shapes and styles, enjoy a high degree of consumer recognition and are valuable assets. We believe that the Libbey[®], Libbey Signature[®], Master's Reserve[®], Syracuse[®] China, World[®] Tableware, Crisal[®], Royal Leerdam[®] and Crisal Glass[®] trade names and trademarks are material to our business.

We have rights under a number of patents that relate to a variety of products and processes. However, we do not consider that any patent or group of patents relating to a particular product or process is of material importance to our business as a whole.

Environmental Matters

Our operations, in common with those of industry generally, are subject to numerous existing laws and governmental regulations designed to protect the environment, particularly regarding plant waste, emissions and solid waste disposal and remediation of contaminated sites. We believe that we are in material compliance with applicable environmental laws, and we are not aware of any regulatory initiatives that we expect will have a material effect on our products or operations. See “Risk Factors-We are subject to various environmental legal requirements and may be subject to new legal requirements in the future; these requirements could have a material adverse effect on our operations.”

We have shipped, and we continue to ship, waste materials for off-site disposal. However, we are not named as a potentially responsible party with respect to any waste disposal site matters pending prior to June 24, 1993, the date of Libbey's initial public offering and separation from Owens-Illinois, Inc. (Owens-Illinois). Owens-Illinois has been named as a potentially responsible party or other participant in connection with certain waste disposal sites to which we also may have shipped wastes prior to June 24, 1993. We may bear some responsibility in connection with those shipments. Pursuant to an indemnification agreement between Owens-Illinois and Libbey, Owens-Illinois agreed to defend and hold us harmless against any costs or liabilities we may incur in connection with any such matters identified and pending as of June 24, 1993, and to indemnify us for any liability that results from these matters in excess of \$3.0 million.

Syracuse China Environmental Matters

On October 10, 1995, pursuant to an Asset Purchase Agreement, or APA, Syracuse China Company, our wholly-owned subsidiary, acquired from The Pfaltzgraff Co. (now known as TPC York, Inc., which we refer to as "TPC York") and certain of its subsidiary corporations, the assets operated by them as Syracuse China.

By letter dated October 31, 2008, the New York Department of Environmental Conservation, which we refer to as the DEC, and U.S. Environmental Protection Agency, which we refer to as the EPA, made a demand upon Syracuse China and several other potentially responsible parties, or "PRPs," for recovery of approximately \$12.5 million of direct and indirect costs allegedly expended by the DEC and EPA in connection with the lake bottom subsite (which we refer to as the Onondaga Lake Bottom subsite) of the Onondaga Lake Superfund Site. In February 2013, Syracuse China, TPC York and Honeywell International Inc., which we refer to as Honeywell, entered into an agreement to settle certain claims relating to the Onondaga Lake Bottom subsite, which Honeywell previously undertook to remediate. Under that Settlement Agreement, Honeywell has agreed to indemnify Syracuse China with respect to certain claims that may be made by any government or third party with respect to the Onondaga Lake Bottom subsite.

By letter dated October 30, 2009, the EPA notified Syracuse China and several other PRPs of potential liability for response costs in connection with the Lower Ley Creek subsite ("Ley Creek Subsite") of the Onondaga Lake Superfund Site. Since that date, the EPA has completed its Remedial Investigation (RI), Feasibility Study (FS), Risk Assessment (RA) and Proposed Remedial Action Plan (PRAP). The EPA issued its Record of Decision (RoD) on September 30, 2014. The RoD indicates that the EPA's estimate of the undiscounted cost of remediation ranges between approximately \$17.0 million (assuming local disposal of contaminated sediments is feasible) and approximately \$24.8 million (assuming local disposal is not feasible). However, the RoD acknowledges that the final cost of the cleanup will depend upon the actual volume of contaminated material, the degree to which it is contaminated, and where the excavated soil and sediment is properly disposed. In connection with the General Motors Corporation bankruptcy, the EPA recovered \$22.0 million (which we refer to as the "GM Settlement Funds") from Motors Liquidation Company ("MLC"), the successor to General Motors Corporation. If the cleanup costs do not exceed the amount recovered by the EPA from MLC, Syracuse China may suffer no loss. If and to the extent the cleanup costs exceed the amount recovered by the EPA from MLC, it is not yet known whether other PRPs will be added to the current group of PRPs or how any excess costs may be allocated among the PRPs.

On March 3, 2015, the EPA issued to the PRPs notices and requests to negotiate performance of the remedial design (RD), work. The notices contemplate that any agreement to perform the RD work would be memorialized in an Administrative Order on Consent (AOC). On July 14, 2016, the PRPs entered into an AOC to perform the RD work. The EPA and PRPs anticipate that the RD work will produce additional information from which the feasibility of a local disposal option and the cleanup costs can be better determined. The EPA has declined to advance the GM Settlement Funds for the RD work, instead conditioning use of those funds to reimburse for the RD work upon the successful completion of the RD work and the finalization of an AOC to perform the remedial action work.

To the extent Syracuse China is liable for any costs in connection with the remediation of the Ley Creek Subsite, including without limitation costs to fund the RD work, and to the extent such costs are not reimbursed from the GM Settlement Funds, then pursuant to the APA Syracuse China and TPC York will share such costs up to an aggregate of \$7.5 million. We believe that collection of the amounts for which TPC York is liable under that indemnification is probable.

In connection with the above proceedings, an estimated environmental liability of \$0.8 million and a recoverable amount of \$0.4 million in other assets have been recorded in the Consolidated Balance Sheet at December 31, 2017. An estimated liability of \$0.9 million and a recoverable amount of \$0.5 million in other assets have been recorded in the Consolidated Balance Sheet at December 31, 2016. Immaterial amounts have been recorded in cost of sales in the Consolidated Statements of Operations for the years ended December 31, 2017 and 2016, and \$0.2 million was recorded for the year ended December 31, 2015. Although we cannot predict the ultimate outcome of this proceeding, we believe that it will not have a material adverse impact on our financial condition, results of operations or liquidity.

Other

We regularly review the facts and circumstances of the various environmental matters affecting us, including those covered by indemnification. Although not free of uncertainties, we do not expect, based upon the number of parties involved at the sites and the estimated cost, based upon known technology and the experience of others, of undisputed work necessary for remediation, to incur material loss for new matters in the future. There can be no assurance, however, that indemnification agreements will be performed in accordance with their terms. We believe that any future expenditures for environmental matters will not have a material adverse effect on our financial position or results of operations.

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Although we continue to modify our manufacturing processes and technologies in an effort to reduce our emissions and increase energy efficiency, capital expenditures for property, plant and equipment specifically for environmental control purposes were not material during 2017. In 2016 we spent \$2.1 million on environmental control equipment for our China facility. Such expenditures are not expected to be material in 2018.

Employees

We employed 6,230 persons at December 31, 2017. Approximately 71 percent of our employees are employed outside the U.S. The majority of our employees are paid hourly and covered by collective bargaining agreements. The total number of employees under a collective bargaining agreement expiring within one year is approximately 44 percent of Libbey's total workforce. Our collective bargaining agreement with our unionized employees in the Netherlands is scheduled to expire on June 30, 2019; our collective bargaining agreements with our unionized employees in Toledo, Ohio, are scheduled to expire on September 30, 2019; and our collective bargaining agreement with our unionized employees in Shreveport, Louisiana, is scheduled to expire on December 15, 2020. Under our collective bargaining agreements covering our unionized employees in Mexico, we negotiate wages annually and negotiate benefits every other year. In Portugal and China, we have no written collective bargaining agreement with our unionized employees; however, there are consultations with the unions on various matters, including annual negotiations regarding wages. We believe that our relations with our employees are good.

Executive Officers of the Registrant

Our executive officers have a wealth of business knowledge, experience and commitment to Libbey.

Name and Title

Professional Background

James C. Burmeister
Vice President,
Chief Financial Officer

Mr. Burmeister, 50, has been Vice President, Chief Financial Officer of Libbey since March 30, 2017. Mr. Burmeister came to Libbey from The Andersons, Inc. (NASDAQ: ANDE), where he served since 2014 as Vice President, Finance and Treasurer, managing the treasury, tax, investor relations, sourcing, business development and continuous improvement functions. Prior to joining The Andersons, Inc., Mr. Burmeister held roles of increasing responsibility in operations finance with Owens Corning (NYSE: OC), beginning in 2005 as Director of Finance of Owens Corning's cultured stone business and culminating in his role from 2013-2014 as Vice President, Finance of Owens Corning's roofing and asphalt division. Earlier in his career, Mr. Burmeister served in a variety of roles with General Electric (NYSE: GE), including an assignment with GE's highly-regarded Corporate Audit Staff, and with Rubbermaid in its supply chain function. Mr. Burmeister is a graduate of the U.S. Naval Academy and served as a commissioned officer in the U.S. Marine Corps from 1990 to 1995.

William A. Foley
Chief Executive Officer and
Chairman of the Board

Mr. Foley, 70, has been Chief Executive Officer and Chairman of the Board of Libbey since January 12, 2016. Before assuming the role as Chief Executive Officer and Chairman of the Board, Mr. Foley served as Independent Chairman of the Board since August 2011 and a Director since 1994. Mr. Foley served as Chairman and Chief Executive Officer of Blonder Accents, LLC from June 2011 until November 2011 and served as Chairman and Chief Executive Officer of Blonder Company from 2008 until June 2011. Previously, Mr. Foley was President and a director of Arhaus, Inc.; co-founder of Learning Dimensions LLC; Chairman and Chief Executive Officer of LESCO Inc.; and Chairman and Chief Executive Officer of Think Well Inc. Mr. Foley also fulfilled the roles of Vice President, General Manager for The Scotts Company Consumer Division, and Vice President and General Manager of Rubbermaid Inc.'s Specialty Products division. Mr. Foley spent the first 14 years of his career with Anchor Hocking Corp. in various positions, including Vice President of Sales & Marketing of the Consumer and Industrial Products Group. Mr. Foley is a member of the Board of Directors of Myers Industries, Inc. (NYSE: MYE) (since 2010) and is President of the Indiana University Foundation Board of Associates (since 2006).

<u>Name and Title</u>	<u>Professional Background</u>
James (Klay) K. Huddleston Vice President, Chief Digital Officer	Mr. Huddleston, 47, joined Libbey as Vice President, Chief Digital Officer on November 13, 2017. From 2008 until joining Libbey, Mr. Huddleston served as Senior Vice President, Omni-Commerce for Resource/Ammirati, an IBM (NYSE: IBM) consulting agency specializing in brand, commerce, and technology solutions to drive sales and increase customer engagement. Mr. Huddleston previously served as Vice President & General Manager, Direct for Tween Brands from 2006 to 2008 and Director, E-Commerce for Lane Bryant from 2005 to 2006. Mr. Huddleston's earlier career included various marketing and product management positions for Amazon.com, Inc. (NASDAQ: AMZN) from 1998 to 2004.
Susan A. Kovach Vice President, General Counsel and Secretary	Ms. Kovach, 58, has been Vice President, General Counsel and Secretary of Libbey Inc. since July 2004, having joined Libbey in December 2003 as Vice President, Associate General Counsel and Assistant Secretary. Ms. Kovach was Of Counsel to Dykema Gossett PLLC from 2001 through November 2003. She served from 1997 to 2001 as Vice President, General Counsel and Corporate Secretary of Omega Healthcare Investors, Inc. (NYSE: OHI) and from 1998 to 2000 as Vice President, General Counsel and Corporate Secretary of Omega Worldwide, Inc., a NASDAQ-listed firm. Prior to joining Omega Healthcare Investors, Inc., Ms. Kovach was a partner in Dykema Gossett PLLC from 1995 through November 1997 and an associate in Dykema Gossett PLLC from 1985 to 1995.
William C. Mossing Vice President, Chief Supply Chain Officer	Mr. Mossing, 51, joined Libbey as Vice President, Chief Supply Chain Officer on December 1, 2017. Mr. Mossing came to Libbey from Bendix Commercial Vehicle Systems LLC, where he served as Vice President, Supply Chain since 2011 and Vice President and General Manager - Modules from 2008 to 2011. Mr. Mossing previously served as Product Line Director from 2006 to 2008 and Assistant General Manager from 2004 to 2008 of Bendix Spicer Foundation Brake LLC, a joint venture of Bendix Commercial Vehicle Systems LLC and Dana Corporation. Mr. Mossing's previous experience includes various positions of increasing responsibility in the manufacturing, supply chain, and engineering functions at Dana Corporation, a predecessor to Dana Incorporated (NYSE: DAN).

Item 1A. Risk Factors

The following factors are the most significant factors that can impact year-to-year comparisons and may affect the future performance of our businesses. New risks may emerge, and management cannot predict those risks or estimate the extent to which they may affect our financial performance.

Risks associated with market conditions

Slowdowns or changes in trends in the retail, travel, restaurant and bar or entertainment industries may negatively impact demand for our products.

Our business is dependent on business and personal discretionary spending in the retail, travel, restaurant and bar or entertainment industries. Business and personal discretionary spending may decline during general economic downturns or during periods of uncertainty about economic conditions. In addition, austerity and other regulatory measures adopted by some governments may cause consumers in some markets that we serve to reduce or postpone spending. Consumers also may reduce or postpone spending in response to tighter credit, negative financial news, higher fuel and energy costs, higher taxes and healthcare costs and/or declines in income or asset values. Additionally, expenditures in the travel, restaurant and bar or entertainment industries may decline after incidents of terrorism, during periods of geopolitical conflict in which travelers become concerned about safety issues, during periods of severe weather or during periods when travel or entertainment might involve health-related risks such as severe outbreaks, epidemics or pandemics of contagious disease.

Changes in trends, including those impacting the restaurant and bar industry and the retail channel of distribution, also may negatively impact demand for our products. For example, shifts from dining at full-service restaurants to dining at quick-serve restaurants and grocerants, or from dining at chain restaurants to dining at locally-owned restaurants, as well as a trend toward home delivery of meal kits, may result in reduced demand for our products in the foodservice channel of distribution. Similarly, the rapid shift in retail traffic from brick-and-mortar stores to internet sales may outpace our nascent e-commerce capability, which we launched in mid-2017.

An inability to meet the demand for new products may adversely impact our ability to compete effectively and to grow our business.

Our strategy depends in part on the timing and market acceptance of new product offerings and our ability to continually renew our pipeline of new products and bring those products to market. This ability may be adversely affected by difficulties or delays in product development, such as the inability to identify viable new products, obtain adequate intellectual property protection, or gain market acceptance of new products, as well as by difficulties or longer-than-expected lead times in sourcing products. There are no guarantees that new products will prove to be commercially successful or profitable.

An inability to develop new or expand existing customer relationships may adversely impact our ability to grow our business.

Our ability to grow our business depends in part on our ability to develop new customer relationships and to expand relationships with existing customers. Failure to develop and expand such relationships could have a material adverse effect on our business, results of operations and financial condition.

Changing industry and market conditions may dictate strategic decisions to restructure some business units and discontinue others. These decisions may require us to record material restructuring charges.

In the past, we have recorded restructuring charges related to involuntary employee terminations, various facility abandonments, and various other restructuring activities. We continually evaluate ways to reduce our operating expenses through new restructuring opportunities, including more effective utilization of our assets, workforce, and operating facilities. In addition, changing industry and market conditions may dictate strategic decisions to restructure some business units and discontinue others. As a result, there is a risk, which is increased during economic downturns and with expanded global operations, that we may incur material restructuring charges in the future.

We face intense competition and competitive pressures that could adversely affect demand for our products and our results of operations and financial condition.

Our business is highly competitive, with the principal competitive factors being customer service, price, product quality, new product development, brand name, delivery time and breadth of product offerings. Advantages or disadvantages in any of these competitive factors may be sufficient to cause the customer to consider changing providers of the kinds of products that we sell.

Competitors include other glass tableware manufacturers, including large multinational companies such as Arc International (a French company) and numerous manufacturers in Europe, Asia Pacific and the Americas; a variety of ceramic dinnerware and metalware manufacturers throughout the world; and a variety of sourcing or marketing companies. In addition, other products such as plastic and melamine compete with our glass tableware and ceramic dinnerware products.

Demand for our products may be adversely impacted by increased competitive pressures caused by the provision of subsidies by foreign countries to our competitors based in those countries; national and international boycotts and embargoes of other countries or U.S. imports and/or exports; the raising of tariff rates on, or increase of non-tariff trade barriers that apply to imports of our products to foreign countries; the lowering of tariff rates on imports into the U.S. of our foreign competitors' products; and other changes to international agreements that improve access to the U.S. market for our competitors.

In addition, the cost-competitiveness of our products may be adversely affected by inflationary pressures that cause us to increase the prices of our products in order to maintain their profitability. In that connection, some of our competitors may have greater financial and capital resources than we do and continue to invest heavily to achieve increased production efficiencies. Competitors may have incorporated more advanced technology in their manufacturing processes, including more advanced automation techniques. Our labor and energy costs also may be higher than those of some foreign producers of glass tableware.

The cost-competitiveness of our products, as compared to foreign competition, also may be reduced as a result of major fluctuations in the value of the euro, the Mexican peso, the Chinese yuan, which we refer to as the "RMB," or the Canadian dollar relative to the U.S. dollar and other major currencies. For example, over the last two years the U.S. dollar has appreciated substantially against the Mexican peso, as a result of which the purchasing power of the peso effectively has been reduced compared to the U.S. dollar, making our U.S.-manufactured products more expensive in Mexico compared to the products of local competitors, and making products manufactured by our foreign competitors in Mexico more cost-competitive in the U.S. with our U.S.-manufactured products.

Our Mexican pension and U.S. and non-U.S. post-retirement welfare plans are unfunded; in the future, levels of funding of our U.S. pension plans could decline and our pension expense could materially increase.

We have not funded, and under Mexican law we are not obligated to fund, our Mexican pension plan. As of December 31, 2017, the unfunded amount of the projected benefit obligation for the Mexican pension plan was \$32.0 million. In addition, although we have closed participation in our U.S. pension and post-retirement welfare plans, many of our employees participate in, and many of our former employees are entitled to benefits under, our U.S. and non-U.S. defined benefit pension plans and post-retirement welfare plans.

In connection with our employee pension and post-retirement welfare plans, we are exposed to market risks associated with changes in the various capital markets. Changes in long-term interest rates affect the discount rate that is used to measure our obligations and related expense. Our total pension and post-retirement welfare expense, including pension settlement charges, for all U.S. and non-U.S. plans was \$7.4 million and \$8.4 million for the fiscal years ended December 31, 2017 and 2016, respectively. We expect our total pension and post-retirement welfare expense for all U.S. and non-U.S. plans to be \$6.9 million in 2018. Volatility in the capital markets affects the performance of our pension plan asset performance and related pension expense. Based on 2017 year-end data, sensitivity to these key market risk factors is as follows:

- A change of 1 percent in the discount rate would change our annual pretax pension and post-retirement welfare expense by approximately \$3.4 million.
- A change of 1 percent in the expected long-term rate of return on plan assets would change annual pretax pension expense by approximately \$3.2 million.

Declines in interest rates or the market value of securities held by our U.S. pension plan, or certain other changes, could materially reduce the funded status of those plans and affect our pension expense and the level and timing of minimum required contributions to the plans under applicable law.

Natural gas, the principal fuel we use to manufacture our products, is subject to fluctuating prices that could adversely affect our results of operations and financial condition.

Natural gas is the primary source of energy in most of our production processes. We do not have long-term contracts for natural gas and therefore are subject to market variables and widely fluctuating prices. Consequently, our operating results are strongly linked to the cost of natural gas. We utilize natural gas swap contracts with respect to our North American manufacturing facilities, and we aim to hedge 40 to 70 percent of our anticipated natural gas needs there. With respect to our international facilities, we utilize fixed-price contracts to fix a portion of our natural gas needs. In some countries in which we operate, including China, our ability to put in place fixed-priced contracts or natural gas swap contracts to fix the price of natural gas is limited. We spent \$29.1 million and \$29.5 million, respectively, on natural gas for the year ended December 31, 2017 and 2016. We have no way of predicting to what extent natural gas prices will rise in the future. To the extent that we are not able to offset increases in natural gas prices, such as by passing along the cost to our customers, these increases could adversely impact our margins and operating performance.

The market price of our common stock is subject to volatility.

The market price of our common stock could be subject to wide fluctuations in response to numerous factors, many of which are beyond our control. These factors include market conditions within the industries in which we operate, as well as general economic and market conditions, such as recessions; seasonality of our business operations; the general state of the securities markets and the market for stocks of companies in our industry; trading volumes; sales by holders of large amounts of our common stock; short selling; actual or anticipated variations in our operational results and cash flow; actual or anticipated variations in our earnings relative to our competition; changes in financial estimates by securities analysts; governmental legislation or regulation; and currency and exchange rate fluctuations.

Operational Risks

If we are unable to renegotiate collective bargaining agreements successfully when they expire, organized strikes or work stoppages by unionized employees may have an adverse effect on our operating performance.

We are party to collective bargaining agreements that cover most of our manufacturing employees. The agreement with our unionized employees in the Netherlands is scheduled to expire on June 30, 2019; the agreements with our unionized employees in Toledo, Ohio, are scheduled to expire on September 30, 2019; and the agreement with our unionized employees in Shreveport, Louisiana, is scheduled to expire on December 15, 2020. Under our collective bargaining agreements covering our unionized employees in Mexico, we negotiate wages annually and negotiate benefits every other year. In Portugal and China we have no

written collective bargaining agreement with our unionized employees, but there are consultations with the unions on various matters, including annual negotiations regarding wages.

We may not be able to successfully negotiate new collective bargaining agreements without a labor disruption. If any of our unionized employees were to engage in a strike or work stoppage in connection with the negotiation of their existing collective bargaining agreements, or if we are unable in the future to negotiate acceptable agreements with our unionized employees in a timely manner, we could experience a significant disruption of operations. If we experience a work stoppage and we elect to engage replacement workers, we could experience increase costs. In addition, we could experience increased operating costs as a result of higher wages or benefits paid to union members upon the execution of new agreements with our labor unions. We also could experience operating inefficiencies as a result of preparations for disruptions in production, such as increasing production and inventories. Finally, companies upon which we are dependent for raw materials, transportation or other services could be affected by labor difficulties. These factors and any such disruptions or difficulties could have an adverse impact on our operating performance and financial condition.

In addition, we are dependent on the cooperation of our largely unionized workforce to implement and adopt our productivity initiatives that are critical to our ability to improve our production efficiency. The effect of strikes and other slowdowns may adversely affect the degree and speed with which we can adopt optimization objectives.

If we are unable to increase output or achieve operating efficiencies, the profitability of our business may be materially and adversely affected.

We may not be successful in increasing output at our lower-cost manufacturing facilities or gaining operating efficiencies that may be necessary in order to ensure that our products and their prices remain competitive.

Unexpected equipment failures may lead to production curtailments or shutdowns.

Our manufacturing processes are dependent upon critical glass-producing equipment, such as furnaces, forming machines and lehrs. This equipment may incur downtime as a result of unanticipated failures, accidents, natural disasters or other *force majeure* events. We may in the future experience facility shutdowns or periods of reduced production as a result of such failures or events. Unexpected interruptions in our production capabilities would adversely affect our productivity and results of operations for the affected period. We also may face shutdowns if we are unable to obtain enough energy in the peak demand periods.

A loss of the services of key personnel could have a material adverse effect on our business.

Our continued success depends to a large degree upon our ability to attract and retain key management executives, as well as upon a number of members of technology, operations and sales and marketing staffs. The loss of some of our key executives or key members of our operating staff, or an inability to attract or retain other key individuals, could materially adversely affect us.

We rely on increasingly complex information systems for management of our manufacturing, distribution, sales and other functions. If our information systems fail to perform these functions adequately, or if we experience an interruption in their operation, our business and results of operations could suffer.

All of our major operations, including manufacturing, distribution, sales and accounting, are dependent upon our complex information systems. Our information systems are vulnerable to damage or interruption from:

- earthquake, fire, flood, hurricane and other natural disasters;
- power loss, computer systems failure, internet and telecommunications or data network failure; and
- hackers, computer viruses or software bugs.

Any damage or significant disruption in the operation of such systems or the failure of our information systems to perform as expected could disrupt our business; result in decreased sales, increased overhead costs, excess inventory and product shortages; and otherwise adversely affect our operations, financial performance and condition. We take significant steps to mitigate the potential impact of each of these risks, but there can be no assurance that these procedures would be completely successful.

In addition, although we take steps to secure our management information systems, including our computer systems, intranet and internet sites, email and other telecommunications and data networks, the security measures we have implemented may not be effective and our systems may be vulnerable to theft, loss, damage and interruption from a number of potential sources and events,

including unauthorized access or security breaches and cyber attacks. Our reputation, brand, and financial condition could be adversely affected if, as a result of a significant cyber event or otherwise, our operations are disrupted or shutdown; our confidential, proprietary information is stolen or disclosed; data is manipulated or destroyed; we incur costs or are required to pay fines in connection with stolen customer, employee, or other confidential information; we must dedicate significant resources to system repairs or increase cyber security protection; or we otherwise incur significant litigation or other costs.

A severe outbreak, epidemic or pandemic of a contagious disease in a location where we have a facility could adversely impact our operations and financial condition.

Our facilities may be impacted by the outbreak of certain public health issues, including epidemics, pandemics and other contagious diseases. If a severe outbreak were to occur where we have facilities, it could adversely impact our operations and financial condition.

We may not be able to effectively integrate future businesses we acquire or joint ventures into which we enter.

Any future acquisitions that we might make or joint ventures into which we might enter are subject to various risks and uncertainties, including:

- the inability to integrate effectively the operations, products, technologies and personnel of the acquired companies (some of which may be spread out in different geographic regions) and to achieve expected synergies;
- the potential disruption of existing business and diversion of management's attention from day-to-day operations;
- the inability to maintain uniform standards, controls, procedures and policies or correct deficient standards, controls, procedures and policies, including internal controls and procedures sufficient to satisfy regulatory requirements of a public company in the U.S.;
- the incurrence of contingent obligations that were not anticipated at the time of the acquisitions;
- the failure to obtain necessary transition services such as management services, information technology services and others;
- the need or obligation to divest portions of the acquired companies; and
- the potential impairment of relationships with customers.

In addition, we cannot provide assurance that the integration and consolidation of newly acquired businesses or joint ventures will achieve any anticipated cost savings and operating synergies. The inability to integrate and consolidate operations and improve operating efficiencies at newly acquired businesses or joint ventures could have a material adverse effect on our business, financial condition and results of operations.

Financial risks

Our level of debt may limit our operating and financial flexibility.

As of December 31, 2017, we had \$387.7 million aggregate principal amount of debt outstanding. Although our ABL Facility credit agreement and Term Loan B Senior Secured Credit Agreement generally do not contain financial covenants, the credit agreements contain other covenants that limit our operational and financial flexibility, such as by:

- limiting the additional indebtedness that we may incur;
- limiting certain business activities, investments and payments, and
- limiting our ability to dispose of certain assets.

These covenants may limit our ability to engage in activities that may be in our long-term best interests.

In addition, our levels of indebtedness could:

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- limit our ability to withstand business and economic downturns and/or place us at a competitive disadvantage compared to our competitors that have less debt, because of the high percentage of our operating cash flow that is dedicated to servicing our debt;
- limit our ability to make capital investments in order to expand our business;
- limit our ability to invest operating cash flow in our business and future business opportunities, because we use a substantial portion of these funds to service debt and because our covenants restrict the amount of our investments;
- limit our ability to obtain additional debt or equity financing for working capital, capital expenditures, product development, debt service requirements, acquisitions or other purposes;
- make it more difficult for us to satisfy our financial obligations;
- limit our ability to pay dividends; and
- limit our ability to attract and retain talent.

If cash generated from operations is insufficient to satisfy our liquidity requirements, if we cannot service our debt, or if we fail to meet our covenants, we could have substantial liquidity problems. In those circumstances, we might have to discontinue payment of dividends and/or share repurchases, sell assets, delay planned investments, obtain additional equity capital or restructure our debt. Depending on the circumstances at the time, we may not be able to accomplish any of these actions on favorable terms or at all.

In addition, our failure to comply with the covenants contained in our loan agreements could result in an event of default that, if not cured or waived, could result in the acceleration of all of our indebtedness.

Our variable rate indebtedness subjects us to interest rate risk that could cause our debt service obligations to increase significantly.

Borrowings under our Senior Secured Term Loan B are at variable rates of interest and expose us to interest rate risk. Although we have entered into a forward interest-rate swap to fix the interest rate on \$220.0 million of our Senior Secured Term Loan B, if interest rates were to increase, our debt service obligations on the variable rate indebtedness would increase even if the amount borrowed were to remain the same. As a result, our net income and cash flows would decrease.

If we are unable to control or pass on to our customers increases in key input costs, including the cost of raw materials, sourced products, utilities, packaging and freight, the profitability of our business may be materially and adversely affected.

Sand, soda ash, lime and corrugated packaging materials are the principal materials we use to make our products. We also rely heavily on natural gas, electricity, water and other utilities. In addition, we obtain glass tableware, ceramic dinnerware, metal flatware and hollowware from third parties. Increases in the costs of these commodities or products may result from inflationary pressures as well as temporary shortages due to disruptions in supply caused by weather, transportation, production delays or other factors. If we experience shortages in commodities or sourced products, we may be forced to procure them from alternative suppliers, and we may not be able to do so on terms as favorable as our current terms or at all.

In addition, the cost of U.S. dollar-denominated purchases (including for raw materials) for our operations in the euro zone, Mexico and China may increase due to appreciation of the U.S. dollar against the euro, the Mexican peso or the RMB, respectively.

If we are unsuccessful in managing our costs or in passing cost increases through to our customers through increased prices, our financial condition and results of operations may be materially and adversely affected.

The profitability of our business may be materially and adversely impacted if we are unable to fully absorb the high levels of fixed costs associated with our business.

The high levels of fixed costs of operating glass production plants encourage high levels of output, even during periods of reduced demand, which can lead to excess inventory levels and exacerbate the pressure on profit margins. In addition, significant portions of our selling, administrative and general expenses are fixed costs that neither increase nor decrease proportionately with sales. Our profitability is dependent, in part, on our ability to spread fixed costs over an increasing number of products sold and shipped, and if we reduce our rate of production our costs per unit increase, negatively impacting our gross margins. Decreased demand

or the need to reduce inventories can lead to capacity adjustments that reduce our ability to absorb fixed costs and, as a result, may materially impact our profitability.

We face inventory risk.

We identify slow-moving and obsolete inventories and estimate appropriate loss provisions accordingly. In connection with our 2016 initiative to optimize our product portfolio, we recorded a charge of \$5.7 million within cost of sales for the year ended December 31, 2016. No assurance can be given that we will not incur additional inventory charges. Such charges could materially adversely affect our financial condition and operating results.

Fluctuation of the currencies in which we conduct operations could adversely affect our financial condition, results of operations and cash flows.

Our reporting currency is the U.S. dollar. A significant portion of our net sales, costs, assets and liabilities are denominated in currencies other than the U.S. dollar, primarily the euro, the Mexican peso, the RMB and the Canadian dollar. In our consolidated financial statements, we translate local currency financial results into U.S. dollars based on the exchange rates prevailing during the reporting period. During times of a strengthening U.S. dollar, the reported revenues and earnings of our international operations will be reduced because the local currencies will translate into fewer U.S. dollars. This could have a material adverse effect on our financial condition, results of operations and cash flow.

In addition, changes in the value, relative to the U.S. dollar, of the various currencies in which we conduct operations, including the euro, the Mexican peso and the RMB, may result in significant changes in the indebtedness of our non-U.S. subsidiaries.

Downgrades of our credit ratings could adversely impact us.

Our credit ratings are important to our cost of capital. The major debt rating agencies routinely evaluate our debt based on a number of factors, including our financial strength and business risk as well as transparency with rating agencies and timeliness of financial reporting. On November 6, 2017, Standard & Poor's downgraded our corporate credit rating from B+ to B and lowered the issue-level rating on our Term Loan B from BB- to B, with a revised recovery rating from 2 to 3, in each case with a stable outlook. On the same date, Moody's Investor Service lowered our corporate family rating and Term Loan B from B1 to B2. Further downgrades to our debt ratings could result in increased interest and other expenses on future borrowings. Downgrades in our debt rating could also restrict our access to capital markets.

If we have an asset impairment in a business segment, our net earnings and net worth could be materially and adversely affected by a write-down of goodwill, intangible assets or fixed assets.

We have recorded a significant amount of goodwill, which represents the excess of cost over the fair value of the net assets of the business acquired; other identifiable intangible assets, including trademarks and trade names; and fixed assets. Impairment of goodwill, identifiable intangible assets or fixed assets may result from, among other things, deterioration in our performance, adverse market conditions, adverse changes in applicable laws or regulations, including changes that restrict the activities of or affect the products sold by our business, and a variety of other factors. Under U.S. GAAP, we are required to charge the amount of any impairment immediately to operating income.

We conduct an impairment analysis at least annually related to goodwill and other indefinite lived intangible assets. This analysis requires our management to make significant judgments and estimates, primarily regarding expected financial performance, expected growth rates, and discount rates, identifying similar companies with comparable business factors and assessing comparable multiples. We determine expected financial performance and growth rates based on internally developed forecasts considering our future financial plans. We estimate the discount rate used based on an analysis of comparable company weighted average costs of capital that considered market assumptions obtained from independent sources. We identified similar companies with comparable business factors such as size, growth, profitability, risk and return on investment. We identified comparable multiples that we felt were most relevant to Libbey. The estimates that our management uses in this analysis could be materially impacted by factors such as specific industry conditions, changes in cash flow from operations and changes in growth trends. In addition, the assumptions our management uses are management's best estimates based on projected results and market conditions as of the date of testing. Significant changes in these key assumptions could result in indicators of impairment when completing the annual impairment analysis. We assess our fixed assets for possible impairment whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. We remain subject to future financial statement risk in the event that goodwill, other identifiable intangible assets or fixed assets become impaired. For further discussion of key assumptions in our critical accounting estimates, see "[Management's Discussion and Analysis of Financial Condition and Results of Operations-Critical Accounting Estimates.](#)"

In the third quarter of 2017, we recorded a \$79.7 million non-cash goodwill impairment charge in the Mexico reporting unit of our Latin America segment. As of December 31, 2017, we had goodwill and other identifiable intangible assets of \$99.0 million and net fixed assets of \$265.7 million. There can be no assurance that we will not record further impairment charges that may adversely impact our net earnings and net worth.

