FERRO CORP
Form 10-Q
July 25, 2018
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)
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 1-584

FERRO CORPORATION

(Exact name of registrant as specified in its charter)

Ohio	34-0217820
(State or other jurisdiction of	(I.R.S. Employer Identification No.)
incorporation or organization)	
6060 Parkland Boulevard	44124
Suite 250	(Zip Code)
Mayfield Heights, OH	
(Address of principal executive offices)	
216-875-5600	
(Registrant's telephone number, including area code)	

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

YES NO

Indicate by check mark 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 checkmark 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 Act). YES NO

At June 30, 2018, there were 84,137,477 shares of Ferro Common Stock, par value $1.00, outstanding.

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PART I — FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

Ferro Corporation and Subsidiaries

Condensed Consolidated Statements of Operations

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Dollars in thousands, except per share amounts)			
Net sales	$ 416,239	$ 348,632	$ 821,771	$ 669,187
Cost of sales	289,594	240,290	576,440	462,051
Gross profit	126,645	108,342	245,331	207,136
Selling, general and administrative expenses	70,124	62,981	143,216	122,427
Restructuring and impairment charges	3,768	3,224	7,874	6,242
Other expense (income):				
Interest expense	8,200	6,449	16,162	12,673
Interest earned	(186)	(175)	(387)	(355)
Foreign currency losses, net	2,660	4,868	4,500	4,554
Loss on extinguishment of debt	3,226	—	3,226	3,905
Miscellaneous (income) expense, net	(1,372)	1,071	(597)	(1,493)
Income before income taxes	40,225	29,924	71,337	59,183
Income tax expense	10,364	8,695	17,878	15,833
Net income	29,861	21,229	53,459	43,350
Less: Net income attributable to noncontrolling interests	193	204	400	427
Net income attributable to Ferro Corporation common shareholders	$ 29,668	$ 21,025	$ 53,059	$ 42,923
Earnings per share attributable to Ferro Corporation common shareholders:				
Basic earnings per share	$ 0.35	$ 0.25	$ 0.63	$ 0.51
Diluted earnings per share	$ 0.35	$ 0.25	$ 0.62	$ 0.50

See accompanying notes to condensed consolidated financial statements.

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Ferro Corporation and Subsidiaries

Condensed Consolidated Statements of Comprehensive Income

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Dollars in thousands)			
Net income	$ 29,861	$ 21,229	$ 53,459	$ 43,350
Other comprehensive income, net of income tax:				
Foreign currency translation (loss) income	(30,315)	13,866	(24,528)	21,077
Cash flow hedging instruments, unrealized (loss) gain	(1,336)	—	(22)	—
Postretirement benefit liabilities (loss) gain	10	16	17	12
Other comprehensive (loss) income, net of income tax	(31,641)	13,882	(24,533)	21,089
Total comprehensive (loss) income	(1,780)	35,111	28,926	64,439
Less: Comprehensive (loss) income attributable to noncontrolling interests	(114)	280	221	543
Comprehensive (loss) income attributable to Ferro Corporation	$ (1,666)	$ 34,831	$ 28,705	$ 63,896

See accompanying notes to condensed consolidated financial statements.

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Ferro Corporation and Subsidiaries

Condensed Consolidated Balance Sheets

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
ASSETS		
Current assets		
Cash and cash equivalents	$ 44,886	$ 63,551
Accounts receivable, net	395,858	354,416
Inventories	381,763	324,180
Other receivables	66,519	67,137
Other current assets	25,765	16,448
Total current assets	914,791	825,732
Other assets		
Property, plant and equipment, net	334,997	321,742
Goodwill	199,172	195,369
Intangible assets, net	179,154	187,616
Deferred income taxes	109,404	108,025
Other non-current assets	36,294	43,718
Total assets	$ 1,773,812	$ 1,682,202
LIABILITIES AND EQUITY		
Current liabilities		
Loans payable and current portion of long-term debt	$ 25,739	$ 25,136
Accounts payable	201,380	211,711
Accrued payrolls	39,904	48,201
Accrued expenses and other current liabilities	75,114	70,151
Total current liabilities	342,137	355,199
Other liabilities		
Long-term debt, less current portion	815,015	726,491
Postretirement and pension liabilities	161,179	166,680
Other non-current liabilities	71,769	77,152
Total liabilities	1,390,100	1,325,522
Equity		
Ferro Corporation shareholders’ equity:		
Common stock, par value $1 per share; 300.0 million shares authorized; 93.4 million shares issued; 84.1 million and 84.0 million shares outstanding at June 30, 2018, and December 31, 2017, respectively	93,436	93,436
Paid-in capital	296,242	302,158
Retained earnings	228,944	171,744
Accumulated other comprehensive loss	(99,822)	(75,468)

Common shares in treasury, at cost	(144,172)	(147,056)
Total Ferro Corporation shareholders’ equity	374,628	344,814
Noncontrolling interests	9,084	11,866
Total equity	383,712	356,680
Total liabilities and equity	$ 1,773,812	$ 1,682,202

See accompanying notes to condensed consolidated financial statements.

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Ferro Corporation and Subsidiaries

Condensed Consolidated Statements of Equity

	Ferro Corporation Shareholders Common Shares in Treasury							
	Shares	Amount	Common Stock	Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive (Loss)	Non-controlling Interests	Total Equity
	(In thousands)							
Balances at December 31, 2016	9,996	$ (160,936)	$ 93,436	$ 306,566	$ 114,690	$ (106,643)	$ 7,919	$ 255,032
Net income	—	—	—	—	42,923	—	427	43,350
Other comprehensive income	—	—	—	—	—	20,973	116	21,089
Stock-based compensation transactions	(255)	6,656	—	(2,761)	—	—	—	3,895
Distributions to noncontrolling interests	—	—	—	—	—	—	(474)	(474)
Balances at June 30, 2017	9,741	(154,280)	93,436	303,805	157,613	(85,670)	7,988	322,892
Balances at December 31, 2017	9,386	(147,056)	93,436	302,158	171,744	(75,468)	11,866	356,680
Net income	—	—	—	—	53,059	—	400	53,459
Other comprehensive loss	—	—	—	—	—	(24,354)	(179)	(24,533)
Purchase of treasury stock	287	(6,014)	—	—	—	—	—	(6,014)
Stock-based compensation transactions	(376)	8,898	—	(6,705)	—	—	—	2,193
Change in ownership interest	—	—	—	789	—	—	(2,228)	(1,439)
Distributions to noncontrolling	—	—	—	—	—	—	(775)	(775)

interests								
Adjustment for accounting standards update 2016-16	—	—	—	—	4,141	—	—	4,141
Balances at June 30, 2018	9,297	$ (144,172)	$ 93,436	$ 296,242	$ 228,944	$ (99,822)	$ 9,084	$ 383,712

See accompanying notes to condensed consolidated financial statements.

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Ferro Corporation and Subsidiaries

Condensed Consolidated Statements of Cash Flows

	Six Months Ended June 30,	
	2018	2017
	(Dollars in thousands)	
Cash flows from operating activities		
Net cash (used in) provided by operating activities	$ (37,675)	$ 14,705
Cash flows from investing activities		
Capital expenditures for property, plant and equipment and other long lived assets	(43,569)	(16,894)
Business acquisitions, net of cash acquired	(4,920)	(14,752)
Other investing activities	31	145
Net cash used in investing activities	(48,458)	(31,501)
Cash flows from financing activities		
Net (repayments) under loans payable	(1,828)	(5,645)
Proceeds from revolving credit facility - 2014 Credit Facility	—	15,628
Principal payments on revolving credit facility - 2014 Credit Facility	—	(327,183)
Proceeds from term loan facility - Credit Facility	—	623,827
Principal payments on term loan facility - 2014 Credit Facility	—	(243,250)
Principal payments on term loan facility - Credit Facility	(304,060)	(1,596)
Principal payments on term loan facility - Amended Credit Facility	(2,050)	—
Proceeds from revolving credit facility - Credit Facility	134,950	—
Principal payments on revolving credit facility - Credit Facility	(212,950)	—
Proceeds from revolving credit facility - Amended Credit Facility	580	—
Proceeds from term loan facility - Amended Credit Facility	466,075	—
Payment of debt issuance costs	(3,466)	(12,927)
Acquisition related contingent consideration payment	(348)	—
Purchase of treasury stock	(6,014)	—
Other financing activities	(2,387)	(930)
Net cash provided by financing activities	68,502	47,924
Effect of exchange rate changes on cash and cash equivalents	(1,034)	2,156
(Decrease) increase in cash and cash equivalents	(18,665)	33,284
Cash and cash equivalents at beginning of period	63,551	45,582
Cash and cash equivalents at end of period	$ 44,886	$ 78,866
Cash paid during the period for:		
Interest	$ 16,450	$ 14,714
Income taxes	$ 14,378	$ 9,513

See accompanying notes to condensed consolidated financial statements.

Ferro Corporation and Subsidiaries

Notes to Condensed Consolidated Financial Statements

1. Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of Ferro Corporation ("Ferro," "we," "us" or "the Company") have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim financial information, the instructions to Form 10-Q, and Article 10 of Regulation S-X. These statements reflect all normal and recurring adjustments which are, in the opinion of management, necessary to present fairly the financial position, results of operations and cash flows for the periods presented. The preparation of financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. These interim condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2017.

We produce our products primarily in the Europe-Middle East ("EMEA") region, the United States, the Asia Pacific region, and Latin America.

Operating results for the three and six months ended June 30, 2018, are not necessarily indicative of the results expected in subsequent quarters or for the full year ending December 31, 2018.

2. Recent Accounting Pronouncements

Recently Adopted Accounting Standards

On April 1, 2018, we adopted Financial Accounting Standards Board ("FASB") Accounting Standards Update ("ASU") 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities. ASU 2017-12 provides guidance to better align an entity's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. The adoption of this ASU did not have an impact to the opening balance of Retained earnings. We will apply the guidance of this ASU to applicable transactions after the adoption date.

On April 1, 2018, we adopted FASB ASU 2018-03, Technical Corrections and Improvements to Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities. ASU 2018-03 provides targeted improvements to address certain aspects of recognition, measurement presentation, and disclosure of financial instruments. The adoption of ASU 2018-03 did not have a material impact on the Company's condensed consolidated financial statements.

On January 1, 2018, we adopted FASB ASU 2017-09, Compensation – Stock Compensation: (Topic 718): Scope of Modification Accounting. ASU 2017-09 provides guidance about which changes to the terms or conditions of a

share-based payment award require an entity to apply modification accounting in Topic 718. This new guidance would only impact our consolidated financial statements if, in the future, we modified the terms of any of our share-based awards. We will apply the guidance of this ASU to applicable transactions after the adoption date. The adoption of ASU 2017-09 did not have a material impact on the Company's condensed consolidated financial statements.

On January 1, 2018, we adopted FASB ASU 2017-07, Compensation – Retirement Benefits: (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Costs. ASU 2017-07 requires that an employer report the service cost component in the same line item as other compensation costs arising from services rendered during the period. The other components of net benefit costs are to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations. This ASU also allows only the service cost component of net benefit costs to be eligible for capitalization. We adopted this new standard using the retrospective approach for the presentation of the service cost component and the other components of the net periodic pension (credit) cost and net periodic postretirement benefit cost in the income statement. This resulted in the reclassification of income of $0.5 million and $1.0 million from Selling, general and administrative expenses to Other income, expense, net in our condensed consolidated statement of operations for the three and six months ended June 30, 2017, respectively. The Company used a practical expedient where the amount disclosed in our Retirement Benefits footnote for the prior

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year comparative period was the basis for the estimation for applying the retrospective presentation requirements. Other than this reclassification, the adoption of ASU 2017-07 did not have an impact on the Company's condensed consolidated financial statements.

