

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549
FORM 10-Q

**QUARTERLY REPORT UNDER SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934**

For the quarter ended March 31, 2019

Commission File No. 1-15579



MSA SAFETY INCORPORATED

(Exact name of registrant as specified in its charter)

Pennsylvania

46-4914539

(State or other jurisdiction of
incorporation or organization)

(IRS Employer
Identification No.)

1000 Cranberry Woods Drive
Cranberry Township, Pennsylvania

16066-5207

(Address of principal executive offices)

(Zip Code)

Registrant's telephone number, including area code: (724) 776-8600

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 and (2) has been subject to such filing requirements for the past 90 days. Yes No

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

Indicate by 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

Smaller reporting company

Emerging growth company

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

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

As of April 23, 2019, 38,688,532 shares of common stock, of the registrant were outstanding.

PART I. FINANCIAL INFORMATION**Item 1. Financial Statements****MSA SAFETY INCORPORATED**
CONDENSED CONSOLIDATED STATEMENT OF INCOME

Unaudited

(In thousands, except per share amounts)	Three Months Ended March 31,	
	2019	2018
Net sales	\$ 326,038	\$ 325,894
Cost of products sold	176,056	178,555
Gross profit	149,982	147,339
Selling, general and administrative	78,429	80,250
Research and development	13,705	12,548
Restructuring charges (Note 4)	5,831	5,274
Currency exchange losses, net (Note 6)	16,961	2,008
Product liability expense (Note 18)	2,896	2,824
Operating income	32,160	44,435
Interest expense	2,360	4,781
Other income, net	(2,579)	(2,340)
Total other (income) expense, net	(219)	2,441
Income before income taxes	32,379	41,994
Provision for income taxes (Note 10)	9,003	9,505
Net income	23,376	32,489
Net income attributable to noncontrolling interests	(144)	(118)
Net income attributable to MSA Safety Incorporated	\$ 23,232	\$ 32,371
Earnings per share attributable to MSA Safety Incorporated common shareholders:		
Basic	\$ 0.60	\$ 0.85
Diluted	\$ 0.59	\$ 0.83
Dividends per common share	\$ 0.38	\$ 0.35

The accompanying notes are an integral part of the consolidated financial statements.

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

Unaudited

(In thousands)	Three Months Ended March 31,	
	2019	2018
Net income	\$ 23,376	\$ 32,489
Other comprehensive income, net of tax:		
Foreign currency translation adjustments (Note 6)	361	13,400
Pension and post-retirement plan actuarial gains, net of tax (Note 6)	2,023	2,329
Unrealized gains on available-for-sale securities (Note 6)	536	—
Reclassification of currency translation from accumulated other comprehensive (loss) into net income (Note 6)	15,359	—
Total other comprehensive income, net of tax	18,279	15,729
Comprehensive income	41,655	48,218
Comprehensive income attributable to noncontrolling interests	(287)	(288)
Comprehensive income attributable to MSA Safety Incorporated	\$ 41,368	\$ 47,930

The accompanying notes are an integral part of the consolidated financial statements.

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED BALANCE SHEET

Unaudited

(In thousands)	March 31, 2019	December 31, 2018
Assets		
Cash and cash equivalents	\$ 107,668	\$ 140,095
Trade receivables, less allowance for doubtful accounts of \$5,115 and \$5,369	253,351	245,032
Inventories (Note 3)	172,663	156,602
Investments, short-term (Note 17)	73,619	55,106
Prepaid income taxes	12,252	10,769
Notes receivable, insurance companies (Note 18)	3,586	3,555
Prepaid expenses and other current assets	49,652	45,464
Total current assets	<u>672,791</u>	<u>656,623</u>
Property, plant and equipment, net (Note 5)	156,099	157,940
Operating lease assets, net (Note 14)	52,020	—
Prepaid pension cost	61,500	57,568
Deferred tax assets (Note 10)	29,492	32,522
Goodwill (Note 13)	415,254	413,640
Intangible assets (Note 13)	168,050	169,515
Notes receivable, insurance companies, noncurrent (Note 18)	56,368	56,012
Insurance receivable (Note 18) and other noncurrent assets	59,794	64,192
Total assets	<u>\$ 1,671,368</u>	<u>\$ 1,608,012</u>
Liabilities		
Notes payable and current portion of long-term debt, net (Note 12)	\$ 20,155	\$ 20,063
Accounts payable	75,524	78,367
Employees' compensation	33,740	51,386
Insurance and product liability (Note 18)	32,429	48,688
Income taxes payable (Note 10)	8,208	—
Warranty reserve (Note 18) and other current liabilities	96,214	83,556
Total current liabilities	<u>266,270</u>	<u>282,060</u>
Long-term debt, net (Note 12)	357,304	341,311
Pensions and other employee benefits	166,294	166,101
Noncurrent operating lease liabilities (Note 14)	41,962	—
Deferred tax liabilities (Note 10)	7,613	7,164
Product liability (Note 18) and other noncurrent liabilities	168,640	171,857
Total liabilities	<u>\$ 1,008,083</u>	<u>\$ 968,493</u>
Commitments and contingencies (Note 18)		
Equity		
Preferred stock, 4 1/2% cumulative, \$50 par value (Note 7)	\$ 3,569	\$ 3,569
Common stock, no par value (Note 7)	213,099	211,806
Treasury shares, at cost (Note 7)	(302,673)	(298,143)
Accumulated other comprehensive loss (Note 6)	(204,563)	(218,927)
Retained earnings	947,929	935,577
Total MSA Safety Incorporated shareholders' equity	<u>657,361</u>	<u>633,882</u>
Noncontrolling interests	5,924	5,637
Total shareholders' equity	<u>663,285</u>	<u>639,519</u>
Total liabilities and shareholders' equity	<u>\$ 1,671,368</u>	<u>\$ 1,608,012</u>

The accompanying notes are an integral part of the consolidated financial statements.

MSA SAFETY INCORPORATED
CONDENSED CONSOLIDATED STATEMENT OF CASH FLOWS
Unaudited

(In thousands)	Three Months Ended March 31,	
	2019	2018
Operating Activities		
Net income	\$ 23,376	\$ 32,489
Depreciation and amortization	9,326	9,671
Stock-based compensation (Note 11)	2,745	5,606
Pension expense (Note 15)	48	1,488
Deferred income tax provision (benefit) (Note 10)	1,834	(600)
Loss on asset dispositions, net	25	17
Pension contributions (Note 15)	(1,767)	(1,243)
Currency exchange losses, net	16,961	2,008
Product liability expense (Note 18)	2,896	2,824
Collections on insurance receivables and notes receivable, insurance companies (Note 18)	8,122	17,700
Product liability payments (Note 18)	(20,003)	(5,600)
Changes in:		
Trade receivables	(7,720)	(6,858)
Inventories (Note 3)	(16,127)	(14,513)
Prepaid expenses and other current assets	(8,055)	(1,642)
Accounts payable and accrued liabilities	(10,523)	(24,372)
Other noncurrent assets and liabilities	79	378
Cash Flow From Operating Activities	1,217	17,353
Investing Activities		
Capital expenditures	(4,897)	(3,241)
Purchase of short-term investments (Note 17)	(52,541)	—
Proceeds from maturities of short-term investments (Note 17)	33,600	—
Property disposals	12	58
Cash Flow Used in Investing Activities	(23,826)	(3,183)
Financing Activities		
Payments on short-term debt, net	91	99
Proceeds from long-term debt (Note 12)	133,000	137,500
Payments on long-term debt (Note 12)	(119,000)	(147,000)
Cash dividends paid	(14,652)	(13,390)
Company stock purchases (Note 7)	(7,446)	(2,673)
Exercise of stock options (Note 7)	1,465	848
Cash Flow Used in Financing Activities	(6,542)	(24,616)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(3,221)	1,363
Decrease in cash, cash equivalents and restricted cash	(32,372)	(9,083)
Beginning cash, cash equivalents and restricted cash	140,604	137,889
Ending cash, cash equivalents and restricted cash	\$ 108,232	\$ 128,806
Supplemental cash flow information:		
Cash and cash equivalents	\$ 107,668	\$ 124,883
Restricted cash included in prepaid expenses and other current assets	564	3,923
Total cash, cash equivalents and restricted cash	\$ 108,232	\$ 128,806

The accompanying notes are an integral part of the consolidated financial statements.

MSA SAFETY INCORPORATED

CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN RETAINED EARNINGS,
ACCUMULATED OTHER COMPREHENSIVE LOSS AND NONCONTROLLING INTERESTS

Unaudited

(In thousands)	Retained Earnings	Accumulated Other Comprehensive (Loss)	Noncontrolling Interests
Balances December 31, 2017	\$ 868,675	\$ (171,762)	\$ 4,977
Net income	32,489	—	—
Foreign currency translation adjustments	—	13,400	—
Pension and post-retirement plan adjustments, net of tax of \$1,066	—	2,329	—
Income attributable to noncontrolling interests	(118)	(170)	288
Common dividends	(13,380)	—	—
Preferred dividends (\$0.5625 per share)	(10)	—	—
Balances March 31, 2018	\$ 887,656	\$ (156,203)	\$ 5,265
Balances December 31, 2018	\$ 935,577	\$ (218,927)	\$ 5,637
Net income	23,376	—	—
Foreign currency translation adjustments	—	361	—
Pension and post-retirement plan adjustments, net of tax of \$666	—	2,023	—
Unrealized net gains on available-for-sale securities (Note 17)	—	536	—
Reclassification of currency translation from accumulated other comprehensive (loss) into net income (Note 6)	—	15,359	—
Income attributable to noncontrolling interests	(144)	(143)	287
Common dividends	(14,642)	—	—
Preferred dividends (\$0.5625 per share)	(10)	—	—
Reclassification due to the adoption of ASU 2018-02 (Note 2)	3,772	(3,772)	—
Balances March 31, 2019	\$ 947,929	\$ (204,563)	\$ 5,924

The accompanying notes are an integral part of the consolidated financial statements.