The changes in the fair value of derivatives used as hedges would be reflected in our earnings if we have not elected hedge accounting, if our hedges do not qualify as highly effective or if we do not believe that forecasted transactions would occur.

We have derivative financial instruments to hedge our interest rate risk. In addition, in order to mitigate the variation in our operating results due to commodity price fluctuations, we have derivative financial instruments that hedge certain commodity price risks associated with forecasted future natural gas requirements and foreign exchange rate risks associated with transactions denominated in some currencies other than the U.S. dollar. The results of our hedging practices could be positive, neutral or negative in any period, depending on price changes of the hedged exposures. We account for derivatives in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 815, "Derivatives and Hedging." These derivatives qualify for hedge accounting if the hedges are highly effective and we have designated and documented contemporaneously the hedging relationships involving these derivative instruments. If we do not elect hedge accounting, if our hedges do not qualify as highly effective or if we do not believe that forecasted transactions would occur, the changes in the fair value of the derivatives used as hedges will impact our results of operations and could significantly impact our earnings.

If counterparties to our hedge and interest rate swap agreements fail to perform, the applicable agreements would not protect us from fluctuations in pricing of the applicable commodity or interest rates, as the case may be.

If the counterparties to our derivative financial instruments that hedge commodity price risks or interest rates were to fail to perform, we would no longer be protected from fluctuations in the pricing of the applicable commodities or in interest rates, and the impact of these fluctuations would impact our results of operations and financial condition.

Our business requires significant capital investment and maintenance expenditures that we may be unable to fulfill.

Our operations are capital intensive, requiring us to maintain a large fixed cost base. Our total capital expenditures were \$47.6 million and \$34.6 million for the years ended December 31, 2017 and 2016, respectively.

Our business may not generate sufficient operating cash flow and external financing sources may not be available in an amount sufficient to enable us to make anticipated capital expenditures.

Charges related to our employee pension and post-retirement welfare plans may adversely affect our results of operations and financial condition.

As part of our pension expense, we incurred pension settlement charges of \$0.2 million in both 2017 and 2016. For further discussion of these charges, see [note 8](#) to our Consolidated Financial Statements for the year ended December 31, 2017. We may incur further expenses related to our employee pension and post-retirement welfare plans that could have a material adverse effect on our results of operations and financial condition.

If our investments in our e-commerce initiative, new technology and other capital expenditures do not yield expected returns, our results of operations could be adversely affected.

In 2017, we invested \$12.1 million to launch our e-commerce initiative, which we expect will contribute to both our net sales and our profitability. We also continue to invest in our glass tableware production equipment and make other capital expenditures to further improve our production efficiency and reduce our cost profile. To the extent that these investments do not generate targeted levels of returns in terms of profitability, efficiency or improved cost profile, our financial condition and results of operations could be adversely affected.

Governmental conversion controls over the foreign currencies in which we operate could affect our ability to convert the earnings of our foreign subsidiaries into U.S. dollars.

While the Mexican government does not currently restrict, and for many years has not restricted, the right or ability of Mexican or foreign persons or entities to convert pesos into U.S. dollars or to transfer other currencies out of Mexico, in the future the Mexican government could institute restrictive exchange rate policies or governmental controls over the convertibility of pesos

into U.S. dollars. Restrictive exchange rate or conversion policies could limit our ability to transfer or convert the peso earnings of our Mexican subsidiary into U.S. dollars, upon which we rely in part to satisfy our debt obligations through intercompany loans.

In addition, the government of China imposes controls on the convertibility of RMB into foreign currencies and, in certain cases, the remittance of currency out of China. Shortages in the availability of foreign currency may restrict the ability of Libbey China to remit sufficient foreign currency to make payments to us. Under existing Chinese foreign exchange regulations, payments of current account items, including profit distributions, interest payments and expenditures from trade-related transactions, can be made in foreign currencies without prior approval from the Chinese State Administration of Foreign Exchange by complying with certain procedural requirements. However, approval from appropriate government authorities is required where RMB are to be converted into foreign currencies and remitted out of China to pay capital expenses such as the repayment of bank loans denominated in foreign currencies. In the future, the Chinese government could institute restrictive exchange rate policies for current account transactions. These policies could adversely affect our results of operations and financial condition.

Our ability to recognize the benefit of deferred tax assets is dependent upon future taxable income and the timing of temporary difference reversals.

We recognize the expected future tax benefit from deferred tax assets when realization of the tax benefit is considered more likely than not. Otherwise, a valuation allowance is applied against deferred tax assets. Assessing the recoverability of deferred tax assets requires management to make significant estimates related to expectations of future taxable income and the timing of reversals of temporary differences. To the extent that these factors differ significantly from estimates, our ability to realize the deferred tax assets could be impacted. Additionally, future changes in tax laws could impact our ability to obtain the future tax benefits represented by our deferred tax assets. See [note 7](#) to our Consolidated Financial Statements for a discussion of the impact on deferred taxes of the Tax Cuts and Jobs Act which was signed into law on December 22, 2017.

International risks

We are subject to risks associated with operating in foreign countries.

We operate manufacturing and other facilities throughout the world. As a result of our international operations, we are subject to risks associated with operating in foreign countries, including:

- difficulties in staffing and managing multinational operations;
- changes in government policies and regulations;
- limitations on our ability to enforce legal rights and remedies;
- political, social and economic instability and uncertainties arising from the global geopolitical environment, including the United Kingdom referendum in favor of exiting the European Union and the evolving U.S. political, regulatory and economic landscape following the 2016 elections;
- drug-related violence, particularly in Mexico;
- war, civil disturbance or acts of terrorism;
- taking of property by nationalization or expropriation without fair compensation;
- imposition or changing of tariffs or other trade barriers;
- imposition or increase of withholding and other taxes on remittances and other payments by foreign subsidiaries;
- ineffective intellectual property protection;
- disadvantages of competing against companies from countries that are not subject to U.S. laws and regulations including the U.S. Foreign Corrupt Practices Act (“FCPA”);
- potentially adverse tax consequences;
- impositions or increase of investment and other restrictions or requirements by foreign governments; and
- limitations on our ability to achieve the international growth contemplated by our strategy.

High levels of inflation in countries in which we operate or sell our products could adversely affect our operating results and cash flows.

Increases in inflation caused by or associated with currency devaluations or other economic conditions may result in reduced discretionary spending by consumers and therefore reduced demand for our products, as well as higher input costs for our businesses, as a result of which our results of operations and financial condition may be negatively impacted.

Legal and Regulatory Risks

Increasing legal and regulatory complexity will continue to affect our operations and results in potentially material ways.

Our legal and regulatory environment worldwide exposes us to complex compliance, litigation and similar risks that affect our operations and results in ways that potentially may be material. In many of our markets, including the U.S. and Europe, we are subject to increasing regulation, which has increased our cost of doing business. In developing markets, including in China, we face the risks associated with new and untested laws and judicial systems. Among the more important regulatory and litigation risks we face and must manage are the following:

- The cost, compliance and other risks associated with the often conflicting and highly prescriptive regulations we face, especially in the U.S., where inconsistent standards imposed by local, state and federal authorities can increase our exposure to litigation or governmental investigations or proceedings;
- The impact of new, potential or changing regulation that can affect our business plans, such as those relating to the content and safety of our products, as well as the risks and costs of our labeling and other disclosure practices;
- The risks and costs to us and our supply chain of increased focus by U.S. and overseas governmental authorities and non-governmental organizations on environmental matters, such as climate change, the reduction of greenhouse gases and water consumption, including as a result of initiatives that effectively impose a tax on carbon emissions;
- The impact of litigation trends, particularly in our major markets; the relative level of our defense costs, which vary from period to period depending on the number, nature and procedural status of pending proceedings; and the cost and other effects of settlements or judgments, which may require us to make disclosures or take other actions that may affect perceptions of our brand and products;
- The increasing costs and other effects of compliance with U.S. and overseas regulations affecting our workforce and labor practices, including regulations relating to health and safety, wage and hour practices, immigration, healthcare, retirement and other employee benefits and unlawful workplace discrimination;
- The cost and disruption of responding to governmental audits, investigations or proceedings (including audits of abandoned and unclaimed property, tax audits and audits of pension plans and our compliance with wage and hour laws), whether or not they have merit, and the cost to resolve or contest the results of any such governmental audits, investigations or proceedings;
- The legal and compliance risks associated with information technology, such as the costs of compliance with privacy, consumer protection and other laws, the potential costs associated with alleged security breaches (including the loss of consumer confidence that may result and the risk of criminal penalties or civil liability to consumers or employees whose data is alleged to have been collected or used inappropriately) and potential challenges to the associated intellectual property rights or to our use of that intellectual property;
- The impact of changes in financial reporting requirements, accounting standards, pronouncements, principles or practices, including with respect to our critical accounting policies and estimates, changes in tax accounting or tax laws (or authoritative interpretations relating to any of these matters), and the impact of settlements of pending or any future adjustments proposed by any taxing authorities in connection with our tax audits, all of which will depend on their timing, nature and scope;
- The impact of changes in international trade agreements and tariffs; and
- The impact of new accounting standards or pronouncements, which could adversely affect our operating results or cause unanticipated fluctuations in our results in future periods. The accounting rules and regulations with which we must comply are complex and continually changing. In addition, many companies' accounting policies are being

subjected to heightened scrutiny by regulators and the public. While we believe that our financial statements have been prepared in accordance of U.S. generally accepted accounting principles, we cannot predict the impact of future changes to accounting principles or to our accounting policies on our financial statements going forward.

We are subject to various environmental legal requirements and may be subject to new legal requirements in the future; these requirements could have a material adverse effect on our operations.

Our operations and properties, both in the U.S. and abroad, are subject to extensive laws, ordinances, regulations and other legal requirements relating to environmental protection, including legal requirements governing investigation and clean-up of contaminated properties as well as water discharges, air emissions, waste management and workplace health and safety. These legal requirements frequently change and vary among jurisdictions. For example, Chinese restrictions on air emissions have continued to evolve in the face of the extreme air pollution in China. Compliance with these requirements, or the failure to comply with these requirements, may have a material adverse effect on operations.

We have incurred, and expect to incur, costs to comply with environmental legal requirements, including requirements limiting greenhouse gas emissions, and these costs could increase in the future. Many environmental legal requirements provide for substantial fines, orders (including orders to cease operations) and criminal sanctions for violations. Also, certain environmental laws impose strict liability and, under certain circumstances, joint and several liability on current and prior owners and operators of these sites, as well as persons who sent waste to them, for costs to investigate and remediate contaminated sites. These legal requirements may apply to conditions at properties that we presently or formerly owned or operated, as well as at other properties for which we may be responsible, including those at which wastes attributable to us were disposed. A significant order or judgment against us, the loss of a significant permit or license or the imposition of a significant fine may have a material adverse effect on operations.

Our products and operations are subject to various health and safety requirements and may be subject to new health and safety requirements in the future; these requirements could have a material adverse effect on our operations.

Our products and operations are subject to certain legal requirements relating to health and safety, including occupational health and safety. These legal requirements frequently change and vary among jurisdictions. Compliance with these requirements, or the failure to comply with these requirements, may have a material adverse effect on our operations. If any of our products becomes subject to new regulations, or if any of our products becomes specifically regulated by additional governmental or other regulatory entities, the cost of compliance could be material. For example, the U.S. Consumer Product Safety Commission, or CPSC, regulates many consumer products, including glass tableware products that are externally decorated with certain ceramic enamels. New regulations or policies by the CPSC could require us to change our manufacturing processes, which could materially raise our manufacturing costs. In addition, such new regulations could reduce sales of our glass tableware products. Furthermore, a significant order or judgment against us by any governmental or regulatory entity relating to health or safety matters, or the imposition of a significant fine relating to such matters, may have a material adverse effect on our operations.

We are subject to complex corporate governance, public disclosure and accounting requirements to which most of our competitors are not subject.

We are subject to changing rules and regulations of federal and state government, as well as the stock exchange on which our common stock is listed. These entities, including the Public Company Accounting Oversight Board (“PCAOB”), the Securities and Exchange Commission (“SEC”) and the NYSE American exchange, have issued a significant number of new and increasingly complex requirements and regulations over the course of the last several years and continue to develop additional regulations and requirements in response to laws enacted by the U.S. Congress. For example, the Sarbanes-Oxley Act of 2002 and the rules and regulations subsequently implemented by the SEC and the PCAOB, imposed and may impose further compliance burdens and costs on us. Also, in July 2010, the Dodd-Frank Wall Street Reform and Protection Act (the “Dodd-Frank Act”) was signed into law. The Dodd-Frank Act includes significant corporate governance and executive compensation-related provisions that require the SEC to adopt additional rules and regulations in these areas. Our efforts to comply with new requirements of law and regulation are likely to result in an increase in expenses and a diversion of management’s time from other business activities. Also, those laws, rules and regulations may make it more difficult and expensive for us to attract and retain key employees and directors and to maintain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to maintain coverage.

Our competitors generally are not subject to these rules and regulations, because they do not have securities that are publicly traded on a U.S. securities exchange. As a result, our competitors generally are not subject to the risks identified above. In addition, the public disclosures that we are required to provide pursuant to these rules and regulations may furnish our competitors with greater

competitive information regarding our operations and financial results than we are able to obtain regarding their operations and financial results, thereby placing us at a competitive disadvantage.

Estimates and assumptions that we make in accounting for our results from operations are dependent on future results, involve significant judgments, may be imprecise and may differ materially from actual results.

Several estimates and assumptions are made that affect the accounting for and recognition of assets, liabilities, revenues and expenses. These estimates and assumptions must be made due to certain information used in preparation of our financial statements which is dependent on future events, cannot be calculated with a high degree of precision from data available or is not capable of being readily calculated based on generally accepted methodologies. We believe that accounting for long-lived assets, goodwill, pension benefit plans, contingencies and litigation, and income taxes involves significant judgments and estimates used in the preparation of our consolidated financial statements. Actual results for all estimates could differ materially from the estimates and assumptions that we use, which could have a material adverse effect on our financial condition and results of operations.

Our financial results and operations may be adversely affected by violations of anti-bribery laws.

The FCPA and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business. Our policies mandate compliance with these anti-bribery laws. We operate in many parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. We cannot assure you that our internal controls and procedures always will protect us from the reckless or criminal acts committed by our employees or agents. If we were found to be liable for FCPA violations (either due to our own acts or our inadvertence or due to the acts or inadvertence of others), we could be liable for criminal or civil penalties or other sanctions, which could have a material adverse effect on our business.

Our failure to protect our intellectual property or prevail in any intellectual property litigation could materially and adversely affect our competitive position, reduce net sales or otherwise harm our business.

Our success depends in part on our ability to protect our intellectual property rights. We rely on a combination of patent, trademark, copyright and trade secret laws, licenses, confidentiality and other agreements to protect our intellectual property rights. However, this protection may not be fully adequate. Our intellectual property rights may be challenged or invalidated, an infringement suit by us against a third party may not be successful and/or third parties could adopt trademarks similar to our own. In particular, third parties could design around or copy our proprietary furnace, manufacturing and mold technologies, which are important contributors to our competitive position in the glass tableware industry. We may be particularly susceptible to these challenges in countries where protection of intellectual property is not strong. In addition, we may be accused of infringing or violating the intellectual property rights of third parties. Any such claims, whether or not meritorious, could result in costly litigation and divert the efforts of our personnel. Our failure to protect our intellectual property or prevail in any intellectual property litigation could materially and adversely affect our competitive position, reduce net sales or otherwise harm our business.

Our financial results may be adversely impacted by product liability claims, recalls or other litigation that is determined adversely to us.

We are involved in various routine legal proceedings arising in the ordinary course of our business. We do not consider any pending legal proceeding as material. However, our financial results could be adversely affected by monetary judgments and the cost to defend legal proceedings in the future, including product liability claims related to the products we manufacture. Although we maintain product liability insurance coverage, potential product liability claims are subject to a self-insured retention or could be excluded under the terms of the policy.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

At December 31, 2017 we occupied the following square footage at plants and warehouse/distribution facilities:

Location	U.S. & Canada		Latin America		EMEA		Other	
	Owned	Leased	Owned	Leased	Owned	Leased	Owned	Leased
Toledo, Ohio:								
Manufacturing	733,800	—						
Warehousing/Distribution	713,100	455,200						
Shreveport, Louisiana:								
Manufacturing	525,000	—						
Warehousing/Distribution	166,000	646,000						
Monterrey, Mexico:								
Manufacturing			684,000	—				
Warehousing/Distribution			563,700	462,800				
Leerdam, Netherlands:								
Manufacturing					141,000	—		
Warehousing/Distribution					127,000	442,000		
Laredo, Texas:								
Warehousing/Distribution	149,000	163,000						
West Chicago, Illinois:								
Warehousing/Distribution	—	249,000						
Marinha Grande, Portugal:								
Manufacturing					158,900	—		
Warehousing/Distribution					193,000	—		
Langfang, China:								
Manufacturing							221,400	—
Warehousing/Distribution							234,000	172,200

These facilities have an aggregate floor space of 7.2 million square feet. We own approximately 64 percent and lease approximately 36 percent of this floor space. In addition to the facilities listed above, our headquarters (Toledo, Ohio), some warehouses (various locations), sales offices (various locations), showrooms (in Chicago, New York City and Toledo, Ohio) and various outlet stores are located in leased space. We also utilize various warehouses as needed on a month-to-month basis.

All of our principal facilities are currently being utilized for their intended purpose. In the opinion of management, all of these facilities are well maintained and adequate for our planned operational requirements.

Item 3. Legal Proceedings

We are involved in various routine legal proceedings arising in the ordinary course of our business. In addition, the Company and its subsidiaries are subject to examination by various countries' tax authorities. These examinations may lead to proposed or assessed adjustments to our taxes. For a detailed discussion on tax contingencies, see [note 7](#), Income Taxes, to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report, which is incorporated herein by reference.

Item 4. Mine Safety Disclosures

Not applicable.

PART II**Item 5. Market For Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities*****Common Stock and Dividends***

Libbey Inc. common stock is listed for trading on the NYSE American exchange under the symbol **LBY**. The price range for the Company's common stock as reported by the NYSE American exchange and dividends declared for our common stock were as follows:

	2017			2016		
	Price Range		Cash Dividend Declared	Price Range		Cash Dividend Declared
	High	Low		High	Low	
First Quarter	\$ 19.84	\$ 13.05	\$0.1175	\$ 21.25	\$ 14.75	\$0.115
Second Quarter	\$ 14.79	\$ 7.70	\$0.1175	\$ 18.99	\$ 14.90	\$0.115
Third Quarter	\$ 9.62	\$ 7.33	\$0.1175	\$ 19.06	\$ 15.20	\$0.115
Fourth Quarter	\$ 10.30	\$ 5.81	\$0.1175	\$ 20.76	\$ 15.21	\$0.115

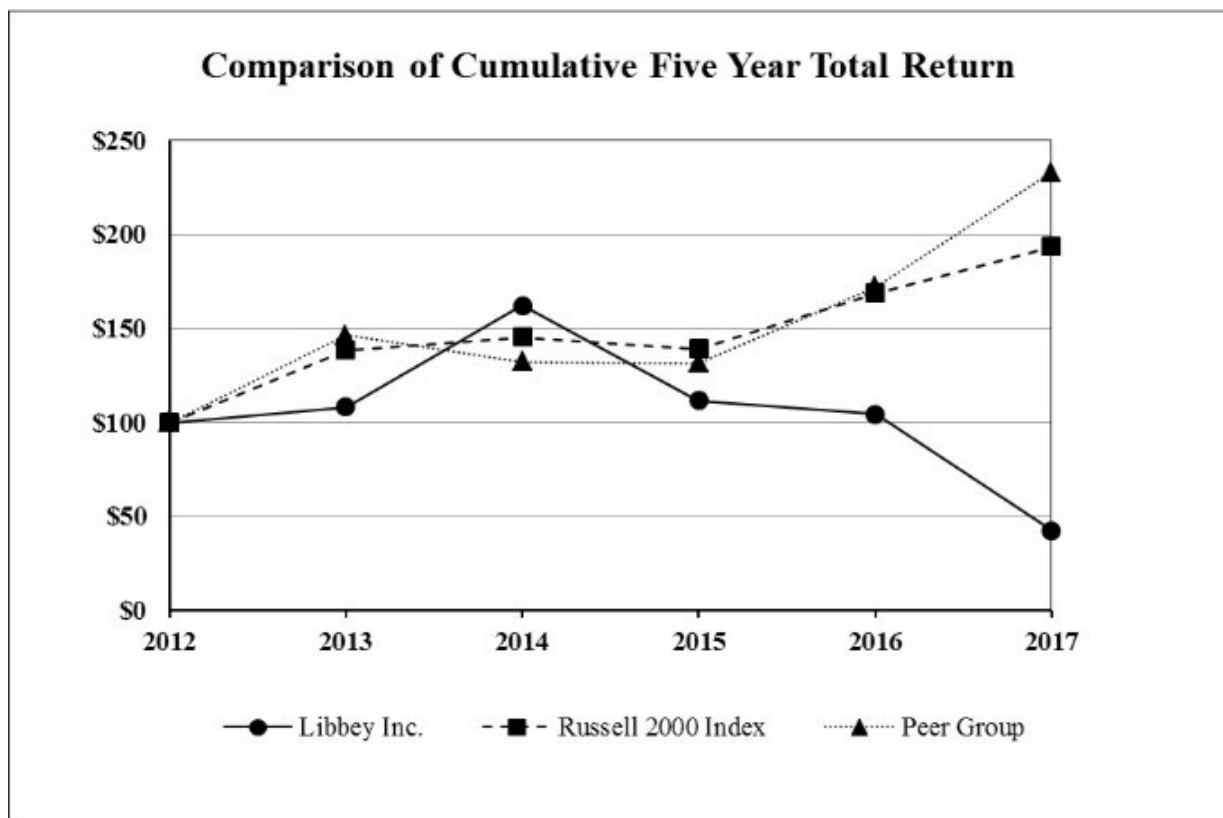
The closing market price of our common stock on February 23, 2018 was \$6.08 per share.

On February 23, 2018, there were 779 registered common shareholders of record. From February 2009 through year-end 2014, no dividends were paid. The declaration of future dividends is within the discretion of the Board of Directors of Libbey and depends upon, among other things, business conditions, earnings and the financial condition of Libbey.

Comparison of Cumulative Total Returns

The graph below compares the total stockholder return on our common stock to the cumulative total return for the Russell 2000 Index ("Russell 2000"), a small-cap index, and a peer group that we use for executive compensation purposes, as disclosed in the proxy statement for our 2018 Annual Meeting of shareholders. The index reflects the year-end market value of an investment in the stock of each company in the index, including additional shares assumed to have been acquired with cash dividends, if any.

The graph assumes a \$100 investment in our common stock on December 31, 2012, and also assumes investments of \$100 in each of the Russell 2000 and the peer group, respectively, on December 31, 2012. The value of these investments on December 31 of each year from 2012 through 2017 is shown in the table below the graph.



Company/Index	Base Period Dec 2012	Indexed Returns Years Ending				
		Dec 2013	Dec 2014	Dec 2015	Dec 2016	Dec 2017
Libbey Inc.	100	108.53	162.48	111.69	104.64	42.68
Russell 2000 Index	100	138.82	145.62	139.19	168.85	193.58
Peer Group	100	146.62	132.39	131.81	172.23	233.12

Issuer Purchases of Equity Securities

Following is a summary of the 2017 fourth quarter activity in our share repurchase program:

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as part of Publicly Announced Plans or Programs	Maximum Number of Shares that May Yet Be Purchased Under the Plans or Programs
October 1 to October 31, 2017	—	\$ —	—	941,250
November 1 to November 30, 2017	—	\$ —	—	941,250
December 1 to December 31, 2017	—	\$ —	—	941,250
Total	—	\$ —	—	941,250

Item 6. Selected Financial Data

Selected financial information is as follows:

Year ended December 31,
(dollars in thousands, except percentages,
per-share amounts and employees)

	2017	2016	2015 ^(a)	2014	2013
Operating Results:					
Net sales	\$ 781,828	\$ 793,420	\$ 822,345	\$ 852,492	\$ 818,811
Gross profit	\$ 150,971	\$ 166,294	\$ 176,328	\$ 203,145	\$ 189,417
Gross profit margin	19.3 %	21.0%	21.4 %	23.8%	23.1%
Selling, general and administrative expenses	\$ 124,926	\$ 120,984	\$ 132,607	\$ 121,909	\$ 109,981
Goodwill impairment	\$ 79,700	\$ —	\$ —	\$ —	\$ —
Income (loss) from operations (IFO)	\$ (53,655)	\$ 45,310	\$ 43,721	\$ 81,236	\$ 74,577
IFO margin	(6.9)%	5.7%	5.3 %	9.5%	9.1%
Other income (expense)	\$ (3,515)	\$ 3,362	\$ 2,880	\$ (44,840)	\$ (871)
Earnings (loss) before interest and income taxes (EBIT)	\$ (57,170)	\$ 48,672	\$ 46,601	\$ 36,396	\$ 73,706
EBIT margin	(7.3)%	6.1%	5.7 %	4.3%	9.0%
Interest expense	\$ 20,400	\$ 20,888	\$ 18,484	\$ 22,866	\$ 32,006
Income (loss) before income taxes	\$ (77,570)	\$ 27,784	\$ 28,117	\$ 13,530	\$ 41,700
Provision (benefit) for income taxes ^(a)	\$ 15,798	\$ 17,711	\$ (38,216)	\$ 8,567	\$ 13,241
Effective tax rate	(20.4)%	63.7%	(135.9)%	63.3%	31.8%
Net income (loss) ^(a)	\$ (93,368)	\$ 10,073	\$ 66,333	\$ 4,963	\$ 28,459
Net income (loss) margin	(11.9)%	1.3%	8.1 %	0.6%	3.5%
Per-Share Amounts:					
Diluted net income (loss) ^(a)	\$ (4.24)	\$ 0.46	\$ 2.99	\$ 0.22	\$ 1.31
Dividends declared	\$ 0.47	\$ 0.46	\$ 0.44	\$ —	\$ —
Other Information:					
Adjusted EBITDA ^(b) (non-GAAP)	\$ 70,562	\$ 111,641	\$ 116,349	\$ 122,142	\$ 134,401
Adjusted EBITDA margin ^(b) (non-GAAP)	9.0 %	14.1%	14.1 %	14.3%	16.4%
Employees	6,230	6,292	6,543	6,553	6,437
Balance Sheet Data:					
Total assets	\$ 717,239	\$ 818,169	\$ 852,444	\$ 822,938	\$ 820,475
Total liabilities	\$ 650,345	\$ 673,050	\$ 704,062	\$ 745,484	\$ 689,666
Trade Working Capital ^(c) (non-GAAP)	\$ 199,537	\$ 183,540	\$ 200,846	\$ 178,449	\$ 173,050
% of net sales	25.5 %	23.1%	24.4 %	20.9%	21.1%
Total borrowings - net	\$ 384,390	\$ 407,840	\$ 431,019	\$ 437,930	\$ 402,388
Cash Flow Data:					
Net cash provided by operating activities	\$ 45,308	\$ 83,904	\$ 69,692	\$ 82,188	\$ 73,180
Net cash used in investing activities	\$ (47,628)	\$ (34,604)	\$ (48,129)	\$ (52,019)	\$ (49,326)
Free Cash Flow ^(d) (non-GAAP)	\$ (2,320)	\$ 49,300	\$ 21,563	\$ 30,169	\$ 23,854
Net cash used in financing activities	\$ (35,214)	\$ (35,976)	\$ (29,997)	\$ (10,062)	\$ (49,593)

Note: Prior years have been revised to conform with the 2017 presentation.

^(a) Includes a tax benefit of \$(43,805) in the fourth quarter of 2015 related to the reversal of substantially all of the remaining valuation allowance recorded against U.S. deferred tax assets.

^(b) We believe that Adjusted EBITDA (adjusted earnings before interest, taxes, depreciation and amortization) and the associated margin, non-GAAP financial measures, are useful metrics for evaluating our financial performance. For a reconciliation from net income (loss) to Adjusted EBITDA, reasons why we use this measure and certain limitations, see below.

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(c) Defined as net inventory plus net accounts receivable, excluding receivable on furnace malfunction insurance claim, less accounts payable.

(d) We believe that Free Cash Flow (the sum of net cash provided by operating activities and net cash used in investing activities), is a useful metric for evaluating our liquidity. For reasons why we use this metric and certain limitations, see "Free Cash Flow" on page 38 in the "Cash Flow" discussion.

Reconciliation of Net Income (Loss) to Adjusted EBITDA

Year ended December 31, (dollars in thousands)	2017	2016	2015	2014	2013
Net income (loss) (U.S. GAAP)	\$ (93,368)	\$ 10,073	\$ 66,333	\$ 4,963	\$ 28,459
Add:					
Interest expense	20,400	20,888	18,484	22,866	32,006
Provision (benefit) for income taxes	15,798	17,711	(38,216)	8,567	13,241
Depreciation and amortization	45,544	48,486	42,712	40,388	43,969
Add: Special items before interest and taxes:					
Goodwill impairment (note 4) ⁽¹⁾	79,700	—	—	—	—
Product portfolio optimization ⁽²⁾	—	5,693	—	—	—
Reorganization/restructuring charges ⁽³⁾	2,488	—	4,316	985	6,544
Executive terminations/retirements	—	4,460	870	875	736
Pension settlements	—	168	21,693	774	2,252
Work stoppage ⁽⁴⁾	—	4,162	—	—	—
Loss on redemption of debt ⁽⁵⁾	—	—	—	47,191	2,518
Furnace malfunction ⁽⁶⁾	—	—	—	(4,782)	4,428
Abandoned property	—	—	—	—	1,781
Environmental obligation	—	—	157	315	—
Depreciation expense included in special items and also in depreciation and amortization above	—	—	—	—	(1,533)
Adjusted EBITDA (non-GAAP)	\$ 70,562	\$ 111,641	\$ 116,349	\$ 122,142	\$ 134,401
Net sales	\$ 781,828	\$ 793,420	\$ 822,345	\$ 852,492	\$ 818,811
Net income (loss) margin (U.S. GAAP)	(11.9)%	1.3%	8.1%	0.6%	3.5%
Adjusted EBITDA margin (non-GAAP)	9.0%	14.1%	14.1%	14.3%	16.4%

(1) Non-cash goodwill impairment charge recorded in our Latin America segment in the third quarter of 2017.

(2) Product portfolio optimization relates to inventory reductions to simplify and improve our operations.

(3) These charges were a part of our cost savings initiatives.

(4) Work stoppage relates to the lower production volume impact, shipping costs and other direct incremental expenses associated with the two-week Toledo, Ohio, work stoppage in the fourth quarter of 2016.

(5) Loss on redemption of debt primarily relates to the write-off of unamortized finance fees and call premium payments on our then Senior Secured Notes.

(6) Furnace malfunction primarily relates to insurance recoveries, net of production losses at our Toledo, Ohio, manufacturing facility.

Non-GAAP Measures

We sometimes refer to amounts, associated margins and other data derived from consolidated financial information but not required by GAAP to be presented in financial statements. Certain of these data are considered "non-GAAP financial measures" under Securities and Exchange Commission (SEC) Regulation G. Our non-GAAP measures are used by analysts, investors and other interested parties to compare our performance with the performance of other companies that report similar non-GAAP measures. Libbey believes these non-GAAP measures provide meaningful supplemental information regarding financial performance by excluding certain expenses and benefits that may not be indicative of core business operating results. We believe the non-GAAP measures, when viewed in conjunction with U.S. GAAP results and the accompanying reconciliations, enhance the comparability of results against prior periods and allow for greater transparency of financial results and business outlook. In addition, we use non-GAAP data internally to assess performance and facilitate management's internal comparison

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of our financial performance to that of prior periods, as well as trend analysis for budgeting and planning purposes. The presentation of our non-GAAP measures is not intended to be considered in isolation or as a substitute for, or superior to, the financial information prepared and presented in accordance with U.S. GAAP. Furthermore, our non-GAAP measures may not be comparable to similarly titled measures reported by other companies and may have limitations as an analytical tool.

We define Adjusted EBITDA as net income (loss) plus interest expense, provision for income taxes, depreciation and amortization, and special items that Libbey believes are not reflective of our core operating performance. The most directly comparable U.S. GAAP financial measure is net income (loss).

We present Adjusted EBITDA because we believe it is used by analysts, investors and other interested parties in comparing our performance across reporting periods on a consistent basis by excluding items that we do not believe are indicative of our core business operating results. Adjusted EBITDA also allows for a measure of comparability to other companies with different capital and legal structures, which accordingly may be subject to different interest rates and effective tax rates, and to companies that may incur different depreciation and amortization expenses or impairment charges. In addition, we use Adjusted EBITDA internally to measure profitability.

Adjusted EBITDA has limitations as an analytical tool. Some of these limitations are:

- Adjusted EBITDA does not reflect changes in, or cash requirements for, our working capital needs;
- Adjusted EBITDA does not reflect the significant interest expense, or the cash requirements necessary to service interest or principal payments, on our debts;
- Although depreciation and amortization are non-cash charges, the assets being depreciated and amortized will often have to be replaced in the future, and Adjusted EBITDA does not reflect any cash requirements for such replacements of capital expenditures or contractual commitments;
- Adjusted EBITDA does not reflect the impact of certain cash charges resulting from matters we consider not to be indicative of our ongoing operations; and
- Other companies in our industry may calculate Adjusted EBITDA differently than we do, limiting its usefulness as a comparative measure.