On January 1, 2018, we adopted FASB ASU 2017-01, Business Combinations: (Topic 805): Clarifying the Definition of a Business. ASU 2017-01 is intended to clarify the definition of a business with the objective of adding guidance to assist entities in evaluating whether transactions should be accounted for as acquisitions (or dispositions) of assets or businesses. We will apply the guidance of this ASU to applicable transactions after the adoption date. The adoption of ASU 2017-01 did not have a material impact on the Company's condensed consolidated financial statements.

On January 1, 2018, we adopted FASB ASU 2016-16, Income Taxes: (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory. ASU 2016-16 is intended to improve the accounting for the income tax consequences of intra-entity transfers of assets other than inventory and requires the recognition of the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. We adopted this new standard using the modified retrospective method. The impact of adopting this guidance on the Company's condensed consolidated financial statements resulted in an increase to Retained earnings of $4.1 million and Deferred income taxes of $4.7 million and a decrease to Other receivables of $0.6 million for the year ended June 30, 2018.

On January 1, 2018, we adopted FASB ASU 2016-15, Statement of Cash Flow: (Topic 230): Classification of Certain Cash Receipts and Cash Payments. ASU 2016-15 is intended to address eight specific cash flow issues with the objective of reducing the existing diversity in practice. Adoption of ASU 2016-15 did not have a material effect on our condensed consolidated financial statements.

On January 1, 2018, we adopted FASB ASU 2014-09, Revenue from Contracts with Customers: (Topic 606) ("ASC 606"). This ASU replaces nearly all existing U.S. GAAP guidance on revenue recognition. The standard prescribes a five-step model for recognizing revenue, the application of which require significant judgment. We have completed our assessment and review of specific contracts and have adopted this new standard using the modified retrospective method with no impact to the opening Retained earnings balance. We expect the impact of the adoption of this new standard will not have a material effect on our consolidated financial statements on an ongoing basis.

New Accounting Standards

In February 2018, the FASB issued ASU 2018-02, Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income. ASU 2018-02 allows a reclassification from Accumulated Other Comprehensive (Loss) Income to Retained Earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act and requires certain disclosures about stranded tax effects. This pronouncement is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted, including adoption in any interim period. The Company is in the process of assessing the impact that the adoption of this ASU will have on our consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, Intangibles – Goodwill and Other: (Topic 350): Simplifying the Test for Goodwill Impairment. ASU 2017-04 is intended to simplify the subsequent measurement of goodwill by eliminating Step 2 from the current goodwill impairment test. This pronouncement is effective for the annual or any interim goodwill impairment tests conducted in fiscal years beginning after December 15, 2019. The Company is in the process of assessing the impact that the adoption of this ASU will have on our consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, Leases: (Topic 842). ASU 2016-02 requires companies to recognize a lease liability and asset on the balance sheet for operating leases with a term greater than one year. This pronouncement is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. The Company is in the process of assessing the impact the adoption of this ASU will have on our consolidated financial statements.

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No other new accounting pronouncements issued had, or are expected to have, a material impact on the Company's consolidated financial statements.

3. Revenue

Revenue Recognition

Under ASC 606, revenues are recognized when control of the promised goods is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods. In order to achieve that core principle, the Company applies the following five-step approach: 1) identify the contract with a customer, 2) identify the performance obligations, 3) determine the transaction price, 4) allocate the transaction price to the performance obligations in the contract, and 5) recognize revenue when a performance obligation is satisfied.

The Company considers confirmed customer purchase orders, which in some cases are governed by master sales agreements, to be the contracts, from an accounting perspective, with customers. Under our standard contracts, the only performance obligation is the delivery of manufactured goods and the performance obligation is satisfied at a point in time, when the Company transfers control of the manufactured goods. The Company may receive orders for products to be delivered over multiple dates that may extend across several reporting periods. The Company invoices for each order and recognizes revenue for each distinct product upon shipment, once transfer of control has occurred. Payment terms are standard for the industry and jurisdiction in which we operate. In determining the transaction price, the Company evaluates whether the price is subject to refund or adjustment, to determine the net consideration to which the Company expects to be entitled. Discounts or rebates are specifically stated in customer contracts or invoices, and are recorded as a reduction of revenue in the period the related revenue is recognized. The product price as specified on the customer confirmed orders is considered the standalone selling price. The Company allocates the transaction price to each distinct product based on its relative standalone selling price. Revenue is recognized when control of the product is transferred to the customer (i.e., when the Company's performance obligation is satisfied), which generally occurs at shipment. We review all material contracts to determine transfer of control based upon the business practices and legal requirements of each country.

The amount of shipping and handling fees invoiced to our customers at the time our product is shipped is included in net sales as we are the principle in those activities. Sales, valued-added and other taxes collected from our customers and remitted to governmental authorities are excluded from net sales.

There were no changes in amounts previously reported in the Company's condensed consolidated financial statements due to adopting ASC 606.

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Revenues disaggregated by geography and reportable segment for the three months ended June 30, 2018, follow:

	EMEA	United States	Asia Pacific	Latin America	Total
	(Dollars in thousands)				
Performance Coatings	$ 126,133	$ 11,715	$ 29,129	$ 26,472	$ 193,449
Performance Colors and Glass	63,675	38,504	18,063	5,785	126,027
Color Solutions	36,227	41,272	10,532	8,732	96,763
Total net sales	$ 226,035	$ 91,491	$ 57,724	$ 40,989	$ 416,239

Revenues disaggregated by geography and reportable segment for the three months ended June 30, 2017, follow:

	EMEA	United States	Asia Pacific	Latin America	Total
	(Dollars in thousands)				
Performance Coatings	$ 88,814	$ 11,604	$ 23,089	$ 28,239	$ 151,746
Performance Colors and Glass	47,592	37,832	15,796	5,417	106,637
Color Solutions	34,961	39,179	8,775	7,334	90,249
Total net sales	$ 171,367	$ 88,615	$ 47,660	$ 40,990	$ 348,632

Revenues disaggregated by geography and reportable segment for the six months ended June 30, 2018, follow:

	EMEA	United States	Asia Pacific	Latin America	Total

	(Dollars in thousands)				
Performance Coatings	$ 245,249	$ 24,534	$ 55,076	$ 53,238	$ 378,097
Performance Colors and Glass	125,019	75,595	34,578	11,340	246,532
Color Solutions	76,710	82,898	20,470	17,064	197,142
Total net sales	$ 446,978	$ 183,027	$ 110,124	$ 81,642	$ 821,771

Revenues disaggregated by geography and reportable segment for the six months ended June 30, 2017, follow:

	EMEA	United States	Asia Pacific	Latin America	Total
	(Dollars in thousands)				
Performance Coatings	$ 157,973	$ 22,362	$ 44,406	$ 53,570	$ 278,311
Performance Colors and Glass	92,178	76,936	30,429	10,612	210,155
Color Solutions	70,138	77,696	17,034	15,853	180,721
Total net sales	$ 320,289	$ 176,994	$ 91,869	$ 80,035	$ 669,187

Practical Expedients and Exemptions

All material contracts have an original duration of one year or less and, as such, the Company uses the practical expedient applicable to such contracts, and has not disclosed the transaction price for the remaining performance obligations as of the end of each reporting period, or when the Company expects to recognize this revenue.

When the period of time between the transfer of control of the goods and the time the customer pays for the goods is one year or less, the Company uses the practical expedient allowed by ASC 606 that provides relief from adjusting the amount of promised consideration for the effects of a financing component.

We generally expense sales commissions when incurred because the amortization period is one year or less. These costs are recorded within Selling, general and administrative expenses.

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4. Acquisitions

PT Ferro Materials Utama

On June 29, 2018, the Company acquired 66% of the equity interests in PT Ferro Materials Utama ("FMU") for $2.7 million in cash, in addition to the forgiveness of debt of $9.2 million, bringing our total ownership to 100%. The Company previously recorded its investment in FMU as an equity method investment, and following this transaction, the Company fully consolidates FMU. Due to the change of control that occurred, the Company recorded a gain on purchase of $2.6 million, which is recorded in Miscellaneous (income), expense net, related to the difference between the Company's carrying value and fair value of the previously held equity method investment during the second quarter of 2018.

Endeka Group

On November 1, 2017, the Company acquired 100% of the equity interests of Endeka Group ("Endeka"), a global producer of high-value coatings and key raw materials for the ceramic tile market, for €72.8 million (approximately $84.8 million), including the assumption of debt of €13.1 million (approximately $15.3 million). The Company incurred acquisition costs for the six months ended June 30, 2018, of $0.5 million, which is included in Selling, general and administrative expenses in our condensed consolidated statements of operations. The acquired business contributed net sales of $30.5 million and $61.2 million for the three and six months ended June 30, 2018, respectively, and net income attributable to Ferro Corporation of $4.8 million and $8.8 million for the three and six months ended June 30, 2018, respectively.

The information included herein has been prepared based on the preliminary allocation of the purchase price using estimates of the fair value and useful lives of the assets acquired and liabilities assumed, which were determined with the assistance of third parties who performed independent valuations using discounted cash flow and comparative market approaches, and estimates made by management. During the first half of 2018, the Company adjusted the net working capital on the opening balance sheet and as such, the carrying amount of the personal and real property decreased $4.1 million. As of June 30, 2018, the purchase price allocation is subject to further adjustment until all information is fully evaluated by the Company. The Company preliminarily recorded $44.1 million of net working capital, $24.1 million of deferred tax assets, $17.7 million of personal and real property and $1.1 million of noncontrolling interest on the condensed consolidated balance sheet.

Gardenia Quimica S.A.

On August 3, 2017, the Company acquired a majority interest in Gardenia Quimica S.A. ("Gardenia") for $3.0 million. The Company previously owned 46% of Gardenia and recorded it as an equity method investment. Following this transaction, the Company owned 83.5% and fully consolidates Gardenia. Due to the change of control that occurred, the Company recorded a gain on purchase of $2.6 million related to the difference between the Company's carrying value and fair value of the previously held equity method investment during the third quarter of 2017. On March 1, 2018, the Company acquired the remaining equity interest in Gardenia for $1.4 million.

Dip Tech Ltd.

On August 2, 2017, the Company acquired 100% of the equity interests of Dip Tech Ltd. ("Dip-Tech"), a leading provider of digital printing solutions for glass coatings, for $77.0 million. Dip-Tech is headquartered in Kfar Saba, Israel. The purchase price consideration consisted of cash paid at closing of $60.1 million, net of the net working capital adjustment, and contingent consideration of $16.9 million. The Company incurred acquisition costs for the six months ended June 30, 2018, of $0.1 million, which is included in Selling, general and administrative expenses in our condensed consolidated statements of operations. The acquired business contributed net sales of $7.0 million and $10.9 million for the three and six months ended June 30, 2018, respectively, and net loss attributable to Ferro Corporation of $1.6 million and $4.0 million for the three and six months ended June 30, 2018, respectively. The net loss attributable to Ferro Corporation was driven by the amortization of acquired intangible asset amortization costs of $1.0 million and $2.0 million for the three and six months ended June 30, 2018, respectively. Dip-Tech incurred research and development costs of $1.8 million and $3.3 million for the three and six months ended June 30, 2018, respectively.

