

Section 1: 10-Q (10-Q)

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

FORM 10-Q

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

For the quarterly period ended June 30, 2018

OR

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

For the transition period from to

Commission File Number: 1-7665

LYDALL, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

06-0865505

(I.R.S. Employer Identification No.)

One Colonial Road, Manchester, Connecticut

(Address of principal executive offices)

06042

(zip code)

(860) 646-1233

(Registrant's telephone number, including area code)

None

(Former name, former address and former fiscal year, if changed since last report)

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 a shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

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

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

Large accelerated filer Accelerated filer Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company
 Emerging growth company

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

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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Common Stock \$.01 par value per share.

Total Shares outstanding July 17, 2018

17,379,746

LYDALL, INC.
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Lydall, Inc. and its subsidiaries are hereafter collectively referred to as “Lydall,” the “Company” or the “Registrant.” Lydall and its subsidiaries’ names, abbreviations thereof, logos, and product and service designators are all either the registered or unregistered trademarks or trade names of Lydall and its subsidiaries.

CAUTIONARY NOTE CONCERNING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains “forward-looking statements” within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Any statements contained in this Quarterly Report on Form 10-Q that are not statements of historical fact may be deemed to be forward-looking statements. All such forward-looking statements are intended to provide management’s current expectations for the future operating and financial performance of the Company based on current assumptions relating to the Company’s business, the economy and future conditions. Forward-looking statements generally can be identified through the use of words such as “believes,” “anticipates,” “may,” “should,” “will,” “plans,” “projects,” “expects,” “expectations,” “estimates,” “forecasts,” “predicts,” “targets,” “prospects,” “strategy,” “signs” and other words of similar meaning in connection with the discussion of future operating or financial performance. Forward-looking statements may include, among other things, statements relating to future sales, earnings, cash flow, results of operations, uses of cash and other measures of financial performance. Because forward-looking statements relate to the future, they are subject to inherent risks, uncertainties and changes in circumstances that are difficult to predict. Accordingly, the Company’s actual results may differ materially from those contemplated by the forward-looking statements. Investors, therefore, are cautioned against relying on any of these forward-looking statements. They are neither statements of historical fact nor guarantees or assurances of future performance. Forward-looking statements in this Quarterly Report on Form 10-Q include, among others, statements relating to:

- Overall economic and business conditions and the effects on the Company’s markets;
- Outlook for the third quarter and remainder of 2018, including expected impact of manufacturing inefficiencies and the Company’s ability to improve operational effectiveness in the Thermal Acoustical Solutions segment;
- Expected vehicle production in the North American, European or Asian markets;
- Growth opportunities in markets served by the Company;
- Expected costs and future savings associated with restructuring programs;
- Expected gross margin, operating margin and working capital improvements from the application of Lean Six Sigma;
- Product development and new business opportunities;
- Future strategic transactions, including but not limited to: acquisitions, joint ventures, alliances, licensing agreements and divestitures;
- Pension plan funding;
- Future cash flow and uses of cash;
- Future amounts of stock-based compensation expense;
- Future earnings and other measurements of financial performance;
- Ability to meet cash operating requirements;
- Future levels of indebtedness and capital spending;
- Ability to meet financial covenants in the Company’s amended revolving credit facility;
- Future impact of the variability of interest rates and foreign currency exchange rates;
- Expected future impact of recently issued accounting pronouncements upon adoption;
- Future effective income tax rates, including the impact of the U.S. Tax Cuts and Jobs Act, and realization of deferred tax assets;
- Estimates of fair values of reporting units and long-lived assets used in assessing goodwill and long-lived assets for possible impairment; and

- The expected outcomes of legal proceedings and other contingencies, including environmental matters.

All forward-looking statements are inherently subject to a number of risks and uncertainties that could cause the actual results of the Company to differ materially from those reflected in forward-looking statements made in this Quarterly Report on Form 10-Q, as well as in press releases and other statements made from time to time by the Company's authorized officers. Such risks and uncertainties include, among others, worldwide economic cycles and political changes and uncertainties that affect the markets which the Company's businesses serve, which could have an effect on demand for the Company's products and impact the

Company's profitability; challenges encountered by the Company in the execution of restructuring programs; challenges encountered in the combination of the former Thermal/Acoustical Fibers and Thermal/Acoustical Metals business segments; disruptions in the global credit and financial markets, including diminished liquidity and credit availability; changes in international trade agreements and policies including tariff regulation and trade restrictions; swings in consumer confidence and spending; unstable economic growth; volatility in foreign currency exchange rates; raw material pricing and supply issues; fluctuations in unemployment rates; retention of key employees; increases in fuel prices; and outcomes of legal proceedings, claims and investigations, as well as other risks and uncertainties identified in Part II, Item 1A - Risk Factors of this Quarterly Report on Form 10-Q, and Part I, Item 1A - Risk Factors of Lydall's Annual Report on Form 10-K for the year ended December 31, 2017. The Company does not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

LYDALL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In Thousands Except Per Share Data)

	Quarter Ended June 30,	
	2018	2017
	(Unaudited)	
Net sales	\$ 186,413	\$ 174,879
Cost of sales	150,286	131,552
Gross profit	36,127	43,327
Selling, product development and administrative expenses	23,878	23,290
Operating income	12,249	20,037
Interest expense	572	795
Other (income) expense, net	(368)	792
Income before income taxes	12,045	18,450
Income tax expense	1,655	5,303
(Income) loss from equity method investment	(60)	22
Net income	\$ 10,450	\$ 13,125
Earnings per share:		
Basic	\$ 0.61	\$ 0.77
Diluted	\$ 0.60	\$ 0.76
Weighted average number of common shares outstanding:		
Basic	17,196	17,044
Diluted	17,335	17,262

See accompanying Notes to Condensed Consolidated Financial Statements.

LYDALL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(In Thousands Except Per Share Data)

	Six Months Ended June 30,	
	2018	2017
	(Unaudited)	
Net sales	\$ 378,073	\$ 340,366
Cost of sales	302,439	256,541
Gross profit	75,634	83,825
Selling, product development and administrative expenses	49,349	48,640
Operating income	26,285	35,185
Interest expense	1,112	1,401
Other (income) expense, net	(53)	1,125
Income before income taxes	25,226	32,659
Income tax expense	3,778	7,797
(Income) loss from equity method investment	(56)	68
Net income	\$ 21,504	\$ 24,794
Earnings per share:		
Basic	\$ 1.25	\$ 1.46
Diluted	\$ 1.24	\$ 1.44
Weighted average number of common shares outstanding:		
Basic	17,178	17,014
Diluted	17,334	17,272

See accompanying Notes to Condensed Consolidated Financial Statements.

LYDALL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In Thousands)

	Quarter Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Unaudited)		(Unaudited)	
Net income	\$ 10,450	\$ 13,125	\$ 21,504	\$ 24,794
Other comprehensive (loss) income:				
Foreign currency translation adjustments	(11,149)	11,784	(8,604)	14,513
Pension liability adjustment, net of tax	199	172	397	344
Unrealized (loss) gain on hedging activities, net of tax	(27)	(44)	75	(44)
Comprehensive (loss) income	\$ (527)	\$ 25,037	\$ 13,372	\$ 39,607

See accompanying Notes to Condensed Consolidated Financial Statements.

LYDALL, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(In Thousands)

	June 30, 2018	December 31, 2017
	(Unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 50,613	\$ 59,875
Accounts receivable, less allowances (2018 - \$1,462; 2017 - \$1,507)	126,330	116,712
Contract assets	26,598	—
Inventories	78,901	80,339
Taxes receivable	4,815	5,525
Prepaid expenses	5,603	4,858
Other current assets	6,986	6,186
Total current assets	299,846	273,495
Property, plant and equipment, at cost	403,548	397,152
Accumulated depreciation	(235,240)	(226,820)
Net, property, plant and equipment	168,308	170,332
Goodwill	67,022	68,969
Other intangible assets, net	36,329	40,543
Other assets, net	7,269	7,532
Total assets	\$ 578,774	\$ 560,871
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current portion of long-term debt	\$ 271	\$ 277
Accounts payable	74,186	71,931
Accrued payroll and other compensation	13,286	15,978
Accrued taxes	3,312	2,230
Other accrued liabilities	15,255	11,690
Total current liabilities	106,310	102,106
Long-term debt	76,784	76,913
Deferred tax liabilities	16,257	14,714
Benefit plan liabilities	5,261	9,743
Other long-term liabilities	3,447	3,999
Commitments and Contingencies (Note 14)		
Stockholders' equity:		
Preferred stock	—	—
Common stock	251	250
Capital in excess of par value	91,177	88,006
Retained earnings	397,885	374,783
Accumulated other comprehensive loss	(28,280)	(20,148)
Treasury stock, at cost	(90,318)	(89,495)
Total stockholders' equity	370,715	353,396
Total liabilities and stockholders' equity	\$ 578,774	\$ 560,871

See accompanying Notes to Condensed Consolidated Financial Statements.

LYDALL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In Thousands)

	Six Months Ended June 30,	
	2018	2017
(Unaudited)		
Cash flows from operating activities:		
Net income	\$ 21,504	\$ 24,794
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	14,248	12,778
Long-lived asset impairment charge	—	772
Inventory step-up amortization	—	1,025
Deferred income taxes	1,165	157
Stock-based compensation	2,580	2,287
(Income) loss from equity method investment	(56)	68
Loss on disposition of property, plant and equipment	18	—
Changes in operating assets and liabilities:		
Accounts receivable	(11,934)	(8,197)
Contract assets	(7,594)	—
Inventories	(15,643)	(14,202)
Accounts payable	7,406	15,479
Accrued payroll and other compensation	(2,408)	(729)
Accrued taxes	1,184	(977)
Other, net	(2,496)	(5,460)
Net cash provided by operating activities	7,974	27,795
Cash flows from investing activities:		
Business acquisitions, net of cash acquired	—	(353)
Proceeds from the sale of property, plant and equipment	217	—
Capital expenditures	(16,355)	(15,068)
Net cash used for investing activities	(16,138)	(15,421)
Cash flows from financing activities:		
Debt repayments	(126)	(21,566)
Common stock issued	666	313
Common stock repurchased	(823)	(2,497)
Net cash used for financing activities	(283)	(23,750)
Effect of exchange rate changes on cash	(815)	2,984
Decrease in cash and cash equivalents	(9,262)	(8,392)
Cash and cash equivalents at beginning of period	59,875	71,934
Cash and cash equivalents at end of period	\$ 50,613	\$ 63,542

Non-cash capital expenditures of \$2.0 million and \$4.3 million were included in accounts payable at June 30, 2018 and 2017, respectively.

See accompanying Notes to Condensed Consolidated Financial Statements.

LYDALL, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(Unaudited)

In thousands of dollars and shares	Common Stock Shares	Common Stock Amount	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock	Total Stockholders' Equity
Balance at December 31, 2017	25,018	\$ 250	\$ 88,006	\$ 374,783	\$ (20,148)	\$ (89,495)	\$ 353,396
Net Income				21,504			21,504
Other comprehensive income, net of tax					(8,132)		(8,132)
Stock repurchased						(823)	(823)
Stock issued under employee plans	52	1	666				667
Stock-based compensation expense			2,371				2,371
Stock issued to directors	—		134				134
Adoption of ASC 606				1,598			1,598
Balance at June 30, 2018	25,070	251	91,177	397,885	(28,280)	(90,318)	370,715

See accompanying Notes to Condensed Consolidated Financial Statements.

LYDALL, INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Basis of Financial Statement Presentation

Description of Business

Lydall, Inc. and its subsidiaries (the "Company" or "Lydall") design and manufacture specialty engineered nonwoven filtration media, industrial thermal insulating solutions, and thermal and acoustical barriers for filtration/separation and heat abatement and sound dampening applications.

Basis of Presentation

The accompanying Condensed Consolidated Financial Statements include the accounts of Lydall, Inc. and its subsidiaries. All financial information is unaudited for the interim periods reported. All significant intercompany transactions have been eliminated in the Condensed Consolidated Financial Statements. The Condensed Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). The year-end Condensed Consolidated Balance Sheet was derived from the December 31, 2017 audited financial statements, but does not include all disclosures required by U.S. GAAP. Management believes that all adjustments, which include only normal recurring adjustments necessary for a fair statement of the Company's condensed consolidated financial position, results of operations and cash flows for the periods reported, have been included. For further information, refer to the audited consolidated financial statements and accompanying notes included in the Company's Annual Report on Form 10-K for the year ended December 31, 2017.

Effective January 1, 2018, the Company combined the Thermal/Acoustical Metals and Thermal/Acoustical Fibers operating segments into a single operating segment named Thermal Acoustical Solutions. Combining these automotive segments into one segment is expected to allow the Company to better serve its customers, leverage operating disciplines and drive efficiencies across the global automotive operations. Refer to Note 13 "Segment Information" for further information. Prior period segment amounts throughout the Notes to the Condensed Consolidated Financial Statements have been recast to reflect the new segment structure. The recast of historical business segment information had no impact on the Company's consolidated financial results.

Effective January 1, 2018 the Company adopted the requirements of Accounting Standards Update ("ASU") No. 2014-09 ("ASC 606") using the modified retrospective method. Therefore, the comparative information has not been adjusted and continues to be reported under the prior guidance of ASC 605. The details of the significant changes and quantitative impact of the changes are disclosed in Note 2 "Revenue from Contracts with Customers."

Recent Accounting Pronouncements

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

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

The Company adopted the amended guidance and all related amendments using the modified retrospective approach on January 1, 2018, at which time it became effective for the Company. The Company recognized the cumulative effect of initially applying the new revenue standard to all contracts that were not completed on the date of adoption as an adjustment to the opening balance of retained earnings. (See Note 2. "Revenue from Contracts with Customers").

At the adoption date, the cumulative impact of revenue that would have been recognized over time, was \$19.6 million. The impact was primarily driven by tooling net sales of \$16.3 million from customer contracts within the Thermal Acoustical Solutions ("TAS") segment. The related adoption impact to retained earnings was \$1.6 million, net of tax. Refer to Note 2.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments - Overall" (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities". This ASU revises an entity's accounting related to (1) the classification and measurement of investments in equity securities and (2) the presentation of certain fair value changes for financial liabilities measured at fair value. It also amends certain disclosure requirements associated with the fair value of financial instruments. This ASU is effective for fiscal years beginning after December 15, 2017. In February 2018, the FASB issued ASU 2018-03, "Technical Corrections and Improvements to Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities", which clarifies various aspects of the guidance issued in ASU 2016-01. The adoption of these amendments is not required for public business entities with fiscal years beginning between December 15, 2017 and June 15, 2018 until the interim period beginning after June 15, 2018, however early adoption is permitted. The Company adopted both ASUs effective January 1, 2018. The adoption of these ASUs did not have any impact on the Company's consolidated financial statements and disclosures.