MSA SAFETY INCORPORATED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

Unaudited

Note 1—Basis of Presentation

The condensed consolidated financial statements of MSA Safety Incorporated and its subsidiaries ("MSA" or the "Company") are unaudited. These condensed consolidated financial statements include all adjustments, consisting of normal recurring adjustments, considered necessary by management to fairly state the Company's results. Intercompany accounts and transactions have been eliminated. The results reported in these condensed consolidated financial statements are not necessarily indicative of the results that may be expected for the entire year. The December 31, 2018 Condensed Consolidated Balance Sheet data was derived from the audited consolidated balance sheet, but does not include all disclosures required by accounting principles generally accepted in the United States of America (U.S. GAAP). This Form 10-Q report should be read in conjunction with MSA's Form 10-K for the year ended December 31, 2018, which includes all disclosures required by U.S. GAAP.

Reclassifications - Certain reclassifications of prior years' data have been made to conform to the current year presentation. These reclassifications relate to (1) additional captions disclosed within the operating section of the unaudited Condensed Consolidated Statement of Cash Flows but do not change the overall cash flow from operating activities for the prior years as previously reported, and (2) additional captions disclosed for product warranty activity within the table that reconciles the changes in the Company's accrued warranty reserve (Note 18—Contingencies).

Note 2—Recently Adopted and Recently Issued Accounting Standards

In February 2016, the FASB issued ASU 2016-02, *Leases*. This ASU requires lessees to record a right-of-use asset and a liability for virtually all leases. This ASU was adopted on January 1, 2019, using the modified retrospective transition method at the adoption date. Comparative periods presented in our unaudited condensed consolidated financial statements are reported in accordance with ASC 840, *Leases*. In addition, the Company elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to carry forward the historical lease classification. The Company also elected the practical expedient to not separate lease and non-lease components for new leases entered into after January 1, 2019 when calculating the lease liability under this ASU. Adoption of this ASU resulted in the recording of lease liabilities of approximately \$54 million with the offset to lease right-of-use assets of \$54 million. The standard did not materially impact our unaudited Condensed Consolidated Statement of Income and had no impact on our unaudited Condensed Consolidated Statement of Cash Flows. The new standard also requires increased disclosures to help financial statement users better understand the amount, timing and uncertainty of cash flows arising from leases. See additional disclosures in Note 14—*Leases*.

In June 2016, the FASB issued ASU 2016-13, *Allowance for Loan and Lease Losses*. This ASU introduces an approach based on expected losses to estimate credit losses on certain types of financial instruments, including loans, held-to-maturity debt securities, loan commitments, financial guarantees and net investments in leases, as well as reinsurance and trade receivables. This ASU will be effective beginning in 2020. Based on a review of its portfolio of financial instruments, the Company has developed a project plan and is in the process of assessing the impact that this ASU will have on our reserve for trade receivables as recorded in our unaudited Condensed Consolidated Balance Sheet. Additionally, we expect the adoption of this ASU to result in additional disclosures.

In January 2017, the FASB issued ASU 2017-04, *Simplifying the Test for Goodwill Impairment*. This ASU simplifies the accounting for goodwill impairments under Step 2 by eliminating the requirement to perform procedures to determine the fair value of the assets and liabilities of the reporting unit, including previously unrecognized assets and liabilities, in order to determine the fair value of the goodwill and any impairment charge to be recognized. Under this ASU, the impairment charge to be recognized should be the amount by which the reporting unit's carrying value exceeds the reporting unit's fair value as calculated under Step 1 provided that the loss recognized should not exceed the total amount of goodwill allocated to the reporting unit. The Company adopted ASU 2017-04 on January 1, 2019 and adoption of this ASU may have a material effect on our unaudited condensed consolidated financial statements in the event that we determine that goodwill for any of our reporting units is impaired.

In January 2018, the FASB issued ASU 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income ("AOCI")*, which gives entities the option to reclassify to retained earnings the tax effects resulting from the new tax reform legislation commonly known as the Tax Cuts and Jobs Act ("the Act") related to items in AOCI that the FASB refers to as having been stranded in AOCI. The new guidance may be applied retrospectively to each period in which the effect of the Act is recognized in the period of adoption. The Company must adopt this guidance for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. ASU2018-02 requires new disclosures regarding the Company's accounting policy for releasing the tax effects in accumulated other comprehensive loss and allows the Company to reclassify the effect of remeasuring deferred tax liabilities and assets related to items within accumulated other comprehensive loss using the then newly enacted 21% federal corporate income tax rate. The Company adopted ASU 2018-02 on January 1, 2019 and this adoption resulted in a reclassification that increased retained earnings by \$3.8 million, with an offsetting increase to accumulated other comprehensive loss for the same amount.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement*, which improves fair value disclosure requirements by removing disclosures that are not cost beneficial, clarifying disclosures' specific requirements and adding relevant disclosure requirements. This ASU is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. Early adoption is permitted and an entity can choose to early adopt any removed or modified disclosures upon issuance of this ASU and delay adoption of the additional disclosures until their effective date. The Company is still evaluating the impact that the adoption of ASU 2018-13 will have on the unaudited condensed consolidated financial statements.

In August 2018, the FASB issued ASU 2018-14, *Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans*, which improves defined benefit disclosure requirements by removing disclosures that are not cost beneficial, clarifying disclosures' specific requirements and adding relevant disclosure requirements. This ASU is effective for fiscal years ending after December 15, 2020 and early adoption is permitted. The amendments in this ASU are required to be applied on a retrospective basis to all periods presented. The Company is still evaluating the impact that the adoption of ASU 2018-14 will have on the unaudited condensed consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, which will now allow all cloud computing arrangements classified as service contracts to capitalize certain implementation costs in accordance with ASC 350-40, *Intangibles - Goodwill and Other - Internal-Use Software*, depending on the project stage within which the costs were incurred. This ASU is effective for fiscal years beginning after December 15, 2019 and interim periods within those fiscal periods. Early adoption of the amendments in this ASU is permitted, including adoption in any interim period and the amendments can be applied either retrospectively or prospectively. In 2018, the Company has adopted this ASU prospectively for all implementation costs incurred related to cloud computing arrangements and the implementation did not have a material impact on our unaudited condensed consolidated financial statements.

Note 3—Inventories

The following table sets forth the components of inventory:

(In thousands)	March 31, 2019	December 31, 2018
Finished products	\$ 75,164	\$ 65,965
Work in process	8,517	6,169
Raw materials and supplies	129,248	124,554
Inventories at current cost	212,929	196,688
Less: LIFO valuation	(40,266)	(40,086)
Total inventories	\$ 172,663	\$ 156,602

Note 4—Restructuring Charges

During the three months ended March 31, 2019, we recorded restructuring charges of \$5.8 million. International segment restructuring charges of \$5.7 million during the three months ended March 31, 2019, were primarily related to severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth. Corporate segment restructuring charges of \$0.1 million during the three months ended March 31, 2019, related primarily to the legal and operational realignment of our U.S. and Canadian operations.

During the three months ended March 31, 2018, we recorded restructuring charges of \$5.3 million, respectively. Corporate segment restructuring charges of \$2.0 million during the three months ended March 31, 2018, related primarily to our ongoing review of the Company's legal structure to evaluate potential realignments to better facilitate the execution of our corporate strategy. International segment restructuring charges of \$3.3 million during the three months ended March 31, 2018, were related to severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth in Europe.

Activity and reserve balances for restructuring charges by segment were as follows:

(In millions)	Americas	International	Corporate	Total
Reserve balances at December 31, 2017	\$ 0.5	\$ 3.6	\$ —	\$ 4.1
Restructuring charges	2.3	5.6	5.3	13.2
Currency translation and other adjustments	(0.3)	(0.3)	—	(0.6)
Cash payments / utilization	(2.0)	(4.9)	(5.3)	(12.2)
Reserve balances at December 31, 2018	\$ 0.5	\$ 4.0	\$ —	\$ 4.5
Restructuring charges	—	5.7	0.1	5.8
Currency translation and other adjustments	—	(0.1)	—	(0.1)
Cash payments	(0.1)	(1.9)	(0.1)	(2.1)
Reserve balances at March 31, 2019	\$ 0.4	\$ 7.7	\$ —	\$ 8.1

Note 5—Property, Plant and Equipment

The following table sets forth the components of property, plant and equipment:

(In thousands)	March 31, 2019	December 31, 2018
Land	\$ 3,020	\$ 3,188
Buildings	119,051	117,910
Machinery and equipment	387,758	386,690
Construction in progress	26,251	24,044
Total	536,080	531,832
Less: accumulated depreciation	(379,981)	(373,892)
Net property, plant and equipment	\$ 156,099	\$ 157,940

Note 6—Reclassifications Out of Accumulated Other Comprehensive Loss

During three months ended March 31, 2019, we recognized non-cash cumulative translation losses of approximately \$15.4 million as a result of the approval of our plan to close our South Africa affiliates. This charge is related to the historical translation of the elements of the financial statements for the business from the functional currency to the U.S. Dollar. The translation impact has been historically recorded as currency translation adjustment (“CTA”), a separate component of accumulated other comprehensive loss within the equity section of the unaudited Condensed Consolidated Balance Sheet and has been reclassified into net income during three months ended March 31, 2019.