The information included herein has been prepared based on the preliminary allocation of the purchase price using estimates of the fair value and useful lives of the assets acquired and liabilities assumed, which were determined with the assistance of third parties

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who performed independent valuations using discounted cash flow and comparative market approaches, and estimates made by management. As of June 30, 2018, the purchase price allocation is subject to further adjustment until all information is fully evaluated by the Company. The Company preliminarily recorded $41.2 million of amortizable intangible assets, $33.5 million of goodwill, $7.2 million of a deferred tax liability, $5.1 million of indefinite-lived intangible assets, $3.2 million of personal and real property and $1.2 million of net working capital on the condensed consolidated balance sheet.

Smalti per Ceramiche, s.r.l

On April 24, 2017, the Company acquired 100% of the equity interests of S.P.C. Group s.r.l., and 100% of the equity interests of Smalti per Ceramiche, s.r.l. (“SPC”), for €18.7 million (approximately $20.3 million), including the assumption of debt of €5.7 million (approximately $6.2 million). SPC is a high-end tile coatings manufacturer based in Italy focused on fast-growing specialty products. SPC’s products, strong technology, design capabilities, and customer-centric business model are complementary to our Performance Coatings segment, and position us for continued growth in the high-end tile markets.

The information included herein has been prepared based on the allocation of the purchase price using the fair value and useful lives of the assets acquired and liabilities assumed, which were determined with the assistance of third parties who performed independent valuations using discounted cash flow and comparative market approaches, and estimates made by management. The Company recorded $6.1 million of personal and real property, $6.0 million of amortizable intangible assets, $5.2 million of goodwill, $5.0 million of net working capital and $2.0 million of a deferred tax liability on the condensed consolidated balance sheet.

5. Inventories

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
Raw materials	$ 135,595	$ 112,300
Work in process	58,591	39,454
Finished goods	187,577	172,426
Total inventories	$ 381,763	$ 324,180

In the production of some of our products, we use precious metals, which we obtain from financial institutions under consignment agreements with terms of one year or less. The financial institutions retain ownership of the precious metals and charge us fees based on the amounts we consign. These fees were $0.4 million and $0.3 million for the three months ended June 30, 2018 and 2017, respectively, and were $0.8 million and $0.5 million for the six months

ended June 30, 2018 and 2017, respectively. We had on-hand precious metals owned by participants in our precious metals consignment program of $44.1 million at June 30, 2018, and $37.7 million at December 31, 2017, measured at fair value based on market prices for identical assets.

6. Property, Plant and Equipment

Property, plant and equipment is reported net of accumulated depreciation of $515.1 million at June 30, 2018, and $502.9 million at December 31, 2017. Unpaid capital expenditure liabilities, which are non-cash investing activities, were $3.8 million at June 30, 2018, and $3.8 million at June 30, 2017.

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7. Goodwill and Other Intangible Assets

Details and activity in the Company's goodwill by segment follow:

	Performance Coatings		Color Solutions	Performance Colors and Glass		Total
	(Dollars in thousands)					
Goodwill, net at December 31, 2017	$ 38,236		$ 42,535	$ 114,598		$ 195,369
Acquisitions	5,140	(2)	—	1,291	(1)	6,431
Foreign currency adjustments	(1,348)		(445)	(835)		(2,628)
Goodwill, net at June 30, 2018	$ 42,028		$ 42,090	$ 115,054		$ 199,172

(1) During the first quarter of 2018, the Company recorded a purchase price adjustment within the measurement period for goodwill related to the Dip-Tech acquisition.

(2) During the second quarter of 2018, the Company recorded goodwill related to the FMU acquisition.

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
Goodwill, gross	$ 257,639	$ 253,836
Accumulated impairment	(58,467)	(58,467)
Goodwill, net	$ 199,172	$ 195,369

Goodwill is tested for impairment at the reporting unit level on an annual basis in the fourth quarter, and between annual tests if an event occurs, or circumstances change, that would more likely than not reduce the fair value of a reporting unit below its carrying value. As of June 30, 2018, the Company is not aware of any events or circumstances that occurred which would require a goodwill impairment test.

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Amortizable intangible assets consisted of the following:

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
Gross amortizable intangible assets:		
Patents	$ 5,210	$ 5,279
Land rights	4,893	4,947
Technology/know-how and other	127,765	131,070
Customer relationships	92,493	93,500
Total gross amortizable intangible assets	230,361	234,796
Accumulated amortization:		
Patents	(5,149)	(5,226)
Land rights	(2,912)	(2,883)
Technology/know-how and other	(46,580)	(45,214)
Customer relationships	(13,447)	(11,114)
Total accumulated amortization	(68,088)	(64,437)
Amortizable intangible assets, net	$ 162,273	$ 170,359

Indefinite-lived intangible assets consisted of the following:

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
Indefinite-lived intangibles assets:		
Trade names and trademarks	$ 16,881	$ 17,257

8. Debt

Loans payable and current portion of long-term debt consisted of the following:

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
Loans payable	$ 16,494	$ 16,360
Current portion of long-term debt	9,245	8,776
Loans payable and current portion of long-term debt	$ 25,739	$ 25,136

Long-term debt consisted of the following:

	June 30, 2018	December 31, 2017
	(Dollars in thousands)	
Term loan facility, net of unamortized issuance costs, maturing 2024(1)	$ 812,665	$ 645,242
Revolving credit facility	580	78,000
Capital lease obligations	4,425	4,913
Other notes	6,590	7,112

Total long-term debt	824,260	735,267
Current portion of long-term debt	(9,245)	(8,776)
Long-term debt, less current portion	$ 815,015	$ 726,491

(1) The carrying value of the term loan facility, maturing 2024, is net of unamortized debt issuance costs of $5.3 million at June 30, 2018, and $7.5 million at December 31, 2017.

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Amended Credit Facility

On April 25, 2018 the Company entered into an amendment (the "Amended Credit Facility") to its existing credit facility (the "Credit Facility") which Amended Credit Facility (a) provided a new revolving facility (the "2018 Revolving Facility"), which replaced the Company's existing revolving facility, (b) repriced the ("Tranche B-1 Loans"), (c) provided new tranches of term loans ("Tranche B-2 Loans" and "Tranche B-3 Loans") denominated in U.S. dollars borrowed by the Company's existing credit facility and will be used for ongoing working capital requirements and general corporate purposes. The ("Tranche B-2 Loans") are borrowed by the Company and the ("Tranche B-3 Loans") are borrowed on a joint and several basis by Ferro GmbH and Ferro Europe Holdings LLC.

The Amended Credit Facility consists of a $500 million secured revolving line of credit with a maturity of February 2023, a $355 million secured term loan facility with a maturity of February 2024, a $235 million secured term loan facility with a maturity of February 2024 and a $230 million secured term loan facility with a maturity of February 2024. The term loans are payable in equal quarterly installments in an amount equal to 0.25% of the original principal amount of the term loans, with the remaining balance due on the maturity date thereof. In addition, the Company is required, on an annual basis, to make a prepayment in an amount equal to a portion of the Company's excess cash flow, as calculated pursuant to the Amended Credit Facility, which prepayment will be applied first to the term loans until they are paid in full, and then to the revolving loans.

Subject to the satisfaction of certain conditions, the Company can request additional commitments under the revolving line of credit or term loans in the aggregate principal amount of up to $250 million to the extent that existing or new lenders agree to provide such additional commitments and/or term loans. The Company can also raise certain additional debt or credit facilities subject to satisfaction of certain covenant levels.

Certain of the Company's U.S. subsidiaries have guaranteed the Company's obligations under the Amended Credit Facility and such obligations are secured by (a) substantially all of the personal property of the Company and the U.S. subsidiary guarantors and (b) a pledge of 100% of the stock of certain of the Company's U.S. subsidiaries and 65% of the stock of certain of the Company's direct foreign subsidiaries. The Tranche B-3 Loans are guaranteed by the Company, the U.S. subsidiary guarantors and a cross-guaranty by the borrowers of the Tranche B-3 Loans, and are secured by the collateral securing the revolving loans and the other term loans, in addition to a pledge of the equity interests of Ferro GmbH.

Interest Rate – Term Loans: The interest rates applicable to the term loans will be, at the Company's option, equal to either a base rate or a LIBOR rate plus, in both cases, an applicable margin.

- The base rate for term loans will be the highest of (i) the federal funds rate plus 0.50%, (ii) syndication agent's prime rate, (iii) the daily LIBOR rate plus 1.00% or (iv) 0.00%. The applicable margin for base rate loans is 1.25%.
- The LIBOR rate for term loans shall not be less than 0.0% and the applicable margin for LIBOR rate term loans is 2.25%.
- For LIBOR rate term loans, the Company may choose to set the duration on individual borrowings for periods of one, two, three or six months, with the interest rate based on the applicable LIBOR rate for the corresponding duration.

At June 30, 2018, the Company had borrowed $354.1 million under the Tranche B-1 Loans at an interest rate of 4.58%, $234.4 million under the Tranche B-2 Loans at an interest rate of 4.58%, and $229.4 million under the Tranche B-3 Loans at an interest rate of 4.58%. At June 30, 2018, there were no additional borrowings available under the Tranche B-1 Loans, Tranche B-2 Loans and Tranche B-3 Loans.

Interest Rate – Revolving Credit Line: The interest rates applicable to loans under the revolving credit line will be, at the Company's option, equal to either a base rate or a LIBOR rate plus, in both cases, an applicable variable

margin. The variable margin will be based on the ratio of (a) the Company's total consolidated net debt outstanding at such time to (b) the Company's consolidated EBITDA computed for the period of four consecutive fiscal quarters most recently ended.

· The base rate for revolving loans will be the highest of (i) the federal funds rate plus 0.50%, (ii) syndication agent's prime rate, (iii) the daily LIBOR rate plus 1.00% or (iv) 0.00%. The applicable margin for base rate loans will vary between 0.50% to 1.50%.

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- The LIBOR rate for revolving loans shall not be less than 0% and the applicable margin for LIBOR rate revolving loans will vary between 1.50% and 2.50%.
- For LIBOR rate revolving loans, the Company may choose to set the duration on individual borrowings for periods of one, two, three or six months, with the interest rate based on the applicable LIBOR rate for the corresponding duration.

At June 30, 2018, there were $0.6 million borrowings under the revolving credit line at an interest rate of 4.09%. After reductions for outstanding letters of credit secured by these facilities, we had $494.8 million of additional borrowings available under the revolving credit facilities at June 30, 2018.

The Amended Credit Facility contains customary restrictive covenants including, but not limited to, limitations on use of loan proceeds, limitations on the Company’s ability to pay dividends and repurchase stock, limitations on acquisitions and dispositions, and limitations on certain types of investments. The Amended Credit Facility also contains standard provisions relating to conditions of borrowing and customary events of default, including the non-payment of obligations by the Company and the bankruptcy of the Company.

Specific to the 2018 Revolving Facility, the Company is subject to a financial covenant regarding the Company’s maximum leverage ratio. If an event of default occurs, all amounts outstanding under the Amended Credit Facility agreement may be accelerated and become immediately due and payable. At June 30, 2018, we were in compliance with the covenants of the Amended Credit Facility.