Because of these limitations, Adjusted EBITDA should not be considered in isolation or as a substitute for performance measures calculated in accordance with U.S. GAAP.

Constant Currency

We translate revenue and expense accounts in our non-U.S. operations at current average exchange rates during the year. References to "constant currency," "excluding currency impact" and "adjusted for currency" are considered non-GAAP measures. Constant currency references regarding net sales reflect a simple mathematical translation of local currency results using the comparable prior period's currency conversion rate. Constant currency references regarding Segment EBIT and Adjusted EBITDA comprise a simple mathematical translation of local currency results using the comparable prior period's currency conversion rate plus the transactional impact of changes in exchange rates from revenues, expenses and assets and liabilities that are denominated in a currency other than the functional currency. We believe this non-GAAP constant currency information provides valuable supplemental information regarding our core operating results, better identifies operating trends that may otherwise be masked or distorted by exchange rate changes and provides a higher degree of transparency of information used by management in its evaluation of our ongoing operations. These non-GAAP measures should be viewed in addition to, and not as an alternative to, the reported results prepared in accordance with GAAP. Our currency market risks include currency fluctuations relative to the U.S. dollar, Canadian dollar, Mexican peso, euro and RMB.

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

Forward Looking Statements

This document and supporting schedules contain statements that are not historical facts and constitute projections, forecasts or forward-looking statements. For a description of the forward-looking statements and risk factors that may affect our performance, see the "[Risk Factors](#)" section above.

Additionally, for an understanding of the significant factors that influenced our performance during the past three years, the following should be read in conjunction with the audited Consolidated Financial Statements and Notes.

General Overview

Headquartered in Toledo, Ohio, we believe that we have the largest manufacturing, distribution and service network among glass tableware manufacturers in the Western Hemisphere and that we are one of the largest glass tableware manufacturers in the world. Our tabletop product portfolio consists of an extensive line of high quality, machine-made glass tableware, including casual glass beverageware, in addition to ceramic dinnerware, metal flatware, hollowware and serveware. We sell our products to foodservice, retail, and business-to-business customers in over 100 countries, with our sales to customers in North America accounting for approximately 76 percent of our total sales. We believe we are the largest manufacturer and marketer of casual glass beverageware in North America for the foodservice and retail channels. Additionally, we are a manufacturer and marketer of casual glass beverageware in the EMEA and Asia Pacific regions.

Our reporting segments align with our regionally focused organizational structure, which we believe enables us to better serve customers across the globe. Under this structure, we report financial results for U.S. and Canada, Latin America, EMEA and Other. Segment results are based primarily on the geographical destination of the sale. In the first quarter of 2017, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities. Accordingly, 2016 and 2015 segment results have been reclassified to conform with the revised structure. The revised segment results do not affect any previously reported consolidated financial results. Our three reportable segments are defined below. Our operating segment that does not meet the criteria to be a reportable segment is disclosed as Other.

U.S. & Canada—includes sales of manufactured and sourced tableware having an end-market destination in the U.S and Canada, excluding glass products for OEMs, which remain in the Latin America segment.

Latin America—includes primarily sales of manufactured and sourced glass tableware having an end-market destination in Latin America, as well as glass products for OEMs regardless of end-market destination.

EMEA—includes primarily sales of manufactured and sourced glass tableware having an end-market destination in Europe, the Middle East and Africa.

Other—includes primarily sales of manufactured and sourced glass tableware having an end-market destination in Asia Pacific.

Executive Overview

During 2017, we continued to operate in an extremely competitive environment. With global glass production capacity exceeding demand and several of our competitors throughout the world experiencing financial difficulties, all business channels continue to be impacted by intense global competition. We see some limited signs of this competitive environment abating in 2018.

Despite a strengthening U.S. economy in 2017, U.S. foodservice traffic continued to decline. We have observed declines in U.S. foodservice traffic every quarter since 2012, as reported by third-party research firms Knapp-Track and Blackbox. Even with declines in foodservice traffic, we experienced growth in 2017 in our dinnerware and flatware volume. According to Beverage Consumer Tracking Services of NPD Group, downward trends continue for the U.S. retail glass beverageware category. Many brick-and-mortar retail stores continue to report lower sales or marginal sales gains year over year in their latest quarter and fiscal year. Some large retailers have announced plans to close stores and reduce overhead costs as consumer purchasing preferences shift from brick-and-mortar to on-line commerce. Management expects the trends experienced in the U.S. foodservice and retail distribution channels in 2017 to continue into 2018.

In spite of volatility in the Mexican peso exchange rate and political uncertainty for most of the Latin America region, the Mexican economy is showing signs of recovery in 2018. However, Mexican economic growth may remain subdued, as there is uncertainty surrounding negotiations regarding the North American Free Trade Agreement (NAFTA) and concerns regarding the impact of U.S. tax reform on the Mexican economy.

The European economy continues to show signs of improvement, with momentum expected to be sustained in 2018; however, continued political unrest relating to the Brexit negotiations creates uncertainty. China's competitive environment continues to be challenging, and economic growth rates in China are similar to those over the last few years.

The business-to-business channel is impacted by general economic trends in each region and is dependent on customer demands.

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In 2017, our net sales of \$781.8 million were 1.5 percent lower than the prior year, or 1.6 percent lower on a constant currency basis. Net sales were negatively impacted by a number of factors, including several weather-related disasters in the third quarter (hurricanes, earthquakes and flooding), unfavorable macro-economic and geopolitical environments, and unusually aggressive competitor actions. Globally, our business-to-business channel experienced net sales growth in 2017 of 2.3 percent, or \$4.6 million, compared to 2016, driven by increased volume in our U.S. and Canada and EMEA segments. Offsetting this growth were net sales declines in the foodservice and retail channels as a result of the competitive pressures in the market. We recorded a net loss of \$93.4 million for 2017, compared to a net income of \$10.1 million in 2016. Our profitability was impacted by a non-cash goodwill impairment charge of \$79.7 million in our Latin America segment, heightened competitive pressures that led to weaker sales margins, higher selling, general and administrative costs related to our e-commerce initiative, the unexpected impact of weather-related events and natural disasters, and the revaluation of our net deferred tax assets as a consequence of the 2017 U.S. tax reform. In spite of the challenging competitive and market environments, we see signs that our initiatives are positively impacting our financial results. Profitability improved in EMEA, Latin America pricing actions have favorably impacted results, and we continue to see progress on our e-commerce platform and with our new products. Although initially focused on our U.S. retail business, our e-commerce initiative is expected to extend over time to the rest of our business, thereby improving our long-term prospects.

The Tax Cuts and Jobs Act (the Act), signed into law on December 22, 2017, changed many aspects of the U.S. tax code by reducing the corporate income tax rate from 35 percent to 21 percent, shifting to a territorial tax system with a related one-time transition tax on accumulated, unremitted earnings of foreign subsidiaries, limiting interest deductions, allowing the current expensing of certain capital expenditures, and numerous other changes that will apply prospectively beginning in 2018. We recorded a charge of \$6.7 million in the fourth quarter of 2017, principally related to re-measurement of the net U.S. deferred income tax assets at the 21 percent tax rate. We estimate that we will incur no material transition tax related to unremitted foreign earnings and do not anticipate material interest deduction limitations in the foreseeable future. We continue to analyze other changes to the tax code, including the Global Intangible Low Taxed Income (GILTI) provision, which could result in some level of future U.S. taxation of non-U.S. earnings that we cannot reasonably estimate at this time.

We remain focused on our goals of improving marketing capabilities in new product development and innovation to drive growth, improving operating processes, systems and technology, and building winning teams that foster high performance and live our core values.

During 2017, we accomplished the following:

- Launched the new e-commerce platform in July, with over 300 products introduced;
- Focused on innovation and development of new products, which drove approximately \$17.6 million of sales;
- Launched 225 new products at the International Housewares Show in March, 350 new products at the National Restaurant Association in May, and 72 new products at the New York Table Top show;
- Launched the new Urban Story[®] Collection, as well as the Constellation[™] Dinnerware Collection that includes the first and exclusive use of Microban[®] technology (Microban[®] is a registered trademark of Microban Products Company);
- Completed an extensive program to re-position our EMEA operations and customer profitability profiles;
- Began implementation of what is intended to be a re-balancing of our production network; and
- Continued development of new products for new market segments.

While we are focused on taking advantage of opportunities we see in our markets to drive long-term growth, we need to continue to improve both our operational and organizational excellence. Therefore, in 2018, we plan to start our implementation of several technology upgrades and will be making investments that will be critical to expanding our future growth opportunities and improving the effectiveness of our supply chain.

Results of Operations

The following table presents key results of our operations for the years 2017, 2016 and 2015:

Year ended December 31,

(dollars in thousands, except percentages and per-share amounts)	2017	2016	2015
Net sales	\$ 781,828	\$ 793,420	\$ 822,345
Gross profit	\$ 150,971	\$ 166,294	\$ 176,328
Gross profit margin	19.3 %	21.0%	21.4%
Income (loss) from operations (IFO)	\$ (53,655)	\$ 45,310	\$ 43,721
IFO margin	(6.9)%	5.7%	5.3%
Net income (loss)	\$ (93,368)	\$ 10,073	\$ 66,333
Net income (loss) margin	(11.9)%	1.3%	8.1%
Diluted net income (loss) per share	\$ (4.24)	\$ 0.46	\$ 2.99
Adjusted EBITDA ⁽¹⁾ (non-GAAP)	\$ 70,562	\$ 111,641	\$ 116,349
Adjusted EBITDA margin ⁽¹⁾ (non-GAAP)	9.0 %	14.1%	14.1%

⁽¹⁾ We believe that Adjusted EBITDA and the associated margin, non-GAAP financial measures, are useful metrics for evaluating our financial performance, as they are measures that we use internally to assess our performance. For certain limitations and a reconciliation from net income (loss) to Adjusted EBITDA, see the "Non-GAAP Measures" and "Reconciliation of Net Income (Loss) to Adjusted EBITDA" sections included in [Part II, Item 6 of this Annual Report](#), which is incorporated herein by reference.

Discussion of 2017 vs. 2016 Results of Operations

Net Sales

The following table summarizes net sales by operating segment:

Year ended December 31, (dollars in thousands) ⁽²⁾			Increase/(Decrease)		Currency Effects	Constant Currency Sales Growth (Decline) ⁽¹⁾
	2017	2016	\$ Change	% Change		
U.S. & Canada	\$ 481,797	\$ 482,296	\$ (499)	(0.1)%	\$ 3,416	(0.8)%
Latin America	144,322	151,389	(7,067)	(4.7)%	(1,280)	(3.8)%
EMEA	126,924	126,591	333	0.3 %	(1,433)	1.4 %
Other	28,785	33,144	(4,359)	(13.2)%	398	(14.4)%
Consolidated	<u>\$ 781,828</u>	<u>\$ 793,420</u>	<u>\$ (11,592)</u>	<u>(1.5)%</u>	<u>\$ 1,101</u>	<u>(1.6)%</u>

⁽¹⁾ We believe constant currency sales growth (decline), a non-GAAP measure, is a useful metric for evaluating our financial performance. See the "Non-GAAP Measures" section included in [Part II, Item 6 of this Annual Report](#), which is incorporated herein by reference, for the reasons we believe this non-GAAP metric is useful and how it is derived.

⁽²⁾ In the first quarter of 2017, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities. Accordingly, 2016 segment results have been reclassified to conform with the revised structure. The revised 2016 segment results do not affect any previously reported consolidated financial results.

Net Sales — U.S. & Canada

Net sales in U.S. & Canada were \$481.8 million, compared to \$482.3 million in 2016, a decrease of 0.1 percent. The primary contributor to the decrease is an unfavorable price and mix for product sold in all business channels. Partially offsetting the decrease in sales is an increase in volume, as well as \$3.4 million of favorable currency. Our retail channel net sales decreased 2.7 percent, or \$3.5 million, driven by the competitive pricing environment and continued softness in the market. Despite the continued declines in foodservice traffic, as reported by third-party research firms Knapp-Track and Blackbox, our foodservice channel declined only 0.6 percent, or \$1.6 million, driven by an unfavorable price and mix of product sold. Although the

business-to-business channel experienced similar trends, the favorable volume more than offset the unfavorable price and mix to result in a net sales increase of 5.3 percent, or \$4.6 million, in comparison to the prior year.

Net Sales — Latin America

Net sales in Latin America were \$144.3 million, compared to \$151.4 million in 2016, a decrease of 4.7 percent (a decrease of 3.8 percent excluding currency fluctuation). The primary driver of the decline in net sales was a decline in our retail channel, which saw a decrease of 8.2 percent, or \$5.8 million, driven by lower volume and an unfavorable currency impact, partially offset by favorable price and mix of product sold. In addition, net sales in the business-to-business channel were down 1.6 percent, or \$1.1 million, driven by lower volume and an unfavorable currency impact, partially offset by favorable price and mix of product sold.

Net Sales — EMEA

Net sales in EMEA were \$126.9 million, compared to \$126.6 million in 2016, an increase of 0.3 percent (an increase of 1.4 percent excluding currency fluctuation). The slight increase in net sales was due to an increase in volume in the business-to-business channel, as well as an increase in the price and mix of product sold in the foodservice and retail channels. Partially offsetting the increase in sales were lower volume in the retail channel, unfavorable price and mix on product sold in the business-to-business channel, and an unfavorable currency impact of \$1.4 million.

Gross Profit

Gross profit was \$151.0 million in 2017, compared to \$166.3 million in the prior year. Gross profit as a percentage of net sales decreased to 19.3 percent, compared to 21.0 percent in the prior year. Contributing to the \$15.3 million decrease in gross profit were lower manufacturing activity of \$17.5 million (including additional downtime of \$6.5 million driven by planned furnace rebuilds), an unfavorable sales impact of \$13.9 million, and higher utility costs of \$1.4 million. When compared to 2016, gross profit in 2017 benefited from a favorable currency impact of \$5.6 million and lower depreciation expense of \$3.3 million. In addition, 2016 gross profit was negatively impacted by \$5.7 million as a result of our product portfolio optimization initiative and by \$4.2 million as a result of the 2016 work stoppage, neither of which repeated in 2017. Manufacturing activity includes the impact of fluctuating production activities from all facilities globally and associated manufacturing costs, including warehousing costs, freight, and repairs and maintenance. The net sales impact equals net sales less the associated inventory at standard cost rates.

Income (Loss) From Operations

Income (loss) from operations for the year ended December 31, 2017 decreased \$99.0 million to \$(53.7) million, compared to \$45.3 million in the prior year. Income (loss) from operations as a percentage of net sales was (6.9) percent for the year ended December 31, 2017, compared to 5.7 percent in the prior year. While the primary driver of the decrease in income (loss) from operations was the non-cash goodwill impairment charge of \$79.7 million that we recorded in 2017 in our Latin America segment, additional contributors to the decline in 2017 were the decrease in gross profit of \$15.3 million (discussed above), and a \$3.9 million increase in selling, general and administrative expenses. The increase in selling, general and administrative expenses was driven by \$10.7 million of additional expense attributable to our e-commerce initiative and workforce reorganization charges of \$2.0 million. These unfavorable items in selling, general and administrative expenses were partially offset by lower equity and incentive compensation expense of \$2.9 million and reduced legal and professional fees of \$1.8 million in 2017. In addition, 2016 selling, general and administrative expenses included executive termination expenses of \$4.5 million that did not repeat in 2017.

Net Income (Loss) and Diluted Net Income (Loss) Per Share

We recorded a net loss of \$(93.4) million, or \$(4.24) per diluted share, in 2017, compared to net income of \$10.1 million, or \$0.46 per diluted share, in 2016. Net income (loss) as a percentage of net sales was (11.9) percent in 2017, compared to 1.3 percent in the prior year. The decrease in net income (loss) and diluted net income (loss) per share is generally due to the factors discussed in Income (Loss) From Operations above, as well as an increase of \$6.9 million in other expense, which includes a \$3.6 million unfavorable change in gain/loss on currency transactions and a \$2.9 million unfavorable change in mark-to-market natural gas contracts. Partially offsetting the unfavorable factors were a favorable change of \$1.9 million in our provision for income taxes and lower interest expense of \$0.5 million. The effective tax rate was (20.4) percent for 2017, compared to 63.7 percent in the prior year. The change in the effective tax rate was driven by several items, including the nondeductible goodwill impairment charge in our Latin America segment, lower pretax income, the revaluation of our deferred taxes resulting from U.S. tax reform, the timing and mix of pretax income earned in tax jurisdictions with varying tax rates, and

the impact of foreign exchange losses compared to gains in the prior period. See [note 7](#), Income Taxes, to the Consolidated Financial Statements for further details on the effective tax rate.

Segment Earnings Before Interest and Income Taxes (Segment EBIT)

The following table summarizes Segment EBIT ⁽¹⁾ by operating segments:

Year ended December 31, (dollars in thousands) ⁽²⁾				Segment EBIT Margin	
	2017	2016	\$ Change	2017	2016
U.S. & Canada	\$ 48,044	\$ 75,449	\$ (27,405)	10.0%	15.6%
Latin America	\$ 6,590	\$ 12,583	\$ (5,993)	4.6%	8.3%
EMEA	\$ 1,321	\$ 1,387	\$ (66)	1.0%	1.1%

⁽¹⁾ Segment EBIT represents earnings before interest and taxes and excludes amounts related to certain items we consider not representative of ongoing operations as well as certain retained corporate costs and other allocations that are not considered by management when evaluating performance. Segment EBIT also includes an allocation of manufacturing costs for inventory produced at a Libbey facility that is located in a region other than the end market in which the inventory is sold. This allocation can fluctuate from year to year based on the relative demands for products produced in regions other than the end markets in which they are sold. See [note 18](#) to the Consolidated Financial Statements for a reconciliation of Segment EBIT to net income (loss).

⁽²⁾ In the first quarter of 2017, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities. Accordingly, 2016 segment results have been reclassified to conform with the revised structure. The revised 2016 segment results do not affect any previously reported consolidated financial results.

Segment EBIT — U.S. & Canada

Segment EBIT was \$48.0 million in 2017, compared to \$75.4 million in 2016. Segment EBIT as a percentage of net sales decreased to 10.0 percent for 2017, compared to 15.6 percent in 2016. The \$27.4 million decrease in Segment EBIT was driven by an unfavorable sales impact of \$24.8 million, expenses relating to our 2017 e-commerce initiative of \$10.7 million and higher utility costs of \$1.0 million. Partially offsetting these unfavorable items were a favorable manufacturing activity impact of \$7.8 million and a favorable currency impact of \$1.9 million.

Segment EBIT — Latin America

Segment EBIT decreased to \$6.6 million in 2017, compared to \$12.6 million in 2016. Segment EBIT as a percentage of net sales decreased to 4.6 percent for 2017, compared to 8.3 percent in 2016. The primary drivers of the \$6.0 million decrease include unfavorable manufacturing activity of \$18.5 million (including additional downtime of \$4.9 million due to a planned furnace rebuild), an unfavorable mark-to-market impact on our natural gas contracts of \$2.9 million and higher utility costs of \$1.2 million. Partially offsetting these unfavorable items are a favorable sales impact of \$14.5 million and a favorable currency impact of \$1.6 million.

Segment EBIT — EMEA

Segment EBIT decreased to \$1.3 million in 2017, compared to \$1.4 million in 2016. Segment EBIT as a percentage of net sales for EMEA decreased to 1.0 percent for 2017, compared to 1.1 percent in 2016. The primary drivers of the \$0.1 million decrease in Segment EBIT were an unfavorable sales impact of \$1.5 million and an unfavorable manufacturing impact of \$1.4 million (driven by downtime of \$3.4 million associated with a planned furnace rebuild). Offsetting these unfavorable items were lower depreciation expense of \$2.1 million and lower utility costs of \$0.9 million.

Adjusted EBITDA

Adjusted EBITDA decreased by \$41.1 million in 2017, to \$70.6 million, compared to \$111.6 million in 2016. As a percentage of net sales, Adjusted EBITDA was 9.0 percent for 2017, compared to 14.1 percent in 2016. The key contributors to the decrease in Adjusted EBITDA were unfavorable manufacturing activity of \$17.5 million, an unfavorable sales impact of \$13.9 million and additional expense of \$10.7 million attributable to our e-commerce initiative, all partially offset by favorable currency of \$2.1 million. Adjusted EBITDA excludes special items that Libbey believes are not reflective of our core operating

performance as noted in the "Reconciliation of Net Income (Loss) to Adjusted EBITDA" included in [Part II, Item 6 of this Annual Report](#), which is incorporated herein by reference.

Discussion of 2016 vs. 2015 Results of Operations

Net Sales

The following table summarizes net sales by operating segment:

Year ended December 31, (dollars in thousands) ⁽²⁾	2016	2015	Increase/(Decrease)		Currency Effects	Constant Currency Sales Growth (Decline) ⁽¹⁾
			\$ Change	% Change		
U.S. & Canada	\$ 482,296	\$ 492,051	\$ (9,755)	(2.0)%	\$ 439	(2.1)%
Latin America	151,389	\$ 167,069	(15,680)	(9.4)%	(16,993)	0.8 %
EMEA	126,591	129,549	(2,958)	(2.3)%	(1,210)	(1.3)%
Other	33,144	\$ 33,676	(532)	(1.6)%	(1,825)	3.8 %
Consolidated	\$ 793,420	\$ 822,345	\$ (28,925)	(3.5)%	\$ (19,589)	(1.1)%

⁽¹⁾ We believe the constant currency sales growth (decline), a non-GAAP measure, is a useful metric for evaluating our financial performance. See the "Non-GAAP Measures" section included in [Part II, Item 6 of this Annual Report](#), which is incorporated herein by reference, for reasons we believe this non-GAAP metric is useful and how it is derived.

⁽²⁾ In the first quarter of 2017, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities. Accordingly, 2016 and 2015 segment results have been reclassified to conform with the revised structure. The revised segment results do not affect any previously reported consolidated financial results.

Net Sales — U.S. & Canada

Net sales in U.S. & Canada were \$482.3 million, compared to \$492.1 million in 2015, a decrease of 2.0 percent. The backlog as a result of the Toledo, Ohio work stoppage in the fourth quarter of 2016 resulted in lost revenues of approximately \$7.0 million to \$9.0 million. The retail channel experienced a 10.4 percent decrease, or \$15.0 million, due to weaker volume and an unfavorable mix. Partially offsetting the reduction in retail was an increase in our foodservice channel where net sales have increased 2.3 percent, or \$5.9 million, in spite of the continuing decline in U.S. restaurant traffic. The majority of the increase was related to an increase in volume, partially offset by a decline in mix. Business-to-business net sales were flat in comparison to prior year.

Net Sales — Latin America

Net sales in Latin America were \$151.4 million, compared to \$167.1 million in 2015, a decrease of 9.4 percent (an increase of 0.8 percent excluding currency fluctuation). The sales decrease was primarily due to the devaluation of the peso. Net sales in our business-to-business channel decreased 18.7 percent, or \$15.2 million, driven by the unfavorable currency and lower unit sales. Partially offsetting this was an increase in our retail channel of 1.5 percent, or \$1.1 million. On a constant currency basis, net sales in our retail channel increased by 14.4 percent, primarily as a result of increased volume.

Net Sales — EMEA

Net sales in EMEA were \$126.6 million, compared to \$129.5 million in 2015, a decrease of 2.3 percent (a decrease of 1.3 percent excluding currency fluctuation). The sales decrease was due to weaker volumes in the business-to-business and foodservice channels, as we experienced the negative impacts from the macro economy and increased competition. Partially offsetting the decline was a volume increase in the retail channel.

Gross Profit

Gross profit was \$166.3 million in 2016, compared to \$176.3 million in the prior year, a decrease of \$10.0 million. Gross profit as a percentage of net sales decreased to 21.0 percent, compared to 21.4 percent in the prior year. The primary drivers of the \$10.0 million decrease in gross profit were \$16.3 million of unfavorable manufacturing activity (including \$9.8 million for additional downtime and \$4.2 million related to the two-week work stoppage at our Toledo, Ohio, manufacturing facility in the

fourth quarter of 2016), a negative currency impact of \$5.9 million primarily related to the Mexican peso, \$5.9 million of additional depreciation expense driven by increased capital investments in prior years (including investment in our new ClearFire[®] technology) and the \$5.7 million charge related to our product portfolio optimization initiative to simplify and improve our operations. Partially offsetting these unfavorable items were lower pension settlement charges of \$16.9 million (2015 included \$17.0 million related to the unwinding of our Dutch defined benefit pension plan), favorable input costs of \$3.9 million mainly related to natural gas pricing, favorable benefit cost of \$1.8 million mainly related to lower pension and healthcare expense.

Income From Operations

Income from operations for the year ended December 31, 2016 increased \$1.6 million, to \$45.3 million, compared to \$43.7 million in the prior year. Income from operations as a percentage of net sales was 5.7 percent for the year ended December 31, 2016, compared to 5.3 percent in the prior year. The increase in income from operations is primarily attributable to an \$11.6 million decline in selling, general and administrative expenses compared to 2015, when selling, general and administrative expenses included a reorganization charge of \$4.3 million and pension settlement charges of \$4.6 million related to the liquidation of our Dutch pension plan. 2016 selling, general and administrative expenses also benefited from lower marketing expenses of \$4.1 million and lower research and development expenses of \$1.9 million, as compared to 2015. Partially offsetting these favorable factors were an increase in executive termination costs of \$3.6 million and by the lower gross profit of \$10.0 million as discussed above.

Net Income and Diluted Net Income Per Share

We recorded net income of \$10.1 million, or \$0.46 per diluted share, in 2016, compared to \$66.3 million, or \$2.99 per diluted share, in 2015. Net income as a percentage of net sales was 1.3 percent in 2016, compared to 8.1 percent in the prior year. The decrease in net income and diluted net income per share is due to the factors discussed in Income From Operations above, as well as a \$55.9 million increase in the provision for income taxes and a \$2.4 million increase in interest expense. The increase of \$55.9 million in provision for income taxes is the result of recording a tax benefit in 2015 of \$55.8 million related to management's decision in the fourth quarter that a valuation allowance against its U.S. deferred tax assets was no longer necessary, in addition to changes in the valuation allowance throughout the year caused principally by utilization of net operating loss carryforwards to offset current year pre-tax income. The higher interest expense is primarily a result of the interest rate swap becoming effective in January 2016. The effective tax rate was 63.7 percent for 2016, compared to (135.9) percent in the prior year. The change in the effective tax rate was driven by the release of the U.S. valuation allowance in 2015. The 2016 effective tax rate is impacted by a reserve for uncertain tax positions, an unbenefited pre-tax loss in the Netherlands due to a valuation allowance and a smaller proportion of pre-tax income in lower tax rate jurisdictions. Other less material factors were foreign withholding tax and non-taxable foreign translation gains. See [note 7](#), Income Taxes, to the Consolidated Financial Statements for further details on the effective tax rate.

Segment Earnings Before Interest and Income Taxes (Segment EBIT)

The following table summarizes Segment EBIT⁽¹⁾ by operating segments:

Year ended December 31, (dollars in thousands) ⁽²⁾	Segment EBIT Margin				
	2016	2015	\$ Change	2016	2015
U.S. & Canada	\$ 75,449	\$ 78,144	\$ (2,695)	15.6%	15.9%
Latin America	\$ 12,583	\$ 22,235	\$ (9,652)	8.3%	13.3%
EMEA	\$ 1,387	\$ 3,289	\$ (1,902)	1.1%	2.5%

⁽¹⁾ Segment EBIT represents earnings before interest and taxes and excludes amounts related to certain items we consider not representative of ongoing operations as well as certain retained corporate costs and other allocations that are not considered by management when evaluating performance. Segment EBIT also includes an allocation of manufacturing costs for inventory produced at a Libbey facility that is located in a region other than the end market in which the inventory is sold. This allocation can fluctuate from year to year based on the relative demands for products produced in regions other than the end markets in which they are sold. See [note 18](#) to the Consolidated Financial Statements for a reconciliation of Segment EBIT to net income (loss).

⁽²⁾ In the first quarter of 2017, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities. Accordingly, 2016 and 2015 segment results have been reclassified to

conform with the revised structure. The revised segment results do not affect any previously reported consolidated financial results.

Segment EBIT — U.S. & Canada

Segment EBIT decreased to \$75.4 million in 2016, compared to \$78.1 million in 2015. Segment EBIT as a percentage of net sales for U.S. & Canada decreased to 15.6 percent in 2016, compared to 15.9 percent in the prior year. The primary drivers of the \$2.7 million decrease in Segment EBIT were unfavorable manufacturing activity of \$7.4 million primarily due to additional planned downtime to control inventory levels and unfavorable transactional currency of \$0.9 million. Partially offsetting these decreases were a favorable sales impact of \$4.3 million and favorable input costs of \$1.2 million mainly related to natural gas pricing.

Segment EBIT — Latin America

Segment EBIT decreased to \$12.6 million in 2016, compared to \$22.2 million in 2015. Segment EBIT as a percentage of net sales for Latin America decreased to 8.3 percent in 2016, compared to 13.3 percent in the prior year. The primary drivers of the \$9.7 million decrease in Segment EBIT were an unfavorable currency impact of \$5.0 million, an unfavorable sales impact of \$4.4 million as a result of a weaker mix of product sold, additional depreciation expense of \$4.3 million driven by increased capital investments in prior years and adjusting asset lives on furnaces, the non-repeating recovery of payroll taxes in 2015 of \$0.7 million, and increased legal and professional fees of \$0.6 million. These decreases were partially offset by favorable manufacturing activity of \$3.7 million and favorable market-to-market impact on our natural gas hedges of \$1.6 million.

Segment EBIT — EMEA

Segment EBIT decreased to \$1.4 million in 2016, compared to \$3.3 million in 2015. Segment EBIT as a percentage of net sales for EMEA decreased to 1.1 percent in 2016, compared to 2.5 percent in the prior year. The primary drivers of the \$1.9 million decrease in Segment EBIT were unfavorable manufacturing activity of \$4.6 million driven by our furnace consolidation efforts started in 2016 and additional depreciation expense of \$0.9 million. Partially offsetting these decreases were the favorable impact from lower input costs of \$1.4 million primarily related to natural gas, favorable sales impact of \$1.3 million and a reduction of \$0.8 million in selling, general and administrative labor costs.

Adjusted EBITDA

Adjusted EBITDA decreased by \$4.7 million in 2016, to \$111.6 million, compared to \$116.3 million in 2015. As a percentage of net sales, Adjusted EBITDA was 14.1 percent in both 2016 and 2015. The key contributors to the decrease in Adjusted EBITDA were those factors discussed above under Discussion of 2016 vs. 2015 Results of Operations and the elimination of the special items noted in the "Reconciliation of Net Income (Loss) to Adjusted EBITDA" included in [Part II, Item 6 of this Annual Report](#), which is incorporated herein by reference.

Capital Resources and Liquidity

Historically, cash flows generated from operations, cash on hand and our borrowing capacity under our ABL Facility have enabled us to meet our cash requirements, including capital expenditures and working capital requirements. Under the ABL Facility at December 31, 2017, we had no borrowings and unused availability of \$91.9 million after taking into account \$7.2 million outstanding in letters of credit and \$1.0 million in rent reserves and natural gas derivative liability. In addition, we had \$24.7 million of cash on hand at December 31, 2017, compared to \$61.0 million of cash on hand at December 31, 2016. Of our total cash on hand at December 31, 2017 and 2016, \$20.4 million and \$32.3 million, respectively, were held in foreign subsidiaries. Except for our Chinese and Canadian subsidiaries, we plan to indefinitely reinvest the earnings of all foreign subsidiaries to support ongoing operations, capital expenditures, debt service, and continued growth plans outside the United States. Our Chinese subsidiaries' cash balance was \$7.1 million as of December 31, 2017. Local law currently prevents distribution of this cash as a dividend because 100 percent of our Chinese subsidiaries' distributable income was paid as a dividend in the fourth quarter of 2015; however, additional amounts may become distributable based on future income.

Based on our operating plans and current forecast expectations, we anticipate that our level of cash on hand, cash flows from operations and our borrowing capacity under our ABL Facility will provide sufficient cash availability to meet our ongoing liquidity needs. We incurred a non-cash goodwill impairment charge of \$79.7 million during 2017. While this non-cash charge reduced our reported operating results for the year, this charge did not require a cash outlay, and it had no effect on our liquidity position.

Balance Sheet and Cash Flows**Cash and Equivalents**

See the cash flow section below for a discussion of our cash balance.

Trade Working Capital

The following table presents our trade working capital components:

December 31, (dollars in thousands, except percentages and DSO, DIO, DPO and DWC)	2017	2016
Accounts receivable — net	\$ 89,997	\$ 85,113
<i>DSO</i> ⁽¹⁾	42.0	39.2
Inventories — net	\$ 187,886	\$ 170,009
<i>DIO</i> ⁽²⁾	87.7	78.2
Accounts payable	\$ 78,346	\$ 71,582
<i>DPO</i> ⁽³⁾	36.6	32.9
Trade Working Capital ⁽⁴⁾ (non-GAAP)	\$ 199,537	\$ 183,540
<i>DWC</i> ⁽⁵⁾	93.2	84.4
Percentage of net sales	25.5%	23.1%

⁽¹⁾ *Days sales outstanding (DSO)* measures the number of days it takes to turn receivables into cash.

⁽²⁾ *Days inventory outstanding (DIO)* measures the number of days it takes to turn inventory into net sales.

⁽³⁾ *Days payable outstanding (DPO)* measures the number of days it takes to pay the balances of our accounts payable.

⁽⁴⁾ *Trade Working Capital* is defined as net accounts receivable plus net inventories less accounts payable. See below for further discussion as to the reasons we believe this non-GAAP financial measure is useful.

⁽⁵⁾ *Days trade working capital (DWC)* measures the number of days it takes to turn our Trade Working Capital into cash.