In August 2016, the FASB issued ASU No. 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments", which provides guidance on eight specific cash flow classification issues. Prior to this ASU, GAAP did not include specific guidance on these eight cash flow classification issues. This ASU is effective for fiscal years beginning after December 15, 2017, with early adoption permitted. The adoption of this ASU did not have any impact on the Company's consolidated financial statements and disclosures.

In October 2016, the FASB issued ASU 2016-16, "Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory" as part of the Board's initiative to reduce complexity in accounting standards. This ASU eliminates an exception in ASC 740, which prohibits the immediate recognition of income tax consequences of intra-entity asset transfers other than inventory. This ASU requires entities to recognize the immediate current and deferred income tax effects of intra-entity asset transfers. This ASU is effective for fiscal years beginning after December 15, 2017, with early adoption permitted. The adoption of this ASU did not have any impact on the Company's consolidated financial statements and disclosures.

In November 2016, the FASB issued ASU No. 2016-18, "Statement of Cash Flows (Topic 230): Restricted Cash", which clarifies guidance and presentation related to restricted cash in the statement of cash flows, including stating that restricted cash should be included within cash and cash equivalents on the statement of cash flows. The ASU was effective for fiscal years beginning after December 15, 2017, with early adoption permitted. The Company adopted this ASU effective January 1, 2018. The adoption of this ASU did not have any impact on the Company's consolidated financial statements and disclosures.

In January 2017, the FASB issued ASU No. 2017-01, "Business Combinations (Topic 805): Clarifying the Definition of a Business", which adds guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. The definition of a business affects many areas of accounting including acquisitions, disposals, goodwill, and consolidation. The amendments of this ASU provide a screen to determine when an integrated set of assets and activities is not a business. This ASU was effective for fiscal years beginning after December 15, 2017. The adoption of this ASU did not have any impact on the Company's consolidated financial statements and disclosures.

In March 2017, the FASB issued ASU No. 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost". This ASU requires an entity to report the service cost component of net benefit costs in the same line item(s) as other compensation costs arising from services rendered by the pertinent employees during the period. This ASU also requires the other components of net benefit cost, which includes interest costs and actual return on plan assets to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. This ASU was effective for fiscal year beginning after December 15, 2017. As required for retrospective adoption, the Company reclassified net benefit costs of \$0.1 million from cost of sales and \$0.1 million from the selling, product development and administrative expenses to other expense, net, in the Consolidated Statement of Operations for the quarter ended June 30, 2017. The Company reclassified net benefit costs of \$0.2 million from cost of sales and \$0.2 million from the selling, product development and administrative expenses to other expense, net, in the Consolidated Statement of Operations for the six months ended June 30, 2017. The adoption of this ASU had minimal impact on the Company's consolidated financial statements and disclosures for the quarter and six months ended June 30, 2018.

In May 2017, the FASB issued ASU No. 2017-09, "Compensation - Stock Compensation (Topic 718): Scope of Modification Accounting". This ASU requires an entity to apply modification accounting in Topic 718 when there are changes to the terms or conditions of a share-based payment award, unless the fair value, vesting conditions, and classification of the modified award are the same as the original award immediately before the original award is modified. This ASU was effective for fiscal years beginning after December 15, 2017. The adoption of this ASU did not have any impact on the Company's consolidated financial statements and disclosures.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)". This ASU requires entities that lease assets with lease terms of more than 12 months to recognize right-of-use assets and lease liabilities created by those leases on their balance sheets. This ASU will also require new qualitative and quantitative disclosures to help investors and other financial statement

users better understand the amount, timing, and uncertainty of cash flows arising from leases. This ASU is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. In March 2018, the FASB approved amendments that made available a transition method that will provide an option to use the effective date of the amended guidance as the date of initial application. The Company plans to elect this option. Based on the effective date, this amended guidance will apply to the Company beginning on January 1, 2019. Significant implementation matters being addressed by the Company include implementing an integrated third-party lease accounting application, assessing the impact to its internal control over financial reporting and documenting the new lease accounting process. While the Company is still in the process of evaluating the effect of adoption on its consolidated financial statements and currently assessing leases, the Company anticipates the ASU will have a material impact on its assets and liabilities due to the addition of right-of-use assets and lease liabilities to the balance sheet; however, it does not expect the ASU to have a material impact on the Company's cash flows or results of operations.

Significant Accounting Policies

The Company's significant accounting policies are detailed in Note 1 "Significant Accounting Policies" within Part IV Item 15 of the Company's Annual Report on Form 10-K for the year ended December 31, 2017. Significant changes to these accounting policies as a result of adopting ASC 606 "Revenue from Contracts with Customers" are discussed within Note 2, "Revenue from Contracts with Customers."

2. Revenue from Contracts with Customers

The Company accounts for revenue in accordance with ASC 606, Revenue from Contracts from Customers. These revenues are generated from the design and manufacture of specialty engineered filtration media, industrial thermal insulating solutions, automotive thermal and acoustical barriers for filtration/separation and thermal/acoustical applications. The Company's revenue recognition policies require the Company to make significant judgments and estimates. In applying the Company's revenue recognition policy, determinations must be made as to when control of products passes to the Company's customers which can be either at a point in time or over time. Revenue is generally recognized at a point in time when control passes to customers upon shipment of the Company's products and revenue is generally recognized over time when control of the Company's products transfers to customers during the manufacturing process (see description below). The Company analyzes several factors, including but not limited to, the nature of the products being sold and contractual terms and conditions in contracts with customers to help the Company make such judgments about revenue recognition.

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

The Company next identifies the performance obligations in the contract. A performance obligation is a promise to provide distinct goods or services. Performance obligations are the unit of account for purposes of applying the revenue standard and therefore determines when and how revenue is recognized. The Company determines the performance obligations at contract inception based on the goods that are promised in a contract with a customer. Typical performance obligations include automotive parts, automotive tooling, rolled good media and filter bags.

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

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

In circumstances when control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation. Due to the nature of the work required to be performed on many of the Company's performance obligations, the estimation of total revenue and cost at completion is complex, subject to many variables and requires significant judgment.

The selection of the method to measure progress towards completion requires judgment and is based on the nature of the products to be provided. The Company generally uses the cost-to-cost measure of progress for contracts because it best depicts the transfer of control to the customer which occurs as costs are incurred on contracts. Under the cost-to-cost measure of progress, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred.

For tooling revenue recognized over time, the Company makes significant judgments which includes, but not limited to, estimated costs to completion, costs incurred to date, and assesses risks related to changes in estimates of revenues and costs. In doing so, management must make assumptions regarding the work required to fulfill the performance obligations, which is dependent upon the execution by the Company's subcontractors, among other variables and contract requirements.

Changes in estimates for revenue recognized over time are recorded by the Company in the period they become known. Changes are recognized on a cumulative catch-up basis in net sales, costs of sales, and operating income. The cumulative catch up adjustment recognizes in the current period the cumulative effect of changes in estimates on current and prior periods.

Performance Obligations

The following is a description of products and performance obligations, separated by reportable segments, from which the Company generates its revenue. For more detailed information about reportable segments, see Note 13 "Segment Information."

Segment	Performance Materials
Products	Products for this segment include filtration media solutions, thermal insulation solutions primarily for air, fluid power, and industrial applications, thermal insulation solutions for building products, appliances, and energy and industrial markets and air and liquid life science applications.
Performance Obligations	<p>These contracts typically have distinct performance obligations, which is the promise to transfer the media solutions to the Company's customers.</p> <p>The Company recognizes revenue at a point in time or over time, based upon when control of the underlying product transfers to the customer. If revenue is recognized at a point in time, the performance obligation is typically satisfied upon shipment and in accordance with shipping terms. In circumstances when control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation.</p> <p>Customer payment terms are negotiated on a contract-by-contract basis and typically range from 30 to 90 days.</p>

Segment	Technical Nonwovens
Products	This segment produces needle punch nonwoven solutions including industrial filtration and advanced materials products. Industrial Filtration products include nonwoven rolled-good felt media and filter bags used primarily in industrial air and liquid filtration applications. Advanced materials products include nonwoven rolled good media used in commercial applications and predominantly serves the geosynthetic, automotive, industrial, medical, and safety apparel markets. The automotive media is provided to tier-one suppliers as well as the Company's Thermal Acoustical Solutions segment.

Performance Obligations

These contracts typically have distinct performance obligations, which is the promise to transfer the industrial filtration or advanced materials products to the Company's customers.

The Company recognizes revenue at a point in time or over time, based upon when control transfers to the customer. If revenue is recognized at a point in time, the performance obligation is typically satisfied upon shipment and in accordance with shipping terms. In circumstances when control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation.

Customer payment terms are negotiated on a contract-by-contract basis and typically range from 30 to 90 days.

For filter bag sales, the Company may enter into warranty agreements that are implied or sold with the product to provide assurance that a product will function as expected and in accordance with certain specifications. Therefore, this type of warranty is not a separate performance obligation.

Segment

Thermal Acoustical Solutions

Products

Parts - The segment produces a full range of innovative engineered products tailored for the transportation sector to thermally shield sensitive components from high heat, improve exhaust gas treatment and lower harmful emissions as well as assist in the reduction of noise vibration and harshness. The majority of products are sold to original equipment manufacturers and tier-one suppliers.

Tooling - The Company enters into contractual agreements with certain customers within the automotive industry, to design and develop molds, dies and tools (collectively, "tooling").

Performance Obligations

Parts - Customer contracts typically have distinct performance obligations, which is the promise to transfer manufactured parts to these customers. The Company recognizes parts revenue at a point in time or over time, based upon when control transfers to the customer. If revenue is recognized at a point in time, the performance obligation is typically satisfied upon shipment and in accordance with shipping terms. In circumstances when control transfers over time, revenue is recognized based on the extent of progress towards completion of the performance obligation.

Customer payment terms are negotiated on a contract-by-contract basis and typically range from 30 to 90 days.

Tooling - Customer contracts typically have distinct performance obligations and are generally completed within one year. The Company periodically enters into multiple contracts with a customer at or near the same time which may be combined for purposes of determining the appropriate transaction price. The Company allocates the transaction price to each performance obligation in the contract based on a relative stand-alone selling price using costs incurred plus expected margin. The corresponding revenues are recognized over time as the related performance obligations are satisfied.

Tooling customer payment terms typically range from 30 to 90 days after title transfers to the customer. Occasionally customers make progress payments as the tool is constructed.

Practical Expedients and Exemptions

The Company has elected to adopt the contract cost practical expedient. This expedient allows the Company to recognize its incremental costs of obtaining contracts, such as sales commissions, as an expense when incurred if the related contract revenue is expected to be recognized in one year or less. These costs are included in selling, product development and administrative expenses.

The Company has made an accounting policy election to record shipping and handling activities occurring after control has passed to the customer to be treated as a fulfillment cost rather than as a distinct performance obligation. Shipping and handling expenses consist primarily of costs incurred to deliver products to customers and internal costs related to preparing products for shipment

and are recorded as a cost of sales. Amounts billed to customers as shipping and handling are classified as revenue when services are performed.

ASC 606 requires the disclosure of unsatisfied performance obligations related to contracts from customers at the end of each reporting period. The Company has elected the practical expedient because the Company's contracts generally have a duration of one year or less, therefore no disclosure is required.

The Company has elected to adopt the practical expedient to disregard the need to adjust the promised amount of consideration for the effects of a significant financing component as the Company expects that the period of time between when the products are transferred to the customer and when the Company is paid for those products will be one year or less.

Contract Assets and Liabilities

The Company's contract assets primarily include unbilled amounts typically resulting from sales under contracts when the over time method of revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer. These unbilled accounts receivable in contract assets are transferred to accounts receivable upon invoicing, typically when the right to payment becomes unconditional in which case payment is due based only upon the passage of time.

The Company's contract liabilities primarily relate to billings and advance payments received from customers, and deferred revenue. These contract liabilities represent the Company's obligation to transfer its products to its customers for which the Company has received, or is owed consideration from its customers. Contract liabilities are included in other accrued liabilities on the Company's Condensed Consolidated Balance Sheets.

Contract assets and liabilities consisted of the following (in thousands):

	June 30, 2018		January 1, 2018		Dollar Change
Contract assets	\$ 26,598	\$	19,125	\$	7,473
Contract liabilities	\$ 4,546	\$	2,820	\$	1,726

The \$7.5 million increase in contract assets from January 1, 2018 to June 30, 2018 was primarily due to timing of billings to customers.

The \$1.7 million increase in contract liabilities from January 1, 2018 to June 30, 2018 was primarily due to an increase in customer deposits partially offset by revenue recognized of \$1.5 million in the first six months of 2018 related to contract liabilities at January 1, 2018.