Credit Facility

On February 14, 2017, the Company entered into a credit facility (the “Credit Facility”) with a group of lenders to refinance its then outstanding credit facility debt and to provide liquidity for ongoing working capital requirements and general corporate purposes. The Credit Facility consisted of a $400 million secured revolving line of credit with a term of five years, a $357.5 million secured term loan facility with a term of seven years and a €250 million secured Euro term loan facility with a term of seven years. For discussion of the Company’s Credit Facility, refer to Note 8 in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017.

In conjunction with the refinancing of the Credit Facility, we recorded a charge of $3.2 million in connection with the write-off of unamortized issuance costs, which is recorded within Loss on extinguishment of debt in our condensed consolidated statement of operations for the three and six months ended June 30, 2018.

2014 Credit Facility

In 2014, the Company entered into a credit facility that was amended on January 25, 2016, and August 29, 2016, resulting in a $400 million secured revolving line of credit with a term of five years and a $300 million secured term loan facility with a term of seven years from the original issuance date (the “2014 Credit Facility”) with a group of lenders that was replaced on February 14, 2017, by the Credit Facility (as defined above). For discussion of the Company’s Previous Credit Facility, refer to Note 8 in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017.

In conjunction with the refinancing of the Previous Credit Facility, we recorded a charge of $3.9 million in connection with the write-off of unamortized issuance costs, which is recorded within Loss on extinguishment of debt in our condensed consolidated statement of operations for the six months ended June 30, 2017.

Other Financing Arrangements

We maintain other lines of credit to provide global flexibility for our short-term liquidity requirements. These facilities are uncommitted lines for our international operations and totaled $43.3 million and $64.5 million at June 30, 2018, and December 31, 2017, respectively. The unused portions of these lines provided additional liquidity of $21.1 million at June 30, 2018, and $39.4 million at December 31, 2017.

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9. Financial Instruments

The following financial instrument assets (liabilities) are presented at their respective carrying amount, fair value and classification within the fair value hierarchy:

	June 30, 2018				
	Carrying	Fair Value			
	Amount	Total	Level 1	Level 2	Level 3
	(Dollars in thousands)				
Cash and cash equivalents	$ 44,886	$ 44,886	$ 44,886	$ —	$ —
Loans payable	(16,494)	(16,494)	—	(16,494)	—
Term loan facility, maturing 2024(1)	(812,665)	(807,468)	—	(807,468)	—
Revolving credit facility, maturing 2023	(580)	(573)	—	(573)	—
Other long-term notes payable	(6,590)	(4,073)	—	(4,073)	—
Cross currency swaps	10,820	10,820	—	10,820	—
Interest rate swaps	(1,610)	(1,610)	—	(1,610)	—
Foreign currency forward contracts, net	2,860	2,860	—	2,860	—

	December 31, 2017				
	Carrying	Fair Value			
	Amount	Total	Level 1	Level 2	Level 3
	(Dollars in thousands)				
Cash and cash equivalents	$ 63,551	$ 63,551	$ 63,551	$ —	$ —
Loans payable	(16,360)	(16,360)	—	(16,360)	—
Term loan facility, maturing 2024(1)	(645,242)	(646,979)	—	(646,979)	—
Revolving credit facility, maturing 2022	(78,000)	(79,295)	—	(79,295)	—
Other long-term notes payable	(7,112)	(3,973)	—	(3,973)	—
Interest rate swaps	1,616	1,616	—	1,616	—
Interest rate swaps	(124)	(124)	—	(124)	—
Foreign currency forward contracts, net	(469)	(469)	—	(469)	—

(1) The carrying values of the term loan facility are net of unamortized debt issuance costs of $5.3 million and $7.5 million for the period ended June 30, 2018, and December 31, 2017, respectively.

The fair values of cash and cash equivalents are based on the fair values of identical assets. The fair values of loans payable are based on the present value of expected future cash flows and approximate their carrying amounts due to the short periods to maturity. The fair value of the term loan facility is based on market price information and is measured using the last available bid price of the instrument on a secondary market. The revolving credit facility and other long-term notes payable are based on the present value of expected future cash flows and interest rates that would be currently available to the Company for issuance of similar types of debt instruments with similar terms and remaining maturities adjusted for the Company's performance risk. The fair values of our interest rate swaps and cross currency swaps are determined based on inputs that are readily available in public markets or can be derived from information available in publicly quoted markets. The fair values of the foreign currency forward contracts are based on market prices for comparable contracts.

Derivative Instruments

The Company may use derivative instruments to partially offset its business exposure to foreign currency and interest rate risk on expected future cash flows, on net investment in certain foreign subsidiaries and on certain existing assets and liabilities. However,

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the Company may choose not to hedge in countries where it is not economically feasible to enter into hedging arrangements or where hedging inefficiencies exist, such as timing of transactions.

Derivatives Designated as Hedging Instruments

Cash Flow Hedges. For derivative instruments that are designated and qualify as cash flow hedges, the effective portion of the gain or loss on the derivative is recorded in Accumulated other comprehensive loss (“AOCL”) and reclassified into earnings in the same period during which the hedged transaction affects earnings.

The Company utilizes interest rate swaps to limit exposure to market fluctuations on floating-rate debt. During the second quarter of 2017, the Company entered into interest rate swap agreements that converted $150 million and €90 million of our term loans from variable interest rates to fixed interest rates. These swaps qualified for, and were designated as, cash flow hedges. This interest rate swap agreement was terminated in the second quarter of 2018 in connection with the refinancing of the Credit Facility.

During the second quarter of 2018, the Company entered into variable to fixed interest rate swaps for an initial aggregate notional amount of $319.2 million with a maturity date of February 28, 2024. These swaps are hedging risk associated with the Tranche B-1 Loans. These interest rate swaps are designated as cash flow hedges. As of June 30, 2018, the Company expects it will reclassify net losses of approximately $1.2 million, currently recorded in AOCL, into earnings within the next twelve months. However, the actual amount reclassified could vary due to future changes in the fair value of these derivatives.

The Company has converted a US dollar denominated, variable rate debt obligation into a euro fixed rate obligation using a receive-float, pay fixed cross currency swaps in the second quarter of 2018. These swaps are hedging risk associated with the Tranche B-3 Loans. These cross currency swaps are designated as cash flow hedges. The initial aggregate notional amount is $230 million with a maturity date of February 28, 2024. As of June 30, 2018, the Company expects it will reclassify net gains of approximately $5.5 million, currently recorded in AOCL, into earnings within the next twelve months. However, the actual amount reclassified could vary due to future changes in the fair value of these derivatives.

The amount of (loss) gain recognized in AOCL and the amount of (loss) gain reclassified into earnings for the three months ended June 30, 2018 and 2017, follow:

	Amount of (Loss) Gain Recognized in AOCL		Amount of Gain Reclassified from AOCL into Income		Location of (Loss) Gain Reclassified from AOCL into Income
	2018	2017	2018	2017	
	(Dollars in thousands)				
Interest rate swaps	$ (1,947)	$ —	$ 125	$ —	Interest expense
Cross currency swaps	9,429	—	888	—	Interest expense
			$ 1,013	$	Total Interest expense
Cross currency swaps	—	—	10,315	—	Foreign currency losses, net
			$ 10,315	$ —	Total Foreign currency losses, net

The amount of gain recognized in AOCL and the amount of (loss) gain reclassified into earnings for the six months ended June 30, 2018 and 2017, follow:

	Amount of Gain Recognized in AOCL		Amount of (Loss) Gain Reclassified from AOCL into Income		Location of (Loss) Gain Reclassified from AOCL into Income
	2018	2017	2018	2017	
	(Dollars in thousands)				
Interest rate swaps	$ (374)	$ —	$ (11)	$ —	Interest expense
Cross currency swaps	9,429	—	888	—	Interest expense
			$ 877	$ —	Total Interest expense
Cross currency swap	—	—	10,315	—	Foreign currency losses, net

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$ 10,315	$	—	Total Foreign currency losses, net

Net investment hedge. To help protect the value of the Company's net investment in European operations against adverse changes in exchange rates, the Company uses non-derivative financial instruments, such as its foreign currency denominated debt, as economic hedges of its net investments in certain foreign subsidiaries. Net investment hedges that use foreign currency denominated debt to hedge net investments are not impacted by ASC Topic 820, Fair Value Measurements, as the debt used as a hedging instrument is marked to a value with respect to changes in spot foreign currency exchange rates and not with respect to other factors that may impact fair value.

In the second quarter of 2017, the Company designated a portion of its Euro denominated debt as a net investment hedge for accounting purposes. This net investment hedge was terminated in the second quarter of 2018.

In the second quarter of 2018, the Company entered into cross currency swap agreements to convert a notional amount of $117.5 million, where we pay variable rate interest in Euros and receive variable rate interest in US dollars. These swaps are hedging risk associated with the Tranche B-2 Loans. These cross currency swaps are designated as net investment hedges with the spot method of accounting applied. The effective portions of net investment hedges are recorded in AOCL as a part of the cumulative translation adjustment.

The amount of gain recognized in AOCL, the amount reclassified into earnings and the amount of gain recognized in income on derivative (amount excluded from effectiveness testing) for the three months ended June 30, 2018 and 2017, follow

	Amount of Gain Recognized in AOCL		Amount of Gain Reclassified from AOCL into Income		Amount of Gain Recognized in Income on Derivative (Amount Excluded from Effectiveness Testing)		Location of Gain in Earnings
	2018	2017	2018	2017	2018	2017	
	(Dollars in thousands)						
Cross currency swaps	$ 2,774	$ —	$ —	$ —	$ 495	$ —	Interest expense
Net investment hedge	—	(6,828)	—	—	—	—	

The amount of gain (loss) recognized in AOCL, the amount reclassified into earnings and the amount of gain recognized in income on derivative (amount excluded from effectiveness testing) for the six months ended June 30, 2018 and 2017, follow

		Amount of Gain	Amount of Gain Recognized in

	Amount of Gain (Loss) Recognized in AOCL		Reclassified from AOCL into Income		Income on Derivative (Amount Excluded from Effectiveness Testing)		Location of Gain in Earnings
	2018	2017	2018	2017	2018	2017	
	(Dollars in thousands)						
Cross currency swaps	$ 2,774	$ —	$ —	$ —	$ 495	$ —	Interest expense
Net investment hedge	(860)	(6,828)	—	—	—	—	

Derivatives Not Designated as Hedging Instruments

Foreign currency forward contracts. We manage foreign currency risks principally by entering into forward contracts to mitigate the impact of currency fluctuations on transactions. These forward contracts are not formally designated as hedges. Gains and losses on these foreign currency forward contracts are netted with gains and losses from currency fluctuations on transactions arising from international trade and reported as Foreign currency losses, net in the condensed consolidated statements of operations. We recognized net gains of $1.0 million and $1.4 million in the three and six months ended June 30, 2018, respectively, and net losses of $3.0 million and $2.7 million in the three and six months ended June 30, 2017, respectively, arising from the change in fair value of our financial

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instruments, which partially offset the related net gains and losses on international trade transactions. The notional amount of foreign currency forward contracts was $345.3 million at June 30, 2018, and $238.5 million at December 31, 2017.