DSO, DIO, DPO and DWC are calculated using the last twelve months' net sales as the denominator and are based on a 365-day year.

We believe that *Trade Working Capital* is important supplemental information for investors in evaluating liquidity in that it provides insight into the availability of net current resources to fund our ongoing operations. *Trade Working Capital* is a measure used by management in internal evaluations of cash availability and operational performance.

Trade Working Capital is used in conjunction with and in addition to results presented in accordance with U.S. GAAP. *Trade Working Capital* is neither intended to represent nor be an alternative to any measure of liquidity and operational performance recorded under U.S. GAAP. *Trade Working Capital* may not be comparable to similarly titled measures reported by other companies.

Trade working capital (as defined above) was \$199.5 million at December 31, 2017, an increase of \$16.0 million from December 31, 2016. The increase in our Trade Working Capital is primarily due to higher inventory levels to fulfill customer orders and increased accounts receivable related to timing of collections, partially offset by an increase in accounts payable. The impact of currency (primarily driven by the euro and peso) increased total Trade Working Capital by \$7.8 million at December 31, 2017, in comparison to December 31, 2016. As a result of the factors above, Trade Working Capital as a percentage of the last twelve-month net sales increased to 25.5 percent at December 31, 2017, from 23.1 percent at December 31, 2016.

Borrowings

The following table presents our total borrowings:

December 31, (dollars in thousands)	Interest Rate	Maturity Date	2017	2016
Borrowings under ABL Facility	floating	December 7, 2022 ⁽¹⁾	\$ —	\$ —
Term Loan B	floating ⁽²⁾	April 9, 2021	384,600	409,000
AICEP Loan	0.00%	July 30, 2018	3,085	3,320
Total borrowings			387,685	412,320
Less — unamortized discount and finance fees			3,295	4,480
Total borrowings — net ⁽³⁾⁽⁴⁾			\$ 384,390	\$ 407,840

⁽¹⁾ Maturity date will be January 9, 2021 if Term Loan B is not refinanced by this date.

⁽²⁾ See "Derivatives" below and [note 12](#) to the Consolidated Financial Statements.

⁽³⁾ Total borrowings-net includes long-term debt due within one year and long-term debt as stated on the Consolidated Balance Sheets.

⁽⁴⁾ See "Contractual Obligations" below for scheduled payments by period.

We had total borrowings of \$387.7 million at December 31, 2017, compared to total borrowings of \$412.3 million at December 31, 2016. Contributing to the \$24.6 million decrease in borrowings were \$20.0 million in optional prepayments and \$1.1 million of quarterly amortization payments (for a total of \$4.4 million) under our Term Loan B.

Of our total borrowings, \$164.6 million, or approximately 42.5 percent, were subject to variable interest rates at December 31, 2017, as a result of converting \$220.0 million of our Term Loan B debt to a fixed rate using an interest rate swap. The swap is effective January 2016 through January 2020 and maintains a 4.85 percent fixed interest rate. For further discussion on the interest rate swap, see [note 12](#) to the Consolidated Financial Statements. A change of one percentage point in such rates would result in a change in interest expense of approximately \$1.6 million on an annual basis.

Included in interest expense are the amortization of discounts and other financing fees. These items amounted to \$1.3 million, \$1.4 million and \$1.4 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Cash Flow

Year ended December 31, (dollars in thousands)	2017	2016	2015
Net cash provided by operating activities	\$ 45,308	\$ 83,904	\$ 69,692
Net cash used in investing activities	\$ (47,628)	\$ (34,604)	\$ (48,129)
Net cash used in financing activities	\$ (35,214)	\$ (35,976)	\$ (29,997)

Discussion of 2017 vs. 2016 Cash Flow

Our net cash provided by operating activities was \$45.3 million in 2017, compared to \$83.9 million in 2016, or a decrease of \$38.6 million. Contributing to the decrease in cash flow from operations was lower operating earnings, an unfavorable cash flow impact of \$18.9 million related to accounts receivable, inventories and accounts payable, higher incentive compensation payments, and lower value added tax collections. Partially offsetting these unfavorable cash flows were lower income tax payments of \$4.2 million and lower interest payments of \$2.9 million.

Our net cash used in investing activities was \$(47.6) million and \$(34.6) million in 2017 and 2016, respectively, representing capital expenditures.

Net cash used in financing activities was \$(35.2) million in 2017, compared to \$(36.0) million in 2016. Net cash used in financing activities in 2017 reflects the impact of Term Loan B principal payments of \$(24.4) million and dividends of \$(10.4) million, partially offset by proceeds from stock option exercises of \$0.5 million. Net cash used in financing activities in 2016 reflects the impact of Term Loan B principal payments of \$(24.4) million, dividends of \$(10.1) million and the purchase of treasury shares of \$(2.0) million, partially offset by proceeds from stock option exercises of \$1.4 million.

At December 31, 2017, our cash balance was \$24.7 million, a decrease of \$36.3 million from \$61.0 million at December 31, 2016.

Discussion of 2016 vs. 2015 Cash Flow

Our net cash provided by operating activities was \$83.9 million in 2016, compared to \$69.7 million in 2015, or an increase of \$14.2 million. Contributing to the increase in cash flow from operating activities was a favorable cash flow impact of \$30.1 million related to accounts receivable, inventories and accounts payable, which excludes a \$5.8 million non-cash inventory reserve primarily related to the product portfolio optimization initiative in 2016. Cash flow from operations also benefited from the reduction in pension and non-pension post-retirement benefits payments of \$6.5 million. Partially offsetting the cash flow increases were an increase in interest payments of \$5.0 million, an increase in payments for reorganization and severance activity of \$3.2 million, an increase in income tax payments of \$2.0 million, a cash settled RSU payment of \$2.3 million paid in conjunction with our former CEO's departure from the Company and an increase in customer incentive payments of \$2.5 million.

Our net cash used in investing activities was \$(34.6) million and \$(48.1) million in 2016 and 2015, respectively, primarily representing capital expenditures. 2015 capital expenditures included capital investments for our new ClearFire[®] technology.

Net cash used in financing activities was \$(36.0) million in 2016, compared to \$(30.0) million in 2015, or a change of \$6.0 million. Net cash used in financing activities in 2016 reflects the impact of Term Loan B principal payments of \$(24.4) million, dividends of \$(10.1) million and the purchase of treasury shares of \$(2.0) million, partially offset by proceeds from stock option exercises of \$1.4 million. Net cash used in financing activities in 2015 reflects the impact of treasury share purchases of \$(15.3) million, dividends of \$(9.6) million, Term Loan B principal payments of \$(4.4) million and other debt repayments of \$(3.3) million, partially offset by proceeds from stock options exercised of \$3.3 million.

At December 31, 2016, our cash balance was \$61.0 million, an increase of \$12.0 million from \$49.0 million at December 31, 2015.

Free Cash Flow

The following table presents key drivers to our Free Cash Flow for 2017, 2016 and 2015.

Year ended December 31, (dollars in thousands)	2017	2016	2015
Net cash provided by operating activities	\$ 45,308	\$ 83,904	\$ 69,692
Net cash used in investing activities	(47,628)	(34,604)	(48,129)
Free Cash Flow ⁽¹⁾ (non-GAAP)	\$ (2,320)	\$ 49,300	\$ 21,563

⁽¹⁾ We define Free Cash Flow as the sum of net cash provided by operating activities and net cash used in investing activities. The most directly comparable U.S. GAAP financial measure is net cash provided by (used in) operating activities.

We believe that Free Cash Flow is important supplemental information for investors in evaluating cash flow performance in that it provides insight into the cash flow available to fund such things as debt service, acquisitions and other strategic investment opportunities. It is a measure we use to internally evaluate the overall liquidity of the business. Free Cash Flow does not represent residual cash flows available for discretionary expenditures due to our mandatory debt service requirements.

Free Cash Flow is used in conjunction with and in addition to results presented in accordance with U.S. GAAP. Free Cash Flow is neither intended to represent nor be an alternative to the measure of net cash provided by (used in) operating activities recorded under U.S. GAAP. Free Cash Flow may not be comparable to similarly titled measures reported by other companies.

Our Free Cash Flow was \$(2.3) million during 2017, compared to \$49.3 million in 2016, an unfavorable change of \$51.6 million. The primary contributors to this change are the same 1:1 relationship as the \$38.6 million unfavorable cash flow impact from operating activities and the unfavorable change of \$13.0 million in investing activities, as discussed above.

Our Free Cash Flow was \$49.3 million during 2016, compared to \$21.6 million in 2015, an improvement of \$27.7 million. The primary contributors to this change are the same 1:1 relationship as the \$14.2 million favorable cash flow impact from operating activities and the favorable change of \$13.5 million in investing activities, as discussed above.

Derivatives

We use natural gas swap contracts related to forecasted future North and Central American natural gas requirements. The objective of these commodity contracts is to limit the fluctuations in prices paid due to price movements in the underlying commodity. We consider our forecasted natural gas requirements in determining the quantity of natural gas to hedge. We combine the forecasts with historical observations to establish the percentage of forecast eligible to be hedged, typically ranging from 40 percent to 70 percent of our anticipated requirements up to eighteen months in the future. The fair values of these instruments are determined from market quotes. At December 31, 2017, we had commodity contracts for 2,480,000 million British Thermal Units (MMBTUs) of natural gas with a fair market value of a \$0.5 million liability. We have hedged a portion of our forecasted transactions through June 2019. At December 31, 2016, we had commodity futures contracts for 2,590,000 MMBTUs of natural gas with a fair market value of a \$1.5 million asset. The counterparties for these derivatives were rated BBB+ or better as of December 31, 2017, by Standard & Poor's.

We have an interest rate swap agreement with respect to \$220.0 million of our floating rate Term Loan B debt in order to fix a series of our future interest payments. The interest rate swap matures on January 9, 2020 and maintains a fixed interest rate of 4.85 percent, including the credit spread. At December 31, 2017, the Term Loan B debt held a floating interest rate of 4.43 percent. If the counterparty to the interest rate swap agreement were to fail to perform, the interest rate swap would no longer provide the desired results. However, we do not anticipate nonperformance by the counterparty. The counterparty held a Standard & Poor's rating of A- as of December 31, 2017.

The fair market value of our interest rate swap agreement is based on the market standard methodology of netting the discounted expected future variable cash receipts and the discounted future fixed cash payments. The variable cash receipts are based on an expectation of future interest rates derived from observed market interest rate forward curves. The fair market value of the interest rate swap agreement was a \$0.4 million asset at December 31, 2017 and a \$2.0 million liability at December 31, 2016.

Contractual Obligations

The following table presents our existing contractual obligations at December 31, 2017, and related future cash requirements:

Contractual Obligations ⁽¹⁾ (dollars in thousands)	Payments Due by Year				
	Total	2018	2019-2020	2021-2022	2023 and thereafter
Borrowings	\$ 387,685	\$ 7,485	\$ 8,800	\$ 371,400	\$ —
Interest payments ⁽²⁾	57,452	18,145	34,827	4,480	—
Long-term operating leases	80,512	15,542	25,089	15,206	24,675
Pension and non-pension ⁽³⁾	6,539	6,539	—	—	—
Purchase obligations ⁽⁴⁾	56,992	27,053	13,331	8,455	8,153
Long-term incentive plans	1,601	334	1,267	—	—
Total obligations	\$ 590,781	\$ 75,098	\$ 83,314	\$ 399,541	\$ 32,828

⁽¹⁾ Amounts reported in local currencies have been translated at 2017 exchange rates.

⁽²⁾ The obligations for interest payments are based on December 31, 2017, debt levels and interest rates.

⁽³⁾ This amount represents 2018 expected contributions to our global pension and non-pension benefit plans. We have not estimated pension contributions beyond 2018 due to the significant impact that return on plan assets and changes in discount rates might have on such amounts.

⁽⁴⁾ The purchase obligations consist principally of contracted amounts for energy, raw materials, fixed assets and service agreements. The amount excludes purchase orders in the ordinary course of business that may be canceled. We do not believe such purchase orders will adversely affect our liquidity position.

In addition to the above, we have commercial commitments secured by letters of credit and guarantees. Our letters of credit outstanding at December 31, 2017, totaled \$7.2 million.

We are unable to make a reasonably reliable estimate as to when cash settlement with taxing authorities may occur for our unrecognized tax benefits. Therefore, our liability for unrecognized tax benefits of \$5.0 million at December 31, 2017 is not included in the table above. See [note 7](#) to the Consolidated Financial Statements for additional information.

CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements and related disclosures in conformity with U.S. generally accepted accounting principles requires us to make judgments, estimates and assumptions that affect the reported amounts in the Consolidated Financial Statements and accompanying notes. [Note 2](#) to the Consolidated Financial Statements describes the significant accounting policies and methods used in their preparation. The areas described below are affected by critical accounting estimates and are impacted significantly by judgments and assumptions in the preparation of the Consolidated Financial Statements. Actual results could differ materially from the amounts reported based on these critical accounting estimates.

Revenue Recognition

Revenue is recognized when products are shipped and title and risk of loss have passed to the customer. Revenue is recorded net of returns, discounts and sales incentive programs offered to customers. We offer various incentive programs to a broad base of customers, and we record accruals for these as sales occur. These programs typically offer incentives for purchase activities by customers that include growth objectives. Criteria for payment include the achievement by customers of certain purchase targets and the purchase by customers of particular product types. Management regularly reviews the adequacy of the accruals based on current customer purchases, targeted purchases and payout levels.

Slow-Moving and Obsolete Inventory

We identify slow-moving or obsolete inventories and estimate appropriate loss provisions accordingly. We recognize inventory loss provisions based upon excess and obsolete inventories driven primarily by future demand forecasts. At December 31, 2017, our inventories were \$187.9 million, with loss provisions of \$10.3 million, compared to inventories of \$170.0 million and loss provisions of \$9.5 million at December 31, 2016.

Asset Impairment

Fixed Assets

We assess our property, plant and equipment for possible impairment in accordance with FASB ASC Topic 360, "Property Plant and Equipment" ("FASB ASC 360"), whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable or a revision of remaining useful lives is necessary. Such indicators may include economic and competitive conditions, changes in our business plans or management's intentions regarding future utilization of the assets or changes in our commodity prices. An asset impairment would be indicated if the sum of the expected future net pretax cash flows from the use of an asset (undiscounted and without interest charges) is less than the carrying amount of the asset. An impairment loss would be measured based on the difference between the fair value of the asset and its carrying value. The determination of fair value is based on an expected present value technique in which multiple cash flow scenarios that reflect a range of possible outcomes and a risk-free rate of interest are used to estimate fair value or on a market appraisal. Projections used in the fair value determination are based on internal estimates for sales and production levels, capital expenditures necessary to maintain the projected production levels, and remaining useful life of the assets. These projections are prepared at the lowest level at which we have access to cash flow information and complete financial data for our operations, which is generally at the plant level.

Determination as to whether and how much an asset is impaired involves significant management judgment involving highly uncertain matters, including estimating the future success of product lines, future sales volumes, future selling prices and costs, alternative uses for the assets, and estimated proceeds from disposal of the assets. However, the impairment reviews and calculations are based on estimates and assumptions that take into account our business plans and long-term investment decisions. There were no indicators of impairment noted in 2017 and 2016 that required an impairment analysis to be performed for the Company's property, plant and equipment.

In accordance with FASB ASC 360, we also perform an impairment analysis for our definite useful lived intangible assets when factors indicating impairment are present. There were no indicators of impairment noted in 2017 or 2016 that would require an impairment analysis to be performed for our definite useful lived intangible assets.

Goodwill and Indefinite Life Intangible Assets

Goodwill at December 31, 2017 was \$84.4 million, representing approximately 11.8 percent of total assets. Goodwill represents the excess of cost over fair value of assets acquired for each reporting unit. Our reporting units represent the lowest level of the business for which financial statements are prepared internally, and may represent a single facility (operating

component) or a group of plants under a common management team. Goodwill impairment tests are completed for each reporting unit as of October 1 of each year, or more frequently in certain circumstances where impairment indicators arise.

When performing our test for impairment, we measure each reporting unit's fair value using a combination of "income" and "market" approaches on a shipping point basis. The income approach calculates the fair value of the reporting unit based on a discounted cash flow analysis, incorporating the weighted average cost of capital of a hypothetical third-party buyer. Significant estimates in the income approach include the following: discount rate; expected financial outlook and profitability of the reporting unit's business; and foreign currency impacts. Discount rates use the weighted average cost of capital for companies within our peer group, adjusted for specific company risk premium factors. The market approach uses the "Guideline Company" method, which calculates the fair value of the reporting unit based on a comparison of the reporting unit to comparable publicly traded companies. Significant estimates in the market approach model include identifying similar companies with comparable business factors such as size, growth, profitability, risk and return on investment, assessing comparable multiples, as well as consideration of control premiums. The blended approach assigns a 70 percent weighting to the income approach and 30 percent to the market approach. The higher weighting is given to the income approach due to some limitations of publicly available peer information used in the market approach. The blended fair value of both approaches is then compared to the carrying value, and to the extent that fair value exceeds the carrying value, no impairment exists. However, to the extent the carrying value exceeds the fair value, an impairment is recorded.

As part of our on-going assessment of goodwill at September 30, 2017, we noted that third quarter 2017 sales, profitability and cash flow of our Mexico reporting unit (within the Latin America segment) significantly underperformed in comparison to the forecast, and expectations for the fourth quarter of 2017 were lowered as well. These factors, together with continuing competitive pressures, long-term weakness of the Mexican peso relative to the U.S. dollar and an increase in the discount rate of 70 basis points from December 31, 2016 to September 30, 2017, contributed to increased pressure on the outlook of the reporting unit. As a result, we determined a triggering event had occurred for our Mexico reporting unit. Accordingly, an interim impairment test was performed as of September 30, 2017, indicating that the carrying value of the Mexico reporting unit exceeded its fair value, and in accordance with the early adoption of ASU 2017-04, we recorded a non-cash impairment charge of \$79.7 million during the third quarter of 2017.

Our annual review was performed as of October 1st for each year presented. As the impairment assessment performed at September 30, 2017 resulted in the fair value of the Mexico reporting unit equaling its carrying value, there was no further impairment as of October 1, 2017. In addition, there were no indicators of impairment at December 31, 2017. Based on the results of our 2017 annual impairment test, the estimated fair value of our other two reporting units (both within our U.S. and Canada segment) exceeded their carrying value by more than 70 percent, which we deem to be a substantial excess. Our reviews for 2016 and 2015 did not indicate an impairment of goodwill.

With the estimated fair value of the Mexico reporting unit equaling its carrying value as of September 30, 2017, there is a potential of future impairment for the remaining goodwill balance of \$46.0 million should the discount rate increase or the challenging environment last longer or be deeper than expected and require us to further reduce our expected future operating results. Management considers several factors to be significant when estimating fair value including expected financial outlook of the business, changes in the Company's stock price, the impact of changing market conditions on financial performance and expected future cash flows, foreign currency impacts, the geopolitical environment and other factors. Deterioration in any of these factors may result in a lower fair value assessment, which could lead to impairment charges in the future. Specifically, actual results may vary from the Company's forecasts and such variations may be material and unfavorable, thereby triggering the need for future impairment tests where the conclusions could result in additional non-cash impairment charges.

Individual indefinite life intangible assets are also evaluated for impairment on an annual basis, or more frequently in certain circumstances where impairment indicators arise. Total indefinite life intangible assets at December 31, 2017 were \$12.1 million, representing 1.7 percent of total assets. When performing our test for impairment, we use a discounted cash flow method (based on a relief from royalty calculation) to compute the fair value, which is then compared to the carrying value of the indefinite life intangible asset. To the extent that fair value exceeds the carrying value, no impairment exists. This was done as of October 1st for each year presented. As of October 1, 2017, 2016 and 2015, our review did not indicate an impairment of indefinite life intangible assets.

Self-Insurance Reserves

We use self-insurance mechanisms to provide for potential liabilities related to workers' compensation and employee healthcare benefits that are not covered by third-party insurance. Workers' compensation accruals are recorded at the estimated ultimate

payout amounts based on individual case estimates. In addition, we record estimates of incurred-but-not-reported losses based on actuarial models.

Although we believe that the estimated liabilities for self-insurance are adequate, the estimates described above may not be indicative of current and future losses. In addition, the actuarial calculations used to estimate self-insurance liabilities are based on numerous assumptions, some of which are subjective. We will continue to adjust our estimated liabilities for self-insurance, as deemed necessary, in the event that future loss experience differs from historical loss patterns.

Pension Assumptions

We have pension plans covering the majority of our employees. For a description of these plans, see [note 8](#) to the Consolidated Financial Statements.

The assumptions used to determine the benefit obligations were as follows:

	U.S. Plans				Non-U.S. Plans	
	2017		2016		2017	2016
Discount rate	3.64%	to 3.69%	4.18%	to 4.23%	9.40%	9.30%
Rate of compensation increase	Not applicable		Not applicable		4.30%	4.30%

The assumptions used to determine net periodic pension costs were as follows:

	U.S. Plans				Non-U.S. Plans					
	2017		2016		2015		2015			
Discount rate	4.18%	to 4.23%	4.66%	to 4.73%	4.17%	to 4.29%	9.30%	8.10%	2.30%	to 7.60%
Expected long-term rate of return on plan assets	7.00%		7.25%		7.25%		Not applicable	Not applicable	4.00%	
Rate of compensation increase	Not applicable		Not applicable		Not applicable		4.30%	4.30%	2.00% to 4.30%	

Two critical assumptions, discount rate and expected long-term rate of return on plan assets, are important elements of plan expense and asset/liability measurement. We evaluate these critical assumptions on our annual measurement date of December 31st. Other assumptions involving demographic factors such as retirement age, mortality and turnover are evaluated periodically and are updated to reflect our experience. Actual results in any given year often will differ from actuarial assumptions because of demographic, economic and other factors.

The discount rate enables us to estimate the present value of expected future cash flows on the measurement date. The rate used reflects a rate of return on high-quality fixed income investments that match the duration of expected benefit payments at our December 31 measurement date. The discount rate at December 31st is used to measure the year-end benefit obligations and the earnings effects for the subsequent year. A lower discount rate increases the present value of benefit obligations and increases pension expense.

To determine the expected long-term rate of return on plan assets, we consider the current and expected asset allocations, as well as historical and expected returns on various categories of plan assets. Our determination of the reasonableness of our expected long-term rate of return on plan assets at December 31st is highly quantitative by nature and used to measure the earnings effects for the subsequent year. We evaluate the current asset allocations and expected returns under four sets of conditions: a maximum time available for each asset class; a common history where all asset class returns are computed with the same overall start date of January 1990; a 10-year historical return; and forecasted returns using the Black-Litterman method. Based upon the current asset allocation mix and the Black-Litterman method, the forecasted return is 6.75 percent. The actual return on plan assets from July 1, 1993 (inception) through December 31, 2017 was 8.59 percent and 8.44 percent for the U.S. hourly and salary pension plans, respectively.

Since over 85 percent of the plan assets are actively managed, we adjust the baseline forecasted return for the anticipated return differential from active over passive investment management and for any other items not already captured. We believe that the combination of long-term historical returns, along with the forecasted returns and manager alpha, supports the 7.0 percent rate of return assumption for 2018 based on the current asset allocation.

Sensitivity to changes in key assumptions based on year-end data is as follows:

- A change of 1.0 percent in the discount rate would change our annual pretax pension expense by approximately \$3.5 million .
- A change of 1.0 percent in the expected long-term rate of return on plan assets would change annual pretax pension expense by approximately \$3.2 million .

Non-pension Post-retirement Assumptions

We use various actuarial assumptions, including the discount rate and the expected trend in healthcare costs, to estimate the costs and benefit obligations for our retiree welfare plan. The discount rate is determined based on high-quality fixed income investments that match the duration of expected retiree medical benefits at our December 31 measurement date. The discount rate at December 31 is used to measure the year-end benefit obligations and the earnings effects for the subsequent year. The discount rates used to determine the accumulated post-retirement benefit obligation and net post-retirement benefit cost were as follows:

	U.S. Plans			Non-U.S. Plans		
	2017	2016	2015	2017	2016	2015
Accumulated post-retirement benefit obligation	3.60%	4.05%	4.56%	3.26%	3.48%	3.69%
Net post-retirement benefit cost	4.05%	4.56%	4.10%	3.48%	3.69%	3.61%

The weighted average assumed healthcare cost trend rates at December 31 were as follows:

	U.S. Plans		Non-U.S. Plans	
	2017	2016	2017	2016
Initial healthcare trend	6.50%	6.75%	6.50%	6.75%
Ultimate healthcare trend	5.00%	5.00%	5.00%	5.00%
Year the ultimate trend rate is reached	2024	2024	2024	2024

Sensitivity to change in key assumptions is as follows:

- A change of 1.0 percent in the discount rate would not have a material impact on the non-pension post-retirement expense.
- A change of 1.0 percent in the healthcare trend rate would not have a material impact upon the non-pension post-retirement expense.

Income Taxes

We are subject to income taxes in the U.S. and various foreign jurisdictions. Management judgment is required in evaluating our tax positions and determining our provision for income taxes. Throughout the course of business, there are numerous transactions and calculations for which the ultimate tax determination is uncertain. When management believes certain tax positions may be challenged despite our belief that the tax return positions are supportable, we establish reserves for tax uncertainties based on estimates of whether additional taxes will be due. We adjust these reserves taking into consideration changing facts and circumstances, such as an outcome of a tax audit. The income tax provision includes the impact of reserve provisions and changes to reserves that are considered appropriate. Accruals for tax contingencies are provided for in accordance with the requirements of FASB ASC Topic 740 "Income Taxes".

Income taxes are accounted for under the asset and liability method. Deferred income tax assets and liabilities are recognized for estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax attribute carry-forwards. Deferred income tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled. FASB ASC 740 "Income Taxes," requires that a valuation allowance be recorded when it is more likely than not that some portion or all of the deferred income tax assets will not be realized. Deferred income tax assets and liabilities are determined separately for each tax jurisdiction in which we conduct our operations or otherwise incur taxable income or losses.

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As of December 31, 2015, management considered the evidence, both positive and negative, in assessing the realizability of our deferred tax assets in the U.S. The positive evidence, including achievement of cumulative income in recent years and expectations for sustainable future income, was strong enough to conclude that it is more likely than not that nearly all of our deferred tax assets are realizable and the valuation allowance was reduced accordingly.

Our European operations in the Netherlands incurred an operating loss in 2017, continue to be in cumulative loss positions in recent years, and have a history of tax loss carry-forwards expiring unused. In addition, European economic conditions continue to be unfavorable. Accordingly, management believes it is not more likely than not that the net deferred tax assets related to these operations will be realized and valuation allowance continues to be recorded as of December 31, 2017. The Netherlands operation added a new furnace in 2017 that achieves a much higher level of energy efficiency than the furnaces it replaced. Management is optimistic that this new furnace technology will significantly improve the profitability of the Netherlands operation. Thus, it is reasonably possible that the valuation allowance against the net operating loss deferred tax asset could be reduced within the next year.

The Company and its subsidiaries are subject to examination by various countries' tax authorities. These examinations may lead to proposed or assessed adjustments to our taxes. See [note 7](#) to our Consolidated Financial Statements for a detailed discussion on tax contingencies.

The Tax Cuts and Jobs Act, enacted on December 22, 2017, changed many aspects of the U.S. tax code. The effects of certain changes were quantified or estimated and recorded as of December 31, 2017. Due to the breadth of the changes and the lack of comprehensive implementation guidance, we will continue to analyze the changes as we finalize our 2017 U.S. federal income tax return and as additional guidance is issued. In the event that revisions are required, they will be treated in accordance with the measurement period guidance in Staff Accounting Bulletin 118.

Legal and Other Contingencies

We are involved from time to time in various legal proceedings and claims, including commercial or contractual disputes, product liability claims and environmental and other matters, that arise in the normal course of business. We routinely assess the likelihood of any adverse judgments or outcomes related to these matters, as well as ranges of probable losses, by consulting with internal personnel principally involved with such matters and with our outside legal counsel handling such matters. We have accrued for estimated losses in accordance with U.S. GAAP for those matters where we believe that the likelihood that a loss has occurred is probable and the amount of the loss is reasonably estimable. The determination of the amount of such reserves is based on knowledge and experience with regard to past and current matters and consultation with internal personnel principally involved with such matters and with our outside legal counsel handling such matters. The amount of such reserves may change in the future due to new developments or changes in circumstances. The inherent uncertainty related to the outcome of these matters can result in amounts materially different from any provisions made with respect to their resolution. Although we cannot predict the ultimate outcome of any of our proceedings, we believe that they will not have a material adverse impact on our financial condition, results of operations or liquidity.

See [note 17](#) of the Consolidated Financial Statements for a discussion of environmental and other litigation matters.

New Accounting Standards

See [note 2](#) of the Consolidated Financial Statements for a summary of the new accounting standards.

Item 7A. Qualitative and Quantitative Disclosures about Market Risk

Currency

We are exposed to market risks due to changes in currency values, although the majority of our revenues and expenses are denominated in the U.S. dollar. The currency market risks include devaluations and other major currency fluctuations relative to the U.S. dollar, Canadian dollar, euro, RMB, or Mexican peso that could reduce the cost competitiveness of our products compared to foreign competition.

Interest Rates

We are exposed to market risks associated with changes in interest rates on our debt. We had \$164.6 million of debt subject to variable interest rates at December 31, 2017. A change of one percentage point in such rates would result in a change in interest expense of approximately \$1.6 million on an annual basis.

We have an interest rate swap agreement with respect to \$220.0 million of our floating rate Term Loan B debt in order to fix a series of our future interest payments. The interest rate swap matures on January 9, 2020 and maintains a fixed interest rate of 4.85 percent, including the credit spread. At December 31, 2017, the Term Loan B debt held a floating interest rate of 4.43 percent. If the counterparty to the interest rate swap agreement were to fail to perform, the interest rate swap would no longer provide the desired results. However, we do not anticipate nonperformance by the counterparty. The counterparty held a Standard & Poor's rating of A- as of December 31, 2017.

Natural Gas

We are also exposed to market risks associated with changes in the price of natural gas. We use natural gas swap contracts related to forecasted future natural gas requirements of our manufacturing operations in North America. The objective of these commodity contracts is to limit the fluctuations in prices paid due to price movements in the underlying commodity. We consider the forecasted natural gas requirements of our manufacturing operations in determining the quantity of natural gas to hedge. We combine the forecasts with historical observations to establish the percentage of forecast to be hedged, typically ranging from 40 percent to 70 percent of our anticipated requirements up to six quarters in the future. For our natural gas requirements that are not hedged or have been de-designated, we are subject to changes in the price of natural gas, which affect our earnings. If the counterparties to these natural gas swap contracts were to fail to perform, we would no longer be protected from natural gas fluctuations by the futures contracts. However, we do not anticipate nonperformance by these counterparties. All counterparties were rated BBB+ or better by Standard and Poor's as of December 31, 2017.

Retirement Plans

We are exposed to market risks associated with changes in the various capital markets. Changes in long-term interest rates affect the discount rate that is used to measure our benefit obligations and related expense. Changes in the equity and debt securities markets affect the performance of our pension plans' asset performance and related pension expense. Sensitivity to these key market risk factors is as follows:

- A change of 1.0 percent in the discount rate would change our annual pretax pension and non-pension post-retirement expense by approximately \$3.4 million.
- A change of 1.0 percent in the expected long-term rate of return on plan assets would change annual pretax pension expense by approximately \$3.2 million.

Item 8. Financial Statements and Supplementary Data

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Libbey Inc.
Toledo, Ohio

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Libbey Inc. and its subsidiaries (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows, for each of the three years in the period ended December 31, 2017, and the related notes and the financial statement schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 1, 2018 expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits 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. We believe that our audits provide a reasonable basis for our opinion.