Changes in accumulated other comprehensive loss were as follows:

(In thousands)	MSA Safety Incorporated		Noncontrolling Interests	
	Three Months Ended March 31,		Three Months Ended March 31,	
	2019	2018	2019	2018
Pension and other post-retirement benefits ^(a)				
Balance at beginning of period	\$ (115,517)	\$ (97,948)	\$ —	\$ —
Amounts reclassified from accumulated other comprehensive loss into net income:				
Amortization of prior service credit (Note 15)	(105)	(83)	—	—
Recognized net actuarial losses (Note 15)	2,794	3,478	—	—
Tax benefit	(666)	(1,066)	—	—
Total amount reclassified from accumulated other comprehensive loss, net of tax, into net income	2,023	2,329	—	—
Reclassification to retained earnings due to the adoption of ASU 2018-02 (Note 2)	(3,772)	—	—	—
Balance at end of period	\$ (117,266)	\$ (95,619)	\$ —	\$ —
Available-for-sale securities				
Balance at beginning of period	\$ (572)	\$ —	\$ —	\$ —
Unrealized gains on available-for-sale securities (Note 17)	536	—	—	—
Balance at end of period	\$ (36)	\$ —	\$ —	\$ —
Foreign Currency Translation				
Balance at beginning of period	\$ (102,838)	\$ (73,814)	\$ 496	\$ 801
Reclassification from accumulated other comprehensive loss into net income	15,359 ^(b)	—	—	—
Foreign currency translation adjustments	218	13,230	143	170
Balance at end of period	\$ (87,261)	\$ (60,584)	\$ 639	\$ 971

^(a) Reclassifications out of accumulated other comprehensive loss and into net income are included in the computation of net periodic pension and other post-retirement benefit costs (refer to Note 15—Pensions and Other Post-retirement Benefits).

^(b) Reclassifications into net income relate primarily to the approval of our plan to close our South Africa affiliates as discussed above and are included in Currency exchange losses, net within the unaudited Condensed Consolidated Statement of Income.

Note 7—Capital Stock

Preferred Stock - The Company has authorized 100,000 shares of \$50 par value 4.5% cumulative preferred nonvoting stock which is callable at \$52.50. There are 71,340 shares issued and 52,878 shares held in treasury at March 31, 2019. The Treasury shares at cost line on the unaudited Condensed Consolidated Balance Sheet includes \$1.8 million related to preferred stock. There were no treasury purchases of preferred stock during the three months ended March 31, 2019 or 2018. The Company has also authorized 1,000,000 shares of \$10 par value second cumulative preferred voting stock. No shares have been issued as of March 31, 2019.

Common Stock - The Company has authorized 180,000,000 shares of no par value common stock. There were 62,081,391 shares issued as of December 31, 2018. No new shares were issued during three months ended March 31, 2019 or 2018. There were 38,682,918 and 38,526,523 shares outstanding at March 31, 2019, and December 31, 2018, respectively.

Treasury Shares - The Company's share repurchase program authorizes up to \$100.0 million to repurchase MSA common stock in the open market and in private transactions. The share purchase program has no expiration date. The maximum number of shares that may be purchased is calculated based on the dollars remaining under the program and the respective month-end closing share price. No shares were repurchased under this program during the three months ended March 31, 2019 or 2018. We do not have any other share repurchase programs. There were 23,398,473 and 23,554,868 Treasury Shares at March 31, 2019, and December 31, 2018, respectively.

The Company issues Treasury Shares for all share based benefit plans. Shares are issued from Treasury at the average Treasury Share cost on the date of the transaction. There were 230,112 and 111,902 Treasury Shares issued for these purposes during the three months ended March 31, 2019 and 2018, respectively.

Common stock activity is summarized as follows:

(In thousands)	Three Months Ended March 31, 2019		Three Months Ended March 31, 2018	
	Common Stock	Treasury Cost	Common Stock	Treasury Cost
Balance at beginning of period	211,806	(296,390)	194,953	(296,081)
Stock compensation expense	2,745	—	5,606	—
Restricted and performance stock awards	(2,411)	2,411	(1,102)	1,102
Stock options exercised	959	506	545	302
Treasury shares purchased	—	(7,446)	—	(2,673)
Balance at end of period	213,099	(300,919)	200,002	(297,350)

Note 8—Segment Information

We are organized into six geographic operating segments based on management responsibilities. The operating segments have been aggregated (based on economic similarities, the nature of their products, end-user markets and methods of distribution) into three reportable segments: Americas, International, and Corporate.

The Americas segment is comprised of our operations in North America and Latin America geographies. The International segment is comprised of our operations of all geographies outside of the Americas. Certain global expenses are allocated to each segment in a manner consistent with where the benefits from the expenses are derived.

The Company's sales are allocated to each country based primarily on the destination of the end-customer.

Adjusted operating income (loss), adjusted operating margin, adjusted earnings before interest, taxes, depreciation and amortization (EBITDA) and adjusted EBITDA margin are the measures used by the chief operating decision maker to evaluate segment performance and allocate resources. Adjusted operating income (loss) is defined as operating income excluding restructuring charges, currency exchange gains/losses, product liability expense and strategic transaction costs and adjusted operating margin is defined as adjusted operating income (loss) divided by segment sales to external customers. Adjusted EBITDA is defined as adjusted operating income (loss) plus depreciation and amortization and adjusted EBITDA margin is defined as adjusted EBITDA divided by segment sales to external customers. Adjusted operating income (loss), adjusted operating margin, adjusted EBITDA and adjusted EBITDA margin are not recognized terms under U.S. GAAP and therefore do not purport to be alternatives to operating income or operating margin as a measure of operating performance. Further, the Company's measure of adjusted operating income (loss), adjusted operating margin, adjusted EBITDA and adjusted EBITDA margin may not be comparable to similarly titled measures of other companies. Adjusted operating income (loss) and adjusted EBITDA on a consolidated basis is presented in the following table to reconcile the segment operating performance measure to operating income as presented on the unaudited Condensed Consolidated Statement of Income.

The accounting principles applied at the operating segment level in determining operating income (loss) are generally the same as those applied at the consolidated financial statement level. Sales and transfers between operating segments are accounted for at market-based transaction prices and are eliminated in consolidation.

Reportable segment information is presented in the following table:

(In thousands, except percentage amounts)	Americas	International	Corporate	Reconciling Items ¹	Consolidated Totals
Three Months Ended March 31, 2019					
Sales to external customers	\$ 213,687	\$ 112,351	\$ —	\$ —	\$ 326,038
Intercompany sales	159,262	79,329	—	(238,591)	—
Operating income					32,160
Restructuring charges (Note 4)					5,831
Currency exchange losses, net (Note 6)					16,961
Product liability expense (Note 18)					2,896
Strategic transaction costs					456
Adjusted operating income (loss)	54,803	11,040	(7,539)	—	58,304
Adjusted operating margin %	25.6%	9.8%			
Depreciation and amortization					9,326
Adjusted EBITDA	60,900	14,171	(7,441)	—	67,630
Adjusted EBITDA %	28.5%	12.6%			

(In thousands, except percentage amounts)	Americas	International	Corporate	Reconciling Items ¹	Consolidated Totals
Three Months Ended March 31, 2018					
Sales to external customers	\$ 209,129	\$ 116,765	\$ —	\$ —	\$ 325,894
Intercompany sales	34,198	82,379	—	(116,577)	—
Operating income					44,435
Restructuring charges (Note 4)					5,274
Currency exchange losses, net (Note 6)					2,008
Product liability expense (Note 18)					2,824
Strategic transaction costs					94
Adjusted operating income (loss)	50,086	12,778	(8,229)	—	54,635
Adjusted operating margin %	23.9%	10.9%			
Depreciation and amortization					9,671
Adjusted EBITDA	56,225	16,209	(8,128)		64,306
Adjusted EBITDA %	26.9%	13.9%			

¹Reconciling items consist primarily of intercompany eliminations and items not directly attributable to reporting segments.

Total sales by product group was as follows:

(In thousands, except percentage amounts)	Consolidated		Americas		International	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Three Months Ended March 31, 2019						
Breathing Apparatus	\$ 75,446	23%	\$ 50,904	24%	\$ 24,542	22%
Fixed Gas & Flame Detection	60,398	19%	32,930	15%	27,468	24%
Firefighter Helmets & Protective Apparel	43,577	13%	35,064	16%	8,513	8%
Portable Gas Detection	40,726	13%	26,991	13%	13,735	12%
Industrial Head Protection	35,744	11%	27,836	13%	7,908	7%
Fall Protection	30,128	9%	17,961	8%	12,167	11%
Other	40,019	12%	22,001	11%	18,018	16%
Total	\$ 326,038	100%	\$ 213,687	100%	\$ 112,351	100%

(In thousands, except percentage amounts)	Consolidated		Americas		International	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Three Months Ended March 31, 2018						
Breathing Apparatus	\$ 74,618	23%	\$ 49,333	24%	\$ 25,285	22%
Fixed Gas & Flame Detection	60,931	19%	32,526	15%	28,405	24%
Firefighter Helmets & Protective Apparel	44,484	14%	34,754	17%	9,730	8%
Portable Gas Detection	42,227	13%	28,762	14%	13,465	12%
Industrial Head Protection	34,956	11%	27,841	13%	7,115	6%
Fall Protection	25,705	8%	14,109	7%	11,596	10%
Other	42,973	12%	21,804	10%	21,169	18%
Total	\$ 325,894	100%	\$ 209,129	100%	\$ 116,765	100%

Note 9—Earnings per Share

Basic earnings per share attributable to MSA Safety Incorporated common shareholders is computed by dividing net income, after the deduction of preferred stock dividends and undistributed earnings allocated to participating securities, by the weighted average number of common shares outstanding during the period. Diluted earnings per share attributable to MSA Safety Incorporated common shareholders assumes the issuance of common stock for all potentially dilutive share equivalents outstanding not classified as participating securities. Participating securities are defined as unvested stock-based payment awards that contain nonforfeitable rights to dividends.