Impacts on Financial Statements

The cumulative effect of the changes made to the Company's Condensed Consolidated January 1, 2018 Balance Sheet for the adoption of ASC 606 was as follows:

In thousands	December 31, 2017		Adjustments for Adoption of ASC606		January 1, 2018
Assets:					
Contract assets	\$ —	\$	19,125	\$	19,125
Inventories	\$ 80,339	\$	(15,184)	\$	65,155
Liabilities:					
Accounts payable	\$ 71,931	\$	663	\$	72,594
Other accrued liabilities	\$ 11,690	\$	1,209	\$	12,899
Deferred tax liabilities	\$ 14,714	\$	471	\$	15,185
Stockholders' equity:					
Retained earnings	\$ 374,783	\$	1,598	\$	376,381

The cumulative effect of the changes made to the Company's Condensed Consolidated Balance Sheet for the adoption of ASC 606 was as follows:

In thousands	June 30, 2018		
	Balances Without Adoption of ASC 606	ASC 606 Adjustments	As Reported
Assets:			
Contract assets	\$ —	\$ 26,598	\$ 26,598
Inventories	\$ 100,892	\$ (21,991)	\$ 78,901
Liabilities:			
Accounts payable	\$ 71,295	\$ 2,891	\$ 74,186
Other accrued liabilities	\$ 15,966	\$ (711)	\$ 15,255
Deferred tax liabilities	\$ 15,729	\$ 528	\$ 16,257
Stockholders' equity:			
Retained earnings	\$ 395,986	\$ 1,899	\$ 397,885

The cumulative effect of the changes made to the Company's Condensed Consolidated Statement of Operations for the adoption of ASC 606 for the quarter and six months ended June 30, 2018 were as follows:

In thousands	Quarter Ended June 30, 2018		
	Results Without Adoption of ASC606	Effect of Change Higher (Lower)	As Reported
Net sales	\$ 184,806	\$ 1,607	\$ 186,413
Cost of sales	148,745	1,541	150,286
Gross profit	36,061	66	36,127
Selling, product development and administrative expenses	23,878	—	23,878
Operating income	12,183	66	12,249
Interest expense	572	—	572
Other income, net	(368)	—	(368)
Income before income taxes	11,979	66	12,045
Income tax expense	1,654	1	1,655
Income from equity method investment	(60)	—	(60)
Net income	\$ 10,385	\$ 65	\$ 10,450
Earnings per share:			
Basic	\$ 0.60	\$ 0.01	\$ 0.61
Diluted	\$ 0.60	\$ 0.00	\$ 0.60
Weighted average number of common shares outstanding:			
Basic	17,196	—	17,196
Diluted	17,335	—	17,335

Six Months Ended June 30, 2018

In thousands	Results Without Adoption of ASC606	Effect of Change Higher (Lower)	As Reported
Net sales	\$ 370,211	\$ 7,862	\$ 378,073
Cost of sales	294,935	7,504	302,439
Gross profit	75,276	358	75,634
Selling, product development and administrative expenses	49,349	—	49,349
Operating income	25,927	358	26,285
Interest expense	1,112	—	1,112
Other income, net	(53)	—	(53)
Income before income taxes	24,868	358	25,226
Income tax expense	3,721	57	3,778
Income from equity method investment	(56)	—	(56)
Net income	\$ 21,203	\$ 301	\$ 21,504
Earnings per share:			
Basic	\$ 1.23	\$ 0.02	\$ 1.25
Diluted	\$ 1.22	\$ 0.02	\$ 1.24
Weighted average number of common shares outstanding:			
Basic	17,178	—	17,178
Diluted	17,334	—	17,334

Disaggregated Revenue

The Company disaggregates revenue from customers by geographic region, as it believes this disclosure best depicts how the nature, amount, timing and uncertainty of the Company's revenue and cash flows are affected by economic factors. Disaggregated revenue by geographical region for the quarter and six months ended June 30, 2018 were as follows:

Quarter Ended June 30, 2018

In thousands	Performance Materials	Technical Nonwovens	Thermal Acoustical Solutions	Eliminations and Other	Consolidated Net Sales
North America	\$ 20,879	\$ 45,564	\$ 61,922	\$ (6,533)	\$ 121,832
Europe	10,355	18,053	24,515	(169)	52,754
Asia	—	8,095	3,732	—	11,827
Total Net Sales	\$ 31,234	\$ 71,712	\$ 90,169	\$ (6,702)	\$ 186,413

Six Months Ended June 30, 2018

In thousands	Performance Materials	Technical Nonwovens	Thermal Acoustical Solutions	Eliminations and Other	Consolidated Net Sales
North America	\$ 40,040	\$ 84,697	\$ 131,901	\$ (14,359)	\$ 242,279
Europe	21,887	37,439	52,570	(354)	111,542
Asia	—	17,117	7,135	—	24,252
Total Net Sales	\$ 61,927	\$ 139,253	\$ 191,606	\$ (14,713)	\$ 378,073

3. Inventories

Inventories as of June 30, 2018 and December 31, 2017 were as follows:

In thousands	June 30, 2018	December 31, 2017
Raw materials	\$ 36,862	\$ 28,672
Work in process	18,199	29,427
Finished goods	23,840	23,901
	78,901	82,000
Less: Progress billings	—	(1,661)
Total inventories	\$ 78,901	\$ 80,339

Included in work in process is gross tooling inventory of \$7.7 million and \$20.2 million at June 30, 2018 and December 31, 2017, respectively. Tooling inventory, net of progress billings, was \$18.5 million at December 31, 2017. Effective January 1, 2018 the Company adopted ASC 606, Revenue from Contracts from Customers, under the modified retrospective transition method. The adoption of ASC 606 resulted in the reclassification of progress billings to contract liabilities. See Note 2, Revenue from Contracts with Customers, for further discussion of contract liabilities.

4. Goodwill and Other Intangible Assets

Goodwill:

The Company tests its goodwill for impairment annually in the fourth quarter, and whenever events or changes in circumstances indicate that the carrying value may exceed its fair value.

The changes in the carrying amount of goodwill by segment as of and for the six months ended June 30, 2018 were as follows:

In thousands	December 31, 2017	Currency translation adjustments	Additions	June 30, 2018
Performance Materials	\$ 13,307	\$ (114)	\$ —	\$ 13,193
Technical Nonwovens	55,662	(1,833)	—	53,829
Total goodwill	\$ 68,969	\$ (1,947)	\$ —	\$ 67,022

Other Intangible Assets:

The table below presents the gross carrying amount and, as applicable, the accumulated amortization of the Company's acquired intangible assets other than goodwill included in "Other intangible assets, net" in the Condensed Consolidated Balance Sheets as of June 30, 2018 and December 31, 2017:

In thousands	June 30, 2018		December 31, 2017	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Amortized intangible assets				
Customer Relationships	\$ 38,119	\$ (6,595)	\$ 39,474	\$ (4,460)
Patents	4,401	(3,790)	4,504	(3,821)
Technology	2,500	(727)	2,500	(644)
Trade Names	4,145	(1,872)	4,288	(1,461)
License Agreements	627	(627)	640	(640)
Other	573	(425)	586	(423)
Total amortized intangible assets	\$ 50,365	\$ (14,036)	\$ 51,992	\$ (11,449)

5. Long-term Debt and Financing Arrangements

On July 7, 2016, the Company amended its \$100 million senior secured revolving credit facility (“Amended Credit Facility”) which increased the available borrowing from \$100 million to \$175 million, added a fourth lender and extended the maturity date to July 7, 2021. The Amended Credit Facility is secured by substantially all of the assets of the Company. Under the terms of the Amended Credit Facility, the lenders are providing a \$175 million revolving credit facility to the Company, under which the lenders may make revolving loans and issue letters of credit to or for the benefit of the Company and its subsidiaries. The Company may request the Amended Credit Facility be increased by an aggregate amount not to exceed \$50 million through an accordion feature, subject to specified conditions set forth in the Amended Credit Facility.

The Amended Credit Facility contains a number of affirmative and negative covenants, including financial and operational covenants. The Company is required to meet a minimum interest coverage ratio. The interest coverage ratio requires that, at the end of each fiscal quarter, the ratio of consolidated EBIT to Consolidated Interest Charges, both as defined in the Amended Credit Facility, may not be less than 2.0 to 1.0 for the immediately preceding 12 month period. In addition, the Company must maintain a Consolidated Leverage Ratio, as defined in the Amended Credit Facility, as of the end of each fiscal quarter of no greater than 3.0 to 1.0. The Company must also meet minimum consolidated EBITDA as of the end of each fiscal quarter for the preceding 12 month period of \$30 million. The Company was in compliance with all covenants at June 30, 2018 and December 31, 2017.

Interest is charged on borrowings at the Company’s option of either: (i) Base Rate plus the Applicable Rate, or (ii) the Eurodollar Rate plus the Applicable Rate. The Base Rate is a fluctuating rate equal to the highest of (a) the federal funds rate plus 0.50%, (b) the prime rate as set by Bank of America, and (c) the Eurocurrency Rate plus 1.00%. The Eurocurrency Rate means (i) if denominated in LIBOR quoted currency, a fluctuating LIBOR per annum rate equal to the London Interbank Offered Rate; (ii) if denominated in Canadian Dollars, the rate per annum equal to the Canadian Dealer Offered Rate; or (iii) the rate per annum as designated with respect to such alternative currency at the time such alternative currency is approved by the Lenders. The Applicable Rate is determined based on the Company’s Consolidated Leverage Ratio (as defined in the Amended Credit Agreement). The Applicable Rate added to the Base Rate Committed Loans ranges from 15 basis points to 100 basis points, and the Applicable Rate added to Eurocurrency Rate Committed Loans and Letters of Credit ranges from 75 basis points to 175 basis points. The Company pays a quarterly fee ranging from 17.5 basis points to 30 basis points on the unused portion of the \$175 million available under the Amended Credit Facility.

In April 2017, the Company entered into a three-year interest rate swap agreement transacted with a bank which converts the interest on the first notional \$60.0 million of the Company's one-month LIBOR-based borrowings under its Amended Credit Facility from a variable rate, plus the borrowing spread, to a fixed rate of 1.58% plus the borrowing spread. The notional amount reduces quarterly by \$5.0 million through March 31, 2020. The Company is accounting for the interest rate swap agreement as a cash flow hedge. Effectiveness of this derivative agreement is assessed quarterly by ensuring that the critical terms of the swap continue to match the critical terms of the hedged debt.

At June 30, 2018, the Company had borrowing availability of \$94.5 million under the Amended Credit Facility, net of \$76.6 million of borrowings outstanding and standby letters of credit outstanding of \$3.9 million.

In addition to the amounts outstanding under the Amended Credit Facility, the Company has various acquired foreign credit facilities totaling approximately \$8.4 million. At June 30, 2018, the Company's foreign subsidiaries had \$0.1 million in borrowings outstanding as well as \$2.0 million in standby letters of credit outstanding.

Total outstanding debt consists of:

In thousands	Effective Rate	Maturity	June 30, 2018	December 31, 2017
Revolver Loan, due July 7, 2021	3.09%	2021	\$ 76,600	\$ 76,600
Capital Leases	1.65% - 2.09%	2019 - 2020	455	590
			77,055	77,190
Less portion due within one year			(271)	(277)
Total long-term debt			\$ 76,784	\$ 76,913

The carrying value of the Company’s \$175 million Amended Credit Facility approximates fair value given the variable rate nature of the debt. The fair values of the Company’s long-term debt are determined using discounted cash flows based upon the Company’s estimated current interest cost for similar type borrowings or current market value, which falls under Level 2 of the fair value hierarchy. The carrying values of the long-term debt approximate fair market value.

The weighted average interest rate on long-term debt was 2.8% for the six months ended June 30, 2018 and 2.2% for the year ended December 31, 2017.

6. Derivatives

The Company selectively uses financial instruments to manage market risk associated with exposure to fluctuations in interest rates. These financial exposures are monitored and managed by the Company as an integral part of its risk management program. The Company's interest rate exposure is most sensitive to fluctuations in interest rates in the United States and Europe, which impact interest paid on its debt. The Company has debt with variable rates of interest based generally on LIBOR. From time to time, the Company enters into interest rate swap agreements to manage interest rate risk. These instruments are designated as cash flow hedges and are recorded at fair value using Level 2 observable market inputs.

Derivative instruments are recognized as either assets or liabilities on the balance sheet in either current or non-current other assets or other accrued liabilities or other long-term liabilities depending upon maturity and commitment. For derivative instruments that are designated and qualify as a cash flow hedge, the effective portion of the gain or loss on the derivative is reported as a component of other comprehensive income and reclassified into earnings in the same period or periods in which the hedge transaction affects earnings. Any ineffective portion, or amounts related to contracts that are not designated as hedges, are recorded directly to earnings. The Company's policy for classifying cash flows from derivatives is to report the cash flows consistent with the underlying hedged item. The Company does not use derivatives for speculative or trading purposes.

In April 2017, the Company entered into a three-year interest rate swap agreement transacted with a bank which converts the interest on the first notional \$60.0 million of the Company's one-month LIBOR-based borrowings under its Amended Credit Facility from a variable rate, plus the borrowing spread, to a fixed rate of 1.58% plus the borrowing spread. The notional amount reduces quarterly by \$5.0 million through March 31, 2020. The interest rate swap agreement was accounted for as cash flow hedge. Effectiveness of this derivative agreement is assessed quarterly by ensuring that the critical terms of the swap continue to match the critical terms of the hedged debt.

The following table sets forth the fair value amounts of derivative instruments held by the Company:

In thousands	June 30, 2018		December 31, 2017	
	Asset Derivatives	Liability Derivatives	Asset Derivatives	Liability Derivatives
Derivatives designated as hedging instruments:				
Interest rate contract	\$ 300	\$ —	\$ 157	\$ —
Total derivatives	\$ 300	\$ —	\$ 157	\$ —

The following table sets forth the income recorded in accumulated other comprehensive income (loss), net of tax, for the quarters and six months ended June 30, 2018 and 2017 for derivatives held by the Company and designated as hedging instruments:

	Quarter Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Cash flow hedges:				
Interest rate contract	\$ (27)	\$ (44)	\$ 75	\$ (44)
	\$ (27)	\$ (44)	\$ 75	\$ (44)

7. Equity Compensation Plans

As of June 30, 2018, the Company's equity compensation plans consisted of the 2003 Stock Incentive Compensation Plan (the "2003 Plan") and the 2012 Stock Incentive Plan (the "2012 Plan" and together with the 2003 Plan, the "Plans") under which incentive and non-qualified stock options and time and performance based restricted shares have been granted to employees and directors from authorized but unissued shares of common stock or treasury shares. The 2003 Plan is not active, but continues to govern all outstanding awards granted under the plan until the awards themselves are exercised or terminate in accordance with their terms. The 2012 Plan, approved by shareholders on April 27, 2012, authorizes 1.75 million shares of common stock for awards. The 2012 Plan also authorizes an additional 1.2 million shares of common stock to the extent awards granted under prior stock plans that were outstanding as of April 27, 2012 are forfeited. The 2012 Plan provides for the following types of awards: options, restricted stock, restricted stock units and other stock-based awards.

The Company accounts for the expense of all share-based compensation by measuring the awards at fair value on the date of grant. The Company recognizes expense on a straight-line basis over the vesting period of the entire award. Options issued by the Company under its stock option plans have a term of ten years and generally vest ratably over a period of three to four years. Time-based restricted stock grants are expensed over the vesting period of the award, which is typically two to four years. The number of performance based restricted shares that vest or forfeit depend upon achievement of certain targets during the performance period. The Company accounts for forfeitures as they occur. Compensation expense for performance based awards is recorded based upon the service period and management's assessment of the probability of achieving the performance goals and will be adjusted based upon actual achievement.

The Company incurred equity compensation expense of \$1.4 million and \$1.1 million for the quarters ended June 30, 2018 and June 30, 2017, respectively, and \$2.6 million and \$2.3 million for the six months ended June 30, 2018 and June 30, 2017, respectively, for the Plans, including restricted stock awards. No equity compensation costs were capitalized as part of inventory.

Stock Options

The following table is a summary of outstanding and exercisable options as of June 30, 2018:

In thousands except per share amounts	Shares	Weighted-Average Exercise Price	Aggregate Intrinsic Value
Outstanding at June 30, 2018	417	\$ 34.36	\$ 5,486
Exercisable at June 30, 2018	207	\$ 21.90	\$ 4,702
Unvested at June 30, 2018	210	\$ 46.64	\$ 784

There were no stock options granted or exercised during the quarter ended June 30, 2018. There were 11,180 stock options granted and 27,041 stock options exercised during the six months ended June 30, 2018. The amount of cash received from the exercise of stock options was \$0.7 million during the six months ended June 30, 2018. The intrinsic value of stock options exercised was \$0.7 million with a tax benefit of \$0.1 million during the six months ended June 30, 2018.