/s/ DELOITTE & TOUCHE LLP
Detroit, Michigan
March 1, 2018

We have served as the Company's auditor since 2015.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Libbey Inc.
Toledo, Ohio

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Libbey Inc. and subsidiaries (the “Company”) as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements and financial statement schedule as of and for the year ended December 31, 2017, of the Company and our report dated March 1, 2018, expressed an unqualified opinion on those financial statements and financial statement schedule.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Report of Management. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

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

/s/ DELOITTE & TOUCHE LLP

Detroit, Michigan
March 1, 2018

Libbey Inc.
Consolidated Balance Sheets

December 31, (dollars in thousands, except share amounts)	2017	2016
ASSETS		
Cash and cash equivalents	\$ 24,696	\$ 61,011
Accounts receivable — net	89,997	85,113
Inventories — net	187,886	170,009
Prepaid and other current assets	12,550	16,777
Total current assets	315,129	332,910
Pension asset	2,939	—
Purchased intangible assets — net	14,565	15,225
Goodwill	84,412	164,112
Deferred income taxes	24,892	40,016
Other assets	9,627	9,514
Property, plant and equipment — net	265,675	256,392
Total assets	<u>\$ 717,239</u>	<u>\$ 818,169</u>
LIABILITIES AND SHAREHOLDERS' EQUITY		
Accounts payable	\$ 78,346	\$ 71,582
Salaries and wages	27,409	27,018
Accrued liabilities	43,223	41,807
Accrued income taxes	1,862	1,384
Pension liability (current portion)	2,185	2,461
Non-pension post-retirement benefits (current portion)	4,185	4,892
Derivative liability	697	1,928
Long-term debt due within one year	7,485	5,009
Total current liabilities	165,392	156,081
Long-term debt	376,905	402,831
Pension liability	43,555	43,934
Non-pension post-retirement benefits	49,758	55,373
Deferred income taxes	1,850	1,859
Other long-term liabilities	12,885	12,972
Total liabilities	650,345	673,050
Contingencies (note 17)		
Shareholders' equity:		
Common stock, par value \$.01 per share, 50,000,000 shares authorized, 22,018,010 shares issued in 2017 (21,864,541 shares issued in 2016)	220	219
Capital in excess of par value	333,011	329,722
Retained deficit	(161,165)	(59,625)
Accumulated other comprehensive loss	(105,172)	(125,197)
Total shareholders' equity	66,894	145,119
Total liabilities and shareholders' equity	<u>\$ 717,239</u>	<u>\$ 818,169</u>

See accompanying notes

Libbey Inc.
Consolidated Statements of Operations

Year ended December 31, (dollars in thousands, except per share amounts)	2017	2016	2015
Net sales	\$ 781,828	\$ 793,420	\$ 822,345
Freight billed to customers	3,328	2,790	2,885
Total revenues	785,156	796,210	825,230
Cost of sales	634,185	629,916	648,902
Gross profit	150,971	166,294	176,328
Selling, general and administrative expenses	124,926	120,984	132,607
Goodwill impairment	79,700	—	—
Income (loss) from operations	(53,655)	45,310	43,721
Other income (expense)	(3,515)	3,362	2,880
Earnings (loss) before interest and income taxes	(57,170)	48,672	46,601
Interest expense	20,400	20,888	18,484
Income (loss) before income taxes	(77,570)	27,784	28,117
Provision (benefit) for income taxes	15,798	17,711	(38,216)
Net income (loss)	\$ (93,368)	\$ 10,073	\$ 66,333
Net income (loss) per share:			
Basic	\$ (4.24)	\$ 0.46	\$ 3.04
Diluted	\$ (4.24)	\$ 0.46	\$ 2.99
Weighted average shares:			
Basic	22,031	21,880	21,817
Diluted	22,031	22,049	22,159
Dividends declared per share	\$ 0.47	\$ 0.46	\$ 0.44

See accompanying notes

Libbey Inc.
Consolidated Statements of Comprehensive Income (Loss)

Year ended December 31, (dollars in thousands)	2017	2016	2015
Net income (loss)	\$ (93,368)	\$ 10,073	\$ 66,333
Other comprehensive income (loss):			
Pension and other post-retirement benefit adjustments, net of tax	7,514	(1,395)	33,201
Change in fair value of derivative instruments, net of tax	866	1,345	(1,235)
Foreign currency translation adjustments, net of tax	11,645	(4,915)	(13,751)
Other comprehensive income (loss), net of tax	20,025	(4,965)	18,215
Comprehensive income (loss)	\$ (73,343)	\$ 5,108	\$ 84,548

See accompanying notes

Libbey Inc.
Consolidated Statements of Shareholders' Equity

(dollars in thousands, except share amounts)	Common Stock Shares	Treasury Stock Shares	Common Stock Amount	Capital in Excess of Par Value	Treasury Stock Amount	Retained Deficit	Accumulated Other Comprehensive Loss	Total
Balance December 31, 2014	21,843,851	34,985	\$ 218	\$ 331,391	\$ (1,060)	\$ (114,648)	\$ (138,447)	\$ 77,454
Net income						66,333		66,333
Other comprehensive income (loss)							18,215	18,215
Income tax effect from share-based compensation arrangements				2,797				2,797
Stock compensation expense				5,873				5,873
Stock issued from treasury		(336,741)		(8,509)	11,887			3,378
Stock withheld for employee taxes				(796)				(796)
Dividends						(9,597)		(9,597)
Purchase of treasury shares		412,473			(15,275)			(15,275)
Balance December 31, 2015	21,843,851	110,717	218	330,756	(4,448)	(57,912)	(120,232)	148,382
Net income						10,073		10,073
Other comprehensive income (loss)							(4,965)	(4,965)
Income tax effect from share-based compensation arrangements				(534)				(534)
Stock compensation expense				3,724				3,724
Stock issued	20,690	(222,009)	1	(3,329)	6,448	(1,716)		1,404
Stock withheld for employee taxes				(895)				(895)
Dividends						(10,070)		(10,070)
Purchase of treasury shares		111,292			(2,000)			(2,000)
Balance December 31, 2016	21,864,541	—	219	329,722	—	(59,625)	(125,197)	145,119
Cumulative-effect adjustment for the adoption of ASU 2016-09				127		2,183		2,310
Net loss						(93,368)		(93,368)
Other comprehensive income (loss)							20,025	20,025
Stock compensation expense				3,372				3,372
Stock issued	153,469		1	417				418
Stock withheld for employee taxes				(627)				(627)
Dividends						(10,355)		(10,355)
Balance December 31, 2017	22,018,010	—	\$ 220	\$ 333,011	\$ —	\$ (161,165)	\$ (105,172)	\$ 66,894

See accompanying notes

Libbey Inc.
Consolidated Statements of Cash Flows

Year ended December 31, (dollars in thousands)	2017	2016	2015
Operating activities:			
Net income (loss)	\$ (93,368)	\$ 10,073	\$ 66,333
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	45,544	48,486	42,712
Goodwill impairment	79,700	—	—
Loss on asset sales and disposals	251	287	567
Change in accounts receivable	(2,698)	8,660	(6,312)
Change in inventories	(13,443)	5,979	(12,006)
Change in accounts payable	5,574	(481)	(3,466)
Accrued interest and amortization of discounts and finance fees	1,318	(1,086)	1,291
Pension & non-pension post-retirement benefits, net	1,680	(2,513)	18,865
Accrued liabilities & prepaid expenses	2,737	4,032	4,140
Income taxes	13,121	6,296	(45,003)
Share-based compensation expense	3,460	4,766	5,917
Other operating activities	1,432	(595)	(3,346)
Net cash provided by operating activities	45,308	83,904	69,692
Investing activities:			
Additions to property, plant and equipment	(47,628)	(34,604)	(48,136)
Proceeds from asset sales and other	—	—	7
Net cash used in investing activities	(47,628)	(34,604)	(48,129)
Financing activities:			
Borrowings on ABL credit facility	34,086	6,000	62,900
Repayments on ABL credit facility	(34,086)	(6,000)	(62,900)
Other repayments	(632)	(350)	(3,267)
Other borrowings	—	339	—
Repayments on Term Loan B	(24,400)	(24,400)	(4,400)
Stock options exercised	466	1,400	3,338
Taxes paid on distribution of equity awards	(627)	(895)	(796)
Dividends	(10,355)	(10,070)	(9,597)
Treasury shares purchased	—	(2,000)	(15,275)
Other financing activities	334	—	—
Net cash used in financing activities	(35,214)	(35,976)	(29,997)
Effect of exchange rate fluctuations on cash	1,219	(1,357)	(2,566)
Increase (decrease) in cash	(36,315)	11,967	(11,000)
Cash & cash equivalents at beginning of year	61,011	49,044	60,044
Cash & cash equivalents at end of year	\$ 24,696	\$ 61,011	\$ 49,044
Supplemental disclosure of cash flow information:			
Cash paid during the year for interest, net of capitalized interest	\$ 18,638	\$ 21,553	\$ 16,545
Cash paid during the year for income taxes	\$ 3,371	\$ 7,559	\$ 5,516

See accompanying notes

Libbey Inc.
Notes to Consolidated Financial Statements

1. Description of the Business

Libbey is a leading global manufacturer and marketer of glass tableware products. We produce glass tableware in five countries and sell to customers in over 100 countries. We design and market, under our Libbey[®], Libbey Signature[®], Master's Reserve[®], Crisa[®], Royal Leerdam[®], World[®] Tableware, Syracuse[®] China and Crisal Glass[®] brand names (among others), an extensive line of high-quality glass tableware, ceramic dinnerware, metal flatware, hollowware and serveware items for sale primarily in the foodservice, retail and business-to-business markets. Our sales force presents our tabletop products to the global marketplace in a coordinated fashion. We own and operate two glass tableware manufacturing plants in the United States as well as glass tableware manufacturing plants in Mexico (Libbey Mexico), the Netherlands (Libbey Holland), Portugal (Libbey Portugal) and China (Libbey China). In addition, we import tabletop products from overseas in order to complement our line of manufactured items. The combination of manufacturing and procurement allows us to compete in the global tabletop market by offering an extensive product line at competitive prices.

2. Significant Accounting Policies

Basis of Presentation The Consolidated Financial Statements include Libbey Inc. and its majority-owned subsidiaries (collectively, Libbey or the Company). Our fiscal year end is December 31st. All material intercompany accounts and transactions have been eliminated. The preparation of financial statements and related disclosures in conformity with United States generally accepted accounting principles (U.S. GAAP) requires management to make estimates and assumptions that affect the amounts reported in the Consolidated Financial Statements and accompanying notes. Actual results could differ materially from management's estimates.

Revenue Recognition Revenue is recognized when products are shipped and title and risk of loss have passed to the customer. Revenue is recorded net of returns, discounts and incentives offered to customers. We estimate returns, discounts and incentives at the time of sale based on the terms of the agreements, historical experience and forecasted sales. We continually evaluate the adequacy of these methods used to estimate returns, discounts and incentives. Taxes collected from customers are excluded from revenues and credited directly to obligations to the appropriate governmental agencies.

Cost of Sales Cost of sales includes cost to manufacture and/or purchase products, warehouse, shipping and delivery costs and other costs.

Cash and Cash Equivalents We consider all highly liquid investments purchased with an original or remaining maturity of less than three months at the date of purchase to be cash equivalents. Cash and cash equivalents are maintained with various financial institutions.

Accounts Receivable and Allowance for Doubtful Accounts We record trade receivables when revenue is recorded in accordance with our revenue recognition policy and relieve accounts receivable when payments are received from customers. The allowance for doubtful accounts is established through charges to the provision for bad debts. We regularly evaluate the adequacy of the allowance for doubtful accounts based on historical trends in collections and write-offs, our judgment as to the probability of collecting accounts and our evaluation of business risk. This evaluation is inherently subjective, as it requires estimates that are susceptible to revision as more information becomes available. Accounts are determined to be uncollectible when the debt is deemed to be worthless or only recoverable in part and are written off at that time through a charge against the allowance. Generally, we do not require collateral on our accounts receivable.

Inventory Valuation Inventories are valued at the lower of cost or market. The last-in, first-out (LIFO) method is used for our U.S. glass inventories, which represented 32.2 percent and 29.1 percent of our total inventories in 2017 and 2016, respectively. The remaining inventories are valued using either the first-in, first-out (FIFO) or average cost method. For those inventories valued on the LIFO method, the excess of FIFO cost over LIFO, was \$13.4 million and \$12.9 million in 2017 and 2016, respectively. Cost includes the cost of materials, direct labor, in-bound freight and the applicable share of manufacturing overhead.

Purchased Intangible Assets and Goodwill Financial Accounting Standards Board Accounting Standards Codification[™] ("FASB ASC") Topic 350 - "Intangibles-Goodwill and other" ("FASB ASC 350") requires goodwill and purchased indefinite life intangible assets to be reviewed for impairment annually, or more frequently if impairment indicators arise. Intangible assets with lives restricted by contractual, legal or other means will continue to be amortized over their useful lives. As of

October 1st of each year, we update our separate impairment evaluations for both goodwill and indefinite life intangible assets. For further disclosure on goodwill and intangibles, see [note 4](#).

Software We account for software in accordance with FASB ASC 350. Software represents the costs of internally developed and/or purchased software for internal use. Capitalized costs include software packages, installation and internal labor costs of employees devoted to the software development project. Costs incurred to modify existing software, providing significant enhancements and creating additional functionality are also capitalized. Once a project is complete, we estimate the useful life of the internal-use software, generally amortizing these costs over a five -year period.

Property, Plant and Equipment Property, plant and equipment are stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally 3 to 14 years for equipment and furnishings and 10 to 40 years for buildings and improvements. Maintenance and repairs are expensed as incurred.

Long-lived assets to be held and used are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Measurement of an impairment loss for long-lived assets that we expect to hold and use is based on the fair value of the asset. Long-lived assets to be disposed of are reported at the lower of carrying amount or fair value less costs to sell. See [note 5](#) for further disclosure.

Self-Insurance Reserves Self-insurance reserves reflect the estimated liability for group health and workers' compensation claims not covered by third-party insurance. We accrue estimated losses based on actuarial models and assumptions as well as our historical loss experience. Workers' compensation accruals are recorded at the estimated ultimate payout amounts based on individual case estimates. In addition, we record estimates of incurred-but-not-reported losses based on actuarial models.

Pension and Non-pension Post-retirement Benefits We account for pension and non-pension post-retirement benefits in accordance with FASB ASC Topic 715 - "Compensation-Retirement Benefits" ("FASB ASC 715"). FASB ASC 715 requires recognition of the over-funded or under-funded status of pension and other post-retirement benefit plans on the balance sheet. Under FASB ASC 715, gains and losses, prior service costs and credits and any remaining prior transaction amounts that have not yet been recognized through net periodic benefit cost are recognized in accumulated other comprehensive loss, net of tax effect where appropriate.

The U.S. pension plans cover most hourly U.S.-based employees (excluding new hires at Shreveport after December 15, 2008 and at Toledo after September 30, 2010) and those salaried U.S.-based employees hired before January 1, 2006. Effective January 1, 2013, we ceased annual company contribution credits to the cash balance accounts in our Libbey U.S. Salaried Pension Plan and SERP. The non-U.S. pension plans cover the employees of our wholly-owned subsidiaries in Mexico and the Netherlands (until December 2015). In December 2015, we unwound direct ownership of our defined benefit pension plan in the Netherlands. For further discussion see [note 8](#).

We also provide certain post-retirement healthcare and life insurance benefits covering substantially all U.S. and Canadian salaried employees hired before January 1, 2004 and a majority of our union hourly employees (excluding employees hired at Shreveport after December 15, 2008 and at Toledo after September 30, 2010). Employees are generally eligible for benefits upon reaching a certain age and completion of a specified number of years of creditable service. Benefits for most hourly retirees are determined by collective bargaining. Under a cross-indemnity agreement, Owens-Illinois, Inc. assumed liability for the non-pension post-retirement benefit of our retirees who had retired as of June 24, 1993. Therefore, the benefits related to these retirees are not included in our liability. For further discussion see [note 9](#).

Income Taxes Income taxes are accounted for under the asset and liability method. Deferred income tax assets and liabilities are recognized for estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax attribute carry-forwards. Deferred income tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled. FASB ASC Topic 740, "Income Taxes," requires that a valuation allowance be recorded when it is more likely than not that some portion or all of the deferred income tax assets will not be realized. Deferred income tax assets and liabilities are determined separately for each tax paying component in which we conduct our operations or otherwise incur taxable income or losses. For further discussion see [note 7](#).

Derivatives We account for derivatives in accordance with FASB ASC Topic 815 "Derivatives and Hedging" ("FASB ASC 815"). We hold derivative financial instruments to hedge certain of our interest rate risks associated with long-term debt, commodity price risks associated with forecasted future natural gas requirements and foreign exchange rate risks associated with occasional transactions denominated in a currency other than the U.S. dollar. These derivatives (except for the foreign

currency contracts and natural gas hedges in Mexico) qualify for hedge accounting since the hedges are highly effective, and we have designated and documented contemporaneously the hedging relationships involving these derivative instruments. While we intend to continue to meet the conditions for hedge accounting, if hedges do not qualify as highly effective or if we do not believe that forecasted transactions would occur, the changes in the fair value of the derivatives used as hedges would be reflected in earnings. Cash flows from hedges of debt, short-term forward exchange contracts, currency swaps, interest rate swaps and natural gas contracts are classified as operating activities. See additional discussion at [note 12](#).

Environmental In accordance with U.S. GAAP accounting standards, we recognize environmental clean-up liabilities on an undiscounted basis when loss is probable and can be reasonably estimated. The cost of the clean-up is estimated by financial and legal specialists based on current law. Such estimates are based primarily upon the estimated cost of investigation and remediation required, and the likelihood that, where applicable, other potentially responsible parties will not be able to fulfill their commitments at the sites where the Company may be jointly and severally liable.

Foreign Currency Translation Assets and liabilities of non-U.S. subsidiaries that operate in a local currency environment, where that local currency is the functional currency, are translated to U.S. dollars at exchange rates in effect at the balance sheet date, with the resulting translation adjustments directly recorded to a separate component of accumulated other comprehensive loss. Income and expense accounts are translated at average exchange rates during the year. The effect of exchange rate changes on transactions denominated in currencies other than the functional currency is recorded in other income (expense). For further detail see [note 16](#).

Stock-Based Compensation Expense We account for stock-based compensation expense in accordance with FASB ASC Topic 718, "Compensation — Stock Compensation," ("FASB ASC 718") and FASB ASC Topic 505-50, "Equity-Based Payments to Non-Employees" ("FASB ASC 505-50"). Stock-based compensation cost is measured based on the fair value of the equity instruments issued. FASB ASC 718 and 505-50 apply to all of our outstanding unvested stock-based payment awards.

Treasury Stock Treasury Stock purchases are recorded at cost. During 2017 we did not purchase treasury stock. During 2016 and 2015, we purchased 111,292 and 412,473 shares of treasury stock at an average price of \$17.97 and \$37.03, respectively. At December 31, 2017, we had 941,250 shares of common stock available for repurchase, as authorized by our Board of Directors.

Research and Development Research and development costs are charged to selling, general and administrative expense in the Consolidated Statements of Operations when incurred. Expenses for 2017, 2016 and 2015, respectively, were \$3.0 million, \$4.3 million and \$6.1 million.

Advertising Costs We expense all advertising costs as incurred. The expenses for 2017, 2016 and 2015, respectively, were \$5.3 million, \$5.7 million and \$10.7 million.

Computation of Income (Loss) Per Share of Common Stock Basic net income (loss) per share of common stock is computed using the weighted average number of shares of common stock outstanding during the period. Diluted net income (loss) per share of common stock is computed using the weighted average number of shares of common stock outstanding and dilutive potential common share equivalents during the period.

Reclassifications Certain amounts in prior years' financial statements have been reclassified to conform to the presentation used in the year ended December 31, 2017, including the following:

- On the Consolidated Statements of Cash Flows, certain activity was reclassified between operating and financing activities pursuant to adoption of Accounting Standards Update No. 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting," effective January 1, 2017.
- In [note 18](#) Segments, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities effective January 1, 2017.
- In [note 18](#) Segments, the derivative amount included in the Reconciliation of Segment EBIT to Net Income in the prior year financial statements has been included in Segment EBIT to conform to the current year presentation.

New Accounting Standards - Adopted

In March 2016, the FASB issued ASU 2016-09, "Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting." Areas for simplification in this update involve several aspects of accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or

liabilities, and classification on the statement of cash flows. ASU 2016-09 is effective for interim and annual reporting periods beginning after December 15, 2016. We adopted the new guidance on January 1, 2017, requiring us to recognize all excess tax benefits and tax deficiencies related to stock compensation as income tax expense or benefit in the income statement. Excess tax benefits will be recognized regardless of whether the benefit reduces taxes payable in the current period, subject to normal valuation allowance considerations. Previous guidance resulted in credits to equity for such tax benefits and delayed recognition until the tax benefits reduced income taxes payable. This provision in the standard was applied using a modified retrospective transition method by means of a cumulative-effect adjustment to equity as of the beginning of the year of adoption. As of January 1, 2017, we recorded a \$2.3 million reduction to our retained deficit and an increase in deferred income tax assets. In addition, on the modified retrospective basis, we have elected to discontinue estimating forfeitures expected to occur when determining the amount of compensation expense to be recognized in each period, resulting in an immaterial impact to our retained deficit and capital in excess of par. We do not anticipate this change will have a material impact on our future results of operations. The presentation requirements for cash flows under the new standard were adopted on a retrospective basis, resulting in a reclassification on the Consolidated Statements of Cash Flows that increased cash provided by operating activities and increased cash used in financing activities for the years ended December 31, 2016 and 2015.

In January 2017, the FASB issued ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment." ASU 2017-04 simplifies the goodwill impairment testing by eliminating Step 2 from the goodwill impairment testing that is required should an impairment be discovered during its annual or interim assessment. ASU 2017-04 is effective for annual or interim impairment tests beginning after December 15, 2019, with early adoption permitted. We adopted this standard early in conjunction with our assessment performed at September 30, 2017; this is considered a change in accounting principle. This standard decreases the cost and complexity in applying current GAAP without significantly changing the usefulness of the information provided to users of our Consolidated Financial Statements.

New Accounting Standards - Not Yet Adopted

Each change to U.S. GAAP is established by the Financial Accounting Standards Board (FASB) in the form of an accounting standards update (ASU) to the FASB's Accounting Standards Codification (ASC). We consider the applicability and impact of all ASUs. ASUs not listed below were assessed and either were determined to be not applicable or are expected to have minimal impact on the Company's Consolidated Financial Statements.

In May 2014, the FASB issued ASU 2014-09, "Revenue From Contracts With Customers", as amended by ASU's 2015-14, 2016-08, 2016-10, 2016-11, 2016-12, 2016-20 and 2017-05, which outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. ASU 2014-09 is based on the principle that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. ASU 2014-09 also requires disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to fulfill a contract. This update is effective for interim and annual reporting periods beginning after December 15, 2017. We plan to adopt this standard in the first quarter of 2018 using the modified retrospective method, whereby the cumulative effect of applying the standard is recognized at the date of initial application. We have completed our evaluation of significant contracts and the review of our current accounting policies and practices to identify potential differences that would result from applying the requirements of ASU 2014-09 to our revenue contracts. In addition, we have identified and implemented, appropriate changes to business processes, systems and controls to support recognition and disclosure under the new standard. While we are still assessing the enhanced disclosure requirements of the new guidance, we have determined that we will further disaggregate our revenue, presenting revenue by business channel. Based on the foregoing, we do not expect the adoption of ASU 2014-09 to have a material impact on the amount and timing of revenue recognized in our Consolidated Financial Statements.

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)," which requires a lessee to recognize on the balance sheet, assets and liabilities for leases with lease terms of more than 12 months. Leases will be classified as either finance or operating leases, with classification affecting the pattern of expense recognition in the income statement. The new guidance also clarifies the definition of a lease and disclosure requirements. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, with early application permitted. Lessees and lessors must apply a modified retrospective transition approach for leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. The modified retrospective approach does not require any transition accounting for leases that expired before the earliest comparative period presented. We are currently evaluating the impact of this guidance on our financial statements and related disclosures, including the increase in the assets and liabilities on our balance sheet. To facilitate this, we are utilizing a comprehensive approach to review our lease portfolio, have selected a system for managing our leases, and will perform the

system implementation and update our controls accordingly in 2018. See [note 15](#), Operating Leases, for our minimum lease commitments under non-cancellable operating leases.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments." This standard introduces a new approach to estimating credit losses on certain types of financial instruments, including trade receivables, and modifies the impairment model for available-for-sale debt securities. ASU 2016-13 is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years, with early application permitted. We are currently assessing the impact that this standard will have on our Consolidated Financial Statements.

In March 2017, the FASB issued ASU 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post-retirement Benefit Cost." ASU 2017-07 requires that only the service cost component of pension and post-retirement benefit costs be reported within income from operations. The other components of net benefit cost are required to be presented in the income statement outside of income from operations, if presented. In addition, this ASU allows only the service cost component to be eligible for capitalization when applicable. ASU 2017-07 is effective for annual and interim reporting periods beginning after December 15, 2017, with early adoption permitted. Presentation on the Consolidated Statements of Operations will be retrospective and any impact to capitalized costs will be prospectively adopted. We will adopt this standard in the first quarter of 2018 and expect the impact to be reclassifications of applicable costs and credits from income from operations to other income (expense).

In August 2017, the FASB issued ASU 2017-12, "Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities." ASU 2017-12 amends the hedge accounting rules to simplify the application of hedge accounting guidance and better portray the economic results of risk management activities in the financial statements. The guidance expands the ability to hedge nonfinancial and financial risk components, reduces complexity in fair value hedges of interest rate risk, eliminates the requirement to separately measure and report hedge ineffectiveness, and eases certain hedge effectiveness assessment requirements. ASU 2017-12 is effective for annual and interim reporting periods beginning after December 15, 2018, with early adoption permitted. We are currently evaluating the impact of this guidance, including transition elections and required disclosures, on our financial statements and the timing of adoption.

3. Balance Sheet Details

The following table provides detail of selected balance sheet items:

December 31, (dollars in thousands)	2017	2016
Accounts receivable:		
Trade receivables	\$ 88,786	\$ 82,851
Other receivables	1,211	2,262
Total accounts receivable, less allowances of \$9,051 and \$7,832	<u>\$ 89,997</u>	<u>\$ 85,113</u>
Inventories:		
Finished goods	\$ 170,774	\$ 152,261
Work in process	1,485	1,625
Raw materials	3,906	4,432
Repair parts	10,240	10,558
Operating supplies	1,481	1,133
Total inventories, less loss provisions of \$10,308 and \$9,484	<u>\$ 187,886</u>	<u>\$ 170,009</u>
Accrued liabilities:		
Accrued incentives	\$ 19,728	\$ 19,771
Other accrued liabilities	23,495	22,036
Total accrued liabilities	<u>\$ 43,223</u>	<u>\$ 41,807</u>

The increase in finished goods inventory is due to higher inventory levels to fulfill customer orders, including maintaining an appropriate safety stock of items we source primarily from the Asia Pacific region and that, as a result, require longer lead times, and currency impacts (primarily the peso and euro).

4. Purchased Intangible Assets and Goodwill

Purchased Intangibles

Changes in purchased intangibles balances are as follows:

(dollars in thousands)	2017	2016
Beginning balance	\$ 15,225	\$ 16,364
Amortization	(1,073)	(1,039)
Foreign currency impact	413	(100)
Ending balance	<u>\$ 14,565</u>	<u>\$ 15,225</u>

Purchased intangible assets are composed of the following:

December 31, (dollars in thousands)	2017	2016
Indefinite life intangible assets	\$ 12,120	\$ 11,888
Definite life intangible assets, net of accumulated amortization of \$19,093 and \$17,706	2,445	3,337
Total	<u>\$ 14,565</u>	<u>\$ 15,225</u>

Amortization expense for definite life intangible assets was \$1.1 million , \$1.0 million and \$1.0 million for years 2017 , 2016 and 2015 , respectively.

Indefinite life intangible assets are composed of trade names and trademarks that have an indefinite life and are therefore individually tested for impairment on an annual basis, or more frequently in certain circumstances where impairment indicators arise, in accordance with FASB ASC 350. Our measurement date for impairment testing is October 1st of each year. When performing our test for impairment of individual indefinite life intangible assets, we use a relief from royalty method to determine the fair market value that is compared to the carrying value of the indefinite life intangible asset. The inputs used for this analysis are considered Level 3 inputs in the fair value hierarchy. See [note 14](#) for further discussion of the fair value hierarchy. Our October 1st review for 2017 and 2016 did not indicate impairment of our indefinite life intangible assets.

The remaining definite life intangible assets at December 31, 2017 consist of customer relationships that are amortized over a period ranging from 13 to 20 years. The weighted average remaining life on the definite life intangible assets is 2.4 years at December 31, 2017 .

Future estimated amortization expense of definite life intangible assets is as follows (dollars in thousands):

<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
\$1,051	\$571	\$165	\$165	\$165

Goodwill

Changes in goodwill balances are as follows:

(dollars in thousands)	2017			2016		
	U.S. & Canada	Latin America	Total	U.S. & Canada	Latin America	Total
Beginning balance:						
Goodwill	\$ 43,872	\$ 125,681	\$ 169,553	\$ 43,872	\$ 125,681	\$ 169,553
Accumulated impairment losses	(5,441)	—	(5,441)	(5,441)	—	(5,441)
Net beginning balance	38,431	125,681	164,112	38,431	125,681	164,112
Impairment	—	(79,700)	(79,700)	—	—	—
Ending balance:						
Goodwill	43,872	125,681	169,553	43,872	125,681	169,553
Accumulated impairment losses	(5,441)	(79,700)	(85,141)	(5,441)	—	(5,441)
Net ending balance	\$ 38,431	\$ 45,981	\$ 84,412	\$ 38,431	\$ 125,681	\$ 164,112

Goodwill impairment tests are completed for each reporting unit on an annual basis, or more frequently in certain circumstances where impairment indicators arise. The inputs used for this analysis are considered Level 2 and Level 3 inputs in the fair value hierarchy. See [note 14](#) for further discussion of the fair value hierarchy.

As part of our on-going assessment of goodwill at September 30, 2017, we noted that third quarter 2017 sales, profitability and cash flow of our Mexico reporting unit (within the Latin America segment) significantly underperformed in comparison to the forecast, and expectations for the fourth quarter of 2017 were lowered as well. These factors, as well as continuing competitive pressures, long term weakness of the Mexican peso relative to the U.S. dollar, and an increase in the discount rate of 70 basis points from December 31, 2016 to September 30, 2017, all contributed to increased pressure on the outlook of the reporting unit. As a result, we determined a triggering event had occurred for our Mexico reporting unit. Accordingly, an interim impairment test was performed as of September 30, 2017, indicating that the carrying value of the Mexico reporting unit exceeded its fair value, and in accordance with the early adoption of ASU 2017-04, we recorded a non-cash impairment charge of \$79.7 million during the third quarter of 2017.

When performing our test for impairment, we measure each reporting unit's fair value using a combination of "income" and "market" approaches on a shipping point basis. The income approach calculates the fair value of the reporting unit based on a discounted cash flow analysis, incorporating the weighted average cost of capital of a hypothetical third-party buyer. Significant estimates in the income approach include the following: discount rate; expected financial outlook and profitability of the reporting unit's business; and foreign currency impacts (Level 3 inputs). Discount rates use the weighted average cost of capital for companies within our peer group, adjusted for specific company risk premium factors. The market approach uses the "Guideline Company" method, which calculates the fair value of the reporting unit based on a comparison of the reporting unit to comparable publicly traded companies. Significant estimates in the market approach model include identifying similar companies with comparable business factors such as size, growth, profitability, risk and return on investment, assessing comparable multiples, as well as consideration of control premiums (Level 2 inputs). The blended approach assigns a 70 percent weighting to the income approach and 30 percent to the market approach (Level 3 input). The higher weighting is given to the income approach due to some limitations of publicly available peer information used in the market approach. The blended fair value of both approaches is then compared to the carrying value, and to the extent that fair value exceeds the carrying value, no impairment exists. However, to the extent the carrying value exceeds the fair value, an impairment is recorded.

Our annual review was performed as of October 1st for each year presented. As the impairment assessment performed at September 30, 2017 resulted in the fair value of the Mexico reporting unit equaling its carrying value, there was no further impairment as of October 1, 2017. In addition, there were no indicators of impairment at December 31, 2017. Our review for 2016 did not indicate an impairment of goodwill.

5. Property, Plant and Equipment

Property, plant and equipment consists of the following:

December 31, (dollars in thousands)	2017	2016
Land	\$ 20,859	\$ 19,524
Buildings	107,659	102,666
Machinery and equipment	505,978	473,004
Furniture and fixtures	15,391	14,208
Software	24,464	22,733
Construction in progress	12,933	16,113
Gross property, plant and equipment	687,284	648,248
Less accumulated depreciation	421,609	391,856
Net property, plant and equipment	<u>\$ 265,675</u>	<u>\$ 256,392</u>

Depreciation expense was \$44.4 million , \$47.3 million and \$ 41.4 million for the years 2017 , 2016 and 2015 , respectively.

6. Borrowings

Borrowings consist of the following:

December 31, (dollars in thousands)	Interest Rate	Maturity Date	2017	2016
Borrowings under ABL Facility	floating	December 7, 2022 ⁽¹⁾	\$ —	\$ —
Term Loan B	floating ⁽²⁾	April 9, 2021	384,600	409,000
AICEP Loan	0.00%	July 30, 2018	3,085	3,320
Total borrowings			387,685	412,320
Less — unamortized discount and finance fees			3,295	4,480
Total borrowings — net			384,390	407,840
Less — long term debt due within one year			7,485	5,009
Total long-term portion of borrowings — net			<u>\$ 376,905</u>	<u>\$ 402,831</u>

⁽¹⁾ Maturity date will be January 9, 2021 if Term Loan B is not refinanced by this date.

⁽²⁾ See interest rate swap under "Term Loan B" below and [note 12](#).

Annual maturities for all of our total borrowings for the next five years and beyond are as follows:

<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>Thereafter</u>
\$7,485	\$4,400	\$4,400	\$371,400	\$—	\$—

Amended and Restated ABL Credit Agreement

Libbey Glass and Libbey Europe entered into an Amended and Restated Credit Agreement, dated as of February 8, 2010 and amended as of April 29, 2011, May 18, 2012, April 9, 2014 and December 7, 2017 (as amended, the ABL Facility), with a group of four financial institutions. The ABL Facility provides for borrowings of up to \$100.0 million , subject to certain borrowing base limitations, reserves and outstanding letters of credit.

All borrowings under the ABL Facility are secured by:

- a first-priority security interest in substantially all of the existing and future personal property of Libbey Glass and its domestic subsidiaries (ABL Priority Collateral);
- a first-priority security interest in:
 - 100 percent of the stock of Libbey Glass and 100 percent of the stock of substantially all of Libbey Glass's present and future direct and indirect domestic subsidiaries;

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- 100 percent of the non-voting stock of substantially all of Libbey Glass's first-tier present and future foreign subsidiaries; and
- 65 percent of the voting stock of substantially all of Libbey Glass's first-tier present and future foreign subsidiaries
- a first-priority security interest in substantially all proceeds and products of the property and assets described above; and
- a second-priority security interest in substantially all of the owned real property, equipment and fixtures in the United States of Libbey Glass and its domestic subsidiaries, subject to certain exceptions and permitted liens (Term Priority Collateral).

Additionally, borrowings by Libbey Europe under the ABL Facility are secured by:

- a first-priority lien on substantially all of the existing and future real and personal property of Libbey Europe and its Dutch subsidiaries; and
- a first-priority security interest in:
 - 100 percent of the stock of Libbey Europe and 100 percent of the stock of substantially all of the Dutch subsidiaries; and
 - 100 percent (or a lesser percentage in certain circumstances) of the outstanding stock issued by the first-tier foreign subsidiaries of Libbey Europe and its Dutch subsidiaries.