Amounts attributable to MSA Safety Incorporated common shareholders: (In thousands, except per share amounts)	Three Months Ended March 31,	
	2019	2018
Net income	\$ 23,232	\$ 32,371
Preferred stock dividends	(10)	(10)
Net income available to common equity	23,222	32,361
Dividends and undistributed earnings allocated to participating securities	(22)	(32)
Net income available to common shareholders	23,200	32,329
Basic weighted-average shares outstanding	38,536	38,216
Stock options and other stock compensation	548	562
Diluted weighted-average shares outstanding	39,084	38,778
Antidilutive stock options	—	—
Earnings per share:		
Basic	\$ 0.60	\$ 0.85
Diluted	\$ 0.59	\$ 0.83

Note 10—Income Taxes

The Company's effective tax rate for the three months ended March 31, 2019, was 27.8% and differs from the U.S. federal statutory rate of 21% primarily due to non-deductible foreign exchange on entity closures partially offset by certain share-based payments related to the application of ASU 2016-09. The Company's effective tax rate for the three months ended March 31, 2018, was 22.6% which differs from the U.S. federal statutory rate of 21% primarily due to higher profitability in less favorable tax jurisdictions and a charge for Global Intangible Low-Taxed Income (GILTI), partially offset a tax benefit of related to certain share-based payments related to the application of ASU 2016-09.

At March 31, 2019, the Company had a gross liability for unrecognized tax benefits of \$13.2 million. The Company has recognized tax benefits associated with these liabilities of \$5.2 million at March 31, 2019. The gross liability includes amounts associated with prior period foreign tax exposure.

The Company recognizes interest related to unrecognized tax benefits in interest expense and penalties in operating expenses. The Company's liability for accrued interest related to uncertain tax positions was \$1.6 million at March 31, 2019.

Note 11—Stock Plans

The 2016 Management Equity Incentive Plan provides for various forms of stock-based compensation for eligible key employees through May 2026. Management stock-based compensation includes stock options, restricted stock, restricted stock units and performance stock units. The 2017 Non-Employee Directors' Equity Incentive Plan provides for grants of stock options and restricted stock to non-employee directors through May 2027. We issue treasury shares for stock option exercises, and grants of restricted stock and performance stock. Please refer to Note 7—Capital Stock for further information regarding stock compensation share issuance.

Stock compensation expense is as follows:

(In thousands)	Three Months Ended March 31,	
	2019	2018
Stock compensation expense	\$ 2,745	\$ 5,606
Income tax benefit	670	1,362
Stock compensation expense, net of income tax benefit	\$ 2,075	\$ 4,244

A summary of stock option activity for the three months ended March 31, 2019, follows:

	Shares	Weighted Average Exercise Price
Outstanding at January 1, 2019	735,001	\$ 43.79
Exercised	(44,407)	36.24
Outstanding at March 31, 2019	690,594	44.28
Exercisable at March 31, 2019	690,594	\$ 44.28

Restricted stock and restricted stock units are valued at the market value of the stock on the grant date. A summary of restricted stock and unit activity for the three months ended March 31, 2019, follows:

	Shares	Weighted Average Grant Date Fair Value
Unvested at January 1, 2019	205,449	\$ 68.97
Granted	37,320	103.59
Vested	(44,421)	44.23
Forfeited	(1,062)	83.33
Unvested at March 31, 2019	197,286	\$ 81.38

Performance stock units have a market condition modifier and are valued at an estimated fair value using the Monte Carlo model. The final number of shares to be issued for performance stock units granted in the first quarter of 2019 may range from 0% to 200% of the target award based on achieving the specified performance targets over the performance period plus an additional payout modifier based on total shareholder return (TSR) performance. The following weighted average assumptions were used in the Monte Carlo model for units granted in the first quarter of 2019 with a market condition modifier.

Fair value per unit	\$99.82
Risk-free interest rate	2.47%
Expected dividend yield	1.57%
Expected volatility	26.6%
MSA stock beta	1.094

The risk-free interest rate is based on the U.S. Treasury Constant Maturity rates as of the grant date converted into an implied spot rate yield curve. Expected dividend yield is based on the most recent annualized dividend divided by the one year average closing share price. Expected volatility is based on the ten year historical volatility using daily stock prices. Expected life is based on historical stock option exercise data.

A summary of performance stock unit activity for the three months ended March 31, 2019, follows:

	Shares	Weighted Average Grant Date Fair Value
Unvested at January 1, 2019	218,886	\$ 68.43
Granted	76,813	100.66
Performance adjustments	77,783	43.77
Vested	(139,476)	44.75
Unvested at March 31, 2019	234,006	\$ 84.93

The performance adjustments above relate to the final number of shares issued for the 2016 Management Performance Units which vested in the first quarter of 2019 at 237.6% of the target award based on cumulative performance against the Operating Margin % and Revenue Growth targets with a payout modifier based upon MSA's Total Shareholder Return during the three year performance period.

Note 12—Long-Term Debt

(In thousands)	March 31, 2019	December 31, 2018
2010 Senior Notes payable through 2021, 4.00%, net of debt issuance costs	60,000	\$ 60,000
2016 Senior Notes payable through 2031, 3.40%, net of debt issuance costs	71,494	69,604
Senior revolving credit facility maturing in 2023, net of debt issuance costs	245,810	231,707
Total	377,304	361,311
Amounts due within one year, net of debt issuance costs	20,000	20,000
Long-term debt, net of debt issuance costs	\$ 357,304	\$ 341,311

On September 7, 2018, the Company entered into an Amended and Restated Credit Agreement associated with our senior revolving credit facility which extended the term of the revolving credit facility through September 2023 and increased the capacity to \$600.0 million. Under this 2018 Amended and Restated Credit Agreement, the Company may elect either a Base rate of interest ("BASE") or an interest rate based on the London Interbank Offered Rate ("LIBOR"). The BASE is a daily fluctuating per annum rate equal to the highest of (i) 0.00%, (ii) the Prime Rate, (ii) the Federal Funds Open Rate plus one half of one percent (0.5%), (iii) the Overnight Bank Funding Rate, plus one half of one percent (0.50%), or (iv) the Daily Libor Rate plus one percent (1.00%). The Company pays a credit spread of 0 to 175 basis points based on the Company's net EBITDA leverage ratio and elected rate (BASE or LIBOR). The Company has a weighted average revolver interest rate of 3.46% as of March 31, 2019. At March 31, 2019, \$349.8 million of the existing \$600.0 million senior revolving credit facility was unused, including letters of credit.

On January 22, 2016, the Company entered into a multi-currency note purchase and private shelf agreement (the "Notes"), pursuant to which MSA issued notes in an aggregate original principal amount of £54.9 million (approximately \$71.5 million at March 31, 2019). The Notes are repayable in annual installments of £6.1 million (approximately \$7.9 million at March 31, 2019), commencing January 22, 2023, with a final payment of any remaining amount outstanding on January 22, 2031. The interest rate on these Notes is fixed at 3.4%. On September 7, 2018, the Company entered into an amended and restated agreement associated with these Notes. Under this 2018 Second Amended and Restated Multi-Currency Note Purchase and Private Shelf Agreement, as amended ("Amended Note Purchase Agreement"), the Company may request from time to time during a three-year period ending September 7, 2021, the issuance of up to \$150 million of additional senior notes. There were no amounts borrowed under the Amended Note Purchase Agreement as of March 31, 2019.

On January 4, 2019, the Company entered into an amended and restated agreement associated with the New York Life master note facility dated June 2, 2014. Under this Amended and Restated Master Note Facility ("Amended Note Facility"), the Company may request from time to time during a three-year period ending January 4, 2022, the issuance of up to \$150 million of additional senior promissory notes. There were no amounts borrowed under the Amended Note Facility as of March 31, 2019.

Both the Amended Note Purchase Agreement and Amended Note Facility require MSA to comply with specified financial covenants, including a requirement to maintain a minimum fixed charges coverage ratio of not less than 1.50 to 1.00 and a consolidated leverage ratio not to exceed 3.50 to 1.00; except during an acquisition period in which case the consolidated net leverage ratio shall not exceed 4.00 to 1.00; in each case calculated on the basis of the trailing four fiscal quarters. In addition, the Amended Note Purchase Agreement and Amended Note Facility both contain negative covenants limiting the ability of MSA and its subsidiaries to incur additional indebtedness or issue guarantees, create or incur liens, make loans and investments, make acquisitions, transfer or sell assets, enter into transactions with affiliated parties, make changes in its organizational documents that are materially adverse to lenders or modify the nature of MSA's or its subsidiaries' business. However, the covenants contained in the Amended Note Facility do not apply until promissory notes are issued.

The revolving credit facilities require the Company to comply with specified financial covenants. In addition, the credit facilities contain negative covenants limiting the ability of the Company and its subsidiaries to enter into specified transactions. The Company was in compliance with all covenants at March 31, 2019.