The following table presents the effect on our condensed consolidated statements of operations for the three and six months ended June 30, 2018 and 2017, respectively, of our foreign currency forward contracts:

	Amount of Gain (Loss) Recognized in Earnings Three Months Ended June 30,		
	2018	2017	Location of Gain (Loss) in Earnings
	(Dollars in thousands)		
Foreign currency forward contracts	$ 1,020	$ (2,954)	Foreign currency losses, net

	Amount of Gain (Loss) Recognized in Earnings Six Months Ended June 30,		
	2018	2017	Location of Gain (Loss) in Earnings
	(Dollars in thousands)		
Foreign currency forward contracts	$ 1,411	$ (2,711)	Foreign currency losses, net

Location and Fair Value Amount of Derivative Instruments

The following table presents the fair values of our derivative instruments on our condensed consolidated balance sheets. All derivatives are reported on a gross basis.

	June 30, 2018	December 31, 2017	Balance Sheet Location
	(Dollars in thousands)		
Asset derivatives:			
Interest rate swaps	$ —	$ 1,616	Other non-current assets
Cross currency swaps	8,980	—	Other current assets
Cross currency swaps	3,043	—	Other non-current assets
Foreign currency forward contracts	3,640	661	Other current assets
Liability derivatives:			
Interest rate swaps	(1,243)	(124)	Accrued expenses and other current liabilities
Interest rate swaps	(367)	—	Other non-current liabilities
Cross currency swaps	(1,203)	—	Other non-current liabilities
Foreign currency forward contracts	$ (780)	$ (1,130)	Accrued expenses and other current liabilities

10. Income Taxes

During the first half of 2018, income tax expense was $17.9 million, or 25.1% of pre-tax income. In the first half of 2017, we recorded tax expense of $15.8 million, or 26.8% of pre-tax income. The tax expense in the first half of 2018, as a percentage of pre-tax income, was higher than the U.S. federal statutory income tax rate of 21% primarily as a result of foreign statutory rate differences. The tax expense for the first half of 2017, as a percentage of pre-tax income, was lower than the U.S. federal statutory income tax rate of 35% primarily as a result of foreign statutory rate

differences.

We have recognized the provisional tax impacts related to the 2017 Tax Cut and Jobs Act (the “Tax Act”) under the guidance of the SEC Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (“SAB 118”). The ultimate impact may differ from these provisional amounts due to additional analysis, changes in interpretations and assumptions, additional regulatory guidance that may be issued, and actions we may take as a result of the Tax Act. The Company’s preliminary

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determinations related to the estimable impacts of the Tax Act that are effective for the year-ended December 31, 2017 have not changed in the current quarter.

The Company continues to review the anticipated impacts of the global intangible low taxed income ("GILTI") and the foreign-derived intangible income ("FDII") on the Company for 2018. For the current quarter, the Company has made reasonable estimates of GILTI and FDII, as well as the impact of changes to valuation allowances related to certain positions. The combined provisional net impact of these items are not anticipated to be material to the tax rate in 2018. The Company has not recorded any potential deferred tax effects related to GILTI in the financial statements and has not made a policy decision regarding whether to record deferred taxes on GILTI or use the period cost method.

11. Contingent Liabilities

We have recorded environmental liabilities of $5.7 million at June 30, 2018, and $6.7 million at December 31, 2017, for costs associated with the remediation of certain of our properties that have been contaminated. The liability at June 30, 2018, and December 31, 2017, was primarily comprised of liabilities related to a non-operating facility in Brazil, and for retained environmental obligations related to a site in the United States that was part of the sale of our North American and Asian metal powders product lines in 2013. The costs include legal and consulting fees, site studies, the design and implementation of remediation plans, post-remediation monitoring and related activities. The ultimate liability could be affected by numerous uncertainties, including the extent of contamination found, the required period of monitoring and the ultimate cost of required remediation.

In November 2017, Suffolk County Water Authority filed a complaint, Suffolk County Water Authority v. The Dow Chemical Company et al., against the Company and a number of other companies in the U.S. Federal Court for the Eastern District of New York with regard to the product 1,4 dioxane. The plaintiff alleges, among other things, that the Suffolk County water supply is contaminated with 1,4 dioxane and that the defendants are liable for unspecified costs of cleanup and remediation of the water supply, among other damages. The Company has not manufactured 1,4 dioxane since 2008, denies the allegations related to liability for the plaintiff's claims, and is vigorously defending this proceeding. In March 2018, the defendants, including the Company, filed a motion to dismiss the complaint, which was heard by the court in June 2018. The Company currently does not expect the outcome of this proceeding to have a material adverse impact on its consolidated financial condition, results of operations, or cash flows, net of any insurance coverage. However, it is not possible to predict the ultimate outcome of this proceeding due to the unpredictable nature of litigation.

In addition to the proceeding described above, the Company and its consolidated subsidiaries are subject from time to time to various claims, lawsuits, investigations, and proceedings related to products, services, contracts, environmental, health and safety, employment, intellectual property, and other matters, including with respect to divested businesses. The outcome of such matters is unpredictable, our assessment of them may change, and resolution of them could have a material adverse effect on the Company's consolidated financial position, results of

operations, or cash flows. We do not currently expect the resolution of such matters to materially affect the consolidated financial position, results of operations, or cash flows of the Company.

12. Retirement Benefits

Net periodic benefit (credit) cost of our U.S. pension plans (including our unfunded nonqualified plans), non-U.S. pension plans, and postretirement health care and life insurance benefit plans for the three months ended June 30, 2018 and 2017, respectively, follow:

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	U.S. Pension Plans		Non-U.S. Pension Plans		Other Benefit Plans	
	Three Months Ended June 30,					
	2018	2017	2018	2017	2018	2017
	(Dollars in thousands)					
Service cost	$ 3	$ 4	$ 447	$ 423	$ 1	$ —
Interest cost	2,788	3,666	667	606	183	211
Expected return on plan assets	(3,995)	(4,740)	(225)	(222)	—	—
Amortization of prior service cost	—	2	10	11	—	—
Net periodic benefit (credit) cost	$ (1,204)	$ (1,068)	$ 899	$ 818	$ 184	$ 211

Net periodic benefit (credit) cost for the six months ended June 30, 2018 and 2017, respectively, follow:

	U.S. Pension Plans		Non-U.S. Pension Plans		Other Benefit Plans	
	Six Months Ended June 30,					
	2018	2017	2018	2017	2018	2017
	(Dollars in thousands)					
Service cost	$ 6	$ 9	$ 908	$ 827	$ 1	$ —
Interest cost	5,576	7,331	1,356	1,179	366	422
Expected return on plan assets	(7,989)	(9,479)	(459)	(432)	—	—
Amortization of prior service cost	—	3	22	21	—	—
Net periodic benefit (credit) cost	$ (2,407)	$ (2,136)	$ 1,827	$ 1,595	$ 367	$ 422

Interest cost, expected return on plan assets and amortization of prior service cost are recorded in Miscellaneous (income) expense, net on the condensed consolidated statement of operations.

13. Stock-Based Compensation

On May 3, 2018, our shareholders approved the 2018 Omnibus Incentive Plan (the “Plan”), which was adopted by the Board of Directors on February 22, 2018, subject to shareholder approval. The Plan’s purpose is to promote the Company’s long-term financial interests and growth by attracting, retaining and motivating high quality key employees and directors, motivating such employees and directors to achieve the Company’s short- and long-range performance goals and objectives, and thereby align their interests with those of the Company’s shareholders. The Plan reserves 4,500,000 shares of common stock to be issued for grants of several different types of long-term incentives including stock options, stock appreciation rights, restricted awards, performance awards, other common stock-based awards, and dividend equivalent rights.

The 2013 Omnibus Incentive Plan (the “Previous Plan”), was replaced by the Plan, and no future grants may be made under the Previous Plan. However, any outstanding awards or grants made under the Previous Plan will continue until the end of their specified terms.

In the first half of 2018, our Board of Directors granted 0.2 million stock options, 0.1 million performance share units and 0.1 million restricted stock units.

We estimate the fair value of each stock option on the date of grant using the Black-Scholes option pricing model. The following table details the weighted-average grant-date fair values and the assumptions used for estimating the fair values of stock option grants made during the six months ended June 30, 2018:

	Stock Options
Weighted-average grant-date fair value	$ 8.91
Expected life, in years	5.4
Risk-free interest rate	2.7 %
Expected volatility	39.7 %

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The weighted average grant date fair value of our performance share units granted in the six months ended June 30, 2018, was $22.92. We measure the fair value of performance share units based on the closing market price of our common stock on the date of the grant. These shares are evaluated each reporting period for respective attainment rates against the performance criteria.

The weighted-average grant date fair value per unit for grants made during the six months ended June 30, 2018, was $22.27. We measure the fair value of restricted share units based on the closing market price of our common stock on the date of the grant. The restricted share units vest over three years.

We recognized stock-based compensation expense of $1.4 million and $3.8 million for the three and six months ended June 30, 2018, and $2.7 million and $5.4 million for the six months ended June 30, 2017. At June 30, 2018, unearned compensation cost related to the unvested portion of all stock-based compensation awards was approximately $9.7 million and is expected to be recognized over the remaining vesting period of the respective grants, through the first quarter of 2021.

14. Restructuring and Optimization Programs

Total restructuring and impairment charges were $3.8 million and $7.9 million for the three and six months ended June 30, 2018, respectively, and $3.2 million and $6.2 million for the three and six months ended June 30, 2017, respectively. Included in the charges for the three and six months ended June 30, 2017, was an impairment charge of $1.5 million related to an equity method investment. The remainder of the charges primarily relate to costs associated with integration of our recent acquisitions and optimization programs, and are further summarized below.

	Employee Severance	Other Costs	Total
	(Dollars in thousands)		
Balances at December 31, 2017	$ 2,286	$ 1,234	$ 3,520
Restructuring charges	3,432	4,442	7,874
Cash payments	(3,237)	(283)	(3,520)
Non-cash items	(91)	(3,534)	(3,625)
Balances at June 30, 2018	$ 2,390	$ 1,859	$ 4,249

We expect to make cash payments to settle the remaining liability for employee severance benefits and other costs over the next twelve months, except where legal or contractual obligations would require it to extend beyond that period.

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15. Earnings Per Share

Details of the calculation of basic and diluted earnings per share are shown below:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Dollars in thousands, except per share amounts)			
Basic earnings per share computation:				
Net income attributable to Ferro Corporation common shareholders	$ 29,668	$ 21,025	$ 53,059	$ 42,923
Weighted-average common shares outstanding	84,341	83,673	84,284	83,602
Basic earnings per share attributable to Ferro Corporation common shareholders	$ 0.35	$ 0.25	$ 0.63	$ 0.51
Diluted earnings per share computation:				
Net income attributable to Ferro Corporation common shareholders	$ 29,668	$ 21,025	$ 53,059	$ 42,923
Weighted-average common shares outstanding	84,341	83,673	84,284	83,602
Assumed exercise of stock options	791	677	818	599
Assumed satisfaction of restricted stock unit conditions	281	425	271	376
Assumed satisfaction of performance stock unit conditions	176	502	172	503
Weighted-average diluted shares outstanding	85,589	85,277	85,545	85,080
Diluted earnings per share attributable to Ferro Corporation common shareholders	$ 0.35	$ 0.25	$ 0.62	$ 0.50

The number of anti-dilutive or unearned shares was 1.7 million and 1.7 million for the three and six months ended June 30, 2018, respectively, and 1.8 million and 1.9 million for the three and six months ended June 30, 2017. These shares were excluded from the calculation of diluted earnings per share due to their anti-dilutive impact.

16. Share Repurchase Program

The Company's Board of Directors has approved $50 million of a share repurchase program, under which the Company is authorized to repurchase the Company's outstanding shares of Common Stock on the open market, including through a Rule 10b5-1 plan, or in privately negotiated transactions.