Swingline borrowings are limited to \$10.0 million, with swingline borrowings for Libbey Europe being limited to the U.S. equivalent of \$5.0 million. Loans comprising each CBFR (CB Floating Rate) Borrowing, including each Swingline Loan, bear interest at the CB Floating Rate plus the Applicable Rate, and euro-denominated swingline borrowings (Eurocurrency Loans) bear interest calculated at the Netherlands swingline rate, as defined in the ABL Facility, subject to a LIBOR floor of 0.0 percent. The Applicable Rates for CBFR Loans and Eurocurrency Loans vary depending on our aggregate remaining availability. The Applicable Rates for CBFR Loans and Eurocurrency Loans were 0.50 percent and 1.50 percent, respectively, at December 31, 2017. Libbey pays a quarterly Commitment Fee, as defined by the ABL Facility, on the total credit provided under the ABL Facility. The Commitment Fee was 0.25 percent at December 31, 2017. No compensating balances are required by the ABL Facility. The ABL Facility does not require compliance with a fixed charge coverage ratio covenant, unless aggregate unused availability falls below \$10.0 million. If our aggregate unused ABL availability were to fall below \$10.0 million, the fixed charge coverage ratio requirement would be 1:00 to 1:00. Libbey Glass and Libbey Europe have the option to increase the ABL Facility by \$25.0 million. There were no Libbey Glass or Libbey Europe borrowings under the facility at December 31, 2017 or at December 31, 2016. Interest is payable on the last day of the interest period, which can range from one month to six months depending on the maturity of each individual borrowing on the ABL facility.

The borrowing base under the ABL Facility is determined by a monthly analysis of the eligible accounts receivable and inventory. The borrowing base is the sum of (a) 85 percent of eligible accounts receivable and (b) the lesser of (i) 85 percent of the net orderly liquidation value (NOLV) of eligible inventory, (ii) 65 percent of eligible inventory, or (iii) \$75.0 million.

At December 31, 2017, the available total borrowing base is offset by a \$0.5 million rent reserve and \$0.5 million natural gas derivative liability. The ABL Facility also provides for the issuance of up to \$15.0 million of letters of credit which, when outstanding, are applied against the \$100.0 million limit. At December 31, 2017, \$7.2 million in letters of credit were outstanding. Remaining unused availability under the ABL Facility was \$91.9 million at December 31, 2017, compared to \$88.4 million under the ABL Facility at December 31, 2016.

Term Loan B

On April 9, 2014, Libbey Glass consummated its \$440.0 million Senior Secured Term Loan B of Libbey Glass due 2021 (Term Loan B). The net proceeds of the Term Loan B were \$438.9 million, after the 0.25 percent original issue discount of \$1.1 million. The Term Loan B had related fees of approximately \$6.7 million that will be amortized to interest expense over the life of the loan.

The Term Loan B is evidenced by a Senior Secured Credit Agreement, dated April 9, 2014 (Credit Agreement), between Libbey Glass, the Company, the domestic subsidiaries of Libbey Glass listed as guarantors therein (Subsidiary Guarantors and together with the Company, Guarantors), and the lenders. Under the terms of the Credit Agreement, aggregate principal of \$1.1 million is due on the last business day of each quarter. The Term Loan B bears interest at the rate of LIBOR plus 3.0 percent, subject to a LIBOR floor of 0.75 percent. The interest rate was 4.43 percent per year at December 31, 2017 and 3.75 percent at December 31, 2016, and will mature on April 9, 2021. Although the Credit Agreement does not contain financial covenants, the Credit Agreement contains other covenants that restrict the ability of Libbey Glass and the Guarantors to, among other things:

- incur, assume or guarantee additional indebtedness;

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- pay dividends, make certain investments or other restricted payments;
- create liens;
- enter into affiliate transactions;
- merge or consolidate, or otherwise dispose of all or substantially all the assets of Libbey Glass and the Guarantors; and
- transfer or sell assets.

We may voluntarily prepay, in whole or in part, the Term Loan B without premium or penalty but with accrued interest. Beginning with the year-ended December 31, 2015, the Credit Agreement requires us to make an annual mandatory prepayment offer to lenders of 0.0 to 50.0 percent of our excess cash flow, depending on our excess cash flow and leverage ratios as defined in the Credit Agreement. The calculation is made at the end of each year and the mandatory prepayment offer to lenders is made no later than ten business days after the filing of our annual compliance certificate to the lenders. The amount of any required mandatory prepayment offer is reduced by the amounts of any optional prepayments we made during the applicable year or prior to the prepayment offer in the year the offer is required to be made.

The Credit Agreement provides for customary events of default. In the case of an event of default as defined in the Credit Agreement, all of the outstanding Term Loan B will become due and payable immediately without further action or notice. The Term Loan B and the related guarantees under the Credit Agreement are secured by (i) first priority liens on the Term Priority Collateral and (ii) second priority liens on the ABL Collateral.

On April 1, 2015, we executed an interest rate swap on our Term Loan B as part of our risk management strategy to mitigate the risks involved with fluctuating interest rates. The interest rate swap effectively converts \$220.0 million of our Term Loan B debt from a variable interest rate to a 4.85 percent fixed interest rate, thus reducing the impact of interest rate changes on future income. The fixed rate swap is effective January 2016 through January 2020. The interest rate swap is designated as a cash flow hedge and is accounted for under FASB ASC 815 "Derivatives and Hedging". See [note 12](#) for further discussion on the interest rate swap.

AICEP Loan

From time to time since July 2012, Libbey Portugal has entered into loan agreements with Agencia para Investimento Comercio Externo de Portugal, EPE (AICEP), the Portuguese Agency for investment and external trade. The amount of the loans outstanding is €2.6 million (approximately \$3.1 million) at December 31, 2017 , and the interest rate is 0.0 percent . Semi-annual installments of principal are due through the maturity date in July 2018.

RMB Working Capital Loan

On July 24, 2014, Libbey China entered into a RMB 20.0 million (approximately \$3.3 million) working capital loan with China Construction Bank to cover seasonal working capital needs. The working capital loan was set to mature on July 23, 2015, and had a fixed interest rate of 6.78 percent , which was paid monthly. On March 4, 2015, Libbey China prepaid the working capital loan along with accrued and unpaid interest. This obligation was secured by a mortgage lien on the Libbey China facility.

Notes Payable

We have an overdraft line of credit for a maximum of €0.8 million . At December 31, 2017 and 2016 , there were no borrowings under the facility, which had an interest rate of 5.80 percent . Interest with respect to the note is paid monthly.

7. Income Taxes

The provisions for income taxes were calculated based on the following components of income (loss) before income taxes:

Year ended December 31, (dollars in thousands)	2017	2016	2015
United States	\$ (65,224)	\$ 29,742	\$ 27,146
Non-U.S.	(12,346)	(1,958)	971
Total income before income taxes	<u>\$ (77,570)</u>	<u>\$ 27,784</u>	<u>\$ 28,117</u>

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The current and deferred provisions (benefit) for income taxes were:

Year ended December 31, (dollars in thousands)	2017	2016	2015
Current:			
U.S. federal	\$ (183)	\$ 470	\$ 300
Non-U.S.	4,517	7,625	9,142
U.S. state and local	834	201	162
Total current income tax provision (benefit)	<u>5,168</u>	<u>8,296</u>	<u>9,604</u>
Deferred:			
U.S. federal	9,950	9,981	(44,068)
Non-U.S.	1,190	334	(3,078)
U.S. state and local	(510)	(900)	(674)
Total deferred income tax provision (benefit)	<u>10,630</u>	<u>9,415</u>	<u>(47,820)</u>
Total:			
U.S. federal	9,767	10,451	(43,768)
Non-U.S.	5,707	7,959	6,064
U.S. state and local	324	(699)	(512)
Total income tax provision (benefit)	<u>\$ 15,798</u>	<u>\$ 17,711</u>	<u>\$ (38,216)</u>

United States Tax Reform: The Tax Cuts and Jobs Act (the Act), signed into law on December 22, 2017, changed many aspects of the U.S. tax code, by reducing the corporate income tax rate from 35 percent to 21 percent, shifting to a territorial tax system with a related one-time transition tax on accumulated, unremitted earnings of foreign subsidiaries, limiting interest deductions, allowing the current expensing of certain capital expenditures, and numerous other changes that will apply prospectively beginning in 2018. We recorded a charge of \$6.7 million in the fourth quarter of 2017, principally related to re-measurement of the net U.S. deferred income tax assets at the 21 percent tax rate. The Company estimates that it will incur no material transition tax related to unremitted foreign earnings and does not anticipate material interest deduction limitations in the foreseeable future. We continue to analyze other changes to the tax code, including the Global Intangible Low Taxed Income (GILTI) provision, which could result in some level of future U.S. taxation of non-U.S. earnings that we cannot reasonably estimate at this time. Until we determine the extent to which GILTI may apply, we have not made an accounting policy decision regarding whether we will treat GILTI as a period cost or establish deferred taxes related thereto. We will continue to assess our income tax provision as we finalize our 2017 U.S. income tax return and as future guidance becomes available, but we do not currently expect that material revisions will be required. If revisions are required, they will be treated in accordance with the measurement period guidance outlined in Staff Accounting Bulletin No. 118.

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Deferred income tax assets and liabilities result from temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and from income tax carryovers and credits. The significant components of our deferred income tax assets and liabilities are as follows:

December 31, (dollars in thousands)	2017	2016
Deferred income tax assets:		
Pension	\$ 8,108	\$ 11,799
Non-pension post-retirement benefits	13,385	22,810
Other accrued liabilities	13,213	19,244
Receivables	2,118	2,756
Net operating loss and charitable contribution carry forwards	16,599	16,861
Tax credits	13,288	11,502
Total deferred income tax assets	66,711	84,972
Valuation allowance	(19,076)	(13,773)
Net deferred income tax assets	47,635	71,199
Deferred income tax liabilities:		
Property, plant and equipment	18,246	23,921
Inventories	1,639	3,866
Intangibles and other	4,708	5,255
Total deferred income tax liabilities	24,593	33,042
Net deferred income tax asset	\$ 23,042	\$ 38,157

The net deferred income tax assets and liabilities were included in the Consolidated Balance Sheets as follows:

December 31, (dollars in thousands)	2017	2016
Non-current deferred income tax asset	\$ 24,892	\$ 40,016
Non-current deferred income tax liability	(1,850)	(1,859)
Net deferred income tax asset	\$ 23,042	\$ 38,157

A summary of the deferred tax assets for net operating loss carry forwards is as follows:

December 31, (dollars in thousands)	2017	2016
Deferred income tax asset	\$ 16,599	\$ 16,861
Comprised of cumulative net losses from:		
Netherlands	\$ 40,487	\$ 24,811
Mexico	\$ 1,700	\$ —
China	\$ 1,155	\$ 825
Portugal	\$ —	\$ 629
U.S. federal	\$ 15,578	\$ 23,019
U.S. state and local	\$ 41,812	\$ 58,551

Our foreign net operating loss carryforwards of \$43.3 million will expire between 2018 and 2028 . Our U.S. federal net operating loss carryforward of \$15.6 million will expire between 2031 and 2034 . The U.S. state and local net operating loss carryforward of \$41.8 million will expire between 2018 and 2035 .

A summary of the deferred income tax assets related to tax credits is as follows:

December 31, (dollars in thousands)	2017	2016
Netherlands foreign tax credits	\$ 9,082	\$ 7,695
U.S. general business credits	2,885	2,628
U.S. alternative minimum tax credits	1,321	1,179
Total	<u>\$ 13,288</u>	<u>\$ 11,502</u>

The non-U.S. credits can be carried forward indefinitely. The U.S. federal tax credits for general business research and development will expire between 2024 and 2037, and the alternative minimum tax credits do not expire.

In assessing the need for a valuation allowance, management considers whether it is more likely than not that some portion or all of the deferred income tax assets will be realized. The ultimate realization of deferred income tax assets is dependent upon the generation of future taxable income (including reversals of deferred income tax liabilities) during the periods in which those deductible temporary differences reverse. As a result, we consider the historical and projected financial results of the tax paying component recording the net deferred income tax asset as well as all other positive and negative evidence. Examples of the evidence we consider are cumulative losses in recent years, losses expected in early future years, a history of potential tax benefits expiring unused and whether there were unusual, infrequent, or extraordinary items to be considered. We currently have a valuation allowance in place on our deferred income tax assets in the Netherlands. We intend to maintain this allowance until a period of sustainable income is achieved and management concludes it is more likely than not that those deferred income tax assets will be realized.

As of December 31, 2015, management considered the evidence, both positive and negative, in assessing the realizability of our deferred tax assets in the U.S. The positive evidence, including achievement of cumulative income in recent years and expectations for sustainable future income, was strong enough to conclude that it is more likely than not that nearly all of our deferred tax assets are realizable and the valuation allowance was reduced accordingly. In order to fully realize our deferred tax assets as of December 31, 2017 in the U.S., the Company needs to generate approximately \$154.6 million of future taxable income.

Our European operations in the Netherlands incurred an operating loss in 2017, continue to be in cumulative loss positions in recent years, and have a history of tax loss carryforwards expiring unused. In addition, European economic conditions continue to be unfavorable. Accordingly, management believes it is not more likely than not that the net deferred tax assets related to these operations will be realized and a valuation allowance continues to be recorded as of December 31, 2017. The Netherlands operation added a new furnace in 2017 that achieves a much higher level of energy efficiency than the furnaces it replaced. Management is optimistic that this new furnace technology will significantly improve the profitability of the Netherlands operation. Thus, it is reasonably possible that the valuation allowance against the net operating loss deferred tax asset could be reduced within the next year.

Reconciliation from the statutory U.S. federal income tax rate to the consolidated effective income tax rate was as follows:

Year ended December 31,	2017	2016	2015
Statutory U.S. federal income tax rate	35.0 %	35.0 %	35.0 %
Increase (decrease) in rate due to:			
Non-U.S. income tax differential	1.2	(2.1)	(0.9)
U.S. state and local income taxes, net of related U.S. federal income taxes	0.1	(1.3)	(2.0)
U.S. federal credits	0.3	(2.2)	—
Permanent adjustments	0.6	3.8	7.5
Foreign withholding taxes	(2.0)	5.7	4.7
Valuation allowance	(4.4)	11.1	(174.8)
Unrecognized tax benefits	(3.9)	10.0	(0.3)
Impact of foreign exchange	(1.6)	3.4	(19.8)
Tax effect of intercompany capitalization	—	—	11.7
Impact of legislative changes	(8.7)	—	—
Goodwill impairment	(36.0)	—	—
Other	(1.0)	0.3	3.0
Consolidated effective income tax rate	<u>(20.4) %</u>	<u>63.7 %</u>	<u>(135.9) %</u>

U.S. income and foreign withholding taxes have not been recognized on the excess of the amount for financial reporting over the tax basis of investments in foreign subsidiaries that is indefinitely reinvested outside of the United States. This amount could become taxable upon a repatriation of assets from the subsidiary or a sale or liquidation of the subsidiary. The amount of such temporary differences totaled \$11.4 million as of December 31, 2017 and \$27.7 million as of December 31, 2016. Determination of the amount of any unrecognized deferred income tax liability on this temporary difference is not practicable because of the complexities of the hypothetical calculation.

We are subject to income taxes in the U.S. and various foreign jurisdictions. Management judgment is required in evaluating our tax positions and determining our provision for income taxes. Throughout the course of business, there are numerous transactions and calculations for which the ultimate tax determination is uncertain. When management believes uncertain tax positions may be challenged despite our belief that the tax return positions are supportable, we record unrecognized tax benefits as liabilities in accordance with the requirements of ASC 740. When our judgment with respect to these uncertain tax positions changes as a result of a change in facts and circumstances, such as the outcome of a tax audit, we adjust these liabilities through increases or decreases to the income tax provision.

The Company and its subsidiaries are subject to examination by various countries' tax authorities. These examinations may lead to proposed or assessed adjustments to our taxes. In August 2016, one of our Mexican subsidiaries received a tax assessment from the Mexican tax authority (SAT) related to the audit of its 2010 tax year. The amount assessed was approximately 3 billion Mexican pesos, which was equivalent to approximately \$157 million U.S. dollars as of the date of the assessment. The Company has filed an administrative appeal with SAT requesting that the assessment be fully nullified. We are awaiting the outcome of the appeal. Management, in consultation with external legal counsel, believes that if contested in the Mexican court system, it is more likely than not that the Company would prevail on all significant components of the assessment. Management intends to continue to vigorously contest all significant components of the assessment in the Mexican courts if they are not nullified at the administrative appeal level. We believe that our tax reserves related to uncertain tax positions are adequate at this time.

A reconciliation of the beginning and ending gross unrecognized tax benefits, excluding interest and penalties, is as follows:

(dollars in thousands)	2017	2016	2015
Beginning balance	\$ 3,521	\$ 431	\$ 378
Additions based on tax positions related to the current year	435	382	293
Additions for tax positions of prior years	1,735	3,001	—
Reductions for tax positions of prior years	(468)	(293)	—
Changes due to lapse of statute of limitations	279	—	(240)
Reductions due to settlements with tax authorities	(495)	—	—
Ending balance	<u>\$ 5,007</u>	<u>\$ 3,521</u>	<u>\$ 431</u>

We recognize interest and penalties related to unrecognized tax benefits in the provision for income taxes. Other disclosures relating to unrecognized tax benefits are as follows:

December 31, (dollars in thousands)	2017	2016	2015
Amount of unrecognized tax benefits that, if recognized, would affect the effective tax rate	\$ 4,107	\$ 3,414	\$ 378
Interest, net of tax benefit, accrued in the Consolidated Balance Sheets	\$ 572	\$ 92	\$ 28
Penalties, accrued in the Consolidated Balance Sheets	\$ 38	\$ 181	\$ —
Interest expense (benefit) recognized in the Consolidated Statements of Operations	\$ 506	\$ 64	\$ (146)
Penalties expense (benefit) recognized in the Consolidated Statements of Operations	\$ (67)	\$ 181	\$ —

Based upon the outcome of tax examinations, judicial proceedings, other settlements with taxing jurisdictions, or expiration of statutes of limitations, it is reasonably possible that the ultimate resolution of these unrecognized tax benefits may result in a payment that is materially different from the current estimate of the tax liabilities. It is also reasonably possible that gross unrecognized tax benefits may decrease within the next twelve months by approximately \$3.6 million due to settlements with tax authorities.

We file income tax returns in the U.S. federal jurisdiction, and various state and foreign jurisdictions. As of December 31, 2017, the tax years that remained subject to examination by major tax jurisdictions were as follows:

Jurisdiction	Open Years	
Canada	2014	– 2017
China	2007	– 2017
Mexico (excluding 2011 which is closed)	2010	– 2017
Netherlands	2016	– 2017
Portugal	2014	– 2017
United States (excluding 2013 which is closed)	2011	– 2017

8. Pension

We have pension plans covering the majority of our employees. Benefits generally are based on compensation and service for salaried employees and job grade and length of service for hourly employees. In addition, we have an unfunded supplemental employee retirement plan (SERP) that covers salaried U.S.-based employees of Libbey hired before January 1, 2006. The U.S. pension plans cover the salaried U.S.-based employees of Libbey hired before January 1, 2006, and most hourly U.S.-based employees (excluding employees hired at Shreveport after December 15, 2008, and at Toledo after September 30, 2010). Effective January 1, 2013, we ceased annual company contribution credits to the cash balance accounts in our Libbey U.S. Salaried Pension Plan and SERP. The non-U.S. pension plans cover the employees of our wholly owned subsidiaries in Mexico and the Netherlands (through 2015). The plans in Mexico are unfunded.

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In the fourth quarter of 2015, we executed an agreement with Pensioenfond voor de Grafische Bedrijven (“PGB”), an industry wide pension fund, and unwound direct ownership of our defined benefit pension plan in the Netherlands. In accordance with this agreement, we transferred all assets of the plan and made a cash contribution of \$5.2 million to PGB. In return, PGB assumed the related liabilities and administrative responsibilities of the plan. As a result, there is no longer a pension liability on the Consolidated Balance Sheet related to this pension plan. This event also resulted in a settlement charge of \$21.6 million being recorded in the Consolidated Statement of Operations in the fourth quarter of 2015. Beginning in 2016, Libbey Holland makes cash contributions to PGB as participating employees earn pension benefits. These related costs are expensed as incurred, similar to the accounting associated with a defined contribution retirement plan and amounted to \$1.9 million in both 2017 and 2016.

Effect on Operations

The components of our net pension expense, including the SERP, are as follows:

Year ended December 31, (dollars in thousands)	U.S. Plans			Non-U.S. Plans			Total		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Service cost (benefits earned during the period)	\$ 3,916	\$ 3,717	\$ 4,365	\$ 1,085	\$ 1,226	\$ 2,965	\$ 5,001	\$ 4,943	\$ 7,330
Interest cost on projected benefit obligation	13,787	14,963	14,715	2,749	2,594	4,332	16,536	17,557	19,047
Expected return on plan assets	(22,479)	(23,027)	(22,661)	—	—	(2,447)	(22,479)	(23,027)	(25,108)
Amortization of unrecognized:									
Prior service cost (credit)	236	263	417	(204)	(207)	(244)	32	56	173
Actuarial loss	5,232	4,272	7,291	594	782	1,599	5,826	5,054	8,890
Settlement charge	245	42	13	—	126	21,574	245	168	21,587
Curtailment credit	—	—	—	—	—	(14)	—	—	(14)
Pension expense	\$ 937	\$ 230	\$ 4,140	\$ 4,224	\$ 4,521	\$ 27,765	\$ 5,161	\$ 4,751	\$ 31,905

In 2017, 2016 and 2015, we incurred pension settlement charges of \$0.2 million, \$0.2 million and \$21.6 million, respectively. The pension settlement charges in 2015 were triggered primarily by the liquidation of the Dutch pension fund. The pension settlement charges in 2017 and 2016 were triggered by excess lump sum distributions taken by employees, which required us to record unrecognized gains and losses in our pension plan accounts.

Actuarial Assumptions

The assumptions used to determine the benefit obligations were as follows:

	U.S. Plans			Non-U.S. Plans		
	2017	2016	2015	2017	2016	2015
Discount rate	3.64% to 3.69%	4.18% to 4.23%	9.40%	9.40%	9.30%	9.30%
Rate of compensation increase	Not applicable	Not applicable	4.30%	4.30%	4.30%	4.30%

The assumptions used to determine net periodic pension costs were as follows:

	U.S. Plans			Non-U.S. Plans		
	2017	2016	2015	2017	2016	2015
Discount rate	4.18% to 4.23%	4.66% to 4.73%	4.17% to 4.29%	9.30%	8.10%	2.30% to 7.60%
Expected long-term rate of return on plan assets	7.00%	7.25%	7.25%	Not applicable	Not applicable	4.00%
Rate of compensation increase	Not applicable	Not applicable	Not applicable	4.30%	4.30%	2.00% to 4.30%

The discount rate enables us to estimate the present value of expected future cash flows on the measurement date. The rate used reflects a rate of return on high-quality fixed income investments that match the duration of expected benefit payments at our December 31 measurement date. The discount rate at December 31 is used to measure the year-end benefit obligations and the

earnings effects for the subsequent year. A higher discount rate decreases the present value of benefit obligations and decreases pension expense.

To determine the expected long-term rate of return on plan assets for our funded plans, we consider the current and expected asset allocations, as well as historical and expected returns on various categories of plan assets. The expected long-term rate of return on plan assets at December 31st is used to measure the earnings effects for the subsequent year.

Future benefits are assumed to increase in a manner consistent with past experience of the plans except for the Libbey U.S. Salaried Pension Plan and SERP as discussed above, which, to the extent benefits are based on compensation, includes assumed compensation increases as presented above. Amortization included in net pension expense is based on the average remaining service of employees.

We account for our defined benefit pension plans on an expense basis that reflects actuarial funding methods. The actuarial valuations require significant estimates and assumptions to be made by management, primarily with respect to the discount rate and expected long-term return on plan assets. These assumptions are all susceptible to changes in market conditions. The discount rate is based on a selected settlement portfolio from a universe of high quality bonds. In determining the expected long-term rate of return on plan assets, we consider historical market and portfolio rates of return, asset allocations and expectations of future rates of return. We evaluate these critical assumptions on our annual measurement date of December 31st. Other assumptions involving demographic factors such as retirement age, mortality and turnover are evaluated periodically and are updated to reflect our experience. Actual results in any given year often will differ from actuarial assumptions because of demographic, economic and other factors.

For our U.S. pension plans, we use the RP 2014 Sex Distinct Mortality Tables, as released by the Society of Actuaries, to determine our projected benefit obligations. In 2015, 2016 and 2017, the Society of Actuaries published new generational projection scales reflecting additional years of mortality experience. We adopted these updates in each respective year.

Projected Benefit Obligation (PBO) and Fair Value of Assets

The changes in the projected benefit obligations and fair value of plan assets are as follows:

Year ended December 31, (dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
	2017	2016	2017	2016	2017	2016
Change in projected benefit obligation:						
Projected benefit obligation, beginning of year	\$ 336,648	\$ 325,863	\$ 28,161	\$ 35,915	\$ 364,809	\$ 361,778
Service cost	3,916	3,717	1,085	1,226	5,001	4,943
Interest cost	13,787	14,963	2,749	2,594	16,536	17,557
Exchange rate fluctuations	—	—	1,214	(5,821)	1,214	(5,821)
Actuarial (gain) loss	22,991	11,108	1,409	(2,477)	24,400	8,631
Settlements paid	(281)	(259)	—	—	(281)	(259)
Benefits paid	(23,008)	(18,744)	(2,651)	(3,276)	(25,659)	(22,020)
Projected benefit obligation, end of year	<u>\$ 354,053</u>	<u>\$ 336,648</u>	<u>\$ 31,967</u>	<u>\$ 28,161</u>	<u>\$ 386,020</u>	<u>\$ 364,809</u>
Change in fair value of plan assets:						
Fair value of plan assets, beginning of year	\$ 318,414	\$ 316,184	\$ —	\$ —	\$ 318,414	\$ 316,184
Actual return on plan assets	47,595	20,974	—	—	47,595	20,974
Employer contributions	499	259	2,651	3,276	3,150	3,535
Settlements paid	(281)	(259)	—	—	(281)	(259)
Benefits paid	(23,008)	(18,744)	(2,651)	(3,276)	(25,659)	(22,020)
Fair value of plan assets, end of year	<u>\$ 343,219</u>	<u>\$ 318,414</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 343,219</u>	<u>\$ 318,414</u>
Funded ratio	96.9%	94.6%	—%	—%	88.9%	87.3%
Funded status and net accrued pension benefit cost	<u>\$ (10,834)</u>	<u>\$ (18,234)</u>	<u>\$ (31,967)</u>	<u>\$ (28,161)</u>	<u>\$ (42,801)</u>	<u>\$ (46,395)</u>

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The current portion of the pension liability reflects the amount of expected benefit payments that are greater than the plan assets on a plan-by-plan basis. The net accrued pension benefit liability at December 31 of the respective year-ends were included in the Consolidated Balance Sheets as follows:

December 31, (dollars in thousands)	2017	2016
Pension asset	\$ 2,939	\$ —
Pension liability (current portion)	(2,185)	(2,461)
Pension liability	(43,555)	(43,934)
Net accrued pension liability	<u>\$ (42,801)</u>	<u>\$ (46,395)</u>

The pretax amounts recognized in accumulated other comprehensive loss as of December 31, 2017 and 2016, are as follows :

Year ended December 31, (dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
	2017	2016	2017	2016	2017	2016
Net actuarial loss	\$ 98,228	\$ 105,830	\$ 12,378	\$ 11,077	\$ 110,606	\$ 116,907
Prior service cost (credit)	1	237	(2,636)	(2,704)	(2,635)	(2,467)
Total cost	<u>\$ 98,229</u>	<u>\$ 106,067</u>	<u>\$ 9,742</u>	<u>\$ 8,373</u>	<u>\$ 107,971</u>	<u>\$ 114,440</u>

The pretax amounts in accumulated other comprehensive loss as of December 31, 2017, that are expected to be recognized as components of net periodic benefit cost during 2018 are as follows:

(dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
Net actuarial loss	\$ 6,546	\$ 605	\$ 605	\$ 605	\$ 7,151	\$ 7,151
Prior service cost (credit)	1	237	(195)	(195)	(194)	(194)
Total cost	<u>\$ 6,547</u>	<u>\$ 410</u>	<u>\$ 410</u>	<u>\$ 410</u>	<u>\$ 6,957</u>	<u>\$ 6,957</u>

Estimated contributions for 2018, as well as, contributions made in 2017 and 2016 to the pension plans are as follows:

(dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
Estimated contributions in 2018	\$ 131	\$ 2,148	\$ 2,148	\$ 2,148	\$ 2,279	\$ 2,279
Contributions made in 2017	\$ 499	\$ 2,651	\$ 2,651	\$ 2,651	\$ 3,150	\$ 3,150
Contributions made in 2016	\$ 259	\$ 3,276	\$ 3,276	\$ 3,276	\$ 3,535	\$ 3,535

It is difficult to estimate future cash contributions to the pension plans, as such amounts are a function of actual investment returns, withdrawals from the plans, changes in interest rates and other factors uncertain at this time. It is possible that greater cash contributions may be required in 2018 than the amounts in the above table. Although a decline in market conditions, changes in current pension law and uncertainties regarding significant assumptions used in the actuarial valuations may have a material impact in future required contributions to our pension plans, we currently do not expect funding requirements to have a material adverse impact on current or future liquidity.

Pension benefit payment amounts are anticipated to be paid from the plans (including the SERP) as follows:

Year (dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
2018	\$ 19,838	\$ 2,148	\$ 2,148	\$ 2,148	\$ 21,986	\$ 21,986
2019	\$ 19,765	\$ 2,007	\$ 2,007	\$ 2,007	\$ 21,772	\$ 21,772
2020	\$ 19,842	\$ 2,193	\$ 2,193	\$ 2,193	\$ 22,035	\$ 22,035
2021	\$ 20,304	\$ 2,558	\$ 2,558	\$ 2,558	\$ 22,862	\$ 22,862
2022	\$ 20,525	\$ 2,687	\$ 2,687	\$ 2,687	\$ 23,212	\$ 23,212
2023-2027	\$ 104,932	\$ 15,143	\$ 15,143	\$ 15,143	\$ 120,075	\$ 120,075

Accumulated Benefit Obligation in Excess of Plan Assets

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for pension plans with an accumulated benefit obligation in excess of plan assets at December 31, 2017 and 2016 were as follows:

December 31, (dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
	2017	2016	2017	2016	2017	2016
Projected benefit obligation	\$ 268,887	\$ 336,648	\$ 31,967	\$ 28,161	\$ 300,854	\$ 364,809
Accumulated benefit obligation	\$ 268,887	\$ 336,648	\$ 27,055	\$ 23,194	\$ 295,942	\$ 359,842
Fair value of plan assets	\$ 255,115	\$ 318,414	\$ —	\$ —	\$ 255,115	\$ 318,414

Plan Assets

Our investment strategy is to control and manage investment risk through diversification across asset classes and investment styles, within established target asset allocation ranges. The investment risk of the assets is limited by appropriate diversification both within and between asset classes. Assets are diversified among a mix of traditional investments in equity and fixed income instruments, as well as alternative investments including real estate and hedge funds. It would be anticipated that a modest allocation to short-term investments would exist within the plans, since each investment manager is likely to hold some short-term investments in the portfolio with the goal of ensuring that sufficient liquidity will be available to meet expected cash flow requirements.

Our investment valuation policy is to state the investments at fair value. All investments are valued at their respective net asset value (NAV) as a practical expedient and calculated by the Trustee, except for certain hedge fund investments valued at NAV. The real estate, equity securities and fixed income investments are held in a Group Trust which is valued at the unit prices established by the Trustee and are valued using NAV as a practical expedient. Underlying equity securities (including large and small cap domestic and international equities), for which market quotations are readily available, are valued at the last reported readily available sales price on their principal exchange on the valuation date or official close for certain markets. Fixed income investments are valued on a basis of valuations furnished by a trustee-approved pricing service, which determines valuations for normal institutional-size trading units of such securities which are generally recognized at fair value as determined in good faith by the Trustee. The fair value of investments in real estate funds is based on valuation of the fund as determined by periodic appraisals of the underlying investments owned by the respective fund. Investments in registered investment companies are valued at quoted market prices. Collective pooled funds, if any, are recorded using NAV practical expedients. Short-term investments are valued at their respective NAV and have no redemption restrictions. The hedge fund investments using NAV as a practical expedient are valued by using estimated month-end NAV and performance numbers provided by the fund administrator. The Plan is required to provide a month's advance written notice to liquidate its entire share in the Group Trust. Certain investments in the hedge funds can only be liquidated on either a quarterly or semi-annual basis, require advance notification and are subject to audit holdback provisions.

All investments measured at NAV as a practical expedient for fair value have been excluded from the fair value hierarchy, in accordance with U.S. GAAP. The table below presents our U.S. pension plan assets at fair value.

December 31, (dollars in thousands)	Measured at NAV as a practical expedient		Target Allocation
	2017	2016	2018
Short-term investments	\$ 8,061	\$ 8,766	3%
Real estate	16,390	15,812	5%
Equity securities	156,434	148,302	45%
Debt securities	125,671	96,658	37%
Hedge funds	36,663 ⁽¹⁾	48,876	10%
Total	\$ 343,219	\$ 318,414	100%

⁽¹⁾ Includes \$9.1 million of hedge funds valued daily at NAV which is considered to be a Level 2 investment in the fair value hierarchy. See [note 14](#) for discussion of the fair value hierarchy.