The Company had outstanding bank guarantees and standby letters of credit with banks as of March 31, 2019, totaling \$10.2 million, of which \$2.7 million relate to the senior revolving credit facility. The letters of credit serve to cover customer requirements in connection with certain sales orders and insurance companies. The full amount of the letters of credit remains unused and available at of March 31, 2019. The Company is also required to provide cash collateral in connection with certain arrangements. At March 31, 2019, the Company has \$0.6 million of restricted cash in support of these arrangements.

Note 13—Goodwill and Intangible Assets

Changes in goodwill during the three months ended March 31, 2019 are as follows:

(In thousands)	Goodwill	
Balance at January 1, 2019	\$	413,640
Currency translation		1,614
Balance at March 31, 2019	\$	415,254

At March 31, 2019, the Company had goodwill of \$273.2 million and \$142.1 million related to the Americas and International reportable segments, respectively.

Changes in intangible assets, net of accumulated amortization during the three months ended March 31, 2019, are as follows:

(In thousands)	Intangible Assets	
Net balance at January 1, 2019	\$	169,515
Amortization expense		(2,613)
Currency translation		1,148
Net balance at March 31, 2019	\$	168,050

At March 31, 2019, the Company had a trade name with an indefinite life totaling \$60.0 million.

Note 14—Leases

Effective January 1, 2019, we implemented ASU 2016-02, *Leases*, which amended authoritative guidance on leases and is codified in ASC Topic 842. The amended guidance requires lessees to recognize most leases on their balance sheets as right-of-use assets along with corresponding lease liabilities. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification determines whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. The FASB's authoritative guidance provides companies with the option to apply this ASU to new and existing leases within the scope of the guidance as of the beginning of the period of adoption. We elected this transition method of applying the new standard and have recognized right-of-use assets and lease liabilities as of January 1, 2019. Prior period amounts were not adjusted and will continue to be reported under the accounting standards in effect for those periods. The adoption of this standard had a material impact on our unaudited Condensed Consolidated Balance Sheet as of March 31, 2019 due to the capitalization of right-of-use assets and lease liabilities associated with our current operating leases in which we are the lessee. Adoption of the new standard resulted in the recording of additional right-of-use assets and lease liabilities of approximately \$54 million and \$54 million, respectively, as of January 1, 2019.

Upon adoption of the new standard on January 1, 2019, we elected the package of practical expedients provided under the guidance. The practical expedient package applies to leases that commenced prior to adoption of the new standard and permits companies not to reassess whether existing or expired contracts are or contain a lease, the lease classification and any initial direct costs for existing leases. We have elected to not separate the lease and non-lease components within our lease contracts. Therefore, all fixed costs associated with the lease are included in the right-of-use asset and the lease liability. These costs often relate to the payments for a proportionate share of real estate taxes, insurance, common area maintenance and other operating costs in addition to base rent. We did not elect the hindsight practical expedient.

At the inception of our contracts we determine if the contract is or contains a lease. A contract is or contains a lease if it conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Right-of-use assets and operating lease liabilities are recognized based on the present value of lease payments over the lease term at commencement. The discount rate for leases is based on the Company's incremental borrowing rate ("IBR"). Our IBR reflects a fully secured rate based on our credit rating, taking into consideration the repayment timing of the lease and any impacts due to the economic environment in which the lease operates.

Lease right-of-use assets and liabilities are recognized based on the present value of the fixed future lease payments over the lease term. Lease expense for all operating leases is classified in cost of products sold or selling, general and administrative expense in the unaudited Condensed Consolidated Statement of Income. For finance leases, the amortization of the right-of-use asset is included in depreciation and amortization, and the interest is included in interest expense.

As a lessee, we have various operating lease agreements primarily related to real estate, vehicles and office and plant equipment. Our lease payments are largely fixed. Variable lease payments that depend on an index or a rate are included in the lease payments and are measured using the prevailing index or rate at the measurement date, with differences between the calculated lease payment and the actual lease payment being expensed in the period of the change. Other variable lease payments, including utilities, consumption and common area maintenance as well as repairs, maintenance and mileage overages on vehicles, are expensed during the period incurred. Variable lease costs were immaterial for the three months ended March 31, 2019. A majority of our real estate leases include options to extend the lease and options to early terminate the lease. Leases with an early termination option generally involve a termination payment. If we are reasonably certain to exercise an option to extend a lease, the extension period is included as part of the right-of-use asset and the lease liability. Some of our leases contain residual value guarantees. These are guarantees made to the lessor that the value of an underlying asset returned to the lessor at the end of a lease will be at least a specified amount. Our leases do not contain restrictions or covenants that restrict us from incurring other financial obligations. We do not have any significant leases not yet commenced.

For our leases, we have elected to not apply the recognition requirements to leases of less than twelve months. These leases are expensed on a straight-line basis and are not included within the Company's operating lease asset or liability. Lease costs associated with leases of less than twelve months were immaterial for the three months ended March 31, 2019. We did not have any lease transactions with related parties.

(In thousands, except percentage amounts)	Other Information	
	Three Months Ended March 31,	
	2019	
Lease cost:		
Operating lease cost recognized as rent expense	\$	3,263
Total lease cost		3,263
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows related to operating leases	\$	3,425
Non-cash other information:		
Right-of-use assets obtained in exchange for new operating lease liabilities	\$	1,883
Weighted-average remaining lease term (in years):		
Operating leases		12
Weighted-average discount rate:		
Operating leases		4.29%

At March 31, 2019, future lease payments under operating leases were as follows:

(In thousands)	Operating Leases	
	Remainder of 2019	\$ 8,852
	2020	8,941
	2021	6,988
	2022	4,294
	2023	3,843
	After 2023	32,744
Total lease payments	\$	65,662
Less: Interest		13,870
Present value of operating lease liabilities		51,792
Less: Current operating lease liabilities ^(a)		9,830
Noncurrent operating lease liabilities	\$	41,962

^(a) Included in "Warranty reserve and other current liabilities" on the unaudited Condensed Consolidated Balance Sheet.

Note 15—Pensions and Other Post-retirement Benefits

Components of net periodic benefit cost consisted of the following:

(In thousands)	Pension Benefits		Other Benefits	
	2019	2018	2019	2018
Three Months Ended March 31,				
Service cost	\$ 2,423	\$ 2,891	\$ 89	\$ 101
Interest cost	4,705	4,219	249	221
Expected return on plan assets	(9,653)	(9,096)	—	—
Amortization of prior service credit	(4)	(6)	(101)	(77)
Recognized net actuarial losses	2,577	3,453	217	25
Settlement/curtailment loss (credit)	—	27	—	(141)
Net periodic benefit cost ^(a)	48	1,488	454	129

^(a) Components of net periodic benefit cost other than service cost are included in the line item "Other income, net" in the unaudited Condensed Consolidated Statements of Income.

We made contributions of \$1.8 million and \$1.2 million to our pension plans during the three months ended March 31, 2019 and 2018, respectively. We expect to make total contributions of approximately \$7.1 million to our pension plans in 2019 which are primarily associated with our International segment.

Note 16—Derivative Financial Instruments

As part of our currency exchange rate risk management strategy, we may enter into certain derivative foreign currency forward contracts that do not meet the U.S. GAAP criteria for hedge accounting, but which have the impact of partially offsetting certain foreign currency exposures. We account for these forward contracts at fair value and report the related gains or losses in currency exchange losses, net, in the unaudited Condensed Consolidated Statement of Income. The notional amount of open forward contracts was \$76.4 million and \$72.4 million at March 31, 2019, and December 31, 2018, respectively.

The following table presents the unaudited Condensed Consolidated Balance Sheet location and fair value of assets and liabilities associated with derivative financial instruments:

(In thousands)	March 31, 2019	December 31, 2018
Derivatives not designated as hedging instruments:		
Foreign exchange contracts: other current liabilities	\$ 1,201	\$ 12
Foreign exchange contracts: other current assets	36	488

The following table presents the unaudited Condensed Consolidated Statement of Income location and impact of derivative financial instruments:

(In thousands)	Statement of Income Location	Loss (Gain) Recognized in Income	
		Three Months Ended March 31,	
		2019	2018
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Currency exchange losses, net	\$ 1,262	\$ (2,875)

Note 17—Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value hierarchy consists of three broad levels, which gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are:

- Level 1—Observable inputs that reflect unadjusted quoted prices for identical assets or liabilities in active markets.
- Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3—Unobservable inputs for the asset or liability.

The valuation methodologies we used to measure financial assets and liabilities include the derivative financial instruments described in Note 16—Derivative Financial Instruments. We estimate the fair value of the derivative financial instruments, consisting of foreign currency forward contracts, based upon valuation models with inputs that generally can be verified by observable market conditions and do not involve significant management judgment. Accordingly, the fair values of the derivative financial instruments are classified within Level 2 of the fair value hierarchy.

We value our investments in marketable securities, primarily fixed income, at fair value using quoted market prices for similar securities or pricing models. Accordingly, the fair values of the investments are classified within Level 2 of the fair value hierarchy. The amortized cost basis of our investments was \$73.5 million and \$55.4 million as of March 31, 2019 and December 31, 2018, respectively. The fair value was \$73.6 million and \$55.1 million as of March 31, 2019 and December 31, 2018, respectively, which was reported in "Investments, short-term" in the accompanying unaudited Condensed Consolidated Balance Sheet. The change in fair value is recorded in other comprehensive income, net of tax. The Company does not intend to sell, nor is it more likely than not that we will be required to sell, these securities prior to recovery of their cost, as such, management believes that any unrealized gains or losses are temporary; therefore, no impairment gains or losses relating to these securities have been recognized. All investments in marketable securities have maturities of one year or less and are currently in an unrealized loss position as of March 31, 2019.