The timing and amount of shares to be repurchased will be determined by the Company, based on evaluation of market and business conditions, share price, and other factors. The share repurchase program does not obligate the

Company to repurchase any dollar amount or number of common shares, and may be suspended or discontinued at any time.

For the six months ended June 30, 2018, the Company repurchased 287,257 shares of common stock at an average price of $20.94 per share for a total cost of $6.0 million. As of June 30, 2018, $44.0 million may still be purchased under the program.

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17. Accumulated Other Comprehensive Loss

Changes in accumulated other comprehensive income (loss) by component, net of tax, were as follows:

	Three Months Ended June 30,			
	Postretirement Benefit Liability Adjustments	Translation Adjustments	Net Gain on Cash Flow Hedges	Total
	(Dollars in thousands)			
Balances at March 31, 2017	$ 1,137	$ (100,613)	$ —	$ (99,476)
Other comprehensive income before reclassifications, before tax	—	13,790	—	13,790
Reclassification to earnings:				
Postretirement benefit liabilities loss, before tax	18	—	—	18
Current period other comprehensive (loss) income, before tax	18	13,790	—	13,808
Tax effect	2	—	—	2
Current period other comprehensive income (loss), net of tax	16	13,790	—	13,806
Balances at June 30, 2017	$ 1,153	$ (86,823)	$ —	$ (85,670)
Balances at March 31, 2018	$ 1,172	$ (71,919)	$ 2,259	$ (68,488)
Other comprehensive (loss) income before reclassifications, before tax	—	(29,482)	10,256	(19,226)
Reclassification to earnings:				
Postretirement benefit liabilities income, before tax	6	—	—	6
Cash flow hedge income, before tax	—	—	(11,823)	(11,823)
Current period other comprehensive income (loss), before tax	6	(29,482)	(1,567)	(31,043)
Tax effect	(4)	526	(231)	291
Current period other comprehensive (loss) income, net of tax	10	(30,008)	(1,336)	(31,334)
Balances at June 30, 2018	$ 1,182	$ (101,927)	$ 923	$ (99,822)

	Six Months Ended June 30,			
	Postretirement Benefit Liability Adjustments	Translation Adjustments	Net Gain on Cash Flow Hedges	Total

	(Dollars in thousands)			
Balances at December 31, 2016	$ 1,141	$ (107,784)	$ —	$ (106,643)
Other comprehensive income before reclassifications, before tax	—	20,961	—	20,961
Reclassification to earnings:				
Postretirement benefit liabilities loss, before tax	9	—	—	9
Current period other comprehensive (loss) income, before tax	9	20,961	—	20,970
Tax effect	(3)	—	—	(3)
Current period other comprehensive income, net of tax	12	20,961	—	20,973
Balances at June 30, 2017	$ 1,153	$ (86,823)	$ —	$ (85,670)
Balances at December 31, 2017	$ 1,165	$ (77,578)	$ 945	$ (75,468)
Other comprehensive (loss) income before reclassifications, before tax	—	(24,021)	11,829	(12,192)
Reclassification to earnings:				
Postretirement benefit liabilities income, before tax	22	—	—	22
Cash flow hedge income, before tax	—	—	(11,687)	(11,687)
Current period other comprehensive income (loss), before tax	22	(24,021)	142	(23,857)
Tax effect	5	328	164	497
Current period other comprehensive income (loss), net of tax	17	(24,349)	(22)	(24,354)
Balances at June 30, 2018	$ 1,182	$ (101,927)	$ 923	$ (99,822)

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18. Reporting for Segments

Net sales to external customers by segment are presented in the table below. Sales between segments were not material.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Dollars in thousands)			
Performance Coatings	$ 193,449	$ 151,746	$ 378,097	$ 278,311
Performance Colors and Glass	126,027	106,637	246,532	210,155
Color Solutions	96,763	90,249	197,142	180,721
Total net sales	$ 416,239	$ 348,632	$ 821,771	$ 669,187

Each segment's gross profit and reconciliations to income before income taxes are presented in the table below:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
	(Dollars in thousands)			
Performance Coatings	$ 50,297	$ 40,246	$ 94,062	$ 73,735
Performance Colors and Glass	45,362	40,087	88,690	77,505
Color Solutions	31,541	28,416	63,690	56,598
Other cost of sales	(555)	(407)	(1,111)	(702)
Total gross profit	126,645	108,342	245,331	207,136
Selling, general and administrative expenses	70,124	62,981	143,216	122,427
Restructuring and impairment charges	3,768	3,224	7,874	6,242
Other expense, net	12,528	12,213	22,904	19,284

Income before income taxes	$ 40,225	$ 29,924	$ 71,337	$ 59,183

19. Subsequent Event

We have signed definitive acquisition agreements (subject to customary closing conditions) in July 2018 with purchase prices in the aggregate amount of approximately $70 million.

Due to the timing of the acquisitions, the Company's initial purchase price accounting was incomplete at the time these financial statements were issued. As such, the Company cannot disclose the allocation of the acquisition prices to acquired assets and liabilities and the related disclosures at this time.

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Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

Overview

Net sales for the three months ended June 30, 2018, increased by $67.6 million, or 19.4%, compared with the prior-year same period. The increase in net sales was driven by higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $41.7 million, $19.4 million and $6.5 million, respectively. During the three months ended June 30, 2018, gross profit increased $18.3 million, or 16.9%, compared with the prior-year same period; as a percentage of net sales, it decreased approximately 70 basis points to 30.4%. Our total gross profit for the second quarter of 2018 was $126.6 million, compared with $108.3 million for the three months ended June 30, 2017. The increase in gross profit was attributable to higher gross profit across all our segments, with increases in Performance Coatings, Performance Colors and Glass and Color Solutions of $10.1 million, $5.3 million and $3.1 million, respectively.

For the three months ended June 30, 2018, selling, general and administrative ("SG&A") expenses increased $7.1 million, or 11.3%, compared with the prior-year same period. As a percentage of net sales, it decreased approximately 130 basis points to 16.8%. The higher SG&A expenses compared to the prior-year same period are primarily driven by expenses associated with businesses acquired within the last year.

For the three months ended June 30, 2018, net income was $29.9 million, compared with net income of $21.2 million for the prior-year same period, and net income attributable to common shareholders was $29.7 million, compared with net income attributable to common shareholders of $21.0 million for the prior-year same period.

Outlook

In the second half of 2018, we expect to continue to execute the dynamic innovation and optimization phase of our corporate strategy, which includes organic and inorganic growth, and optimization efforts throughout the organization. We expect organic growth from sales of new products and repositioning of our portfolio to address the higher end of our target markets. Inorganically, we expect to invest at levels of approximately $100 million to $150 million per year in strategic acquisitions. We are implementing optimization programs to improve efficiency and upgrade operations throughout our business.

We expect continued raw material headwinds through the near term. Over the long term, we are confident in our ability to mitigate raw material inflation due to our pricing initiatives, technological advances in reformulating compounds, and optimization initiatives. Foreign currency rates may continue to be volatile through the second half of 2018 and changes in interest rates could adversely impact reported results.

We remain focused on the integration of recent acquisitions and continue to work toward achieving the identified synergies. We are concurrently focusing on opportunities to optimize our cost structure and on making our business processes and systems more efficient. We continue to expect cash flow from operating activities to be positive for 2018, providing additional liquidity.

Factors that could adversely affect our future performance include those described under the heading “Risk Factors” in Item 1A of Part I of our Annual Report on Form 10-K for the year ended December 31, 2017.

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Results of Operations - Consolidated

Comparison of the three months ended June 30, 2018 and 2017

For the three months ended June 30, 2018, net income was $29.9 million, compared with net income of $21.2 million for the three months ended June 30, 2017. For the three months ended June 30, 2018, net income attributable to common shareholders was $29.7 million, or earnings per share of $0.35, compared with net income attributable to common shareholders of $21.0 million, or earnings per share of $0.25, for the three months ended June 30, 2017.

Net Sales

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Net sales	$ 416,239	$ 348,632	$ 67,607	19.4 %
Cost of sales	289,594	240,290	49,304	20.5 %
Gross profit	$ 126,645	$ 108,342	$ 18,303	16.9 %
Gross profit as a % of net sales	30.4 %	31.1 %		

Net sales increased by $67.6 million, or 19.4%, for the three months ended June 30, 2018, compared with the prior-year same period, driven by higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $41.7 million, $19.4 million and $6.5 million, respectively. The increase in net sales was driven in part by acquisitions, including Endeka, which contributed sales of $30.5 million, and Dip-Tech, which contributed sales of $7.0 million, each of which was acquired after the second quarter of 2017. The increase in net sales was also driven by organic growth, with Performance Coatings growing $11.2 million, Performance Colors and Glass growing $10.4 million and Color Solutions growing $6.5 million.

Gross Profit

Gross profit increased $18.3 million, or 16.9%, for the three months ended June 30, 2018, compared with the prior-year same period, and as a percentage of net sales, it decreased 70 basis points to 30.4%. The increase in gross profit was attributable to increases across all segments, with increases in Performance Coatings, Performance Colors and Glass and Color Solutions of $10.1 million, $5.3 million and $3.1 million, respectively. The increase in gross profit was driven by favorable product pricing of $12.9 million, gross profit from acquisitions of $10.6 million, higher

sales volumes and mix of $6.4 million, favorable foreign currency impacts of $3.4 million and lower manufacturing costs of $0.7 million, partially offset by higher raw material costs of $15.5 million.

Geographic Revenues

The following table presents our sales on the basis of where sales originated.

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Geographic Revenues on a sales origination basis				
EMEA	$ 226,035	$ 171,367	$ 54,668	31.9 %
United States	91,491	88,615	2,876	3.2 %
Asia Pacific	57,724	47,660	10,064	21.1 %
Latin America	40,989	40,990	(1)	(0.0) %
Net sales	$ 416,239	$ 348,632	$ 67,607	19.4 %

The increase in net sales of $67.6 million, compared with the prior-year same period, was driven by an increase in sales from EMEA, Asia Pacific and the United States. The increase in sales from EMEA was attributable to higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $37.3 million, $16.1 million and $1.3 million, respectively. The increase in sales from Asia Pacific was attributable to higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $6.0

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million, $2.3 million and $1.8 million, respectively. The increase in sales from the United States was attributable to higher sales in Color Solutions and Performance Colors and Glass of $2.1 million and $0.7 million, respectively. Sales from Latin America were flat.

The following table presents our sales on the basis of where sold products were shipped.

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Geographic Revenues on a shipped-to basis				
EMEA	$ 213,089	$ 162,569	$ 50,520	31.1 %
Asia Pacific	93,619	74,700	18,919	25.3 %
United States	62,114	64,861	(2,747)	(4.2) %
Latin America	47,417	46,502	915	2.0 %
Net sales	$ 416,239	$ 348,632	$ 67,607	19.4 %

Selling, General and Administrative Expenses

The following table includes SG&A components with significant changes between 2018 and 2017.