9. Non-pension Post-retirement Benefits

We provide certain retiree healthcare and life insurance benefits covering our U.S. and Canadian salaried employees hired before January 1, 2004 and a majority of our union hourly employees (excluding employees hired at Shreveport after December 15, 2008 and at Toledo after September 30, 2010). Employees are generally eligible for benefits upon retirement and completion of a specified number of years of creditable service. Benefits for most hourly retirees are determined by collective bargaining. The U.S. non-pension, post-retirement plans cover the hourly and salaried U.S.-based employees of Libbey (excluding those mentioned above). The non-U.S., non-pension, post-retirement plans cover the retirees and active employees of Libbey who are located in Canada. The post-retirement benefit plans are unfunded.

Effect on Operations

The provision for our non-pension post-retirement benefit expense consists of the following:

Year ended December 31, (dollars in thousands)	U.S. Plans			Non-U.S. Plans			Total		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Service cost (benefits earned during the period)	\$ 631	\$ 797	\$ 855	\$ 1	\$ 1	\$ 1	\$ 632	\$ 798	\$ 856
Interest cost on projected benefit obligation	2,104	2,608	2,537	44	51	52	2,148	2,659	2,589
Amortization of unrecognized:									
Prior service cost (credit)	(201)	140	140	—	—	—	(201)	140	140
Actuarial loss (gain)	(257)	81	592	(59)	(47)	(56)	(316)	34	536
Non-pension post-retirement benefit expense	\$ 2,277	\$ 3,626	\$ 4,124	\$ (14)	\$ 5	\$ (3)	\$ 2,263	\$ 3,631	\$ 4,121

Actuarial Assumptions

The discount rates used to determine the accumulated post-retirement benefit obligation and net post-retirement benefit cost were as follows:

	U.S. Plans			Non-U.S. Plans		
	2017	2016	2015	2017	2016	2015
Accumulated post-retirement benefit obligation	3.60%	4.05%	4.56%	3.26%	3.48%	3.69%
Net post-retirement benefit cost	4.05%	4.56%	4.10%	3.48%	3.69%	3.61%

The weighted average assumed healthcare cost trend rates at December 31 were as follows:

	U.S. Plans		Non-U.S. Plans	
	2017	2016	2017	2016
Healthcare cost trend rate assumed for next year	6.50%	6.75%	6.50%	6.75%
Ultimate healthcare trend rate	5.00%	5.00%	5.00%	5.00%
Year the ultimate trend rate is reached	2024	2024	2024	2024

We use various actuarial assumptions, including the discount rate and the expected trend in healthcare costs, to estimate the costs and benefit obligations for our retiree health plan. The discount rate is determined based on high-quality fixed income investments that match the duration of expected retiree medical benefits at our December 31 measurement date to establish the discount rate. The discount rate at December 31 is used to measure the year-end benefit obligations and the earnings effects for the subsequent year.

The healthcare cost trend rate represents our expected annual rates of change in the cost of healthcare benefits. The trend rate noted above represents a forward projection of healthcare costs as of the measurement date. A 1.0 percent change in the healthcare trend rate would not have a material impact upon the non-pension post-retirement expense.

Accumulated Post-retirement Benefit Obligation

The components of our non-pension post-retirement benefit obligation are as follows:

Year ended December 31, (dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
	2017	2016	2017	2016	2017	2016
Change in accumulated non-pension post-retirement benefit obligation:						
Benefit obligation, beginning of year	\$ 58,921	\$ 58,795	\$ 1,344	\$ 1,390	\$ 60,265	\$ 60,185
Service cost	631	797	1	1	632	798
Interest cost	2,104	2,608	44	51	2,148	2,659
Plan participants' contributions	525	528	—	—	525	528
Actuarial (gain) loss	(5,483)	146	(108)	(102)	(5,591)	44
Exchange rate fluctuations	—	—	90	46	90	46
Benefits paid	(4,050)	(3,953)	(76)	(42)	(4,126)	(3,995)
Benefit obligation, end of year	<u>\$ 52,648</u>	<u>\$ 58,921</u>	<u>\$ 1,295</u>	<u>\$ 1,344</u>	<u>\$ 53,943</u>	<u>\$ 60,265</u>
Funded status and accrued benefit cost	<u>\$ (52,648)</u>	<u>\$ (58,921)</u>	<u>\$ (1,295)</u>	<u>\$ (1,344)</u>	<u>\$ (53,943)</u>	<u>\$ (60,265)</u>

The total accrued non-pension post-retirement benefits liability at December 31 of the respective year-ends were included in the Consolidated Balance Sheets as follows:

December 31, (dollars in thousands)	2017	2016
Non-pension post-retirement benefits (current portion)	\$ 4,185	\$ 4,892
Non-pension post-retirement benefits	49,758	55,373
Total non-pension post-retirement benefits liability	<u>\$ 53,943</u>	<u>\$ 60,265</u>

The pretax amounts recognized in accumulated other comprehensive loss as of December 31, 2017 and 2016, are as follows:

Year ended December 31, (dollars in thousands)	U.S. Plans		Non-U.S. Plans		Total	
	2017	2016	2017	2016	2017	2016
Net actuarial loss (gain)	\$ (80)	\$ 5,146	\$ (832)	\$ (730)	\$ (912)	\$ 4,416
Prior service cost (credit)	(1,262)	(1,463)	—	—	(1,262)	(1,463)
Total cost (credit)	<u>\$ (1,342)</u>	<u>\$ 3,683</u>	<u>\$ (832)</u>	<u>\$ (730)</u>	<u>\$ (2,174)</u>	<u>\$ 2,953</u>

The pretax amounts in accumulated other comprehensive loss at December 31, 2017, that are expected to be recognized as components of net periodic benefit cost during 2018 are as follows:

(dollars in thousands)	U.S. Plans	Non-U.S. Plans	Total
Net actuarial loss (gain)	\$ (210)	\$ (66)	\$ (276)
Prior service cost (credit)	(282)	—	(282)
Total cost (credit)	<u>\$ (492)</u>	<u>\$ (66)</u>	<u>\$ (558)</u>

Non-pension post-retirement benefit payments net of estimated future Medicare Part D subsidy payments and future retiree contributions, are anticipated to be paid as follows:

Fiscal Year (dollars in thousands)	U.S. Plans	Non-U.S. Plans	Total
2018	\$ 4,098	\$ 161	\$ 4,259
2019	\$ 4,024	\$ 159	\$ 4,183
2020	\$ 3,965	\$ 153	\$ 4,118
2021	\$ 3,850	\$ 142	\$ 3,992
2022	\$ 3,853	\$ 130	\$ 3,983
2023-2027	\$ 16,848	\$ 373	\$ 17,221

10. Net Income (Loss) per Share of Common Stock

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

Year ended December 31, (dollars in thousands, except earnings per share)	2017	2016	2015
Numerator for earnings per share:			
Net income (loss) that is available to common shareholders	\$ (93,368)	\$ 10,073	\$ 66,333
Denominator for basic earnings per share:			
Weighted average shares outstanding	22,030,672	21,879,613	21,816,935
Denominator for diluted earnings per share:			
Effect of stock options and restricted stock units	—	169,330	342,214
Adjusted weighted average shares and assumed conversions	22,030,672	22,048,943	22,159,149
Basic earnings (loss) per share	\$ (4.24)	\$ 0.46	\$ 3.04
Diluted earnings (loss) per share	\$ (4.24)	\$ 0.46	\$ 2.99
Shares excluded from diluted earnings per share due to:			
Net loss position (excluded from denominator)	85,588	—	—
Inclusion would have been anti-dilutive (excluded from calculation)	846,747	602,402	105,201

When applicable, diluted shares outstanding include the dilutive impact of restricted stock units. Diluted shares also include the impact of eligible employee stock options, which are calculated based on the average share price for each fiscal period using the treasury stock method. As part of the adoption of ASU 2016-09 as of January 1, 2017, anticipated tax windfalls and shortfalls are no longer included in the calculation of assumed proceeds when applying the treasury stock method.

11. Employee Stock Benefit Plans

We have a stock-based employee compensation plan. We account for stock-based compensation in accordance with FASB ASC Topic 718, "Compensation - Stock Compensation" and FASB ASC Topic 505-50, "Equity - Equity Based Payment to Non-Employees", which requires the measurement and recognition of compensation expense for all share-based awards to our employees and directors. Share-based compensation cost is measured based on the fair value of the equity or liability instruments issued. FASB ASC 718 and FASB ASC 505-50 apply to all of our outstanding unvested share-based payment awards.

Equity Participation Plan Program Description

We have two equity participation plans, the Amended and Restated Libbey Inc. 2006 Omnibus Incentive Plan and the Libbey Inc. 2016 Omnibus Incentive Plan, which we refer to as the Omnibus Plans. Up to a total of 2,960,000 and 1,200,000 shares of Libbey Inc. common stock are authorized for issuance as equity-based compensation under the 2006 and 2016 Omnibus Plans, respectively. Under the Omnibus Plans, grants of equity-based compensation may take the form of stock options, stock appreciation rights, performance shares or units, restricted stock or restricted stock units or other stock-based awards.

Employees and directors are eligible for awards under these plans. All option grants have an exercise price equal to the fair market value of the underlying stock on the grant date. The vesting period of options, stock appreciation rights, restricted stock units and cash settled restricted stock units outstanding as of December 31, 2017, is generally four years. Awards are subject to alternate vesting plans for death, disability, retirement eligibility and involuntary termination. Dividends are not payable on shares underlying options, stock appreciation rights or unvested restricted stock units. All grants of equity-based compensation are amortized over the vesting period in accordance with FASB ASC 718 expense attribution methodology with the related compensation expense recorded in selling, general and administrative expenses in the Consolidated Statements of Operations.

Non-Qualified Stock Option Information

The Black-Scholes option-pricing model was used to estimate the grant-date fair value for stock options. The exercise price of each stock option equals the closing market price of our common stock on the date of grant. The maximum term is ten years. The following table summarizes non-qualified stock option disclosures for 2017, 2016 and 2015 :

Year ended December 31, (dollars in thousands, except options and assumptions)	2017	2016	2015
Stock options granted	249,392	351,590	108,297
Stock option compensation expense included in the Consolidated Statements of Operations	\$ 690	\$ 705	\$ 1,674
Weighted-average grant-date fair value of options granted using the Black-Scholes model	\$ 3.00	\$ 4.20	\$ 14.72
Weighted-average assumptions for stock option grants:			
Risk-free interest	2.07%	1.30%	1.68%
Expected term	5.8 years	6.3 years	6.4 years
Expected volatility	38.54%	33.14%	39.92%
Dividend yield	4.32%	2.69%	1.16%

- The risk-free interest rate is based on the U.S. Treasury yield curve at the time of grant and has a term equal to the expected life.
- The expected term represents the period of time the options are expected to be outstanding. We use the actual historical exercise activity for determining the expected term.
- Expected volatility is calculated based on Libbey's daily stock closing prices for a period equal to the expected life of the award. For grants prior to March 31, 2016, a peer group volatility was used, with the period still equal to the expected life of the award. The peer group was used due to the Company having a period of history when we were more highly leveraged which is not relevant in evaluating expected volatility. The peer group was established using the criteria of similar industry, size, leverage and length of history.
- The dividend yield is calculated as the ratio based on our most recent historical dividend payments per share of common stock at the grant date to the stock price on the date of grant.

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Information with respect to our stock option activity for 2017 , 2016 and 2015 is as follows:

Stock Options	Shares	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Life (In Years)	Aggregate Intrinsic Value (in thousands)
Outstanding balance at January 1, 2015	834,010	\$ 17.28	6.7	\$ 11,808
Granted	108,297	\$ 36.90		
Exercised	(241,122)	\$ 13.85		\$ 5,722
Canceled	(44,514)	\$ 25.43		
Outstanding balance at December 31, 2015	656,671	\$ 21.22	6.8	\$ 2,103
Granted	351,590	\$ 17.23		
Exercised	(100,813)	\$ 13.90		\$ 379
Canceled	(262,225)	\$ 23.73		
Outstanding balance at December 31, 2016	645,223	\$ 19.17	6.6	\$ 1,407
Granted	249,392	\$ 11.74		
Exercised	(33,389)	\$ 13.96		\$ 17
Canceled	(98,676)	\$ 19.42		
Outstanding balance at December 31, 2017	762,550	\$ 16.91	7.0	\$ 64
Exercisable at December 31, 2017	333,761	\$ 19.26	4.8	\$ 35

Intrinsic value for share-based instruments is defined as the difference between the current market value and the exercise price.

As of December 31, 2017 , \$0.6 million of unrecognized compensation expense related to nonvested stock options is expected to be recognized within the next 2.4 years on a weighted-average basis. The total fair value of shares vested during 2017 , 2016 and 2015 is \$0.7 million , \$1.6 million and \$1.7 million , respectively. Shares issued for exercised options are issued from treasury stock, when available.

The following table summarizes our nonvested stock option activity for 2017 , 2016 and 2015 :

Nonvested Stock Options	Shares	Weighted-Average Value (per Share)
Nonvested at January 1, 2015	438,515	\$ 9.91
Granted	108,297	\$ 14.72
Vested	(161,923)	\$ 10.55
Forfeited	(42,887)	\$ 11.32
Nonvested at December 31, 2015	342,002	\$ 10.95
Granted	351,590	\$ 4.20
Vested	(169,703)	\$ 9.42
Forfeited	(178,954)	\$ 8.41
Nonvested at December 31, 2016	344,935	\$ 6.14
Granted	249,392	\$ 3.00
Vested	(108,449)	\$ 6.69
Forfeited	(57,089)	\$ 6.23
Nonvested at December 31, 2017	428,789	\$ 4.16

Stock Appreciation Rights Information

The exercise price of each stock appreciation right equals the closing market price of our common stock on the date of grant. The maximum term is ten years. Stock appreciation rights are settled in cash for the difference between the market price on the date of exercise and the exercise price. Awards that are settled in cash are subject to liability accounting. Accordingly, the fair value of such awards is remeasured at the end of each reporting period until settled or expired. The Company entered into a CEO Retention Award Agreement pursuant to which the Company issued 240,829 stock appreciation rights to our former CEO

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on December 16, 2013. On January 11, 2016, vesting of all unvested retention stock appreciation rights otherwise scheduled to vest on December 31, 2018 was accelerated as a result of the departure of our former CEO.

The Black-Scholes option-pricing model was used to estimate the grant-date fair value. The following table summarizes stock appreciation rights disclosures for 2017, 2016 and 2015 :

Year ended December 31, (dollars in thousands, except stock appreciation rights and assumptions)	2017	2016	2015
Stock appreciation rights granted	26,839	—	—
Stock appreciation rights compensation expense (benefit) included in the Consolidated Statements of Operations	\$ 39	\$ (462)	\$ (273)
Weighted-average grant-date fair value of stock appreciation rights granted using the Black-Scholes model	\$ 0.19		
Weighted-average assumptions for stock appreciation rights granted:			
Risk-free interest	2.17%		
Expected term	4.5 years		
Expected volatility	38.93%		
Dividend yield	6.10%		

The risk-free interest rate, expected term, expected volatility and dividend yield assumptions are calculated consistent with our non-qualified stock option awards. During 2017, some equity awards to foreign employees were modified to cash settled stock appreciation rights. The weighted-average grant-date fair value above represents the incremental value at the date of modification.

Information with respect to our stock appreciation right activity for 2017, 2016 and 2015 is as follows:

Stock Appreciation Rights	Shares	Weighted Average Exercise Price	Weighted-Average Remaining Contractual Life (In Years)	Aggregate Intrinsic Value (in thousands)
Outstanding Balance at January 1, 2015	244,229	\$ 21.27	9.0	\$ 2,483
Outstanding balance at December 31, 2015	244,229	\$ 21.27	8.0	\$ 14
Outstanding balance at December 31, 2016	244,229	\$ 21.27	0.1	\$ 4
Granted	26,839	\$ 17.19		
Exercised	(7,060)	\$ 7.16		\$ 56
Canceled	(240,829)	\$ 21.29		
Outstanding balance at December 31, 2017	23,179	\$ 20.66	5.2	\$ —
Exercisable at December 31, 2017	19,999	\$ 20.29	5.0	\$ —

As of December 31, 2017, the amount of unrecognized compensation expense related to nonvested stock appreciation rights is immaterial. The total fair value of shares vested during 2017, 2016 and 2015 was immaterial.

The following table summarizes our non-vested stock appreciation rights for 2017, 2016 and 2015 :

Nonvested Stock Appreciation Rights	Shares	Weighted-Average Value (per Share)
Nonvested at January 1, 2015	244,229	\$ 10.37
Vested	(1,250)	\$ 10.33
Nonvested at December 31, 2015	242,979	\$ 10.37
Vested	(241,829)	\$ 10.38
Nonvested at December 31, 2016	1,150	\$ 9.88
Granted	26,839	\$ 0.19
Vested	(24,809)	\$ 0.29
Nonvested at December 31, 2017	3,180	\$ 1.32

Stock and Restricted Stock Unit Information

Under the Omnibus Plans, we grant non-employee members of our Board of Directors shares of stock. The shares granted to Directors are immediately vested and all compensation expense is recognized in our Consolidated Statements of Operations in the year the grants are made. In addition, we grant restricted stock units to select executives and key employees. Compensation expense for restricted stock is measured based on the closing market price of the stock at date of grant less the present value of expected dividends over the vesting period, as dividends are not payable on unvested restricted stock units.

A summary of the activity for stock and restricted stock units under the Omnibus Plans for 2017, 2016 and 2015 is presented below:

Year ended December 31, (dollars in thousands, except share amounts)	2017	2016	2015
Beginning nonvested balance	283,188	315,434	232,824
Granted	278,351	298,909	219,010
Vested	(154,995)	(165,372)	(113,319)
Forfeited	(52,340)	(165,783)	(23,081)
Ending nonvested balance	<u>354,204</u>	<u>283,188</u>	<u>315,434</u>
Weighted-average grant-date fair value per restricted stock unit	<u>\$ 10.38</u>	<u>\$ 16.22</u>	<u>\$ 35.93</u>
Compensation expense	<u>\$ 2,682</u>	<u>\$ 3,019</u>	<u>\$ 4,199</u>

The total fair value for shares vested during the years ended December 31, 2017, 2016 and 2015 was \$1.9 million, \$3.0 million and \$4.2 million, respectively. As of December 31, 2017, there was \$1.9 million of unrecognized compensation cost related to nonvested restricted stock units granted. That cost is expected to be recognized over a weighted average period of 1.9 years. Shares issued for unrestricted stock and restricted stock unit awards are issued from treasury stock, when available.

Cash Settled Restricted Stock Unit Information

Under the terms of the CEO Retention Award Agreement dated December 16, 2013, 115,687 cash settled restricted stock units were granted during the first quarter of 2014. Accordingly, awards that will be settled in cash are subject to liability accounting and the fair value of these awards will be remeasured at the end of each reporting period until settled. On January 11, 2016, vesting of all unvested retention cash settled restricted stock units otherwise scheduled to vest on December 31, 2018 was accelerated as a result of the departure of our former CEO.

A summary of the activity for cash settled restricted stock units is presented below:

Year ended December 31, (dollars in thousands, except share amounts)	2017	2016	2015
Beginning nonvested balance	17,067	116,712	115,687
Granted	—	16,299	1,025
Vested	(5,080)	(115,944)	—
Forfeited	(1,092)	—	—
Ending nonvested balance	<u>10,895</u>	<u>17,067</u>	<u>116,712</u>
Weighted-average grant-date fair value per restricted stock unit	<u>\$ —</u>	<u>\$ 3.57</u>	<u>\$ 36.96</u>
Compensation expense	<u>\$ 49</u>	<u>\$ 1,504</u>	<u>\$ 317</u>

During 2016, some equity awards for foreign employees were modified to cash settled restricted stock units. The weighted-average grant-date fair value noted above represents the incremental value at the date of modification. As of December 31, 2017, the amount of unrecognized compensation cost related to nonvested cash settled restricted stock units granted was immaterial. We paid \$2.3 million to settle vested cash settled restricted stock units in 2016.

Employee 401(k) Plan Retirement Fund and Non-Qualified Deferred Executive Compensation Plans

We sponsor the Libbey Inc. Salary and Hourly 401(k) plans (the Plans) to provide retirement benefits for our U.S. employees. As allowed under Section 401(k) of the Internal Revenue Code, the Plans provide for tax-deferred wage contributions for eligible employees.

For the Salary Plan, employees can contribute from 1 percent to 50 percent of their annual salary, up to the annual IRS limits. We match 100 percent on the first 6 percent on a per pay basis of pretax contributions. For the Hourly Plan, employees can contribute from 1 percent to 25 percent of their eligible annual pay up to the annual IRS limits. We match 50 percent of the first 6 percent of eligible earnings on a per pay basis that are contributed by employees on a pretax basis. Therefore, the maximum matching contribution that we may allocate to each participant's account did not exceed \$16,200 for the Salary Plan or \$8,100 for the Hourly Plan for the 2017 calendar year due to the \$270,000 annual limit on eligible earnings imposed by the Internal Revenue Code. All matching contributions are invested according to the employees' deferral elections and vest immediately.

Effective January 1, 2009, we have a non-qualified Executive Deferred Compensation Plan (EDCP). Under the EDCP, executives and other members of senior management may elect to defer base salary, annual incentive compensation and equity-based compensation. We provide matching contributions on excess contributions (above the qualified 401(k) plan compensation limits) in the same manner as we provide matching contributions under our 401(k) plan.

Our matching contributions to all Plans totaled \$3.6 million, \$3.4 million and \$3.4 million in 2017, 2016 and 2015, respectively.

12. Derivatives

We utilize derivative financial instruments to hedge certain interest rate risks associated with our long-term debt, commodity price risks associated with forecasted future natural gas requirements and foreign exchange rate risks associated with transactions denominated in a currency other than the U.S. dollar. These derivatives, except for the historical foreign currency contracts and the natural gas contracts used in our Mexican manufacturing facilities, qualify for hedge accounting since the hedges are highly effective, and we have designated and documented contemporaneously the hedging relationships involving these derivative instruments. While we intend to continue to meet the conditions for hedge accounting, if hedges do not qualify as highly effective or if we do not believe that forecasted transactions would occur, the changes in the fair value of the derivatives used as hedges would be reflected in our earnings.

We do not believe we are exposed to more than a nominal amount of credit risk in our natural gas hedges, interest rate swap and currency contracts as the counterparties are established financial institutions. The counterparties for the derivative agreements are rated BBB+ or better as of December 31, 2017, by Standard and Poor's.

Fair Values

The following table provides the fair values of our derivative financial instruments for the periods presented:

December 31, (dollars in thousands)	Balance Sheet Location	Fair Value of Derivative Assets	
		2017	2016
Cash flow hedges:			
Interest rate swap	Other assets	\$ 646	\$ —
Natural gas contracts	Prepaid and other current assets	—	702
Natural gas contracts	Other assets	—	45
Total designated		646	747
Derivatives not designated as hedging instruments:			
Natural gas contracts	Prepaid and other current assets	—	732
Natural gas contracts	Other assets	—	29
Total undesignated		—	761
Total derivative assets		\$ 646	\$ 1,508

December 31, (dollars in thousands)	Balance Sheet Location	Fair Value of Derivative Liabilities	
		2017	2016
Cash flow hedges:			
Interest rate swap	Derivative liability	\$ 213	\$ 1,928
Interest rate swap	Other long-term liabilities	—	107
Natural gas contracts	Derivative liability	220	—
Natural gas contracts	Other long-term liabilities	7	—
Total designated		440	2,035
Derivatives not designated as hedging instruments:			
Natural gas contracts	Derivative liability	264	—
Natural gas contracts	Other long-term liabilities	12	—
Total undesignated		276	—
Total derivative liabilities		\$ 716	\$ 2,035

The following table presents the notional amount of derivatives on the Consolidated Balance Sheets:

Derivative Types	Unit of Measure	Notional Amounts	
		December 31, 2017	December 31, 2016
Natural gas contracts	Millions of British Thermal Units (MMBTUs)	2,480,000	2,590,000
Interest rate swap	Thousands of U.S. dollars	\$ 220,000	\$ 220,000
Currency contracts	Thousands of Canadian dollars	C\$ —	C\$ —

The following table presents cash settlements (paid) received related to the below derivatives:

Year ended December 31, (dollars in thousands)	2017	2016	2015
Natural gas contracts	\$ (47)	\$ (2,345)	\$ (4,567)
Interest rate swap	(1,836)	(2,244)	—
Total	\$ (1,883)	\$ (4,589)	\$ (4,567)

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The following table provides a summary of the impacts of derivative gain (loss) on the Consolidated Statements of Operations and other comprehensive income (OCI):

Year ended December 31, (dollars in thousands)	Location	2017	2016	2015
Cash flow hedges:				
<i>Effective portion of derivative gain (loss) recognized in OCI:</i>				
Natural gas contracts	OCI	\$ (1,019)	\$ 721	\$ (1,909)
Interest rate swap	OCI	733	(2,056)	(2,378)
Total		<u>\$ (286)</u>	<u>\$ (1,335)</u>	<u>\$ (4,287)</u>
<i>Effective portion of derivative gain (loss) reclassified from accumulated OCI to current earnings:</i>				
Natural gas contracts	Cost of Sales	\$ (45)	\$ (1,129)	\$ (2,131)
Interest rate swap	Interest expense	(1,735)	(2,399)	—
Total		<u>\$ (1,780)</u>	<u>\$ (3,528)</u>	<u>\$ (2,131)</u>
Derivatives not designated as hedging instruments:				
<i>Gain (loss) recognized in current earnings:</i>				
Currency contracts	Other income (expense)	\$ —	\$ (245)	\$ (158)
Natural gas contracts	Other income (expense)	(1,036)	1,860	218
Total		<u>\$ (1,036)</u>	<u>\$ 1,615</u>	<u>\$ 60</u>

Natural Gas Contracts

We use natural gas swap contracts related to forecasted future North American natural gas requirements. The objective of these commodity contracts is to limit the fluctuations in prices paid due to price movements in the underlying commodity. We consider our forecasted natural gas requirements in determining the quantity of natural gas to hedge. We combine the forecasts with historical observations to establish the percentage of forecast eligible to be hedged, typically ranging from 40 percent to 70 percent of our anticipated requirements, up to eighteen months in the future. The fair values of these instruments are determined from market quotes.

Hedge accounting is applied only when the derivative is deemed to be highly effective at offsetting changes in fair values or anticipated cash flows of the hedged item or transaction. For hedged forecasted transactions, hedge accounting is discontinued if the forecasted transaction is no longer probable to occur, and any previously deferred gains or losses would be recorded to earnings immediately. Changes in the effective portion of the fair value of these hedges are recorded in other comprehensive income (loss). The ineffective portion of the change in the fair value of a derivative designated as a cash flow hedge is recognized in other income (expense). As the natural gas contracts mature, the accumulated gains (losses) for the respective contracts are reclassified from accumulated other comprehensive loss to current expense in cost of sales in our Consolidated Statements of Operations.

Since October 1, 2014, our derivatives for natural gas in Mexico have not been designated as cash flow hedges. All mark-to-market changes on these derivatives are reflected in other income (expense).

Based on our current valuation, we estimate that accumulated losses for natural gas currently carried in accumulated other comprehensive loss that will be reclassified into earnings over the next twelve months will result in \$0.2 million of loss in our Consolidated Statements of Operations.

Interest Rate Swap as Cash Flow Hedge

On April 1, 2015, we executed an interest rate swap on our Term Loan B as part of our risk management strategy to mitigate the risks involved with fluctuating interest rates. The interest rate swap effectively converts \$220.0 million of our Term Loan B debt from a variable interest rate to a 4.85 percent fixed interest rate, thus reducing the impact of interest rate changes on future income. The fixed rate swap became effective in January 2016 and expires in January 2020. This interest rate swap is valued using the market standard methodology of netting the discounted expected future variable cash receipts and the discounted

future fixed cash payments. The variable cash receipts are based on an expectation of future interest rates derived from observed market interest rate forward curves.

Our interest rate swap qualifies and is designated as a cash flow hedge at December 31, 2017 and accounted for under FASB ASC 815 "Derivatives and Hedging". Hedge accounting is applied only when the derivative is deemed to be highly effective at offsetting changes in fair values or anticipated cash flows of the hedged item or transaction. For hedged forecasted transactions, hedge accounting is discontinued if the forecasted transaction is no longer probable to occur, and any previously deferred gains or losses would be recorded to earnings immediately. Changes in the effective portion of the fair value of these hedges are recorded in other comprehensive income (loss). The ineffective portion, if any, of the change in the fair value of a derivative designated as a cash flow hedge is recognized in other income (expense). Based on our current valuation, we estimate that accumulated losses currently carried in accumulated other comprehensive loss that will be reclassified into earnings over the next twelve months will result in \$0.2 million of additional interest expense in our Consolidated Statements of Operations.

Currency Contracts

Our foreign currency exposure arises from transactions denominated in a currency other than the U.S. dollar primarily associated with our Canadian dollar denominated accounts receivable. From time to time, we enter into a series of foreign currency contracts to mitigate this exposure. The fair values of these instruments are determined from market quotes. The values of these derivatives will change over time as cash receipts and payments are made and as market conditions change.

13. Accumulated Other Comprehensive Income (Loss)

Accumulated other comprehensive income (loss) (AOCI), net of tax, is as follows:

(dollars in thousands)	Foreign Currency Translation	Derivative Instruments	Pension and Other Post-retirement Benefits	Total Accumulated Comprehensive Loss
Balance on December 31, 2014	\$ (9,162)	\$ (625)	\$ (128,660)	\$ (138,447)
Amounts recognized into AOCI	(13,751)	(4,287)	4,204	(13,834)
Currency impact	—	—	4,233	4,233
Amounts reclassified from AOCI	—	2,357 ⁽¹⁾	31,312 ⁽²⁾	33,669
Tax effect	—	695	(6,548)	(5,853)
Other comprehensive income (loss), net of tax	(13,751)	(1,235)	33,201	18,215
Balance on December 31, 2015	(22,913)	(1,860)	(95,459)	(120,232)
Amounts recognized into AOCI	(6,244)	(1,335)	(10,728)	(18,307)
Currency impact	—	—	1,271	1,271
Amounts reclassified from AOCI	—	3,528 ⁽¹⁾	5,452 ⁽²⁾	8,980
Tax effect	1,329	(848)	2,610	3,091
Other comprehensive income (loss), net of tax	(4,915)	1,345	(1,395)	(4,965)
Balance on December 31, 2016	(27,828)	(515)	(96,854)	(125,197)
Amounts recognized into AOCI	12,835	(286)	6,307	18,856
Currency impact	—	—	(152)	(152)
Amounts reclassified from AOCI	—	1,780 ⁽¹⁾	5,586 ⁽²⁾	7,366
Tax effect	(1,190)	(628)	(4,227)	(6,045)
Other comprehensive income (loss), net of tax	11,645	866	7,514	20,025
Balance on December 31, 2017	\$ (16,183)	\$ 351	\$ (89,340)	\$ (105,172)

⁽¹⁾ We reclassified natural gas contracts through cost of sales and the interest rate swap through interest expense on the Consolidated Statements of Operations. See [note 12](#) for additional information.

⁽²⁾ We reclassified the net pension and non-pension post-retirement benefits amortization and settlement charges through cost of sales and selling, general and administrative expenses on the Consolidated Statements of Operations. See [notes 8](#) and [9](#) for additional information.

14. Fair Value

FASB ASC 820 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. The fair value hierarchy prioritizes the inputs used in measuring fair value into three broad levels as follows:

- Level 1 — Quoted prices in active markets for identical assets or liabilities.
- Level 2 — Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly.
- Level 3 — Unobservable inputs based on our own assumptions.

The fair value of our derivative financial instruments by level is as follows:

Asset / (Liability) (dollars in thousands)	Fair Value at December 31, 2017				Fair Value at December 31, 2016			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Commodity futures natural gas contracts	\$ —	\$ (503)	\$ —	\$ (503)	\$ —	\$ 1,508	\$ —	\$ 1,508
Interest rate swap	—	433	—	433	—	(2,035)	—	(2,035)
Net derivative asset (liability)	\$ —	\$ (70)	\$ —	\$ (70)	\$ —	\$ (527)	\$ —	\$ (527)

The fair values of our commodity futures natural gas contracts and currency contracts are determined using observable market inputs. The fair value of our interest rate swap is based on the market standard methodology of netting the discounted expected future variable cash receipts and the discounted future fixed cash payments. The variable cash receipts are based on an expectation of future interest rates derived from observed market interest rate forward curves. Since these inputs are observable in active markets over the terms that the instruments are held, the derivatives are classified as Level 2 in the hierarchy. We also evaluate Company and counterparty risk in determining fair values. The commodity futures natural gas contracts, interest rate swap and currency contracts are hedges of either recorded assets or liabilities or anticipated transactions. Changes in values of the underlying hedged assets and liabilities or anticipated transactions are not reflected in the above table.

Financial instruments carried at cost on the Consolidated Balance Sheets, as well as the related fair values, are as follows:

(dollars in thousands)	Fair Value Hierarchy Level	December 31, 2017		December 31, 2016	
		Carrying Amount	Fair Value	Carrying Amount	Fair Value
Term Loan B	Level 2	\$ 384,600	\$ 370,178	\$ 409,000	\$ 412,068

The fair value of our Term Loan B has been calculated based on quoted market prices for the same or similar issues. The fair value of our other immaterial debt approximates carrying value at December 31, 2017 and 2016. The fair value of our cash and cash equivalents, accounts receivable and accounts payable approximate their carrying value due to their short term nature.

15. Operating Leases

Rental expense for all non-cancelable operating leases, primarily for warehouses, was \$17.0 million, \$17.6 million and \$17.5 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Future minimum rentals under operating leases are as follows (dollars in thousands):

2018	2019	2020	2021	2022	2023 and thereafter
\$15,542	\$13,593	\$11,496	\$8,028	\$7,178	\$24,675

16. Other Income (Expense)

Items included in other income (expense) in the Consolidated Statements of Operations are as follows:

Year ended December 31, (dollars in thousands)	2017	2016	2015
Gain (loss) on currency transactions	\$ (2,788)	\$ 775	\$ 2,641
Gain (loss) on mark-to-market natural gas contracts	(1,036)	1,860	(714)
Hedge ineffectiveness	—	—	932
Other non-operating income	309	727	21
Other income (expense)	<u>\$ (3,515)</u>	<u>\$ 3,362</u>	<u>\$ 2,880</u>

17. Contingencies**Legal Proceedings**

From time to time, we are identified as a "potentially responsible party" (PRP) under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and/or similar state laws that impose liability without regard to fault for costs and damages relating to the investigation and clean-up of contamination resulting from releases or threatened releases of hazardous substances. We are also subject to similar laws in some of the countries where our facilities are located. Our environmental, health, and safety department monitors compliance with applicable laws on a global basis.