With the exception of fixed rate long-term debt, we believe that the reported carrying amounts of our financial assets and liabilities approximate their fair values. The reported carrying amount of our fixed rate long-term debt (including the current portion) was \$131.5 million and \$130.0 million at March 31, 2019, and December 31, 2018, respectively. The fair value of this debt was \$144.7 million and \$139.0 million at March 31, 2019, and December 31, 2018, respectively. The fair value of this debt was determined using Level 2 inputs by evaluating similarly rated companies with publicly traded bonds where available or current borrowing rates available for financings with similar terms and maturities.

Note 18—Contingencies

Product liability

We face an inherent business risk of exposure to product liability claims arising from the alleged failure of our products to prevent the types of personal injury or death against which they are designed to protect. Product liability claims are categorized as either single incident or cumulative trauma.

Single incident product liability claims. Single incident product liability claims involve incidents of short duration that are typically known when they occur and involve observable injuries, which provide an objective basis for quantifying damages. The Company estimates its liability for single incident product liability claims based on expected settlement costs for asserted single incident product liability claims, and an estimate of costs for single incident product liability claims incurred but not reported ("IBNR"). The estimate for IBNR claims is based on experience, sales volumes, and other relevant information. The reserve for single incident product liability claims, which includes asserted single incident product liability claims and IBNR single incident product liability claims, was \$3.5 million and \$3.6 million at March 31, 2019 and December 31, 2018, respectively. Single incident product liability expense was \$0.2 million during the three months ended March 31, 2019 and \$0.3 million during the three months ended March 31, 2018. Single incident product liability exposures are evaluated on an annual basis, or more frequently if changing circumstances warrant. Adjustments are made to the reserve as appropriate.

Cumulative trauma product liability claims. Cumulative trauma product liability claims involve exposures to harmful substances (e.g., silica, asbestos and coal dust) that occurred years ago and may have developed over long periods of time into diseases such as silicosis, asbestosis, mesothelioma, or coal worker's pneumoconiosis. One of the Company's affiliates Mine Safety Appliances Company, LLC ("MSA LLC") was named as a defendant in 1,481 lawsuits comprised of 2,371 claims as of March 31, 2019. These lawsuits mainly involve respiratory protection products allegedly manufactured and sold by MSA LLC or its predecessors. The products at issue were manufactured many years ago and are not currently offered by MSA LLC.

A summary of cumulative trauma product liability lawsuits and asserted cumulative trauma product liability claims activity is as follows:

	Three Months Ended March 31, 2019	Year Ended December 31, 2018
Open lawsuits, beginning of period	1,481	1,420
New lawsuits	70	369
Settled and dismissed lawsuits	(70)	(308)
Open lawsuits, end of period	1,481	1,481
	Three Months Ended March 31, 2019	Year Ended December 31, 2018
Asserted claims, beginning of period	2,355	2,242
New claims	87	479
Settled and dismissed claims	(71)	(366)
Asserted claims, end of period	2,371	2,355

More than half of the open lawsuits at March 31, 2019, have had a de minimis level of activity over the last 5 years. It is possible that these cases could become active again at any time due to changes in circumstances.

Cumulative trauma product liability litigation is inherently unpredictable and MSA LLC's expense with respect to cumulative trauma product liability claims could vary significantly in future periods. Factors that limit MSA LLC's ability to estimate potential liability for cumulative trauma product liability claims include low volumes in the number of claims asserted and resolved (both in general and with respect to particular plaintiffs' counsel as claims experience can vary significantly among different counsel), inconsistency of claims composition, uncertainty as to if and over what time periods claims might be asserted in the future, and other factors. With respect to the risk associated with any particular case that is filed against MSA LLC, it has typically not been until very late in the legal process that it can be reasonably determined whether it is probable that such a case will ultimately result in a liability. This uncertainty is caused by many factors, including consideration of the applicable statute of limitations, the sufficiency of product identification and other defenses. The complaints initially filed generally have not provided information sufficient to determine if a lawsuit will develop into an actively litigated case. Even when a case is actively litigated, it is often difficult to determine if the lawsuit will be dismissed or otherwise resolved until late in the lawsuit. Moreover, even if it is probable that such a lawsuit will result in a loss, it is often difficult to estimate the amount of actual loss that will be incurred. These actual loss amounts are highly variable and turn on a case-by-case analysis of the relevant facts, including the nature of the injury, the jurisdiction in which the claim is filed, the counsel for the plaintiff and the number of parties in the lawsuit. In addition, there are uncertainties concerning the impact of bankruptcies of other companies that are co-defendants with respect to particular claims and uncertainties surrounding the litigation process in different jurisdictions and from case to case within a particular jurisdiction.

Management works with outside legal counsel quarterly to review and assess MSA LLC's exposure to asserted cumulative trauma product liability claims not yet resolved. In addition, in connection with finalizing and reporting its results of operations, management works annually (unless significant changes in trends or new developments warrant an earlier review) with an outside valuation consultant and outside legal counsel to review MSA LLC's exposure to all cumulative trauma product liability claims. The review process for asserted cumulative trauma product liability claims not yet resolved takes into account available facts for those claims, including their number and composition, outcomes of matters resolved during current and prior periods, and variances associated with different groups of claims, plaintiffs' counsel, claims filing trends, and venues, as well as any other relevant information.

In August 2017, MSA LLC obtained additional detailed information about a significant number of claims that were then pending against it, including the nature and extent of the alleged injuries, product identification and other factors. MSA LLC subsequently agreed to resolve a substantial number of these claims for \$75.2 million, a portion of which was insured. Amounts in excess of estimated insurance recoveries were reflected within Product liability expense in the unaudited Condensed Consolidated Statement of Income. MSA LLC paid a total of \$28.6 million during 2018 and \$14.3 million during the three months ended March 31, 2019, related to these settlements. MSA LLC expects to pay the final \$7.1 million in the second quarter of 2019.

There remains considerable uncertainty in numerous aspects of MSA LLC's potential future claims experience, such as with respect to the number of claims that might be asserted, the alleged severity of those claims and the average settlement values of those claims, and that uncertainty may cause actual claims experience in the future to vary from the current estimate. Numerous uncertainties also exist with respect to factors not specific to MSA LLC's claims experience, including potential legislative or judicial changes at the federal level or in key states concerning claims adjudication, future bankruptcy proceedings involving key co-defendants, payments from trusts established to compensate claimants, and/or changes in medical science relating to the diagnosis and treatment of cumulative trauma product liability claims. If future estimates of asserted cumulative trauma product liability claims not yet resolved and/or incurred but not reported ("IBNR") cumulative trauma product liability claims are materially higher (lower) than the accrued liability, we will record an appropriate charge (credit) to the unaudited Condensed Consolidated Statement of Income to increase (decrease) the accrued liability.

Certain significant assumptions underlying the material components of the accrual for IBNR cumulative trauma product liability claims include MSA LLC's experience related to the following:

- The types of illnesses alleged by claimants to give rise to their claims;
- The number of claims asserted against MSA LLC;
- The propensity of claimants and their counsel asserting cumulative trauma product liability claims to name MSA LLC as a defendant;
- The percentage of cumulative trauma product liability claims asserted against MSA LLC that are dismissed without payment;
- The average value of settlements paid to claimants; and
- The jurisdiction in which claims are asserted.

Additional assumptions include the following:

- MSA LLC will continue to evaluate and handle cumulative trauma product liability claims in accordance with its existing defense strategy;
- The number and effect of co-defendant bankruptcies will not materially change in the future;
- No material changes in medical science occur with respect to cumulative trauma product liability claims; and
- No material changes in law occur with respect to cumulative trauma product liability claims including, in particular, no material state or federal tort reform actions affecting such claims.

Total cumulative trauma product liability reserve was \$170.7 million at March 31, 2019, including \$16.7 million for claims settled but not yet paid and related defense costs, and \$187.3 million at December 31, 2018, including \$24.5 million for claims settled but not yet paid and related defense costs. This reserve includes estimated amounts for asserted claims not yet resolved and IBNR claims. The amount included in the reserve for IBNR cumulative trauma product liability claims represents the estimated value of such claims if the most likely potential outcome with respect to each of the assumptions described above is applied. Those estimated amounts reflect asbestos, silica and coal dust claims expected to be asserted through the year 2069 and are not discounted to present value. The Company revised its estimates of MSA LLC's potential liability for cumulative trauma product liability claims for the year ended December 31, 2018 as a result of its annual review process. The revisions to the Company's estimates of potential liability for cumulative trauma product liability claims are based on an assessment of trends in the tort system generally and changes in MSA LLC's claims experience over the past year, including the number of claims asserted, average value of settlements paid to claimants, the number and percentage of claims resolved with payment, the jurisdiction in which claims are asserted, and the counsel asserting such claims. The reserve does not include amounts which will be spent to defend the claims covered by the reserve. Defense costs are recognized in the unaudited Condensed Consolidated Statement of Income as incurred. There was no interim remeasurement of the cumulative trauma product liability reserve as of March 31, 2019.

At March 31, 2019, \$22.4 million of the total reserve for cumulative trauma product liability claims is recorded in the Insurance and product liability line within other current liabilities in the unaudited Condensed Consolidated Balance Sheet and the remainder, \$148.3 million, is recorded in the Product liability and other noncurrent liabilities line. At December 31, 2018, \$38.8 million of the total reserve for cumulative trauma product liability claims is recorded in the Insurance and product liability line within other current liabilities in the unaudited Condensed Consolidated Balance Sheet and the remainder, \$148.5 million, is recorded in the Product liability and other noncurrent liabilities line.