There were no stock options granted and 16,300 stock options exercised during the quarter ended June 30, 2017 and no stock options granted and 28,464 stock options exercised during the six months ended June 30, 2017. The amount of cash received from the exercise of stock options was \$0.2 million during the quarter ended June 30, 2017 and \$0.3 million during the six months ended June 30, 2017. The intrinsic value of stock options exercised was \$0.7 million with a tax benefit of \$0.1 million during the quarter ended June 30, 2017 and the intrinsic value of stock options exercised was \$1.2 million with a tax benefit of \$0.3 million during the six months ended June 30, 2017.

At June 30, 2018, the total unrecognized compensation cost related to non-vested stock option awards was approximately \$2.9 million, with a weighted average expected amortization period of 2.8 years.

Restricted Stock

Restricted stock includes both performance-based and time-based awards. There were no time-based restricted stock shares granted during the quarter ended June 30, 2018 and 8,106 time-based restricted stock shares granted during the six months ended June 30, 2018. There were no performance-based restricted shares granted during the quarter ended June 30, 2018 and 15,190 performance-based restricted shares granted during the six months ended June 30, 2018. There were no performance-based restricted shares that vested during the quarter ended June 30, 2018 and 48,035 performance-based restricted shares that vested during six months ended June 30, 2018, in accordance with plan provisions. There were no time-based restricted shares that vested during the quarter ended June 30, 2018 and 5,164 time-based restricted shares that vested during six months ended June 30, 2018.

There were no time-based restricted stock shares granted during the quarter and six month period ended June 30, 2017. There were no performance-based restricted shares granted during the quarter ended June 30, 2017 and 18,100 performance-based restricted shares granted for the six months ended June 30, 2017, which have a 2019 earnings per share target. There were no performance-based restricted shares that vested during the quarter ended June 30, 2017 and 108,600 performance-based restricted shares that vested during the six months ended June 30, 2017. There were no time-based restricted shares that vested during the quarter ended June 30, 2017 and 9,288 time-based restricted shares that vested during the six months ended June 30, 2017.

At June 30, 2018, there were 187,902 unvested restricted stock awards with total unrecognized compensation cost related to these awards of \$4.8 million with a weighted average expected amortization period of 2.0 years. Compensation expense for performance based awards is recorded based on the service period and management's assessment of the probability of achieving the performance goals.

8. Stock Repurchases

During the six months ended June 30, 2018, the Company purchased 18,561 shares of common stock valued at \$0.8 million, through withholding, pursuant to provisions in agreements with recipients of restricted stock granted under the Company's equity compensation plans, in which the Company withholds that number of shares having fair value equal to each recipient's minimum tax withholding due.

9. Restructuring

In April 2017, the Company commenced a restructuring plan in the Technical Nonwovens segment which includes plant consolidations and transfer of equipment to other facilities within the segment's Europe and China operations. The consolidation of certain plants, which is expected to conclude in the second quarter of 2019, is expected to reduce operating costs, increase efficiency and enhance the Company's flexibility by better aligning its manufacturing footprint with the segment's customer base. Accordingly, the Company expects to record total pre-tax expenses of approximately \$5.0 million, in connection with this restructuring plan, of which approximately \$4.8 million is expected to result in cash expenditures over the period of consolidation. The Company also expects to incur cash expenditures of approximately \$3.5 million for capital expenditures associated with this plan.

During the quarter ended June 30, 2018, the Company recorded pre-tax restructuring expenses of \$0.9 million, primarily related to severance and equipment move costs, in cost of sales. During the six months ended June 30, 2018, the Company recorded pre-tax restructuring expenses of \$1.4 million as part of this restructuring plan. Restructuring expenses of \$1.3 million, primarily related to severance and equipment move costs, were recorded in cost of sales and \$0.1 million of severance and engineering costs were recorded in selling, product development and administrative expenses during the six months ended June 30, 2018. The Company expects to record approximately \$1.3 million of restructuring expenses in the second half of 2018 and \$2.8 million for the year ending December 31, 2018.

Actual pre-tax expenses incurred and total estimated pre-tax expenses for the restructuring program by type are as follows:

In thousands	Severance and Related Expenses	Contract Termination Expenses	Facility Exit, Move and Set-up Expenses	Total
Total estimated expenses	\$ 1,200	\$ 300	\$ 3,500	\$ 5,000
Expenses incurred through December 31, 2017	181	154	327	662
Estimated remaining expense at December 31, 2017	\$ 1,019	\$ 146	\$ 3,173	\$ 4,338
Expense incurred during quarter ended:				
March 31, 2018	\$ 315	\$ —	\$ 219	\$ 534
June 30, 2018	185	—	700	885
Total pre-tax expense incurred	\$ 681	\$ 154	\$ 1,246	\$ 2,081
Estimated remaining expense at June 30, 2018	\$ 519	\$ 146	\$ 2,254	\$ 2,919

There were cash outflows of \$0.5 million and \$0.8 million for the restructuring program for the quarter and six months ended June 30, 2018, respectively.

Accrued restructuring costs were as follows at June 30, 2018:

In thousands	Total
Balance as of December 31, 2017	\$ 333
Pre-tax restructuring expenses, excluding depreciation	1,307
Cash paid	(770)
Balance as of June 30, 2018	\$ 870

10. Employer Sponsored Benefit Plans

As of June 30, 2018, the Company maintains a defined benefit pension plan that covers certain domestic Lydall employees ("domestic pension plan") that is closed to new employees and benefits are no longer accruing. The domestic pension plan is noncontributory and benefits are based on either years of service or eligible compensation paid while a participant is in the plan. The Company's funding policy is to fund not less than the ERISA minimum funding standard and not more than the maximum amount that can be deducted for federal income tax purposes.

As of January 1, 2018 the Company adopted ASU No. 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost". This ASU required the other components of net benefit cost, which includes interest costs, expected return on plan assets, and amortization of actuarial loss be presented in the income statement outside a subtotal of income from operations for the quarter and six months ended June 30, 2018. The retrospective adoption of this ASU resulted in the reclassification of net benefit costs of \$0.1 million from cost of sales and \$0.1 million from the selling, product development and administrative expenses to the other expense, net line in the Consolidated Statement of Operations for the quarter ended June 30, 2017. Net benefit costs of \$0.2 million from cost of sales and \$0.2 million from the selling, product development and administrative expenses were reclassified to the other expense, net line in the Consolidated Statement of Operations for the six months ended June 30, 2017.

The Company expects to contribute approximately \$7.0 million in cash to the domestic pension plan in 2018 to further fund the plan. Contributions of \$3.0 million and \$4.2 million were made during the quarter and six months ended June 30, 2018, respectively. Contributions of \$1.2 million and \$2.4 million were made during the quarter and six months ended June 30, 2017, respectively.

The following is a summary of the components of net periodic benefit cost, which is recorded in other expense, net, for the domestic pension plan for the quarters and six months ended June 30, 2018 and 2017:

In thousands	Quarter Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Components of net periodic benefit cost				
Interest cost	\$ 470	\$ 514	\$ 940	\$ 1,029
Expected return on assets	(650)	(594)	(1,300)	(1,188)
Amortization of actuarial loss	256	273	512	546
Net periodic benefit cost	\$ 76	\$ 193	\$ 152	\$ 387

11. Income Taxes

On December 22, 2017, the United States enacted significant changes to U.S. tax law following the passage and signing of the Tax Cuts and Jobs Act (the "Tax Reform Act"). The Company has followed guidance in Staff Accounting Bulletin No.118 ("SAB 118"), which provides a measurement period, not to exceed one year from the enactment of the Tax Reform Act, and recorded provisional items related to the one-time mandatory repatriation of foreign earnings and the revaluation of deferred tax assets and liabilities for the year ended December 31, 2017. For the quarter ended June 30, 2018, the Company continued to perform analysis and evaluate interpretations and additional regulatory guidance, but did not record any adjustments to these provisional items, nor deemed any of them as complete.

The Company's effective tax rate was 13.7% and 28.7% for the quarters ended June 30, 2018 and 2017, respectively, and 15% and 23.9% for the six months ended June 30, 2018 and 2017, respectively. The difference in the Company's effective tax rate for the quarter ended June 30, 2018 compared to June 30, 2017 was due to the reduction of the U.S. corporate tax rate from 35% to 21% under the Tax Reform Act, tax benefits of \$0.4 million related to additional tax deductible pension contributions and the geographical mix of earnings. The difference in the Company's effective tax rate for the six months ended June 30, 2018 compared to June 30, 2017 was primarily related to the reduction of the U.S. corporate tax rate from 35% to 21% under the Tax Reform act and the geographical mix of earnings.

The Company and its subsidiaries file a consolidated federal income tax return, as well as returns required by various state and foreign jurisdictions. In the normal course of business, the Company is subject to examination by taxing authorities, including such major jurisdictions as the United States, France, Germany, China, the United Kingdom, Canada and the Netherlands. With few exceptions, the Company is no longer subject to U.S. federal examinations for years before 2015, state and local examinations for years before 2013, and non-U.S. income tax examinations for years before 2003.

The Company's effective tax rates in future periods could be affected by earnings being higher or lower in countries where tax rates differ from the United States federal tax rate, the relative impact of permanent tax adjustments on higher or lower earnings from domestic operations, changes in net deferred tax asset valuation allowances, stock vesting, the completion of acquisitions or divestitures, changes in tax rates or tax laws and the completion of tax projects and audits.

12. Earnings Per Share

For the quarters and six months ended June 30, 2018 and 2017, basic earnings per share were computed by dividing net income by the weighted average number of shares of common stock outstanding during the period. Unexercised stock options and unvested restricted shares are excluded from this calculation but are included in the diluted earnings per share calculation using the treasury stock method as long as their effect is not antidilutive.

The following table provides a reconciliation of weighted-average shares used to determine basic and diluted earnings per share:

In thousands	Quarter Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Basic average common shares outstanding	17,196	17,044	17,178	17,014
Effect of dilutive options and restricted stock awards	139	218	156	258
Diluted average common shares outstanding	17,335	17,262	17,334	17,272

For each of the quarters ended June 30, 2018 and 2017, stock options for 162,830 shares and 38,280 shares of Common Stock were not considered in computing diluted earnings per common share because they were antidilutive.

For each of the six months ended June 30, 2018 and 2017, stock options for 149,940 shares and 38,280 shares of Common Stock were not considered in computing diluted earnings per common share because they were antidilutive.

13. Segment Information

As of June 30, 2018, the Company's reportable segments are Performance Materials, Technical Nonwovens, and Thermal Acoustical Solutions.

Effective January 1, 2018, the Thermal/Acoustical Metals and Thermal/Acoustical Fibers operating segments were combined into a single operating segment named Thermal Acoustical Solutions. These automotive segments were combined into one segment to allow the Company to better serve its customers, leverage operating disciplines and drive efficiencies across the global automotive operations.

Prior period segment amounts throughout the Notes to the Condensed Consolidated Financial Statements have been recast to reflect the results of the new segment structure. The recast of historical business segment information had no impact on the consolidated financial results.

Performance Materials Segment

The Performance Materials segment includes filtration media solutions primarily for air, fluid power, and industrial applications ("Filtration"), thermal insulation solutions for building products, appliances, and energy and industrial markets ("Thermal Insulation") and air and liquid life science applications ("Life Sciences Filtration"). Filtration products include LydAir® MG (Micro-Glass) Air Filtration Media, LydAir® MB (Melt Blown) Air Filtration Media, LydAir® SC (Synthetic Composite) Air Filtration Media, and Arioso™ Membrane Composite Media. These products constitute the critical media component of clean-air systems for applications in clean-space, commercial, industrial and residential HVAC, power generation, and industrial processes. Lydall has leveraged its extensive technical expertise and applications knowledge into a suite of media products covering the vast liquid filtration landscape across the engine and industrial fields. The LyPore® Liquid Filtration Media series address a variety of application needs in fluid power including hydraulic filters, air-water and air-oil coalescing, industrial fluid processes and diesel fuel filtration.

Thermal Insulation products are high performance nonwoven veils, papers, mats and specialty composites for the building products, appliance, and energy and industrial markets. The Manniglas® Thermal Insulation brand is diverse in its product application ranging from high temperature seals and gaskets in ovens and ranges to specialty veils for HVAC and cavity wall insulation. The Lytherm® Insulation Media product brand services Lydall's high temperature technology portfolio, traditionally utilized in the industrial market for kilns and furnaces used in metal processing. Lydall's Cryotherm® Super-Insulating Media, CRS-Wrap®

Super-Insulating Media and Cryo-Lite™ Cryogenic Insulation products are industry standards for state-of-the-art cryogenic insulation designs used by manufacturers of cryogenic equipment for liquid gas storage, piping, and transportation.

Life Sciences Filtration is comprised of products which have been designed to meet the stringent requirements of critical applications including biopharmaceutical pre-filtration and clarification, lateral flow diagnostic and analytical testing, respiratory protection, potable water filtration and high purity process filtration such as that found in food and beverage and medical applications. Lydall also offers ultra-high molecular weight polyethylene membranes under the Solupor® trade name. These specialty microporous membranes are utilized in various markets and applications including air and liquid filtration and transdermal drug delivery. Solupor® membranes incorporate a unique combination of high mechanical strength, chemical inertness, gamma stability and very high porosity making them ideal for many applications.

Technical Nonwovens Segment

The Technical Nonwovens segment primarily produces needle punch nonwoven solutions for myriad industries and applications. Products are manufactured and sold globally under the leading brands of Lydall Industrial Filtration, Southern Felt, Gutsche, and Texel. Industrial Filtration products include nonwoven rolled-good felt media and filter bags used primarily in industrial air and liquid filtration applications. Nonwoven filter media is the most effective solution to satisfy increasing emission control regulations in a wide range of industries, including power, cement, steel, asphalt, incineration, mining, food, and pharmaceutical. Advanced Materials products include nonwoven rolled-good media used in commercial applications and predominantly serves the geosynthetics, automotive, industrial, medical, and safety apparel markets. Automotive media is provided to Tier I/II suppliers and as well as the Company's Thermal Acoustical Solutions segment.

Technical Nonwovens segment products include air and liquid filtration media sold under the brand names Fiberlox® high performance filtration felts, Checkstatic™ conductive filtration felts, Microfelt® high efficiency filtration felts, Pleatlox® pleatable filtration felts, Ultratech™ PTFE filtration felts, Powertech® and Powerlox® power generation filtration felts, Microcap® high efficiency liquid filtration felts, Duotech membrane composite filtration felts, along with our porotex® family of high temperature filtration felts including microvel® and optivel® products. Technical Nonwovens Advanced Materials products are sold under the brand names Thermofit® thermo-formable products, Ecoduo® recycled content materials, Duotex® floor protection products, and Versaflex® composite molding materials. Technical Nonwovens also offers extensive finishing and coating capabilities which provide custom engineered properties tailored to meet the most demanding applications. The business leverages a wide range of fiber types and extensive technical capabilities to provide products that meet our customers' needs across a variety of applications providing both high performance and durability.