On October 30, 2009, the United States Environmental Protection Agency ("U.S. EPA") designated Syracuse China Company ("Syracuse China"), our wholly-owned subsidiary, as one of eight PRPs with respect to the Lower Ley Creek sub-site of the Onondaga Lake Superfund site located near the ceramic dinnerware manufacturing facility that Syracuse China operated from 1995 to 2009 in Syracuse, New York. As a PRP, we may be required to pay a share of the costs of investigation and remediation of the Lower Ley Creek sub-site.

U.S. EPA has completed its Remedial Investigation (RI), Feasibility Study (FS), Risk Assessment (RA) and Proposed Remedial Action Plan (PRAP). U.S. EPA issued its Record of Decision (RoD) on September 30, 2014. The RoD indicates that U.S. EPA's estimate of the undiscounted cost of remediation ranges between approximately \$17.0 million (assuming local disposal of contaminated sediments is feasible) and approximately \$24.8 million (assuming local disposal is not feasible). However, the RoD acknowledges that the final cost of the cleanup will depend upon the actual volume of contaminated material, the degree to which it is contaminated, and where the excavated soil and sediment is properly disposed. In connection with the General Motors Corporation bankruptcy, U.S. EPA recovered \$22.0 million from Motors Liquidation Company (MLC), the successor to General Motors Corporation. If the cleanup costs do not exceed the amount recovered by U.S. EPA from MLC, Syracuse China may suffer no loss. If and to the extent the cleanup costs exceed the amount recovered by U.S. EPA from MLC, it is not yet known whether other PRPs will be added to the current group of PRPs or how any excess costs may be allocated among the PRPs.

On March 3, 2015, the EPA issued to the PRPs notices and requests to negotiate performance of the remedial design (RD), work. The notices contemplate that any agreement to perform the RD work would be memorialized in an Administrative Order on Consent (AOC). On July 14, 2016, the PRPs entered into an AOC to perform the RD work. The EPA and PRPs anticipate that the RD work will produce additional information from which the feasibility of a local disposal option and the cleanup costs can be better determined. The EPA has declined to advance the GM Settlement Funds for the RD work, instead conditioning use of those funds to reimburse for the RD work upon the successful completion of the RD work and the finalization of an AOC to perform the remedial action work.

To the extent that Syracuse China has a liability with respect to the Lower Ley Creek sub-site, including without limitation costs to fund the RD work, and to the extent the liability arose prior to our 1995 acquisition of the Syracuse China assets, the liability would be subject to the indemnification provisions contained in the Asset Purchase Agreement between the Company and The Pfaltzgraff Co. (now known as TPC-York, Inc. ("TPC York")) and certain of its subsidiaries. Accordingly, Syracuse China has notified TPC York of its claim for indemnification under the Asset Purchase Agreement.

In connection with the above proceedings, an estimated environmental liability of \$0.8 million and a recoverable amount of \$0.4 million in other assets have been recorded in the Consolidated Balance Sheet at December 31, 2017. An estimated liability of \$0.9 million and a recoverable amount of \$0.5 million in other assets have been recorded in the Consolidated Balance Sheet at December 31, 2016. Immaterial amounts have been recorded in cost of sales in the Consolidated Statements of Operations for the years ended December 31, 2017 and 2016, and \$0.2 million was recorded for the year ended December 31, 2015.

Although we cannot predict the ultimate outcome of this proceeding, we believe that it will not have a material adverse impact on our financial condition, results of operations or liquidity.

Income Taxes

The Company and its subsidiaries are subject to examination by various countries' tax authorities. These examinations may lead to proposed or assessed adjustments to our taxes. Please refer to [note 7](#), Income Taxes, for a detailed discussion on tax contingencies.

18. Segments and Geographic Information

Our reporting segments align with our regionally focused organizational structure, which we believe enables us to better serve customers across the globe. Under this structure, we report financial results for U.S. and Canada; Latin America; Europe, the Middle East and Africa (EMEA); and Other. Segment results are based primarily on the geographical destination of the sale. In the first quarter of 2017, net sales and related costs for certain countries were reclassified between segments to align with changes in business unit responsibilities. Accordingly, 2016 and 2015 segment results have been reclassified to conform with the revised structure. The revised segment results do not affect any previously reported consolidated financial results. Our three reportable segments are defined below. Our operating segment that does not meet the criteria to be a reportable segment is disclosed as Other.

U.S. & Canada—includes sales of manufactured and sourced tableware having an end-market destination in the U.S and Canada, excluding glass products for Original Equipment Manufacturers (OEM), which remain in the Latin America segment.

Latin America—includes primarily sales of manufactured and sourced glass tableware having an end-market destination in Latin America, as well as glass products for OEMs regardless of end-market destination.

EMEA—includes primarily sales of manufactured and sourced glass tableware having an end-market destination in Europe, the Middle East and Africa.

Other—includes primarily sales of manufactured and sourced glass tableware having an end-market destination in Asia Pacific.

Our measure of profit for our reportable segments is Segment Earnings before Interest and Taxes (Segment EBIT) and excludes amounts related to certain items we consider not representative of ongoing operations as well as certain retained corporate costs and other allocations that are not considered by management when evaluating performance. Segment EBIT also includes an allocation of manufacturing costs for inventory produced at a Libbey facility that is located in a region other than the end market in which the inventory is sold. This allocation can fluctuate from year to year based on the relative demands for products produced in regions other than the end markets in which they are sold. As the gain (loss) on mark-to-market natural gas contracts is considered representative of our ongoing operations, it is included in Segment EBIT in 2017; the derivative amounts originally excluded from Segment EBIT in prior years have been reclassified and included in Segment EBIT to conform to the current year presentation. We use Segment EBIT, along with net sales and selected cash flow information, to evaluate performance and to allocate resources. Segment EBIT for reportable segments includes an allocation of some corporate expenses based on the costs of services performed.

Certain activities not related to any particular reportable segment are reported within retained corporate costs. These costs include certain headquarter, administrative and facility costs, and other costs that are global in nature and are not allocable to the reporting segments.

The accounting policies of the reportable segments are the same as those described in [note 2](#). We do not have any customers who represent 10 percent or more of total sales. Inter-segment sales are consummated at arm's length and are reflected at end-market reporting below. It is impracticable to provide revenue by product categories.

**Year ended December 31,
(dollars in thousands)**

	2017	2016	2015
Net Sales:			
U.S. & Canada	\$ 481,797	\$ 482,296	\$ 492,051
Latin America	144,322	151,389	167,069
EMEA	126,924	126,591	129,549
Other	28,785	33,144	33,676
Consolidated	<u>\$ 781,828</u>	<u>\$ 793,420</u>	<u>\$ 822,345</u>
Segment EBIT:			
U.S. & Canada	\$ 48,044	\$ 75,449	\$ 78,144
Latin America	6,590	12,583	22,235
EMEA	1,321	1,387	3,289
Other	(3,838)	1,001	4,614
Total Segment EBIT	<u>\$ 52,117</u>	<u>\$ 90,420</u>	<u>\$ 108,282</u>
Reconciliation of Segment EBIT to Net Income (Loss):			
Segment EBIT	\$ 52,117	\$ 90,420	\$ 108,282
Retained corporate costs	(27,099)	(27,265)	(34,645)
Goodwill impairment (note 4)	(79,700)	—	—
Pension settlement charges (note 8)	—	(168)	(21,693)
Environmental obligation (note 17)	—	—	(157)
Reorganization charges	(2,488)	—	(4,316)
Product portfolio optimization ⁽¹⁾	—	(5,693)	—
Work stoppage ⁽²⁾	—	(4,162)	—
Executive terminations	—	(4,460)	(870)
Interest expense	(20,400)	(20,888)	(18,484)
(Provision) benefit for income taxes	(15,798)	(17,711)	38,216
Net income (loss)	<u>\$ (93,368)</u>	<u>\$ 10,073</u>	<u>\$ 66,333</u>
Depreciation & Amortization:			
U.S. & Canada	\$ 12,665	\$ 12,748	\$ 12,214
Latin America	18,576	19,068	14,738
EMEA	7,377	9,377	8,510
Other	5,088	5,588	5,855
Corporate	1,838	1,705	1,395
Consolidated	<u>\$ 45,544</u>	<u>\$ 48,486</u>	<u>\$ 42,712</u>
Capital Expenditures:			
U.S. & Canada	\$ 10,056	\$ 10,671	\$ 25,106
Latin America	18,520	11,032	11,944
EMEA	17,158	7,571	6,773
Other	1,226	2,905	1,855
Corporate	668	2,425	2,458
Consolidated	<u>\$ 47,628</u>	<u>\$ 34,604</u>	<u>\$ 48,136</u>

⁽¹⁾ Product portfolio optimization relates to inventory reductions to simplify and improve our operations.

⁽²⁾ Work stoppage relates to the lower production volume impact, shipping costs and other direct incremental expenses associated with the two-week Toledo, Ohio work stoppage in the fourth quarter of 2016.

December 31, (dollars in thousands)	2017	2016	2015
Segment Assets ⁽¹⁾ :			
U.S. & Canada	\$ 147,809	\$ 130,390	\$ 140,840
Latin America	63,093	63,838	68,599
EMEA	48,270	44,588	48,924
Other	18,711	16,306	14,043
Consolidated	<u>\$ 277,883</u>	<u>\$ 255,122</u>	<u>\$ 272,406</u>

⁽¹⁾ Segment assets are defined as net accounts receivable plus net inventory.

Geographic data for the U.S., Mexico and Other countries for 2017, 2016 and 2015 is presented below. Net sales are based on the geographical destination of the sale. The long-lived assets include net property, plant and equipment.

(dollars in thousands)	United States	Mexico	All Other	Consolidated
2017				
Net sales	\$ 479,018	\$ 93,370	\$ 209,440	\$ 781,828
Long-lived assets	\$ 89,838	\$ 87,836	\$ 88,001	\$ 265,675
2016				
Net sales	\$ 478,342	\$ 100,829	\$ 214,249	\$ 793,420
Long-lived assets	\$ 91,834	\$ 89,963	\$ 74,595	\$ 256,392
2015				
Net sales	\$ 488,582	\$ 107,386	\$ 226,377	\$ 822,345
Long-lived assets	\$ 94,206	\$ 93,573	\$ 84,755	\$ 272,534

Selected Quarterly Financial Data (unaudited)

The following table presents selected quarterly financial data for the years ended December 31, 2017 and 2016 :

(dollars in thousands, except per-share amounts)	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	2017	2016	2017	2016	2017	2016	2017	2016
Net sales	\$ 172,994	\$ 182,807	\$ 197,514	\$ 207,902	\$ 187,339	\$ 196,873	\$ 223,981	\$ 205,838
Gross profit	\$ 30,314	\$ 39,974	\$ 40,778	\$ 50,411	\$ 37,195	\$ 41,882	\$ 42,684	\$ 34,027
Net income (loss)	\$ (6,570)	\$ 718	\$ (832)	\$ 8,695	\$ (78,815)	\$ 2,909	\$ (7,151)	\$ (2,249)
Earnings (loss) per share:								
Basic	\$ (0.30)	\$ 0.03	\$ (0.04)	\$ 0.40	\$ (3.57)	\$ 0.13	\$ (0.32)	\$ 0.10
Diluted	\$ (0.30)	\$ 0.03	\$ (0.04)	\$ 0.40	\$ (3.57)	\$ 0.13	\$ (0.32)	\$ 0.10

Libbey Inc.

Schedule II -- Valuation and Qualifying Accounts
Years ended December 31, 2017, 2016 and 2015

<u>(dollars in thousands)</u>	<u>Allowance for Doubtful Accounts & Discounts</u>	<u>Valuation Allowance for Deferred Tax Asset</u>
Balance at December 31, 2014	\$ 5,586	\$ 66,486
Charged to expense or other accounts	2,719	6,093
Deductions	<u>(1,239) ⁽¹⁾</u>	<u>(61,395) ⁽²⁾</u>
Balance at December 31, 2015	7,066	11,184
Charged to expense or other accounts	1,118	2,589
Deductions	<u>(352) ⁽¹⁾</u>	<u>— ⁽²⁾</u>
Balance at December 31, 2016	7,832	13,773
Charged to expense or other accounts	1,291	5,303
Deductions	<u>(72) ⁽¹⁾</u>	<u>— ⁽²⁾</u>
Balance at December 31, 2017	<u>\$ 9,051</u>	<u>\$ 19,076</u>

⁽¹⁾Uncollectible accounts written off, net of recoveries.

⁽²⁾The net decrease in valuation allowance is primarily a result of net changes in cumulative book/tax timing differences and, with respect to activity for the year ended December 31, 2015, changes in judgment regarding the realizability of U.S. deferred tax assets.

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

None.

Item 9A. Controls and Procedures

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

As required by SEC Rule 13a-15(b), the Company carried out an evaluation, under the supervision and with the participation of the Company's management, including the Company's Chief Executive Officer and the Company's Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures as of the end of the period covered by this report. Based on the foregoing, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective at the reasonable assurance level.

Report of Management

The management of the Company is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting refers to the process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer, and effected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles, and 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 U.S. 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.

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk. Management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company.

Management has assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2017. In making this assessment management used the criteria for effective internal control over financial reporting as described in "Internal Control - Integrated Framework" issued by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission (the COSO framework) in 2013. Management has concluded that the Company's internal control over financial reporting was effective as of the end of the most recent fiscal year. The Company's independent registered public accounting firm, Deloitte & Touche LLP, that audited the Company's Consolidated Financial Statements, has issued an attestation report on the Company's internal control over financial reporting.

Changes in Internal Control

There has been no change in the Company's internal controls over financial reporting during the Company's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal controls over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information with respect to executive officers of Libbey is incorporated herein by reference to Item 1 of this report under the caption "Executive Officers of the Registrant." Information with respect to directors of Libbey is incorporated herein by reference to the information set forth under the caption "Libbey Board of Directors" in the Proxy Statement. Certain information regarding compliance with Section 16(a) of the Exchange Act is incorporated herein by reference to the information set forth under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" in the Proxy Statement. Information with respect to the Audit Committee members, the Audit Committee financial experts, and material changes in the procedures by which shareholders can recommend nominees to the Board of Directors is incorporated herein by reference to the information set forth under the captions "Libbey Board of Directors", "What are the roles of the Board's committees?" and "How do shareholders nominate candidates for the Board?" in the Proxy Statement.

Libbey's Code of Business Ethics and Conduct applicable to its Directors, Officers (including Libbey's principal executive officer and principal financial and accounting officer) and employees, as well as the Audit Committee Charter, Nominating and Governance Committee Charter, Compensation Committee Charter and Corporate Governance Guidelines are posted on Libbey's website at www.libbey.com. Libbey's Code of Business Ethics and Conduct is also available to any shareholder who submits a request in writing addressed to Susan A. Kovach, Vice President, General Counsel and Secretary, Libbey Inc., 300 Madison Avenue, P.O. Box 10060, Toledo, Ohio 43699-0060. If Libbey amends or waives any of the provisions of the Code of Business Ethics and Conduct applicable to the principal executive officer or principal financial and accounting officer, Libbey intends to disclose the subsequent information on Libbey's website.

Item 11. Executive Compensation

Information regarding executive compensation is incorporated herein by reference to the information set forth under the captions "Compensation Discussion and Analysis," "Executive Compensation Tables," "CEO Pay Ratio," "Compensation Committee Report," and "Compensation Committee Interlocks and Insider Participation" in the Proxy Statement.

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

Information regarding security ownership of certain beneficial owners and management is incorporated herein by reference to the information set forth under the captions "Who are the largest owners of Libbey stock?" and "How much stock do our directors and officers own?" in the Proxy Statement.

Equity Compensation Plan Information

Following are the number of securities and weighted average exercise price thereof under our compensation plans approved and not approved by security holders as of December 31, 2017 :

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options and Rights ⁽¹⁾	Weighted Average Exercise Price of Outstanding Options and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans
Equity compensation plans approved by security holders	1,178,959	\$ 16.91	1,318,139
Equity compensation plans not approved by security holders	—	—	—
Total	1,178,959	\$ 16.91	1,318,139

⁽¹⁾ This number includes 416,409 restricted stock units awarded under Libbey's equity compensation plans.

Item 13. Certain Relationships and Related Transactions and Director Independence

Information regarding certain relationships and related transactions and director independence is incorporated herein by reference to the information set forth under the caption "Certain Relationships and Related Transactions" and "How does our Board determine which directors are independent?" in the Proxy Statement.

Item 14. Principal Accounting Fees and Services

Information regarding principal accounting fees and services is incorporated herein by reference to the information set forth under the captions "What is Libbey's pre-approval policy and procedures?" and "What fees did Libbey pay to its auditors for Fiscal 2017 and 2016 ?" in the Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

a) The following documents are filed as part of this report:

1. Consolidated financial statements:

	Page Number in Form 10-K
Reports of Independent Registered Public Accounting Firm	47
Consolidated Balance Sheets at December 31, 2017 and 2016	49
For the years ended December 31, 2017, 2016 and 2015:	
Consolidated Statements of Operations	50
Consolidated Statements of Comprehensive Income (Loss)	51
Consolidated Statements of Shareholders' Equity	52
Consolidated Statements of Cash Flows	53
Notes to Consolidated Financial Statements	54
Selected Quarterly Financial Data (unaudited)	88
2. Financial Statement Schedule:	
Schedule II - Valuation and Qualifying Accounts	89

All other schedules have been omitted since the required information is not present or not present in amounts sufficient to require submission of the schedule or because the information required is included in the Consolidated Financial Statements or the accompanying notes.

3. Exhibit Index

The documents listed in the accompanying Exhibit Index are filed or incorporated by reference as part of this report.

EXHIBIT INDEX

S-K Item 601 No.	Document
3.1	Restated Certificate of Incorporation of Libbey Inc. (filed as Exhibit 3.1 to Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 1993 and incorporated herein by reference).
3.2	Amended and Restated By-Laws of Libbey Inc. (filed as Exhibit 3.2 to Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013 and incorporated herein by reference).
3.3	Certificate of Incorporation of Libbey Glass Inc. (filed as Exhibit 3.3 to Libbey Glass Inc.'s Form S-4 (Reg No. 333-139358) filed December 14, 2006, and incorporated herein by reference).
3.4	Amended and Restated By-Laws of Libbey Glass Inc. (filed as Exhibit 3.4 to Libbey Glass Inc.'s Form S-4 (Reg No. 333-139358) filed December 14, 2006, and incorporated herein by reference).
4.1	Amended and Restated Registration Rights Agreement, dated October 29, 2009, among Libbey Inc. and Merrill Lynch PCG, Inc. (filed as Exhibit 4.4 to Registrant's Form 8-K filed October 29, 2009 and incorporated herein by reference).
4.2	Amended and Restated Credit Agreement, dated February 8, 2010, among Libbey Glass Inc. and Libbey Europe B.V., as borrowers, Libbey Inc., as a loan guarantor, the other loan parties party thereto as guarantors, JPMorgan Chase Bank, N.A., as administrative agent with respect to the U.S. loans, J.P. Morgan Europe Limited, as administrative agent with respect to the Netherlands loans, Bank of America, N.A. and Barclays Capital, as Co-Syndication Agents, Wells Fargo Capital Finance, LLC, as Documentation Agent, and the other lenders and agents party thereto (filed as Exhibit 4.1 to Libbey Inc.'s Current Report on Form 8-K filed on February 12, 2010 and incorporated herein by reference).
4.3	Amendment No. 1 to Amended and Restated Credit Agreement dated as of January 14, 2011 among Libbey Glass Inc. and Libbey Europe B.V. as borrowers, the other loan parties thereto, JPMorgan Chase Bank, N.A., as Administrative Agent for the Lenders with respect to the U.S. loans, and J.P. Morgan Europe Limited, as Administrative Agent for the Lenders with respect to the Netherlands loans (filed as Exhibit 4.6 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011 and incorporated herein by reference).
4.4	Amendment No. 2 to the Amended and Restated Credit Agreement dated as of April 29, 2011 (filed as Exhibit 10.1 to Libbey Inc.'s Current Report on Form 8-K filed on May 3, 2011 and incorporated herein by reference).
4.5	Amendment No. 3 to Amended and Restated Credit Agreement dated as of September 14, 2011 among Libbey Glass Inc. and Libbey Europe B.V., as borrowers, the other loan parties thereto, JPMorgan Chase Bank, N.A., as Administrative Agent for the Lenders with respect to the U.S. loans, and J.P. Morgan Europe Limited, as Administrative Agent for the Lenders with respect to the Netherlands loans (filed as Exhibit 4.8 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011 and incorporated herein by reference).
4.6	Amendment No. 4 to Amended and Restated Credit Agreement dated as of May 18, 2012 among Libbey Glass Inc. and Libbey Europe B.V., as borrowers, the other loan parties thereto, JPMorgan Chase Bank, N.A., as Administrative Agent for the Lenders with respect to the U.S. loans, and J.P. Morgan Europe Limited, as Administrative Agent for the Lenders with respect to the Netherlands loans (filed as Exhibit 4.1 to Libbey Inc.'s Current Report on Form 8-K filed on May 18, 2012 and incorporated herein by reference).
4.7	Amendment No. 5 to Amended and Restated Credit Agreement dated as of April 9, 2014 among Libbey Glass Inc. and Libbey Europe B.V., as borrowers, the other loan parties thereto, JPMorgan Chase Bank, N.A., as Administrative Agent for the Lenders with respect to the U.S. loans, and J.P. Morgan Europe Limited, as Administrative Agent for the Lenders with respect to the Netherlands loans (filed as Exhibit 4.1 to Libbey Inc.'s Current Report on Form 8-K filed on April 9, 2014 and incorporated herein by reference).
4.8	Term Loan B Credit Facility, dated April 9, 2014, among Libbey Glass Inc., Libbey Inc., and the domestic subsidiaries of Libbey Glass Inc. (filed as Exhibit 4.2 to Libbey Inc.'s Current Report on Form 8-K filed on April 9, 2014 and incorporated herein by reference).
4.9	Intercreditor Agreement, dated April 9, 2014, among Libbey Glass Inc., Libbey Inc., and the domestic subsidiaries of Libbey Glass Inc. (filed as Exhibit 4.3 to Libbey Inc.'s Current Report on Form 8-K filed on April 9, 2014 and incorporated herein by reference).
4.10	Amendment No. 6 to Amended and Restated Credit Agreement dated as of December 7, 2017 among Libbey Glass Inc. and Libbey Europe B.V., as borrowers, the other loan parties thereto, JPMorgan Chase Bank, N.A., as Administrative Agent for the Lenders with respect to the U.S. loans, and J.P. Morgan Europe Limited, as Administrative Agent for the Lenders with respect to the Netherlands loans (filed as Exhibit 4.1 to Libbey Inc.'s Current Report on Form 8-K filed on December 11, 2017 and incorporated herein by reference).

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S-K Item 601 No.	Document
10.1	Pension and Savings Plan Agreement dated as of June 17, 1993 between Owens-Illinois, Inc. and Libbey Inc. (filed as Exhibit 10.4 to Libbey Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 1993 and incorporated herein by reference).
10.2	Cross-Indemnity Agreement dated as of June 24, 1993 between Owens-Illinois, Inc. and Libbey Inc. (filed as Exhibit 10.5 to Libbey Inc.'s Quarterly Report on Form 10-Q for the quarter ended June 30, 1993 and incorporated herein by reference).
10.3	Libbey Inc. Guarantee dated as of October 10, 1995 in favor of The Pfaltzgraff Co., The Pfaltzgraff Outlet Co. and Syracuse China Company of Canada Ltd. guaranteeing certain obligations of LG Acquisition Corp. and Libbey Canada Inc. under the Asset Purchase Agreement for the Acquisition of Syracuse China (Exhibit 2.0) in the event certain contingencies occur (filed as Exhibit 10.17 to Libbey Inc.'s Current Report on Form 8-K dated October 10, 1995 and incorporated herein by reference).
10.4	Susquehanna Pfaltzgraff Co. Guarantee dated as of October 10, 1995 in favor of LG Acquisition Corp. and Libbey Canada Inc. guaranteeing certain obligations of The Pfaltzgraff Co., The Pfaltzgraff Outlet Co. and Syracuse China Company of Canada, Ltd. under the Asset Purchase Agreement for the Acquisition of Syracuse China (Exhibit 2.0) in the event certain contingencies occur (filed as Exhibit 10.18 to Libbey Inc.'s Current Report on Form 8-K dated October 10, 1995 and incorporated herein by reference).
10.5	First Amended and Restated Libbey Inc. Executive Savings Plan (filed as Exhibit 10.23 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 1996 and incorporated herein by reference).
10.6	Libbey Inc. Amended and Restated Deferred Compensation Plan for Outside Directors (incorporated by reference to Exhibit 10.61 to Libbey Glass Inc.'s Registration Statement on Form S-4; File No. 333-139358).
10.7	2009 Director Deferred Compensation Plan (filed as Exhibit 10.51 to Libbey Inc's Quarterly Report on Form 10-Q for the quarter ended September 30, 2008 and incorporated herein by reference).
10.8	Executive Deferred Compensation Plan (filed as Exhibit 10.52 to Libbey Inc's Quarterly Report on Form 10-Q for the quarter ended September 30, 2008 and incorporated herein by reference).
10.9	Form of Amended and Restated Indemnity Agreement dated as of December 31, 2008 between Libbey Inc. and the respective officers identified on Appendix 1 thereto (filed as exhibit 10.36 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008 and incorporated herein by reference).
10.10	Form of Amended and Restated Indemnity Agreement dated as of December 31, 2008 between Libbey Inc. and the respective outside directors identified on Appendix 1 thereto (filed as exhibit 10.37 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008 and incorporated herein by reference).
10.11	Amended and Restated Libbey Inc. Supplemental Retirement Benefit Plan effective December 31, 2008 (filed as exhibit 10.38 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008 and incorporated herein by reference).
10.12	Amendment to the First Amended and Restated Libbey Inc. Executive Savings Plan effective December 31, 2008 (filed as exhibit 10.39 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008 and incorporated herein by reference).
10.13	Amended and Restated 2006 Omnibus Incentive Plan of Libbey Inc. (filed as Exhibit 10.29 to Libbey Inc.'s Quarterly Report on Form 10-Q for the quarter ended September 30, 2010 and incorporated herein by reference).
10.14	Libbey Inc. 2016 Omnibus Incentive Plan (filed as Appendix B to the Company's Proxy Statement on Form DEF 14A filed on March 29, 2016 and incorporated herein by reference).
10.15	Form of Indemnity Agreement dated as of February 7, 2012 between Libbey Inc. and Stephanie A. Streeter (filed as Exhibit 10.25 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2011 and incorporated herein by reference).
10.16	Form of Change in Control Agreement dated as of August 1, 2012 (filed as Exhibit 10.1 to Libbey Inc.'s Current Report on Form 8-K filed on July 19, 2012 and incorporated herein by reference) (as to Susan A. Kovach, Carol L. Summersgill and Salvador Minarro).
10.17	Executive Severance Compensation Policy dated as of August 1, 2012 (filed as Exhibit 10.2 to Libbey Inc.'s Current Report on Form 8-K filed on July 19, 2012 and incorporated herein by reference).

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S-K Item 601 No.	Document
10.18	Letter agreement between Libbey Inc. and William A. Foley dated as of January 12, 2016 and revised as of February 9, 2016 (filed as Exhibit 10.22 to Libbey Inc.'s Annual Report on Form 10-K for the year ended December 31, 2015 and incorporated herein by reference).
10.19	Letter agreement between Libbey Inc. and Veronica L. Smith dated as of December 7, 2016 (filed as Exhibit 10.23 to Libbey Inc.s Annual Report on Form 10-K for the year ended December 31, 2016 and incorporated herein by reference).
21	Subsidiaries of the Registrant (filed herein).
23	Consent of Deloitte & Touche LLP (filed herein).
24	Power of Attorney (filed herein).
31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a) (filed herein).
31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) or Rule 15d-14(a) (filed herein).
32.1	Certification Pursuant To 18 U.S.C. Section 1350, As Adopted Pursuant To Section 906 Of The Sarbanes-Oxley Act of 2002 (filed herein).
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

Item 16. Form 10-K Summary

None.

SIGNATURES

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

Libbey Inc.

By: /s/ James C. Burmeister
James C. Burmeister
Vice President, Chief Financial Officer

Date: March 1, 2018

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

<u>Signature</u>	<u>Title</u>
William A. Foley	Chief Executive Officer & Chairman of the Board of Directors
John C. Orr	Lead Director
Carol B. Moerdyk	Director
Carlos V. Duno	Director
Deborah G. Miller	Director
Ginger M. Jones	Director
Eileen A. Mallesch	Director
Steve H. Nave	Director

By: /s/ James C. Burmeister
James C. Burmeister
Attorney-In-Fact

Date: March 1, 2018

/s/ James C. Burmeister
James C. Burmeister
Vice President, Chief Financial Officer
(Principal Accounting Officer)

Date: March 1, 2018

SUBSIDIARIES OF REGISTRANT

Name of Company	State or Other Jurisdiction of Incorporation or Organization
Syracuse China Company	Delaware
World Tableware Inc.	Delaware
LGA4 Corp.	Delaware
LGA3 Corp.	Delaware
The Drummond Glass Company	Delaware
Libbey Canada Inc.	Ontario, Canada
Libbey Glass Inc.	Delaware
LGC Corp.	Delaware
Libbey.com LLC	Delaware
LGFS Inc.	Delaware
LGAC LLC	Delaware
LGAU Corp.	Delaware
Libbey Europe B.V.	Netherlands
B.V. Koninklijke Nederlandsche Glasfabriek Leerdam	Netherlands
Libbey Asia Limited	Hong Kong
Libbey Glassware (China) Co., Ltd.	China
Crisal - Cristalaria Automatica, S.A.	Portugal
Libbey International C.V.	Netherlands
Libbey Europe Finance Company B.V.	Netherlands
Libbey Mexico Holdings B.V.	Netherlands
Crisa Libbey Mexico S. de R.L. de C.V.	Mexico
Libbey Mexico, S. de R.L. de C.V.	Mexico
Crisa Libbey S.A. de C.V.	Mexico
Libbey Trading (Beijing) Co., Ltd.	China

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements 333-139089, 333-176086 and 333-216427 on Form S-8 of our reports dated March 1, 2018 , relating to the financial statements and financial statement schedule of Libbey Inc., and the effectiveness of Libbey Inc.'s internal control over financial reporting, appearing in this Annual Report on Form 10-K of Libbey Inc. for the year ended December 31, 2017 .

/s/ Deloitte & Touche LLP

Detroit, Michigan
March 1, 2018

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned, being a director or officer, or both, of Libbey Inc., a Delaware corporation (the "Company"), hereby does constitute and appoint WILLIAM A. FOLEY, JAMES C. BURMEISTER and SUSAN ALLENE KOVACH, with full power to each of them to act alone, as the true and lawful attorneys-in-fact and agents of the undersigned, with full power of substitution and resubstitution to each of said attorneys-in-fact, to execute, file or deliver any and all instruments and to do any and all acts and things which said attorneys-in-fact and agents, or any of them, deem advisable to enable the Company to comply with the Securities Exchange Act of 1934, as amended, and any requirements of the Securities and Exchange Commission in respect thereto, relating to annual reports on Form 10-K, including specifically, but without limitation of the general authority hereby granted, the power and authority to sign his or her name in the name and on behalf of the Company or as a director or officer, or both, of the Company, as indicated below opposite his or her signature to annual reports on Form 10-K for the year ending December 31, 2017, or any amendment or papers supplemental thereto; and each of the undersigned hereby does fully ratify and confirm all that said attorneys-in-fact and agents, or any of them, or the substitute of any of them, shall do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, each of the undersigned has executed this Power of Attorney as of this 1st day of March, 2018 .

<u>/s/ William A. Foley</u> William A. Foley	Chief Executive Officer & Chairman of the Board of Directors
<u>/s/ John C. Orr</u> John C. Orr	Lead Director
<u>/s/ Carol B. Moerdyk</u> Carol B. Moerdyk	Director
<u>/s/ Carlos V. Duno</u> Carlos V. Duno	Director
<u>/s/ Deborah G. Miller</u> Deborah G. Miller	Director
<u>/s/ Ginger M. Jones</u> Ginger M. Jones	Director
<u>/s/ Eileen A. Mallesch</u> Eileen A. Mallesch	Director
<u>/s/ Steve H. Nave</u> Steve H. Nave	Director

Certification of Chief Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, William A. Foley, certify that:

1. I have reviewed this annual report on Form 10-K of Libbey Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2018

By: /s/ William A. Foley

William A. Foley

Chief Executive Officer & Chairman of the Board

Certification of Interim Chief Financial Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, James C. Burmeister, certify that:

1. I have reviewed this annual report on Form 10-K of Libbey Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2018

By: /s/ James C. Burmeister

James C. Burmeister

Vice President, Chief Financial Officer

Certification Pursuant to 18 U.S.C. Section 1350

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officers of Libbey Inc. (the “Company”) hereby certify, to such officers' knowledge, that:

- (i) the accompanying Annual Report on Form 10-K of the Company for the year ended December 31, 2017 (the “Report”) fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and
- (ii) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 1, 2018

By: /s/ William A. Foley

William A. Foley

Chief Executive Officer & Chairman of the Board

/s/ James C. Burmeister

James C. Burmeister

Vice President, Chief Financial Officer