Because litigation is subject to inherent uncertainties, and unfavorable rulings or developments could occur, there can be no certainty that MSA LLC may not ultimately incur charges in excess of presently recorded liabilities. The reserve for liabilities relating to cumulative trauma product liability claims may be adjusted from time to time based on whether the actual number, types, and settlement value of claims differs from current projections and estimates and other developing facts and circumstances. These adjustments may reflect changes in estimates for asserted cumulative trauma product liability claims not yet resolved and/or IBNR cumulative trauma product liability claims. These adjustments may be material and could materially impact our consolidated financial statements in future periods.

Insurance Receivable and Notes Receivable, Insurance Companies

In the normal course of business, MSA LLC makes payments to settle various claims and for related defense costs and records receivables for the estimated amounts that are covered by insurance. With respect to cumulative trauma product liability claims, MSA LLC purchased insurance policies for the policy years from 1952-1986 from over 20 different insurance carriers that, subject to some common contract exclusions, provided coverage for cumulative trauma product liability losses and, in many instances, related defense costs (the "Occurrence-Based Policies"). The Occurrence-Based Policies have significant per claim retentions and applicable exclusions for cumulative trauma product liability claims after April 1986. While we continue to pursue reimbursement under certain policies, the vast majority of these insurance policies have been exhausted, settled or converted into negotiated coverage-in-place agreements with the applicable insurers (the "Coverage-In-Place Agreements"). As a result, MSA LLC is now largely self-insured for cumulative trauma product liability claims.

Since MSA LLC is now largely self-insured for cumulative trauma product liability claims, additional amounts recorded as insurance receivables will be limited and based on calculating the amounts to be reimbursed pursuant to negotiated Coverage-In-Place Agreements. Various factors could affect the timing and amount of recovery of the insurance receivables, including assumptions regarding claims composition (which are relevant to calculating reimbursement under the terms of certain Coverage-In-Place Agreements) and the extent to which the issuing insurers may become insolvent in the future.

Insurance receivables at March 31, 2019, totaled \$64.1 million, of which, \$11.5 million is reported in Prepaid expenses and other current assets in the unaudited Condensed Consolidated Balance Sheet and \$52.6 million is reported in Insurance receivable and other noncurrent assets. Insurance receivables at December 31, 2018, totaled \$71.7 million, of which \$14.8 million was reported in Prepaid expenses and other current assets in the unaudited Condensed Consolidated Balance Sheet and \$56.9 million was reported in Insurance receivable and other noncurrent assets. The vast majority of the \$64.1 million insurance receivable balance at March 31, 2019 is attributable to reimbursement believed to be due under the terms of signed Coverage-In-Place Agreements.

A summary of Insurance receivable balances and activity related to cumulative trauma product liability losses is as follows:

(In millions)	Three Months Ended March 31, 2019	Year Ended December 31, 2018
Balance beginning of period	\$ 71.7	\$ 134.7
Additions	0.5	19.6
Collections, settlements converted to notes receivable and other adjustments	(8.1)	(82.6)
Balance end of period	\$ 64.1	\$ 71.7

Additions to insurance receivables in the above table represent insured cumulative trauma product liability losses and related defense costs which we believe are covered by the Occurrence-Based Policies or applicable Coverage-in-Place Agreements. Collections of the receivables primarily occur pursuant to the terms of negotiated agreements with the insurance companies, either in a lump sum, in installments over time, or to reimburse a portion of future expense once incurred (i.e. pursuant to a Coverage-In-Place Agreement).

In some cases, payment streams due pursuant to negotiated settlement agreements were converted to formal notes receivable from insurance companies. The notes receivable were recorded as a transfer from the Insurance receivable balance to the Notes receivable, insurance companies (current and noncurrent) in the unaudited Condensed Consolidated Balance Sheet. In cases where the payment stream covers multiple years and there were no contingencies, the present value of the payments was recorded as a transfer from the insurance receivable balance to the Notes receivable, insurance companies (current and long-term) in the unaudited Condensed Consolidated Balance Sheet. Provided the remaining insurance receivable was recoverable through the insurance carriers, no gain or loss was recognized at the time of transfer from Insurance receivable to Notes receivable, insurance companies.

Notes receivable from insurance companies at March 31, 2019, totaled \$60.0 million, of which \$3.6 million is reported in Notes receivable, insurance companies, current on the unaudited Condensed Consolidated Balance Sheet and \$56.4 million is reported in Notes receivable, insurance companies, noncurrent. Notes receivable from insurance companies at December 31, 2018, totaled \$59.6 million, of which \$3.6 million was reported in Notes receivable, insurance companies, current in the unaudited Condensed Consolidated Balance Sheet and \$56.0 million was reported in Notes receivable, insurance companies, noncurrent.

A summary of Notes receivable, insurance companies balances is as follows:

(In millions)	Three Months Ended March 31, 2019	Year Ended December 31, 2018
Balance beginning of period	\$ 59.6	\$ 76.9
Additions	0.4	1.7
Collections	—	(19.0)
Balance end of period	\$ 60.0	\$ 59.6

The collectibility of MSA LLC's insurance receivables and notes receivable is regularly evaluated and we believe that the amounts recorded are probable of collection. The determination that the recorded insurance receivables are probable of collection is based on the terms of the settlement agreements reached with the insurers, assumptions regarding various aspects of the composition of future claims (which are relevant to calculating reimbursement under the terms of certain Coverage-In-Place Agreements), the financial ability of the insurance carriers to pay the claims, and the advice of MSA LLC's outside legal counsel.

Total cumulative trauma liability losses were \$3.3 million and \$3.2 million for the three months ended March 31, 2019 and March 31, 2018, respectively, primarily related to the defense of cumulative trauma product liability claims. Uninsured cumulative trauma product liability losses, which were included in Product liability expense in the unaudited Condensed Consolidated Statement of Income, were \$2.8 million for both the three months ended March 31, 2019 and March 31, 2018.

Insurance Litigation

For more than a decade, MSA LLC was engaged in coverage litigation with many of its insurance carriers that issued Occurrence-Based Policies. In July 2010, MSA LLC (as Mine Safety Appliances Company) filed a lawsuit in the Superior Court of the State of Delaware seeking declaratory and other relief concerning the future rights and obligations of MSA LLC and its excess insurance carriers under various insurance policies. During the same time period, MSA LLC was also engaged in coverage disputes with The North River Insurance Company (“North River”) in various courts. Since 2010, MSA LLC reached negotiated resolutions with the vast majority of the insurance carriers once in litigation, including the July 2018 settlement with North River disclosed below.

In July 2018, MSA LLC resolved through a negotiated settlement its remaining coverage litigation with North River. As part of this settlement in October 2018, MSA LLC dismissed all claims and appeals against North River in each of the pending coverage actions. This represents a settlement with MSA LLC’s last major Occurrence-Based insurance carrier. Payment under this negotiated settlement was received in the third quarter of 2018 and was accounted for as a reduction of the insurance receivable balance.

Product Warranty

The Company provides warranties on certain product sales. Product warranty reserves are established in the same period that revenue from the sale of the related products is recognized, or in the period that a specific issue arises as to the functionality of a Company’s product. The determination of such reserves requires the Company to make estimates of product return rates and expected costs to repair or to replace the products under warranty.

The amounts of the reserves are based on established terms and the Company’s best estimate of the amounts necessary to settle future and existing claims on products sold as of the balance sheet date. If actual return rates and/or repair and replacement costs differ significantly from estimates, adjustments to recognize additional cost of sales may be required in future periods.

The following table reconciles the changes in the Company’s accrued warranty reserve:

(In thousands)	Three Months Ended March 31, 2019	Year Ended December 31, 2018
Beginning warranty reserve	\$ 14,214	\$ 14,753
Warranty payments	(3,198)	(9,955)
Warranty claims	301	10,585
Provision for product warranties and other adjustments	2,423	(1,169)
Ending warranty reserve	\$ 13,740	\$ 14,214

Warranty expense was \$2.7 million and \$2.6 million for the three months ended March 31, 2019 and 2018, respectively.

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

The following discussion and analysis should be read in conjunction with the historical financial statements and other financial information included elsewhere in this quarterly report on Form 10-Q. This discussion may contain forward-looking statements that involve risks and uncertainties. The forward-looking statements are not historical facts, but rather are based on current expectations, estimates, assumptions and projections about our industry, business and future financial results. Our actual results could differ materially from the results contemplated by these forward-looking statements due to a number of factors, including those discussed in the sections of our annual report entitled "Forward-Looking Statements" and "Risk Factors."

BUSINESS OVERVIEW

We are a global leader in the development, manufacture and supply of safety products that protect people and facility infrastructures. Many MSA products integrate a combination of electronics, mechanical systems and advanced materials to protect users against hazardous or life-threatening situations. The Company's comprehensive product line is used by workers around the world in a broad range of markets, including the oil, gas and petrochemical ("OGP"), fire service, construction, utilities and mining industries. MSA's core products include fixed gas and flame detection systems, breathing apparatus where self-contained breathing apparatus ("SCBA") is the principal product, portable gas detection instruments, industrial head protection products, firefighter helmets and protective apparel, and fall protection devices. We are committed to providing our customers with service unmatched in the safety industry and, in the process, enhancing our ability to provide a growing line of safety solutions for customers in key global markets.