Thermal Acoustical Solutions Segment

The Thermal Acoustical Solutions segment offers a full range of innovative engineered products tailored for the transportation and industrial sectors to thermally shield sensitive components from high heat, improve exhaust gas treatment and lower harmful emissions as well as assist in the reduction of noise, vibration and harshness (NVH). Within the transportation sector, Lydall's products are found in the interior (dash insulators, cabin flooring), underbody (wheel well, aerodynamic belly pan, fuel tank, exhaust, tunnel, spare tire) and under hood (engine compartment, outer dash, powertrain, catalytic converter, turbo charger, manifolds) of cars, trucks, SUVs, heavy duty trucks and recreational vehicles.

Thermal Acoustical Solutions segment products offer thermal and acoustical insulating solutions comprised of organic and inorganic fiber composites that provide weight reduction, superior noise suppression and increased durability over conventional designs, as well as products that efficiently combine multiple layers of metal and thermal - acoustical insulation media to provide an engineered shielding solution for an array of application areas. Lydall's dBCore® is a lightweight acoustical composite that emphasizes absorption principles over heavy-mass type systems. Lydall's dBLyte® is a high-performance acoustical barrier with sound absorption and blocking properties and can be used throughout a vehicle's interior to minimize intrusive noise from an engine compartment and road. Lydall's ZeroClearance® is an innovative thermal solution that utilizes an adhesive backing for attachment and is used to protect vehicle components from excessive heat. Lydall's flux® product family includes several patented or IP-rich products that address applications which include: Direct Exhaust Mount heat shields, which are assembled to high temperature components like catalytic converters, turbochargers or exhaust manifolds using aluminized and stainless steel and high performance and high temperature heat insulating materials; Powertrain heat shields that absorb noise at the source and do not contribute to the engine's noise budget; and durable, thermally robust solutions for temperature sensitive plastic components such as fuel tanks that are in proximity to high temperature heat sources.

The tables below present net sales and operating income by segment for the quarters and six months ended June 30, 2018 and 2017, and also a reconciliation of total segment net sales and operating income to total consolidated net sales and operating income.

Consolidated net sales by segment:

In thousands	Quarter Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Performance Materials Segment:				
Filtration	\$ 20,574	\$ 19,255	\$ 41,264	\$ 38,100
Thermal Insulation	7,796	7,407	15,303	14,833
Life Sciences Filtration	2,864	2,639	5,360	5,119
Performance Materials Segment net sales	31,234	29,301	61,927	58,052
Technical Nonwovens Segment:				
Industrial Filtration	39,170	36,325	79,401	70,538
Advanced Materials (1)	32,542	30,773	59,852	55,478
Technical Nonwovens net sales	71,712	67,098	139,253	126,016
Thermal Acoustical Solutions Segment:				
Parts	82,920	80,648	171,041	162,462
Tooling	7,249	5,354	20,565	8,325
Thermal Acoustical Solutions Segment net sales	90,169	86,002	191,606	170,787
Eliminations and Other (1)	(6,702)	(7,522)	(14,713)	(14,489)
Consolidated Net Sales	\$ 186,413	\$ 174,879	\$ 378,073	\$ 340,366

Operating income by segment:

In thousands	Quarter Ended June 30,		Six Months Ended June 30,	
	2018	2017 (2)	2018	2017 (2)
Performance Materials	\$ 3,649	\$ 3,933	\$ 6,290	\$ 5,591
Technical Nonwovens	6,118	6,535	11,124	11,203
Thermal Acoustical Solutions	8,820	15,395	21,434	30,191
Corporate Office Expenses	(6,338)	(5,826)	(12,563)	(11,800)
Consolidated Operating Income	\$ 12,249	\$ 20,037	\$ 26,285	\$ 35,185

(1)Included in the Technical Nonwovens segment and Eliminations and Other is \$5.8 million and \$6.8 million in intercompany sales to the Thermal Acoustical Solutions segment for the quarters ended June 30, 2018 and 2017, respectively, and \$12.9 million and \$13.1 million for the six months ended June 30, 2018 and 2017, respectively.

(2)The quarter and six months ended June 30, 2017 segment operating income amounts of \$0.2 million and \$0.4 million, respectively, have been reclassified to other expense (income), net, to give effect to the adoption of ASU No. 2017-07, "Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost".

14. Commitments and Contingencies

Environmental Remediation

The Company elected to remediate environmental contamination discovered prior to the closing of the Texel acquisition in 2016 at a certain property in the province of Quebec, Canada ("the Property") that was acquired by Lydall. The Company records accruals for environmental costs when such losses are probable and reasonably estimable. In 2016, the Company, through the engagement of a third-party environmental service firm, determined the final scope and timing of the remediation project and estimated the cost of the remediation project to range between \$0.9 million and \$1.5 million, which was further refined in July of 2017 to the top end of this range at \$1.5 million and remains as the Company's best estimate as of June 30, 2018. During 2017, the environmental liability was reduced by \$0.7 million, reflecting payments made to vendors, resulting in a balance of \$0.8 million at December 31, 2017. During the six months ended June 30, 2018, the environmental liability was further reduced by \$0.5 million, reflecting payments to vendors. The remaining balance for the environmental liability of \$0.4 million (which remains fully offset as described below) is included within other long-term liabilities on the Company's balance sheet at June 30, 2018.

Pursuant to the Share Purchase Agreement, ADS, Inc. ("ADS") has agreed to indemnify the Company from all costs and liabilities associated with the contamination and remediation work, including the costs of preparation and approval of the remediation plan and other reports in relation therewith. This indemnity was secured by an environmental escrow account, which was established in the amount of \$3.0 million Canadian Dollars (approximately \$2.3 million U.S. Dollars as of June 30, 2018). Prior to July 2018, for any costs and liabilities that exceeded the environmental escrow amount, the Company had access to the general indemnity escrow account, which was originally established in the amount of \$14.0 million Canadian Dollars (approximately \$10.7 million U.S. Dollars as of June 30, 2018). Based on the Share Purchase Agreement, the general indemnity escrow account was initially reduced to approximately \$7.0 million Canadian Dollars (approximately \$5.3 million U.S. Dollars as of June 30, 2018) on the first anniversary date of the closing date and then liquidated, in full on or about the second anniversary date of the closing date (i.e., July 9, 2018). Based on the foregoing, an indemnification asset of \$0.9 million was also recorded in other assets at December 31, 2016, and subsequently increased to \$1.5 million in July of 2017, as the Company believed, and still believes collection from ADS is probable. The indemnification asset was decreased by \$0.7 million, reflecting indemnification from ADS for payments made by the Company to its vendors during 2017. During the six months ended June 30, 2018, the indemnification asset was further reduced by \$0.5 million, reflecting indemnification from ADS for payments made by the Company to its vendors. The resulting indemnification asset balance was \$0.4 million at June 30, 2018. The accrual for remediation costs will be adjusted as further information develops, estimates change and payments to vendors are made for remediation, with an off-setting adjustment to the indemnification asset from ADS if collection is deemed probable.

In the fourth quarter of 2016, as part of a groundwater discharging permitting process, water samples collected from wells and process water basins at the Company's Rochester New Hampshire manufacturing facility, within the Performance Materials segment, showed concentrations of Perfluorinated Compounds ("PFCs") in excess of state ambient groundwater quality standards.

In January 2017, the Company received a notification from the State of New Hampshire Department of Environmental Services ("NHDES") naming Lydall Performance Materials, Inc. a responsible party with respect to the discharge of regulated contaminants and, as such, is required to take action to investigate and remediate the impacts in accordance with standards established by the NHDES. The Company conducted a site investigation, the scope of which was reviewed by the NHDES, in order to assess the extent of potential soil and groundwater contamination and develop a remedial action. Based on input received from NHDES in March 2017 with regard to the scope of the site investigation, the Company recorded \$0.2 million of expense in the first quarter of 2017 associated with the expected costs of conducting this site investigation.

In the fourth quarter of 2017, the Company completed its state-approved site investigation report and submitted it to the NHDES. During the year ended December 31, 2017, the environmental liability of \$0.2 million was reduced by \$0.2 million reflecting payments made to vendors, resulting in no balance at December 31, 2017.

In the first quarter of 2018, the Company received a response from the NHDES to the site investigation report outlining proposed remedial actions. The Company recorded \$0.1 million of expense in the first quarter of 2018 associated with the expected costs to remediate the impacts of the discharge of regulated contaminants in accordance with standards established by the NHDES.

In May of 2018, the Company met with the NHDES to finalize the proposed remedial actions from the site investigation report. The Company recorded a minimal incremental amount in the second quarter of 2018 associated with the cost of the proposed remedial actions resulting in an environmental liability of \$0.1 million at June 30, 2018. Additionally, the Company expects to incur approximately \$0.2 million of capital expenditures in 2018, which will be recorded as incurred, in relation to the lining of the Company's fresh water waste lagoons.

While the site investigation is complete, the Company cannot be sure that costs will not exceed the current estimates until this matter is closed with the NHDES, nor that any future corrective action at this location would not have a material effect on the Company's financial condition, results of operations or liquidity. Provisions for such matters are charged to expense when it is probable that a liability has been incurred and reasonable estimates of the liability can be made. Estimates of environmental liabilities are based on a variety of matters, including, but not limited to, the stage of investigation, the stage of the remedial design, evaluation of existing remediation technologies, and presently enacted laws and regulations. In future periods, a number of factors could significantly impact any estimates of environmental remediation costs.

15. Changes in Accumulated Other Comprehensive Income (Loss)

The following table discloses the changes by classification within accumulated other comprehensive income (loss) for the periods ended June 30, 2018 and 2017:

In thousands	Foreign Currency Translation Adjustment	Defined Benefit Pension Adjustment	Gains and Losses on Cash Flow Hedges	Total Accumulated Other Comprehensive (Loss) Income
Balance at December 31, 2016	\$ (27,885)	\$ (20,065)	\$ —	\$ (47,950)
Other Comprehensive income (loss)	14,513	—	(44) (b)	14,469
Amounts reclassified from accumulated other comprehensive loss	—	344 (a)	—	344
Balance at June 30, 2017	(13,372)	(19,721)	(44)	(33,137)
Balance at December 31, 2017	(2,221)	(18,049)	122	(20,148)
Other Comprehensive (loss) income	(8,604)	—	75 (b)	(8,529)
Amounts reclassified from accumulated other comprehensive loss	—	397 (a)	—	397
Balance at June 30, 2018	\$ (10,825)	\$ (17,652)	\$ 197	\$ (28,280)

(a) Amount represents amortization of actuarial losses, a component of net periodic benefit cost. This amount was \$0.4 million, net of \$0.01 million tax benefit, and \$0.3 million, net of \$0.2 million tax benefit, for the six months ended June 30, 2018 and 2017, respectively.

(b) Amount represents unrealized gains on the fair value of hedging activities, net of taxes, for the six month ended June 30, 2018 and 2017.

16. Subsequent Event

On July 12, 2018, the Company acquired the Precision Filtration division of Precision Custom Coatings based in Totowa, NJ for \$1.0 million in cash with an additional cash payment to be made of up to \$2.0 million based on the achievement of certain future financial targets through 2022. Precision Filtration is a long-time producer of high-quality, air filtration media serving principally the commercial and residential HVAC markets with a range of low efficiency through high-performing air filtration media. The acquisition will be included in Lydall's Performance Materials operating segment.

Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

OVERVIEW AND OUTLOOK

Business

Lydall, Inc. and its subsidiaries (collectively, the "Company" or "Lydall") design and manufacture specialty engineered nonwoven filtration media, industrial thermal insulating solutions, and thermal and acoustical barriers for filtration/separation and heat abatement and sound dampening applications. Lydall principally conducts its business through three reportable segments: Performance Materials, Technical Nonwovens and Thermal Acoustical Solutions, with sales globally. The Performance Materials segment includes filtration media solutions for air, fluid power, and industrial applications ("Filtration"), air and liquid life science applications ("Life Sciences Filtration"), and thermal insulation solutions for building products, appliances, and energy and industrial markets ("Thermal Insulation"). The Technical Nonwovens ("TNW") segment consists of Industrial Filtration products that include nonwoven rolled-goods felt media and filter bags used primarily in industrial air and liquid filtration applications as well as Advanced Materials products that include nonwoven rolled-good media that is used in other commercial applications and predominantly serves the geosynthetics, automotive, industrial and medical markets. Advanced Materials products also include automotive rolled-good material for use in the Thermal Acoustical Solutions segment manufacturing process. Nonwoven filter media is used to satisfy increasing emission control regulations in a wide range of industries, including power, cement, steel, asphalt, incineration, food, and pharmaceutical. The Thermal Acoustical Solutions ("TAS") segment offers innovative engineered products to assist in noise and heat abatement within the transportation and industrial sectors.

Effective January 1, 2018, the Company combined the Thermal/Acoustical Metals and Thermal/Acoustical Fibers operating segments into a single operating segment named Thermal Acoustical Solutions. Combining these automotive segments into one segment is expected to allow the Company to better serve its customers, leverage operating disciplines and drive efficiencies across the global automotive operations.

Second Quarter 2018 Highlights

Below are financial highlights comparing Lydall's quarter ended June 30, 2018 ("Q2 2018") results to its quarter ended June 30, 2017 ("Q2 2017") results:

- Net sales were \$186.4 million in Q2 2018, compared to \$174.9 million in Q2 2017, an increase of \$11.5 million, or 6.6%. The change in consolidated net sales is summarized in the following table:

Components (in thousands)	Change in Net Sales	Percent Change
Parts volume and pricing change	4,004	2.3%
Change in tooling sales	1,768	1.0%
Foreign currency translation	5,762	3.3%
Total	\$ 11,534	6.6%

- On January 1, 2018 the Company adopted Accounting Standards Update No. 2014-09, "Revenue from Contracts with Customers" ("ASC 606"). The impact of adopting ASC 606 for the quarter ended June 30, 2018 resulted in an increase to net sales of \$1.6 million, of which \$1.4 million related to tooling sales, and an increase to net income of \$0.1 million.
- Gross margin decreased 540 basis points to 19.4% in the second quarter of 2018, primarily driven by the Thermal Acoustical Solutions segment, and to a lesser extent the Technical Nonwovens and Performance Materials segments. The Thermal Acoustical Solutions segment negatively impacted consolidated gross margin by approximately 450 basis points due to increased labor and variable overhead expenses of 190 basis points, including outsourcing costs and overtime associated with new product launch activity. Increased commodity costs, primarily aluminum, were approximately 140 basis points. Also, lower sales from customer shutdowns due to a fire at a U.S. supplier to the Company's customers and the resulting fixed costs under-absorption resulted in lower gross margin of approximately 70 basis points.
- Operating income was \$12.2 million, or 6.6%, of net sales in Q2 2018, compared to \$20.0 million, or 11.5% of net sales, in Q2 2017. Operating margin declined due to the negative impact of lower gross margin of 540 basis points. Decreased gross margin was partially offset by a 50 basis point reduction in selling, product development and administrative expenses as a percentage of net sales compared to the second quarter of 2017 primarily due to managed spending coupled with

sales growth. The following components are included in operating income for Q2 2018 and Q2 2017 and impact the comparability of each quarter:

Components (in thousands except per share amounts)	Q2 2018		Q2 2017	
	Operating income effect	EPS impact	Operating income effect	EPS impact
TNW restructuring expenses	(885)	\$ (0.04)	(293)	\$ (0.02)
Strategic initiatives expenses	(1,167)	\$ (0.06)	—	\$ —
Inventory step-up purchase accounting adjustments	—	\$ —	(543)	\$ (0.02)

- The Company's effective tax rate for Q2 2018 was 13.7% compared to 28.7%. U.S. tax law changes that lowered the statutory U.S. tax rate to 21%, tax benefits from discretionary pension plan contributions and the geographical mix of earnings contributed to the effective tax rate being below the statutory rate. The Company now projects its ordinary effective tax rate in 2018 to be in the range of 18% - 19%.
- Net income was \$10.5 million, or \$0.60 per diluted share, in Q2 2018 and \$13.1 million, or \$0.76 per diluted share, in Q2 2017.