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Personnel expenses	$ 41,709	$ 33,604	$ 8,105	24.1 %
Incentive compensation	2,531	2,465	66	2.7 %
Stock-based compensation	1,426	2,668	(1,242)	(46.6) %
Pension and other postretirement benefits	339	428	(89)	(20.8) %
Bad debt	389	(126)	515	(408.7) %

Business development	3,213	4,250	(1,037)	(24.4)	%
Research and development expenses	10,263	8,301	1,962	23.6	%
Intangible asset amortization	2,011	2,088	(77)	(3.7)	%
All other expenses	8,243	9,303	(1,060)	(11.4)	%
Selling, general and administrative expenses	$ 70,124	$ 62,981	$ 7,143	11.3	%

SG&A expenses were $7.1 million higher in the three months ended June 30, 2018, compared with the prior-year same period. The higher SG&A expenses compared with the prior-year same period are primarily driven by businesses acquired within the last year, primarily related to personnel expenses and research and development expenses. This increase was mitigated by a decrease in stock-based compensation and in business development expenses.

The following table presents SG&A expenses attributable to sales, research and development and operations costs as strategic services and other SG&A costs as functional services.

	Three Months Ended June 30,				
	2018	2017	$ Change	% Change	
	(Dollars in thousands)				
Strategic services	$ 39,643	$ 33,013	$ 6,630	20.1	%
Functional services	26,524	24,835	1,689	6.8	%
Incentive compensation	2,531	2,465	66	2.7	%
Stock-based compensation	1,426	2,668	(1,242)	(46.6)	%
Selling, general and administrative expenses	$ 70,124	$ 62,981	$ 7,143	11.3	%

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Restructuring and Impairment Charges

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Employee severance	$ 2,775	$ 815	$ 1,960	240.5 %
Equity method investment impairment	—	1,499	(1,499)	NM
Other restructuring costs	993	910	83	9.1 %
Restructuring and impairment charges	$ 3,768	$ 3,224	$ 544	16.9 %

Restructuring and impairment charges increased in the second quarter of 2018 compared with the prior-year same period. The increase primarily relates to costs associated with integration of our recent acquisitions and optimization programs.

Interest Expense

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Interest expense	$ 7,699	$ 5,517	$ 2,182	39.6 %
Amortization of bank fees	903	953	(50)	(5.2) %
Interest swap amortization	(131)	—	(131)	— %
Interest capitalization	(271)	(21)	(250)	NM %
Interest expense	$ 8,200	$ 6,449	$ 1,751	27.2 %

Interest expense increased in the second quarter of 2018 compared with the prior-year same period. The increase in interest expense was due to an increase in the average long-term debt balance during the three months ended June 30, 2018, compared with the prior-year same period. Also, interest expense increased due to the increase in LIBOR, offset by the decrease in the applicable margin rate from borrowings from the Amended Credit Facility.

Income Tax Expense

During the second quarter of 2018, income tax expense was $10.4 million, or 25.8% of pre-tax income. In the second quarter of 2017, we recorded tax expense of $8.7 million, or 29.1% of pre-tax income. The tax expense in the second quarter of 2018, as a percentage of pre-tax income, is higher than the U.S. federal statutory income tax rate of 21% primarily as a result of foreign statutory rate differences. The tax expense for the second quarter of 2017, as a percentage of pre-tax income, was lower than the U.S. federal statutory income tax rate of 35% primarily as a result of foreign statutory rate differences.

We have recognized the provisional tax impacts related to the 2017 Tax Cut and Jobs Act (the “Tax Act”) under the guidance of the SEC Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (“SAB 118”). The ultimate impact may differ from these provisional amounts due to additional analysis, changes in interpretations and assumptions, additional regulatory guidance that may be issued, and actions we may take as a result of the Tax Act. The Company’s preliminary determinations related to the estimable impacts of the Tax Act that are effective for the year-ended December 31, 2017 have not changed in the current quarter.

The Company continues to review the anticipated impacts of the global intangible low taxed income (“GILTI”) and the foreign-derived intangible income (“FDII”) on the Company for 2018. For the current quarter the Company has made reasonable estimates of GILTI and FDII, as well as the impact of changes to valuation allowances related to certain positions. The combined provisional net impact of these items are not anticipated to be material to the tax rate in 2018. The Company has not recorded any potential deferred tax effects related to GILTI in the financial statements and has not made a policy decision regarding whether to record deferred taxes on GILTI or use the period cost method.

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Results of Operations - Segment Information

Comparison of the three months ended June 30, 2018 and 2017

Performance Coatings

	Three Months Ended June 30,				Change due to				
	2018	2017	$ Change	% Change	Price	Volume / Mix	Currency	Acquisitions	Other
	(Dollars in thousands)								
Segment net sales	$ 193,449	$ 151,746	$ 41,703	27.5 %	$ 8,531	$ (107)	$ 2,726	$ 30,553	$ —
Segment gross profit	50,297	40,246	10,051	25.0 %	8,531	55	1,425	8,139	(8,099)
Gross profit as a % of segment net sales	26.0 %	26.5 %							

Net sales increased in Performance Coatings compared with the prior-year same period, primarily driven by sales from Endeka of $29.1 million and Gardenia of $1.5 million, each of which was acquired after the second quarter of 2017, and increases in sales of frits and glazes, digital inks and porcelain enamel of $7.7 million, $3.4 million and $1.0 million, respectively, partially offset by a decrease in sales of colors. The increase in net sales was driven by sales from acquisitions of $30.6 million, higher product pricing of $8.5 million and favorable foreign currency impacts of $2.7 million, partially offset by unfavorable volume and mix of $0.1 million. Gross profit increased $10.1 million from the prior-year same period, primarily driven by favorable product pricing impacts of $8.5 million, gross profit from acquisitions of $8.1 million, lower manufacturing costs of $1.7 million, favorable foreign currency impacts of $1.4 million and higher sales volumes and mix of $0.1 million, partially offset by higher raw material costs of $9.8 million.

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Segment net sales by Region				
EMEA	$ 126,133	$ 88,814	$ 37,319	42.0 %
Latin America	26,472	28,239	(1,767)	(6.3) %
Asia Pacific	29,129	23,089	6,040	26.2 %
United States	11,715	11,604	111	1.0 %
Total	$ 193,449	$ 151,746	$ 41,703	27.5 %

The net sales increase of $41.7 million was driven by increases in sales in EMEA, Asia Pacific, and the United States, partially offset by a decrease in sales in Latin America. The increase in sales from EMEA was primarily attributable to sales from Endeka and Gardenia, each of which was acquired after the second quarter of 2017, which contributed $28.4 million and $1.5 million, respectively, and higher sales of frits and glazes, porcelain enamel and digital inks of $6.4 million, $1.5 million and $1.1 million, partially offset by a decrease in sales of colors of $1.6 million. The increase in sales from Asia Pacific was driven by higher sales of frits and glazes, digital inks and porcelain enamel of $3.2 million, $1.8 million and $0.4 million, respectively, and sales from Endeka, which contributed $0.6 million. The increase in sales from the United States was fully attributable to higher sales of porcelain enamel. The decrease in sales from Latin America was driven by lower sales of frits and glazes and porcelain enamel of $1.9 million and $1.0 million, respectively, partially offset by higher sales of digital inks.

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Performance Colors and Glass

	Three Months Ended June 30,				Change due to				
	2018	2017	$ Change	% Change	Price	Volume / Mix	Currency	Acquisitions	Other
	(Dollars in thousands)								
Segment net sales	$ 126,027	$ 106,637	$ 19,390	18.2 %	$ 1,395	$ 5,436	$ 3,618	$ 8,941	$ —
Segment gross profit	45,362	40,087	5,275	13.2 %	1,395	826	1,234	2,424	(604)
Gross profit as a % of segment net sales	36.0 %	37.6 %							

Net sales increased compared with the prior-year same period, primarily driven by organic sales of $10.4 million and $7.0 million in sales from Dip-Tech, which was acquired in the third quarter of 2017, and $1.4 million in sales from Endeka, which was acquired in the fourth quarter of 2017. The increase in net sales was driven by sales from acquisitions of $8.9 million, favorable volume and mix of $5.4 million, favorable foreign currency impacts of $3.6 million, and higher product pricing of $1.4 million. Gross profit increased from the prior-year same period, primarily due to gross profit from acquisitions of $2.4 million, higher product pricing of $1.4 million, favorable foreign currency impacts of $1.2 million, favorable manufacturing costs of $1.0 million and higher sales volumes and mix of $0.8 million, partially offset by higher raw material costs of $1.6 million.

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Segment net sales by Region				
EMEA	$ 63,675	$ 47,592	$ 16,083	33.8 %
United States	38,504	37,832	672	1.8 %
Asia Pacific	18,063	15,796	2,267	14.4 %

Latin America	5,785	5,417	368	6.8 %
Total	$ 126,027	$ 106,637	$ 19,390	18.2 %

The net sales increase of $19.4 million was driven by higher sales from all regions. The increase in sales from EMEA was primarily attributable to $6.5 million in sales from acquisitions and higher sales of decoration products and electronic products of $3.7 million and $3.1 million, respectively. The increase from Asia Pacific was primarily due to an increase in sales of automobile products of $1.3 million and decoration products of $0.8 million. The increase in sales from the United States was primarily attributable to an increase in sales from Dip-Tech of $1.4 million, partially offset by lower sales of automobile products. Sales from Latin America remained relatively flat.

Color Solutions

	Three Months Ended June 30,				Change due to				
	2018	2017	$ Change	% Change	Price	Volume / Mix	Currency	Acquisitions	Other
	(Dollars in thousands)								
Segment net sales	$ 96,763	$ 90,249	$ 6,514	7.2 %	$ 3,019	$ 910	$ 2,585	$ —	$ —
Segment gross profit	31,541	28,416	3,125	11.0 %	3,019	5,490	705	—	(6,089)
Gross profit as a % of segment net sales	32.6 %	31.5 %							

Net sales increased compared with the prior-year same period, primarily due to higher sales of pigments and surface technology products of $3.5 million and $3.2 million, respectively. The increase in net sales was driven by higher product pricing of $3.0 million, favorable foreign currency impacts of $2.6 million and higher volumes and mix of $0.9 million. Gross profit increased from the prior-year same period, primarily due to favorable sales volumes and mix of $5.5 million, higher product pricing of $3.0 million and

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favorable foreign currency impacts of $0.7 million, partially offset by higher raw material costs of $4.1 million and higher manufacturing costs of $2.0 million.

	Three Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Segment net sales by Region				
United States	$ 41,272	$ 39,179	$ 2,093	5.3 %
EMEA	36,227	34,961	1,266	3.6 %
Asia Pacific	10,532	8,775	1,757	20.0 %
Latin America	8,732	7,334	1,398	19.1 %
Total	$ 96,763	$ 90,249	$ 6,514	7.2 %

The net sales increase of $6.5 million was driven by higher sales from all regions. The higher sales from EMEA, Asia Pacific and Latin America were driven by sales of pigment products. The increase in sales from the United States was primarily driven by sales of $3.2 million of surface technology products, partially offset by lower sales of pigment products of $0.9 million.

Comparison of the six months ended June 30, 2018 and 2017

For the six months ended June 30, 2018, net income was $53.5 million, compared with net income of $43.4 million for the six months ended June 30, 2017. For the six months ended June 30, 2018, net income attributable to common shareholders was $53.1 million, or earnings per share of $0.63, compared with net income attributable to common shareholders of $42.9 million, or earnings per share of $0.51, for the six months ended June 30, 2017.