Liquidity

Cash was \$50.6 million at June 30, 2018, compared to \$59.9 million at December 31, 2017. Net cash provided by operations was \$11.9 million in the second quarter of 2018 compared to \$15.4 million in the second quarter of 2017, with the reduction primarily driven by strategic raw material inventory purchases and discretionary pension plan contributions.

Outlook

Looking forward in the third quarter of 2018, the Company is seeing solid order activity across all segments and expects low-to-mid single digit consolidated organic sales growth. The Company remains focused on improving operational efficiency and profitability throughout the Company. The Thermal Acoustical Solutions segment will continue to be challenged by increased commodity costs and labor and overhead costs. However, the Company does expect sequential improvement in consolidated margins from second quarter 2018 results. The Technical Nonwovens' restructuring plan remains on-schedule which is expected to reduce operating costs and increase efficiency.

Results of Operations

All of the following tabular comparisons, unless otherwise indicated, are for the quarters ended June 30, 2018 (Q2-18) and June 30, 2017 (Q2-17) and the six months ended June 30, 2018 (YTD-18) and June 30, 2017 (YTD-17).

Net Sales

In thousands	Quarter Ended			Six Months Ended		
	Q2-18	Q2-17	Percent Change	YTD-18	YTD-17	Percent Change
Net sales	\$ 186,413	\$ 174,879	6.6%	\$ 378,073	\$ 340,366	11.1%

Net sales for the second quarter of 2018 increased by \$11.5 million, or 6.6%, compared to the second quarter of 2017. Foreign currency translation had a favorable impact on net sales of \$5.8 million, or 3.3% of consolidated net sales, impacting the Technical Nonwovens, Thermal Acoustical Solutions and Performance Materials segments by \$2.8 million, \$2.1 million and \$0.8 million, respectively. Net sales increased in the Technical Nonwovens segment by \$4.6 million, or 2.6% of consolidated net sales. The Thermal Acoustical Solutions segment reported sales growth of \$4.2 million, or 2.4% of consolidated net sales, including increased tooling sales of 1.9 million. The Performance Materials segment reported growth in net sales of \$1.9 million, or 1.1% of consolidated net sales.

Net sales for the six months ended June 30, 2018 increased by \$37.7 million, or 11.1%, compared to the six months ended June 30, 2017. Foreign currency translation had a favorable impact on net sales of \$15.5 million, or 4.5% of consolidated net sales impacting the Technical Nonwovens, Thermal Acoustical Solutions and Performance Materials segments by \$6.9 million, \$6.2 million and \$2.4 million, respectively. Net sales increased in the Thermal Acoustical Solutions segment by \$20.8 million, or 6.1% of consolidated net sales, including increased tooling sales of \$12.2 mill

ion. The increase in tooling sales was primarily due to the Company's adoption of ASC 606 which resulted in the recognition of \$7.6 million of tooling sales as the Company's performance obligations were satisfied over time in the first six months of 2018 compared to the first six months of 2017 when tooling sales were recognized when delivered and accepted by the customer. The Technical Nonwovens segment reported sales growth of \$13.2 million, or 3.9% of consolidated net sales. The Performance Materials segment reported growth in net sales of \$3.9 million, or 1.1% of consolidated net sales.

Cost of Sales

In thousands of dollars	Quarter Ended			Six Months Ended		
	Q2-18	Q2-17	Percent Change	YTD-18	YTD-17	Percent Change
Cost of sales	\$ 150,286	\$ 131,552	14.2%	\$ 302,439	\$ 256,541	17.9%

Cost of sales for the second quarter of 2018 increased by \$18.7 million, or 14.2%, compared to the second quarter of 2017. The increase in cost of sales was primarily due to increased sales volumes across all segments of \$5.8 million excluding foreign currency impact, in addition to foreign currency translation which increased cost of sales by \$5.0 million, or 3.8%. Also, in the Thermal Acoustical Solutions segment increased labor and variable overhead expenses, including outsourcing costs, and greater raw material commodity costs, primarily aluminum, increased cost of sales by approximately \$6.2 million.

Cost of sales for the first six months of 2018 increased by \$45.9 million, or 17.9%, compared to the first six months of 2017. The increase in cost of sales was primarily due to increased sales volumes across all segments of \$22.2 million excluding foreign currency impact, in addition to foreign currency translation which increased cost of sales by \$13.2 million, or 5.1%. In the Thermal Acoustical Solutions segment, increased labor and variable overhead expenses, including outsourcing costs, expedited freight expenses for customer deliveries caused by equipment downtime and other inefficiencies, and greater raw material commodity costs, primarily aluminum, increased cost of sales by approximately \$10.6 million. Cost of sales also increased in the first six months of 2018 compared to the first six months of 2017 due to raw material commodity increases in the Technical Nonwovens segment.

Gross Profit

In thousands	Quarter Ended			Six Months Ended		
	Q2-18	Q2-17	Percent Change	YTD-18	YTD-17	Percent Change
Gross profit	\$ 36,127	\$ 43,327	(16.6)%	\$ 75,634	\$ 83,825	(9.8)%
Gross margin	19.4%	24.8%		20.0%	24.6%	

Gross margin for the second quarter of 2018 was 19.4% compared to 24.8% in the second quarter of 2017. The Thermal Acoustical Solutions segment negatively impacted consolidated gross margin by approximately 450 basis points, primarily related to increased labor and variable overhead expenses of approximately 190 basis points, including outsourcing costs and overtime associated with new product launch activity. Increased raw material commodity costs, primarily aluminum, were approximately 140 basis points. Also, lower sales from customer shut-downs due to a supplier fire and the resulting fixed costs under-absorption resulted in lower gross margin of approximately 70 basis points. The Technical Nonwovens segment negatively impacted consolidated gross margin by approximately 60 basis points, primarily related to restructuring related expenses of \$0.9 million, or 50 basis points and higher raw material commodity costs, partially offset by the absence of the negative impact of \$0.5 million, or 30 basis points, of purchase accounting adjustments relating to inventory step up in the second quarter of 2017. Additionally, the Performance Materials segment negatively impacted consolidated gross margin by approximately 20 basis points, primarily due to increased labor and variable overhead expenses.

Gross margin for the first six months of 2018 was 20.0% compared to 24.6% in the first six months of 2017. The Thermal Acoustical Solutions segment negatively impacted consolidated gross margin by approximately 370 basis points, primarily related to increased labor and variable overhead expenses of approximately 180 basis points, including outsourcing costs, overtime associated with new product launch activity and expedited freight expenses for customer deliveries caused by equipment downtime and other inefficiencies. Increased commodity costs, primarily aluminum, were approximately 100 basis points. Also, lower sales from customer shut-downs due to a supplier fire and the resulting fixed costs under-absorption resulted in lower gross margin of approximately 40 basis points. Finally, continued lower customer pricing on certain automotive parts reduced gross margin by approximately 40 basis points in the first six months of 2018 compared to the first six months of 2017. The Technical Nonwovens segment negatively impacted consolidated gross margin by approximately 60 basis points, primarily related to restructuring related expenses of \$1.3 million, or 40 basis points, higher raw material commodity costs and incremental lease expense related to the new China facility, partially offset by the absence of the negative impact of \$1.0 million, or 30 basis points, of purchase accounting adjustments r

relating to inventory step up in the first half of 2017. Additionally, the Performance Materials segment negatively impacted consolidated gross margin by approximately 30 basis points, primarily as a result of reduced customer pricing and increased labor and overhead costs.

Selling, Product Development and Administrative Expenses

In thousands	Quarter Ended			Six Months Ended		
	Q2-18	Q2-17	Percent Change	YTD-18	YTD-17	Percent Change
Selling, product development and administrative expenses	\$ 23,878	\$ 23,290	2.5%	\$ 49,349	\$ 48,640	1.5%
Percentage of sales	12.8%	13.3%		13.1%	14.3%	

Selling, product development and administrative expenses for the second quarter of 2018 increased by \$0.6 million compared to the second quarter of 2017. This increase was primarily related to greater corporate strategic initiatives expenses of \$1.2 million in pursuit of attractive acquisitions, salaries and benefits of \$0.4 million and intangibles amortization expense of \$0.4 million. These increases were primarily offset by lower accrued incentive compensation expense of \$0.9 million, based on the company's achievement of financial targets under its annual incentive program, and a reduction in sales commission expenses of \$0.4 million due to lower sales of certain automotive parts in the second quarter of 2018 compared to the second quarter of 2017. Selling, product development and administrative expenses decreased 50 basis points as a percentage of net sales compared to the second quarter of 2017 primarily due to managed spending coupled with sales growth.

Selling, product development and administrative expenses for the first six months of 2018 increased by \$0.7 million compared to the first six months of 2017. This increase was primarily related to greater strategic initiatives expenses of \$1.1 million in pursuit of attractive acquisitions, salaries and benefits of \$0.9 million, intangibles amortization expense of \$0.7 million and higher professional fees of \$0.6 million. These increases were primarily offset by lower accrued incentive compensation expense of \$0.9 million, based on the company's expected achievement of financial targets under its annual incentive program, the absence of a non-cash long-lived asset impairment charge of \$0.8 million incurred in the first quarter of 2017 in the Performance Materials segment, lower severance expenses of \$0.5 million, and reduced sales commission expenses of \$0.3 million in the first six months of 2018 compared to the first six months of 2017. Selling, product development and administrative expenses decreased 120 basis points as a percentage of net sales compared to the first six months of 2017 primarily due to managed spending coupled with sales growth.

Interest Expense

In thousands	Quarter Ended			Six Months Ended		
	Q2-18	Q2-17	Percent Change	YTD-18	YTD-17	Percent Change
Interest expense	\$ 572	\$ 795	(28.1)%	\$ 1,112	\$ 1,401	(20.6)%
Weighted average interest rate	2.9%	2.2%		2.8%	2.0%	

The decrease in interest expense for the quarter and six months ended June 30, 2018 compared to the quarter and six months ended June 30, 2017 was due to lower average borrowings outstanding, partially offset by increased interest rates under the Company's Amended Credit Facility used to finance both the Texel and Gutsche acquisitions in 2016.

Other Income/Expense, net

In thousands	Quarter Ended			Six Months Ended		
	Q2-18	Q2-17	Dollar Change	YTD-18	YTD-17	Dollar Change
Other (income) expense, net	\$ (368)	\$ 792	\$ (1,160)	\$ (53)	\$ 1,125	\$ (1,178)

The increase in other income, net for the quarter and six months ended June 30, 2018 compared to the quarter and six months ended June 30, 2017 was primarily related to net foreign currency gains recognized with the revaluation of cash, trade payables and receivables and intercompany loans denominated in currencies other than the functional currencies of the Company's subsidiaries.

Income Taxes

On December 22, 2017, the United States enacted significant changes to U.S. tax law following the passage and signing of the Tax Cuts and Jobs Act (the "Tax Reform Act"). The Company has followed guidance in Staff Accounting Bulletin No.118 ("SAB 118"), which provides a measurement period, not to exceed one year from the enactment of the Tax Reform Act, and recorded provisional items related to the one-time mandatory repatriation of foreign earnings and the revaluation of deferred tax assets and liabilities for the year ended December 31, 2017. For the quarter ended June 30, 2018, the Company continued to perform analysis and evaluate interpretations and additional regulatory guidance but did not record any adjustments to these provisional items and has not deemed any of them as complete.

The Company's effective tax rate was 13.7% and 28.7% for the quarters ended June 30, 2018 and 2017, respectively, and 15.0% and 23.9% for the six months ended June 30, 2018 and 2017, respectively. The difference in the Company's effective tax rate for the quarter ended June 30, 2018 compared to June 30, 2017 was primarily related to the reduction of the U.S. corporate tax rate from 35% to 21% under the Tax Reform Act, tax benefits of \$0.4 million related to additional tax deductible pension contributions and the geographical mix of earnings. The difference in the Company's effective tax rate for the six months ended June 30, 2018 compared to June 30, 2017 was primarily related to the reduction of the U.S. corporate tax rate from 35% to 21% under the Tax Reform act and the geographical mix of earnings.

The Company and its subsidiaries file a consolidated federal income tax return, as well as returns required by various state and foreign jurisdictions. In the normal course of business, the Company is subject to examination by taxing authorities, including such major jurisdictions as the United States, France, Germany, China, the United Kingdom, Canada and the Netherlands. With few exceptions, the Company is no longer subject to U.S. federal examinations for years before 2015, state and local examinations for years before 2013, and non-U.S. income tax examinations for years before 2003.

The Company's effective tax rates in future periods could be affected by earnings being higher or lower in countries where tax rates differ from the United States federal tax rate, the relative impact of permanent tax adjustments on higher or lower earnings from domestic operations, changes in net deferred tax asset valuation allowances, stock vesting, the completion of acquisitions or divestitures, changes in tax rates or tax laws and the completion of tax projects and audits.

Segment Results

The following tables present net sales information for the key product and service groups included within each operating segment as well as other products and services and operating income by segment, for the quarter and six months ended June 30, 2018 compared with the quarter ended June 30, 2017:

Net sales by segment:

In thousands	Quarter Ended		
	Q2-18	Q2-17	Dollar Change
Performance Materials Segment:			
Filtration	\$ 20,574	\$ 19,255	\$ 1,319
Thermal Insulation	7,796	7,407	389
Life Sciences Filtration	2,864	2,639	225
Performance Materials Segment net sales	31,234	29,301	1,933
Technical Nonwovens Segment:			
Industrial Filtration	39,170	36,325	2,845
Advanced Materials (1)	32,542	30,773	1,769
Technical Nonwovens net sales	71,712	67,098	4,614
Thermal Acoustical Solutions Segment:			
Parts	82,920	80,648	2,272
Tooling	7,249	5,354	1,895
Thermal Acoustical Solutions Segment net sales	90,169	86,002	4,167
Eliminations and Other (1)	(6,702)	(7,522)	820
Consolidated Net Sales	\$ 186,413	\$ 174,879	\$ 11,534
In thousands	Six Months Ended		
	YTD-18	YTD-17	Dollar Change
Performance Materials Segment:			
Filtration	\$ 41,264	\$ 38,100	\$ 3,164
Thermal Insulation	15,303	14,833	470
Life Sciences Filtration	5,360	5,119	241
Performance Materials Segment net sales	61,927	58,052	3,875
Technical Nonwovens Segment:			
Industrial Filtration	79,401	70,538	8,863
Advanced Materials (1)	59,852	55,478	4,374
Technical Nonwovens net sales	139,253	126,016	13,237
Thermal Acoustical Solutions Segment:			
Parts	171,041	162,462	8,579
Tooling	20,565	8,325	12,240
Thermal Acoustical Solutions Segment net sales	191,606	170,787	20,819
Eliminations and Other (1)	(14,713)	(14,489)	(224)
Consolidated Net Sales	\$ 378,073	\$ 340,366	\$ 37,707

Operating income by segment:

In thousands	Quarter Ended				
	Q2-18		Q2-17		Dollar Change
	Operating Income	Operating Margin %	Operating Income	Operating Margin %	
Performance Materials	\$ 3,649	11.7%	\$ 3,933	13.4%	\$ (284)
Technical Nonwovens	6,118	8.5%	6,535	9.7%	(417)
Thermal Acoustical Solutions	8,820	9.8%	15,395	17.9%	(6,575)
Corporate Office Expenses	(6,338)		(5,826)		(512)
Consolidated Operating Income	\$ 12,249	6.6%	\$ 20,037	11.5%	\$ (7,788)

In thousands	Six Months Ended				
	YTD-18		YTD-17		Dollar Change
	Operating Income	Operating Margin %	Operating Income	Operating Margin %	
Performance Materials	\$ 6,290	10.2%	\$ 5,591	9.6%	\$ 699
Technical Nonwovens	11,124	8.0%	11,203	8.9%	(79)
Thermal Acoustical Solutions	21,434	11.2%	30,191	17.7%	(8,757)
Corporate Office Expenses	(12,563)		(11,800)		(763)
Consolidated Operating Income	\$ 26,285	7.0%	\$ 35,185	10.3%	\$ (8,900)

(1)Included in the Technical Nonwovens segment and Eliminations and Other is \$5.8 million and \$6.8 million in intercompany sales to the Thermal Acoustical Solutions segment for the quarters ended June 30, 2018 and 2017, respectively, and \$12.9 million and \$13.1 million for the six months ended June 30, 2018 and 2017, respectively.

Performance Materials

Segment net sales increased \$1.9 million, or 6.6%, in the second quarter of 2018 compared to the second quarter of 2017. The increase was primarily due to increased net sales of filtration products of approximately \$1.3 million, or 6.8%, due to increased demand in the air filtration market, particularly in North America. The Company's adoption of ASC 606, which impacts the timing of revenue recognition, had a minimal impact on net sales in the second quarter of 2018. Foreign currency translation favorably impacted segment net sales by \$0.8 million, or 2.8%, in the second quarter of 2018 compared to the second quarter of 2017.

The Performance Materials segment reported operating income of \$3.6 million, or 11.7% of net sales, in the second quarter of 2018, compared to operating income of \$3.9 million, or 13.4% of net sales, in the second quarter of 2017. The decrease in operating margin of 170 basis points was primarily due to lower gross margins of 120 basis points due to increased labor costs and variable overhead costs. Additionally contributing to lower operating income was increased selling, product development and administrative expenses of \$0.4 million, or 50 basis points as a percentage of net sales, in the second quarter of 2018 compared to the second quarter of 2017 primarily related to small increases in various administrative expenses. Foreign currency translation had a minimal impact on operating income in the second quarter of 2018 compared to the second quarter of 2017.

Segment net sales increased \$3.9 million, or 6.7%, in the first six months of 2018 compared to the first six months of 2017. The increase was primarily due to foreign currency translation which had a positive impact on net sales of \$2.4 million, or 4.1%. Net sales of filtration products increased approximately \$3.2 million, or 8.3%, due to increased demand in both the fluid power and air filtration markets. The Company's adoption of ASC 606 contributed \$0.5 million of the sales increase in the first six months of 2018.

The Performance Materials segment reported operating income of \$6.3 million, or 10.2% of net sales, in the first six months of 2018, compared to operating income of \$5.6 million, or 9.6% of net sales, in the first six months of 2017. The increase in operating margin of 60 basis points was attributable to decreased selling, product development and administrative expenses of \$0.2 million, or 150 basis points as a percentage of net sales, due to the absence of \$0.8 million of expense from a non-cash long-lived asset impairment charge in the first quarter of 2017, partially offset by increased salaries and benefits of \$0.2 million and an increase in other administrative expenses of \$0.4 million in the first six months of 2018 compared to the first six months of 2017. Lower selling, product development and administrative expenses were partially offset by lower gross margin of approximately 90 basis points due to decreased customer pricing and increased overhead and labor costs, partially offset by lower raw material costs. Foreign currency translation had a positive impact on operating income of \$0.2 milli

on, or 3.1%, in the first six months of 2018 compared to the first six months of 2017.

Technical Nonwovens

Segment net sales increased \$4.6 million, or 6.9%, in the second quarter of 2018 compared to the second quarter of 2017. Foreign currency translation had a positive impact on segment net sales of \$2.8 million, or 4.2%, in the second quarter of 2018 compared to the second quarter of 2017. Industrial filtration net sales increased \$2.8 million, or 7.8%, particularly from increased demand in Europe and North America. Additionally, advanced materials sales increased \$1.8 million, or 5.7%, due to increased demand in the Canadian market. The Company's adoption of ASC 606 contributed \$0.2 million of the sales increase in the second quarter of 2018.

The Technical Nonwovens segment reported operating income of \$6.1 million, or 8.5% of net sales, in the second quarter of 2018, compared to \$6.5 million, or 9.7% of net sales, in the second quarter of 2017. The decrease in operating income and operating margin of 120 basis points was attributable to lower gross margin of approximately 160 basis points. Gross margin was negatively impacted by segment restructuring expenses of \$0.9 million, or 120 basis points, as well as higher raw material costs and incremental lease expense related to the new China facility, partially offset by inventory step-up of \$0.5 million, or 80 basis points, in the second quarter of 2017. Selling, product development and administrative expenses increased \$0.2 million in the second quarter of 2018 compared to the second quarter of 2017, but decreased by approximately 40 basis points as a percentage of net sales. The increase in selling, product development and administrative expenses was primarily related to higher amortization of intangible assets of \$0.4 million in the second quarter of 2018 compared to the second quarter of 2017. Foreign currency translation had a minimal impact on operating income in the second quarter of 2018 compared to the second quarter of 2017.

Segment net sales increased \$13.2 million, or 10.5%, in the first six months of 2018 compared to the first six months of 2017 primarily due to increased industrial filtration sales of \$8.9 million, or 12.6%, particularly from increased demand in Europe and North America. Additionally, advanced materials net sales increased \$4.4 million, or 7.9%, primarily due to increased demand in Canada. Foreign currency translation had a positive impact on segment net sales of \$6.9 million, or 5.5%, in the first six months of 2018 compared to the first six months of 2017. The Company's adoption of ASC 606 had a minimal impact on net sales in the first six months of 2018.

The Technical Nonwovens segment reported operating income of \$11.1 million, or 8.0% of net sales, in the first six months of 2018, compared to \$11.2 million, or 8.9% of net sales, in the first six months of 2017. The decrease in operating margin of 90 basis points was attributable to lower gross margin of approximately 140 basis points. Gross margin was negatively impacted by segment restructuring expenses of \$1.3 million, or 90 basis points, higher raw material costs and incremental lease expense related to the new China facility of 30 basis points each, and was partially offset by inventory step-up of \$1.0 million, or 80 basis points, in the first six months of 2017. Selling, product development and administrative expenses increased \$0.7 million in the first six months of 2018 compared to the first six months of 2017, but decreased by approximately 60 basis points as a percentage of net sales. The increase in selling, product development and administrative expenses was primarily related to increased salaries and benefits of \$0.8 million and higher amortization of intangible assets of \$0.7 million, partially offset by lower accrued incentive compensation of \$0.4 million and a decrease in other administrative expenses of \$0.4 million. Foreign currency translation had a favorable impact on operating income of \$0.3 million, or 2.7%, in the first six months of 2018 compared to the first six months of 2017.

Thermal Acoustical Solutions

Segment net sales increased \$4.2 million, or 4.8%, in the second quarter of 2018 compared to the second quarter of 2017. Parts net sales increased \$2.3 million, or 2.8%, compared to the second quarter of 2017, due to increased demand in Europe and Asia, partially offset by decreased sales in North America from multiple customer shutdowns due to a fire at a U.S. supplier to the customers and reduced customer pricing on certain parts. The Company's adoption of ASC 606 had a minimal impact on parts net sales in the second quarter of 2018. Tooling net sales increased \$1.9 million compared to the second quarter of 2017 due to new platform launches and the impact of the Company's adoption of ASC 606. The new standard resulted in the recognition of an additional \$1.4 million of segment tooling sales that under prior accounting rules would have been recognized upon delivery and acceptance by the customer in a later period. Foreign currency translation had a positive impact on segment net sales of \$2.1 million, or 2.5%, in the second quarter of 2018 compared to the second quarter of 2017.

The Thermal Acoustical Solutions segment reported operating income of \$8.8 million, or 9.8% of net sales, in the second quarter of 2018, compared to operating income of \$15.4 million, or 17.9% of net sales, in the second quarter of 2017. The decrease in operating income of \$6.6 million and operating margin of 810 basis points was due to lower gross margin of 890 basis points. Labor and variable overhead expenses increased by approximately 400 basis points, including outsourcing costs and overtime associated with new product launch activity. Increased commodity costs, primarily aluminum, were approximately 290 basis points. Additionally, lower sales from customer shut-downs due to a supplier fire and the resulting fixed costs under-absorption resulted in lower

gross margin of approximately 170 basis points. This decrease to gross margin was partially offset by a \$0.5 million decrease in selling product development and administrative expenses, or an 80 basis point decrease as a percentage of net sales, primarily from lower accrued incentive compensation of \$0.3 million in the second quarter of 2018 compared to the second quarter of 2017. Foreign currency translation had a minimal impact on operating income in the second quarter of 2018 compared to the second quarter of 2017.

Segment net sales increased \$20.8 million, or 12.2%, in the first six months of 2018 compared to the first six months of 2017. Tooling net sales increased \$12.2 million compared to the first six months of 2017 due to new platform launches and the impact of the Company's adoption of ASC 606. The new standard resulted in the recognition of an additional \$7.6 million of segment tooling sales that under prior accounting rules would have been recognized upon delivery and acceptance by the customer in a later period. Additionally, parts net sales increased \$8.6 million, or 5.3%, compared to the first six months of 2017, due to increased demand in Europe and China, partially offset by decreased sales in North America, primarily from multiple customer shutdowns due to a fire at a U.S. supplier to the OEMs and reduced customer pricing on certain parts. The Company's adoption of ASC 606 had a minimal impact on parts net sales in the first six months of 2018. Foreign currency translation had a positive impact on segment net sales of \$6.2 million, or 3.6%, in the first six months of 2018 compared to the first six months of 2017.

The Thermal Acoustical Solutions segment reported operating income of \$21.4 million, or 11.2% of net sales, in the first six months of 2018, compared to operating income of \$30.2 million, or 17.7% of net sales, in the first six months of 2017. The decrease in operating income of \$8.8 million and operating margin of 650 basis points was due to lower gross margin of 750 basis points primarily due to increased labor and variable overhead expenses of approximately 350 basis points, including outsourcing costs, overtime associated with new product launch activity and expedited freight expenses for customer deliveries caused by equipment downtime and other inefficiencies. Increased raw material commodity costs, primarily aluminum, were approximately 200 basis points. Also, lower sales from customer shut-downs and the resulting fixed costs under-absorption resulted in lower gross margin of approximately 80 basis points. This decrease to gross margin was partially offset by a 100 basis point decrease in selling, product development and administrative expenses as a percentage of net sales due to managed spending coupled with sales growth. Lower severance of \$0.3 million and salaries and sales commissions of \$0.3 million were partially offset by increased stock compensation expense of \$0.2 million in the first six months of 2018 compared to the first six months of 2017. Foreign currency translation had a favorable impact on operating income of \$0.2 million, or 0.7%, in the first six months of 2018 compared to the first six months of 2017.

Corporate Office Expenses

Corporate office expenses for the second quarter of 2018 were \$6.3 million, compared to \$5.9 million in the second quarter of 2017. The increase of \$0.4 million was primarily due to increased corporate strategic initiatives expense of \$1.2 million, partially offset by lower accrued incentive compensation of \$0.5 million and decreased other administrative expenses of \$0.3 million in the second quarter of 2018 compared to the second quarter of 2017.

Corporate office expenses for the first six months of 2018 were \$12.5 million, compared to \$11.9 million in the first six months of 2017. The increase of \$0.6 million was primarily due to increased corporate strategic initiatives expense of \$1.2 million, partially offset by lower accrued incentive compensation of \$0.4 million and decreased other administrative expenses of \$0.2 million in the first six months of 2018 compared to the first six months of 2017.

Liquidity and Capital Resources

The Company assesses its liquidity in terms of its ability to generate cash to fund operating, investing and financing activities. The principal source of liquidity is operating cash flows. In addition to operating cash flows, other significant factors that affect the overall management of liquidity include capital expenditures, investments in businesses, strategic transactions, income tax payments, debt service payments, outcomes of contingencies, foreign currency exchange rates and pension funding. The Company manages worldwide cash requirements by considering available funds among domestic and foreign subsidiaries. The Company expects to finance its 2018 operating cash and capital spending requirements from existing cash balances, cash provided by operating activities and through borrowings under the Amended Credit Facility, as needed.

At June 30, 2018, the Company held \$50.6 million in cash and cash equivalents, including \$14.3 million in the U.S. with the remaining held by foreign subsidiaries.

Financing Arrangements

On July 7, 2016, the Company amended its \$100 million senior secured revolving credit facility ("Amended Credit Facility") which increased the available borrowing from \$100 million to \$175 million, added a fourth lender and changed the maturity date

from January 31, 2019 to July 7, 2021. The Amended Credit Facility is secured by substantially all of the assets of the Company. The Company entered into this Amended Credit Facility in part to fund a majority of the 2016 acquisitions and provide additional capacity to support organic growth programs, fund capital investments and continue pursuits of attractive acquisitions.