Net Sales

Six Months Ended June 30,			
2018	2017	$ Change	% Change

	(Dollars in thousands)			
Net sales	$ 821,771	$ 669,187	$ 152,584	22.8 %
Cost of sales	576,440	462,051	114,389	24.8 %
Gross profit	$ 245,331	$ 207,136	$ 38,195	18.4 %
Gross profit as a % of net sales	29.9 %	31.0 %		

Net sales increased by $152.6 million, or 22.8%, in the six months ended June 30, 2018, compared with the prior-year same period, driven by higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $99.8 million, $36.4 million and $16.4 million, respectively. The increase in net sales was driven by Endeka, which contributed sales of $61.2 million, and Dip-Tech, which contributed sales of $10.9 million, each of which was acquired after the second quarter of 2017. The increase in net sales was also driven by organic growth, with Performance Coatings growing $29.2 million, Performance Colors and Glass growing $21.2 million and Color Solutions growing $16.4 million.

Gross Profit

Gross profit increased $38.2 million, or 18.4%, in the six months ended June 30, 2018, compared with the prior-year same period, and as a percentage of net sales, it decreased 110 basis points to 29.9%. The increase in gross profit was attributable to increases across all segments, with increases in Performance Coatings, Performance Colors and Glass and Color Solutions of $20.3 million, $11.2 million and $7.1 million, respectively. The increase in gross profit was driven by favorable product pricing of $24.1 million, gross profit from acquisitions of $23.2 million, favorable foreign currency impacts of $10.7 million, higher sales volumes and mix of $10.3 million, and lower manufacturing costs of $2.6 million, partially offset by higher raw material costs of $32.3 million.

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Geographic Revenues

The following table presents our sales on the basis of where sales originated.

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Geographic Revenues on a sales origination basis				
Europe	$ 446,978	$ 320,289	$ 126,689	39.6 %
United States	183,027	176,994	6,033	3.4 %
Asia Pacific	110,124	91,869	18,255	19.9 %
Latin America	81,642	80,035	1,607	2.0 %
Net sales	$ 821,771	$ 669,187	$ 152,584	22.8 %

The increase in net sales of $152.6 million, compared with the prior-year same period, was driven by an increase in sales from all regions. The increase in sales from Europe was primarily attributable to higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $87.3 million, $32.8 million and $6.6 million, respectively. The increase in sales from Asia Pacific was primarily attributable to higher sales in Performance Coatings, Performance Colors and Glass and Color Solutions of $10.7 million, $4.1 million and $3.4 million, respectively. The increase in sales from the United States was attributable to higher sales in Color Solutions and Performance Coatings of $5.2 million and $2.2 million, respectively, partially offset by a decrease in sales in Performance Colors and Glass of $1.3 million. The increase in sales from Latin America was attributable to higher sales in Color Solutions and Performance Colors and Glass of $1.2 million and $0.7 million, respectively, partially offset by a decrease in sales in Performance Coatings of $0.3 million.

The following table presents our sales on the basis of where sold products were shipped.

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Geographic Revenues on a shipped-to basis				
EMEA	$ 423,420	$ 303,108	$ 120,312	39.7 %
Asia Pacific	164,984	144,821	20,163	13.9 %
United States	138,374	131,779	6,595	5.0 %
Latin America	94,993	89,479	5,514	6.2 %
Net sales	$ 821,771	$ 669,187	$ 152,584	22.8 %

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Selling, General and Administrative Expenses

The following table includes SG&A components with significant changes between 2018 and 2017.

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Personnel expenses	$ 82,828	$ 66,508	$ 16,320	24.5 %
Incentive compensation	5,497	4,295	1,202	28.0 %
Stock-based compensation	3,856	5,391	(1,535)	(28.5) %
Pension and other postretirement benefits	681	836	(155)	(18.5) %
Bad debt	494	(367)	861	(234.6) %
Business development	5,636	6,611	(975)	(14.7) %
Research and development expenses	21,104	16,970	4,134	24.4 %
Intangible asset amortization	4,084	4,139	(55)	(1.3) %
All other expenses	19,036	18,044	992	5.5 %
Selling, general and administrative expenses	$ 143,216	$ 122,427	$ 20,789	17.0 %

SG&A expenses were $20.8 million higher in the six months ended June 30, 2018, compared with the prior-year same period. The higher SG&A expenses compared with the prior-year same period are primarily driven by businesses acquired within the last year, primarily related to personnel expenses and research and development expenses.

The following table presents SG&A expenses attributable to sales, research and development and operations costs as strategic services and other SG&A costs as functional services.

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Strategic services	$ 80,821	$ 64,673	$ 16,148	25.0 %
Functional services	53,042	48,068	4,974	10.3 %
Incentive compensation	5,497	4,295	1,202	28.0 %
Stock-based compensation	3,856	5,391	(1,535)	(28.5)%
Selling, general and administrative expenses	$ 143,216	$ 122,427	$ 20,789	17.0 %

Restructuring and Impairment Charges

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Employee severance	$ 3,432	$ 1,795	$ 1,637	91.2 %
Equity method investment impairment	—	1,499	(1,499)	— %
Asset impairment	—	1,176	(1,176)	— %
Other restructuring costs	4,442	1,772	2,670	150.7 %
Restructuring and impairment charges	$ 7,874	$ 6,242	$ 1,632	26.1 %

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Restructuring and impairment charges increased in the six months ended June 30, 2018 compared with the prior-year same period. The increase primarily relates to costs associated with integration of our recent acquisitions and optimization programs.

Interest Expense

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Interest expense	$ 14,950	$ 11,265	$ 3,685	32.7 %
Amortization of bank fees	1,773	1,432	341	23.8 %
Interest swap amortization	(131)	—	(131)	— %
Interest capitalization	(430)	(24)	(406)	1,691.7 %
Interest expense	$ 16,162	$ 12,673	$ 3,489	27.5 %

Interest expense increased in the six months ended June 30, 2018 compared with the prior-year same period. The increase in interest expense was due to an increase in the average long-term debt balance during the six months ended June 30, 2018, compared with the prior-year same period. Also, interest expense increased due to the increase in LIBOR, offset by the decrease in the applicable margin rate from borrowings from the Amended Credit Facility.

Income Tax Expense

During the first half of 2018, income tax expense was $17.9 million, or 25.1% of pre-tax income. In the first half of 2017, we recorded tax expense of $15.8 million, or 26.8% of pre-tax income. The tax expense in the first half of 2018, as a percentage of pre-tax income, is higher than the U.S. federal statutory income tax rate of 21% primarily as a result of foreign statutory rate differences. The tax expense for the first half of 2017, as a percentage of pre-tax income, was lower than the U.S. federal statutory income tax rate of 35% primarily as a result of foreign statutory rate differences.

We have recognized the provisional tax impacts related to the 2017 Tax Cut and Jobs Act (the "Tax Act") under the guidance of the SEC Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118"). The ultimate impact may differ from these provisional amounts due to additional analysis, changes in interpretations and assumptions, additional regulatory guidance that may be issued, and actions we may take as a result of the Tax Act. The Company's preliminary determinations related to the estimable impacts of the Tax Act that are effective for the year-ended December 31, 2017 have not changed in the current quarter.

The Company continues to review the anticipated impacts of the global intangible low taxed income ("GILTI") and the foreign-derived intangible income ("FDII") on the Company for 2018. For the current quarter the Company has made reasonable estimates of GILTI and FDII, as well as the impact of changes to valuation allowances related to certain positions. The combined provisional net impact of these items are not anticipated to be material to the tax rate in 2018. The Company has not recorded any potential deferred tax effects related to GILTI in the financial statements and has not made a policy decision regarding whether to record deferred taxes on GILTI or use the period cost method.

Results of Operations - Segment Information

Comparison of the six months ended June 30, 2018 and 2017

Performance Coatings

Six Months Ended June 30,				Change due to				
		$	%		Volume /			
2018	2017	Change	Change	Price	Mix	Currency	Acquisitions	Other

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	(Dollars in thousands)								
Segment net sales	$ 378,097	$ 278,311	$ 99,786	35.9 %	$ 15,631	$ 1,111	$ 12,449	$ 70,595	$ —
Segment gross profit	94,062	73,735	20,327	27.6 %	15,631	887	4,478	19,787	(20,456)
Gross profit as a % of segment net sales	24.9 %	26.5 %							

Net sales increased in Performance Coatings compared with the prior-year same period, primarily driven by sales from Endeka of $57.6 million and Gardenia of $3.0 million, each of which was acquired after the second quarter of 2017, sales from SPC of $10.1, which was acquired in the second quarter of 2017, and increases in sales of frits and glazes, porcelain enamel and digital inks of $13.1 million $7.8 million and $6.9 million, respectively. The increase in net sales was driven by sales from acquisitions of $70.6 million, higher product pricing of $15.6 million, favorable foreign currency impacts of $12.4 million, and favorable volume and mix of $1.1 million. Gross profit increased $20.3 million from the prior-year same period, primarily driven by gross profit from acquisitions of $19.8 million, favorable product pricing impacts of $15.6 million, favorable foreign currency impacts of $4.5 million, higher sales volumes and mix of $0.9 million and lower manufacturing costs of $0.7 million, partially offset by higher raw material costs of $21.2 million.

	Six Months Ended June 30,			
	2018	2017	$ Change	% Change
	(Dollars in thousands)			
Segment net sales by Region				
EMEA	$ 245,249	$ 157,973	$ 87,276	55.2 %
Latin America	53,238	53,570	(332)	(0.6) %
Asia Pacific	55,076	44,406	10,670	24.0 %
United States	24,534	22,362	2,172	9.7 %
Total	$ 378,097	$ 278,311	$ 99,786	35.9 %

The net sales increase of $99.8 million was primarily driven by increases in sales from EMEA and Asia Pacific. The increase in sales from EMEA was primarily attributable to sales from acquisitions which contributed $67.5 million

and higher sales of all product lines. The increase in sales from Asia Pacific was driven by higher sales of frits and glazes, digital inks and porcelain enamel of $5.2 million, $2.1 million and $1.6 million, respectively, and sales from Endeka, which contributed $1.6 million. The increase in sales from the United States was fully attributable to higher sales of porcelain enamel. The decrease in sales from Latin America was driven by lower sales of porcelain enamel and frits and glazes, partially offset by higher sales of digital inks.

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Performance Colors and Glass

	Six Months Ended June 30,				Change due to				
	2018	2017	$ Change	% Change	Price	Volume / Mix	Currency	Acquisitions	Other
	(Dollars in thousands)								
Segment net sales	$ 246,532	$ 210,155	$ 36,377	17.3 %	$ 2,231	$ 7,770	$ 11,206	$ 15,170	$ —
Segment gross profit	88,690	77,505	11,185	14.4 %	2,231	2,165	3,948	3,458	(618)
Gross profit as a % of segment net sales	36.0 %	36.9 %							

Net sales increased compared with the prior-year same period, primarily driven by $10.9 million in sales from Dip-Tech, which was acquired in the third quarter of 2017, and $3.6 million in sales from Endeka, which was acquired in the fourth quarter of 2017. The increase in net sales was driven by sales from acquisitions of $15.2 million, favorable foreign currency impacts of $11.2 million, favorable volume and mix of $7.8 million and higher product pricing of $2.2 million. Gross profit increased from the prior-year same period, primarily due to favorable foreign currency impacts of $3.9 million, gross profit from acquisitions of $3.5 million, favorable manufacturing costs of $2.8 million, higher product pricing of $2.2 million and higher sales volumes and mix of $2.2 million, partially offset by higher raw material costs of $3.4 million.

Six Months Ended June 30,

20182017

$ Change	% Change