Under the terms of the Amended Credit Facility, the lenders are providing a \$175 million revolving credit facility to the Company, under which the lenders may make revolving loans and issue letters of credit to or for the benefit of the Company and its subsidiaries. The Company may request the Amended Credit Facility be increased by an aggregate amount not to exceed \$50 million through an accordion feature, subject to specified conditions.

The Amended Credit Facility contains a number of affirmative and negative covenants, including financial and operational covenants. The Company is required to meet a minimum interest coverage ratio. The interest coverage ratio requires that, at the end of each fiscal quarter, the ratio of consolidated EBIT to Consolidated Interest Charges, both as defined in the Amended Credit Facility, may not be less than 2.0 to 1.0 for the immediately preceding 12 month period. In addition, the Company must maintain a Consolidated Leverage Ratio, as defined in the Amended Credit Facility, as of the end of each fiscal quarter of no greater than 3.0 to 1.0. The Company must also meet minimum consolidated EBITDA as of the end of each fiscal quarter for the preceding 12 month period of \$30 million.

Interest is charged on borrowings at the Company's option of either: (i) Base Rate plus the Applicable Rate, or (ii) the Eurodollar Rate plus the Applicable Rate. The Base Rate is a fluctuating rate equal to the highest of (a) the federal funds rate plus 0.50%, (b) the prime rate as set by Bank of America, and (c) the Eurocurrency Rate plus 1.00%. The Eurocurrency Rate means (i) if denominated in LIBOR quoted currency, a fluctuating LIBOR per annum rate equal to the London Interbank Offered Rate; (ii) if denominated in Canadian Dollars, the rate per annum equal to the Canadian Dealer Offered Rate; or (iii) the rate per annum as designated with respect to such alternative currency at the time such alternative currency is approved by the Lenders. The Applicable Rate is determined based on the Company's Consolidated Leverage Ratio (as defined in the Amended Credit Agreement). The Applicable Rate added to the Base Rate Committed Loans ranges from 15 basis points to 100 basis points, and the Applicable Rate added to Eurocurrency Rate Committed Loans and Letters of Credit ranges from 75 basis points to 175 basis points. The Company pays a quarterly fee ranging from 17.5 basis points to 30 basis points on the unused portion of the \$175 million available under the Amended Credit Facility. At June 30, 2018, the Company had borrowing availability of \$94.5 million under the Amended Credit Facility net of \$76.6 million of borrowings outstanding and standby letters of credit outstanding of \$3.9 million.

In addition to the amounts outstanding under the Amended Credit Facility, the Company has various acquired foreign credit facilities totaling approximately \$8.4 million. At June 30, 2018, the Company's foreign subsidiaries had \$0.1 million in borrowings outstanding as well as \$2.0 million in standby letters of credit outstanding.

In April 2017, the Company entered into a three-year interest rate swap agreement transacted with a bank which converts the interest on the first notional \$60.0 million of the Company's one-month LIBOR-based borrowings under its revolver loan from a variable rate, plus the borrowing spread, to a fixed rate of 1.58% plus the borrowing spread. The notional amount reduces quarterly by \$5.0 million through March 31, 2020. The Company is accounting for the interest rate swap agreement as a cash flow hedge. Effectiveness of this derivative agreement is assessed quarterly by ensuring that the critical terms of the swap continue to match the critical terms of the hedged debt.

Operating Cash Flows

Net cash provided by operating activities in the first six months of 2018 was \$8.0 million compared with \$27.8 million in the first six months of 2017. In the first six months of 2018, net income and non-cash adjustments were \$39.5 million compared to \$41.9 million in the first six months of 2017. Since December 31, 2017, net operating assets and liabilities increased by \$31.5 million, primarily due to increases of \$11.9 million in accounts receivable, \$15.6 million in inventories and \$7.6 million in contract assets, partially offset by a decrease of \$7.4 million in accounts payable. Also, contributions to the Company's defined benefit pension plan increased by \$1.8 million in the first six months of 2018 compared to 2017. The Company expects to contribute approximately \$7.0 million in 2018 to further fund the plan. The increase in accounts receivable and contract assets was primarily due to higher net sales across all segments in the second quarter of 2018 compared to the fourth quarter of 2017. The increase in inventory was principally due to higher raw material inventories, primarily associated with strategic purchases within the Technical Nonwovens segment to ensure sufficient levels of inventory to meet seasonal demands. The increase in accounts payable was primarily driven by the timing of vendor payments within the Technical Nonwovens segment, as well as the timing of payments for capital expenditures during the first six months of 2018.

Investing Cash Flows

In the first six months of 2018, net cash used for investing activities was \$16.1 million compared to \$15.4 million in the first six

months of 2017. Investing activities in the first six months of 2018 consisted of cash outflows of \$16.3 million for capital expenditures and cash proceeds from the sale of equipment of \$0.2 million. Investing activities in the first six months of 2017 consisted of cash outflows of \$15.1 million for capital expenditures and a final purchase price adjustment of \$0.4 million related to the Gutsche acquisition. Capital spending for 2018 is expected to be approximately \$30 million to \$35 million.

Financing Cash Flows

In the first six months of 2018, net cash used for financing activities was \$0.3 million compared to \$23.8 million in the first six months of 2017. Debt repayments were \$0.1 million and \$21.6 million under the Company's Amended Credit Facility in the first six months of 2018 and 2017, respectively. The Company acquired \$0.8 million and \$2.5 million in company stock through its equity compensation plans during the first six months of 2018 and 2017, respectively. The Company received \$0.7 million from the exercise of stock options in the first six months of 2018, compared to \$0.3 million in the first six months of 2017.

Critical Accounting Estimates

The preparation of the Company's consolidated financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Note 1 of the "Notes to Consolidated Financial Statements" and Critical Accounting Estimates in Item 7 of the Company's Annual Report on Form 10-K for the year ended December 31, 2017, and the "Notes to Condensed Consolidated Financial Statements" of this report describe the significant accounting policies and critical accounting estimates used in the preparation of the consolidated financial statements. The Company's management is required to make judgments and estimates about the effect of matters that are inherently uncertain. Actual results could differ from management's estimates. There have been no significant changes in the Company's critical accounting estimates during the quarter or six months ended June 30, 2018, except for those described in Note 2 of this report in relation to the Company's adoption of ASC 606.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Lydall's limited market risk exposures relate to changes in foreign currency exchange rates and interest rates.

Foreign Currency Risk

The Company has operations in France, Germany, China, the United Kingdom, Canada and the Netherlands, in addition to the United States. As a result of this, the Company's financial results are affected by factors such as changes in foreign currency exchange rates or economic conditions in the foreign markets where the Company manufactures and distributes its products. The Company's currency exposure is to the US Dollar, the Euro, the Chinese Yuan, the British Pound Sterling, the Canadian Dollar, the Japanese Yen and the Hong Kong Dollar. The Company's foreign and domestic operations attempt to limit foreign currency exchange transaction risk by completing transactions in local functional currencies, whenever practicable. The Company may periodically enter into foreign currency forward exchange contracts to mitigate exposure to foreign currency volatility. In addition, the Company utilizes bank loans and other debt instruments throughout its operations. To mitigate foreign currency risk, such debt is denominated primarily in the functional currency of the operation maintaining the debt.

The Company also has exposure to fluctuations in currency risk on intercompany loans that the Company makes to certain of its subsidiaries. The Company may periodically enter into foreign currency forward contracts which are intended to offset the impact of foreign currency movements on the underlying intercompany loan obligations.

Interest Rate Risk

The Company's interest rate exposure is most sensitive to fluctuations in interest rates in the United States and Europe, which impact interest paid on its debt. The Company has debt with variable rates of interest based generally on LIBOR. Increases in interest rates could therefore significantly increase the associated interest payments that the Company is required to make on this debt. From time to time, the Company may enter into interest rate swap agreements to manage interest rate risk. The Company has assessed its exposure to changes in interest rates by analyzing the sensitivity to Lydall's earnings assuming various changes in market interest rates. Assuming a hypothetical increase of one percentage point in interest rates on the variable interest rate debt as of June 30, 2018, the Company's net income would decrease by an estimated \$0.4 million over a twelve-month period.

In April 2017, the Company entered into a three-year interest rate swap agreement transacted with a bank which converts the interest on the first notional \$60.0 million of the Company's one-month LIBOR-based borrowings under its revolver loan from a variable rate, plus the borrowing spread, to a fixed rate of 1.58% plus the borrowing spread. The notional amount reduces quarterly by \$5.0 million through March 31, 2020.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

The Company's management, including the Company's President and Chief Executive Officer (the "CEO") and the Executive Vice President and Chief Financial Officer (the "CFO"), conducted an evaluation of the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")). There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives. The Company's disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission (the "SEC"), and that such information is accumulated and communicated to management of the Company, with the participation of its CEO and CFO, as appropriate to allow timely decisions regarding required disclosure. Based on that evaluation, the CEO and CFO have concluded that the Company's disclosure controls and procedures were effective as of June 30, 2018 at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There have not been any changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) and Rule 15d-15(f) under the Exchange Act) during the quarter ended June 30, 2018 that materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

The Company is subject to legal proceedings, claims, investigations and inquiries that arise in the ordinary course of business such as, but not limited to, actions with respect to commercial, intellectual property, employment, personal injury, and environmental matters. The Company believes that it has meritorious defenses against the claims currently asserted against it and intends to defend them vigorously. While the outcome of litigation is inherently uncertain and the Company cannot be sure that it will prevail in any of the cases, subject to the matter referenced below, the Company is not aware of any matters pending that are expected to have a material adverse effect on the Company's business, financial position, results of operations or cash flows.

In the fourth quarter of 2016, as part of a groundwater discharging permitting process, water samples collected from wells and process water basins at the Company's Rochester New Hampshire manufacturing facility, within the Performance Materials segment, showed concentrations of Perfluorinated Compounds ("PFCs") in excess of state ambient groundwater quality standards.

In January 2017, the Company received a notification from the State of New Hampshire Department of Environmental Services ("NHDES") naming Lydall Performance Materials, Inc. a responsible party with respect to the discharge of regulated contaminants and, as such, is required to take action to investigate and remediate the impacts in accordance with standards established by the NHDES. The Company conducted a site investigation, the scope of which was reviewed by the NHDES, in order to assess the extent of potential soil and groundwater contamination and develop a remedial action. Based on input received from NHDES in March 2017 with regard to the scope of the site investigation, the Company recorded \$0.2 million of expense in the first quarter of 2017 associated with the expected costs of conducting this site investigation.

In the fourth quarter of 2017, the Company completed its state-approved site investigation report and submitted it to the NHDES. During the year ended December 31, 2017, the environmental liability of \$0.2 million was reduced by \$0.2 million reflecting payments made to vendors, resulting in no balance at December 31, 2017.

In the first quarter of 2018, the Company received a response from the NHDES to the site investigation report outlining proposed remedial actions. The Company recorded \$0.1 million of expense in the first quarter of 2018 associated with the expected costs to remediate the impacts of the discharge of regulated contaminants in accordance with standards established by the NHDES.

In May of 2018, the Company met with the NHDES to finalize the proposed remedial actions from the site investigation report. The Company recorded a minimal incremental amount in the second quarter of 2018 associated with the cost of the proposed remedial actions resulting in an environmental liability of \$0.1 million at June 30, 2018. Additionally, the Company expects to incur approximately \$0.2 million of capital expenditures in 2018, which will be recorded as incurred, in relation to the lining of the Company's fresh water waste lagoons.

While the site investigation is complete, the Company cannot be sure that costs will not exceed the current estimates until this matter is closed with the NHDES, nor that any future corrective action at this location would not have a material effect on the Company's financial condition, results of operations or liquidity. Provisions for such matters are charged to expense when it is probable that a liability has been incurred and reasonable estimates of the liability can be made. Estimates of environmental liabilities are based on a variety of matters, including, but not limited to, the stage of investigation, the stage of the remedial design, evaluation of existing remediation technologies, and presently enacted laws and regulations. In future periods, a number of factors could significantly impact any estimates of environmental remediation costs.

Item 1A. Risk Factors

See Part I, Item 1A of the Company's Annual Report on Form 10-K for the year ended December 31, 2017, as updated by Part I, Item 1. Legal Proceedings of this report. The risks described in the Annual Report on Form 10-K, and the "Cautionary Note Concerning Forward-Looking Statements" in this report, are not the only risks faced by the Company. Additional risks and uncertainties not currently known or that are currently judged to be immaterial may also materially affect the Company's business, financial position, results of operations or cash flows.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

During the three months ended June 30, 2018, the Company did not repurchase any shares of its common stock.

Item 6. Exhibits

Exhibit Number	Description
31.1	<u>Certification Pursuant to Rule 13a-14(a) and Rule 15d-14(a) under the Securities Exchange Act of 1934, of principal executive officer, filed herewith.</u>
31.2	<u>Certification Pursuant to Rule 13a-14(a) and Rule 15d-14(a) under the Securities Exchange Act of 1934, of principal financial officer, filed herewith.</u>
32.1	<u>Certifications Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, filed herewith.</u>
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

LYDALL, INC.

July 31, 2018

By: _____ /s/ Randall B. Gonzales

Randall B. Gonzales
Executive Vice President and Chief Financial Officer
(On behalf of the Registrant and as
Principal Financial Officer)

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Section 2: EX-31.1 (EXHIBIT 31.1)

Exhibit 31.1

CERTIFICATION

I, Dale G. Barnhart, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Lydall, 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.

July 31, 2018

/s/ Dale G. Barnhart

Dale G. Barnhart
President and Chief Executive Officer

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Section 3: EX-31.2 (EXHIBIT 31.2)

Exhibit 31.2

CERTIFICATION

I, Randall B. Gonzales, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Lydall, 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.

Randall B. Gonzales
Executive Vice President and Chief Financial Officer
(On behalf of the Registrant and as
Principal Financial Officer)

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Section 4: EX-32.1 (EXHIBIT 32.1)

Exhibit 32.1

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

In connection with the Quarterly Report of Lydall, Inc. (the "Company") on Form 10-Q for the period ended June 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers of the Company certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to his knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

The foregoing certifications are accompanying the Form 10-Q solely pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, chapter 63 of title 18, United States Code) and are not being filed as a part of this Form 10-Q or as a separate disclosure document.

July 31, 2018

/s/ Dale G. Barnhart

Dale G. Barnhart
President and Chief Executive Officer

July 31, 2018

/s/ Randall B. Gonzales

Randall B. Gonzales
Executive Vice President and Chief Financial Officer
(On behalf of the Registrant and as
Principal Financial Officer)

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