We tailor our product offerings and distribution strategy to satisfy distinct customer preferences that vary across geographic regions. To best serve these customer preferences, we have organized our business into seven geographical operating segments that are aggregated into three reportable geographic segments: Americas, International and Corporate. In 2018, 63% and 37% of our net sales were made by our Americas and International segments, respectively.

Americas. Our largest manufacturing and research and development facilities are located in the United States (U.S.). We serve our markets across the Americas with manufacturing facilities in the U.S., Mexico and Brazil. Operations in other Americas segment countries focus primarily on sales and distribution in their respective home country markets.

International. Our International segment includes companies in Europe, the Middle East, Africa and the Asia Pacific region, some of which are in developing regions of the world. In our largest International affiliates (in Germany, France, United Kingdom (U.K.), Ireland and China), we develop, manufacture and sell a wide variety of products. In China, the products manufactured are sold primarily in the home country as well as in regional markets. Operations in other International segment countries focus primarily on sales and distribution in their respective home country markets. Although some of these companies may perform limited production, most of their sales are of products manufactured in our plants in Germany, France, the U.S., U.K., Ireland and China, or are purchased from third-party vendors. During the three months ended March 31, 2019, a plan to close our South Africa affiliates was approved as part of our footprint rationalization but we will continue to serve the Africa region through our channel partners.

Corporate. The Corporate segment primarily consists of general and administrative expenses incurred in our corporate headquarters, costs associated with corporate development initiatives, legal expense, interest expense, foreign exchange gains or losses and other centrally-managed costs. Corporate general and administrative costs comprise the majority of the expense in the Corporate segment.

In March 2019, we entered into a definitive agreement to acquire California-based Sierra Monitor Corporation ("SRMC") in an all-cash transaction valued at approximately \$33 million. The acquisition accelerates MSA's strategy to enhance worker safety through the use of cloud technology and wireless connectivity, while supplementing the Company's organic investments in software-as-a-service applications, including its recently established Safety io subsidiary. Additionally, SRMC's FGFD line enables us to better serve end markets where we do not have leading positions. The transaction is expected to close in the second quarter of 2019, subject to customary closing conditions. With approximately 85 percent of its revenue from the U.S. and Canada, SRMC's financial results will be primarily reflected in our Americas segment.

PRINCIPAL PRODUCTS

The following is a brief description of each of our principal product categories:

MSA's corporate strategy includes a focus on driving sales of core products where we have leading market positions and a distinct competitive advantage. Core products, as mentioned above, include fixed gas and flame detection instruments, breathing apparatus where SCBA is the principal product, portable gas detection instruments, industrial head protection products, firefighter helmets and protective apparel, and fall protection devices. These products receive the highest levels of investment and resources as they typically realize higher levels of return on investment than non-core products. Core products comprised approximately 88% of sales for both the three months ended March 31, 2019 and 2018.

MSA maintains a portfolio of non-core products. Non-core products reinforce and extend the core offerings, drawing upon our customer relationships, distribution channels, geographical presence and technical experience. These products are complementary to the core offerings and have their roots within the core product value chain. Key non-core products include respirators, eye and face protection, ballistic helmets and gas masks. Ballistic helmet and gas mask sales are the primary sales to our military customers and were approximately \$9.3 million and \$10.2 million globally during the three months ended March 31, 2019 and 2018, respectively.

A detailed listing of our significant product offerings in the aforementioned product groups above is included in MSA's Annual Report on Form 10-K for the year ended December 31, 2018.

RESULTS OF OPERATIONS

Three Months Ended March 31, 2019, Compared to Three Months Ended March 31, 2018

Net Sales. Net sales for the three months ended March 31, 2019, were \$326.0 million compared to \$325.9 million for the three months ended March 31, 2018. Please refer to the Net Sales table for a reconciliation of the quarter over quarter sales change.

Net Sales (In millions, except percentage amounts)	Three Months Ended March 31,		Dollar Increase/ (Decrease)	Percent Increase/(Decrease)
	2019	2018		
Consolidated	\$326.0	\$325.9	\$0.1	—%
Americas	213.7	209.1	4.6	2.2%
International	112.3	116.8	(4.5)	(3.9)%

Net Sales (Percent Change)	Three Months Ended March 31, 2019 versus March 31, 2018		
	Americas	International	Consolidated
GAAP reported sales change	2.2%	(3.9)%	—%
Currency translation effects	(1.1)%	(7.4)%	(3.4)%
Constant currency sales change	3.3%	3.5%	3.4%

Note: Constant currency sales change is a non-GAAP financial measure provided by the Company to give a better understanding of the Company's underlying business performance. Constant currency sales change is calculated by removing the percentage impact of currency translation effects from the overall percentage change in net sales.

Net sales for the Americas segment were \$213.7 million for the three months ended March 31, 2019, an increase of \$4.6 million, or 2%, compared to \$209.1 million for the same period in 2018 due to stronger core product sales. During the three months ended March 31, 2019, constant currency sales in the Americas segment increased 3% compared to the prior year period, driven primarily by growth across our portfolio with notable strength in fall protection on new product launches.

Net sales for the International segment were \$112.3 million for the three months ended March 31, 2019, a decrease of \$4.5 million, or 4%, compared to \$116.8 million for the same period in 2018. During the three months ended March 31, 2019, constant currency sales in the International segment increased 4% compared to the prior year period, as we recognized higher sales throughout our product portfolio, driven by stronger demand in Europe and China partially offset by weaker results in the Middle East.

Our book to bill ratio was 107% in the quarter and backlog, which can fluctuate due to seasonality in our business, remains strong headed into the second quarter. Depending upon our overall order activity, we expect to reduce our backlog in the second half of 2019.

We continue to target mid-single digit constant currency revenue growth for 2019.

Gross profit. Gross profit for the three months ended March 31, 2019, was \$150.0 million, an increase of \$2.7 million, or 2%, compared to \$147.3 million for the same period in 2018. The ratio of gross profit to net sales was 46.0% during the three months ended March 31, 2019, compared to 45.2% in the same period last year. The higher gross profit ratio during the current period is primarily attributable to new product launches and pricing initiatives.

Selling, general and administrative expenses. Selling, general and administrative ("SG&A") expenses were \$78.4 million during the three months ended March 31, 2019, a decrease of \$1.8 million or 2%, compared to \$80.3 million during the same period in 2018. Overall, SG&A expenses were 24.1% of net sales during the three months ended March 31, 2019, compared to 24.6% of net sales during the same period in 2018. Our continued focus on cost control held constant currency SG&A expenses growth to 1% allowing us to leverage the 3% constant currency revenue growth from the prior year.

Selling, general, and administrative expenses (Percent Change)	Three Months Ended March 31, 2019 versus March 31, 2018 Consolidated
GAAP reported change	(2.3)%
Less: Currency translation effects	(3.2)%
Constant currency change	0.9%

Note: Constant currency change is a non-GAAP financial measure provided by the Company to give a better understanding of the Company's underlying business performance. Constant currency change in selling, general, and administrative expenses is calculated by deducting the percentage impact from currency translation effects from the overall percentage change in selling, general, and administrative expense. Management believes excluding currency translation effects provides investors with a greater level of clarity into spending levels on a year-over-year basis.

Research and development expense. Research and development expense was \$13.7 million during the three months ended March 31, 2019, an increase of \$1.2 million, or 9%, compared to \$12.5 million during the same period in 2018. Research and development expense was 4.2% of net sales during the three months ended March 31, 2019, compared to 3.9% of net sales during the same period in 2018. We continue to develop new products for global safety markets, including the newly unveiled MSA connected firefighter product powered by LUNAR, which was introduced in early 2019, as well as the V Series product family of fall protection for the industrial market. During three months ended March 31, 2019, we capitalized \$0.8 million of software development costs.

Restructuring. During the three months ended March 31, 2019, the Company recorded restructuring charges of \$5.8 million, related to footprint rationalization and other restructuring programs associated with our ongoing initiatives to drive profitable growth in our International segment. These programs are expected to be executed in the second, third and fourth quarters of 2019. These activities are expected to provide \$4 million to \$5 million of annual savings, beginning in late 2019 and into 2020. This compared to restructuring charges of \$5.3 million during the same period in 2018, primarily related to the legal and operational realignment of our U.S. and Canadian operations and severance costs for staff reductions associated with our ongoing initiatives to drive profitable growth in Europe.

Currency exchange. Currency exchange losses were \$17.0 million in the three months ended March 31, 2019, compared to \$2.0 million during the same period in 2018. The increase in currency exchange losses was primarily due to the recognition of non-cash cumulative translation losses of approximately \$15.4 million during the first quarter of 2019 as a result of the approval of our plan to close our South Africa affiliates. This charge is related to the historical translation of the elements of the financial statements for the business from the functional currency to the U.S. Dollar. The translation impact has been historically recorded as currency translation adjustment ("CTA"), a separate component of accumulated other comprehensive loss within the equity section of the unaudited Condensed Consolidated Balance Sheet. The remaining currency exchange losses in both periods were related to foreign currency exposure on unsettled inter-company balances. Refer to Note 16—Derivative Financial Instruments to the unaudited condensed consolidated financial statements in Part I Item I of this Form 10-Q for information regarding our currency exchange rate risk management strategy.

Product liability expense. Product liability expense for the three months ended March 31, 2019, was \$2.9 million, compared to \$2.8 million during the same period in 2018. Product liability expense in both periods were related primarily to defense costs for uninsured asserted cumulative trauma product liability claims.

GAAP operating income. Consolidated operating income for the three months ended March 31, 2019, was \$32.2 million compared to operating income of \$44.4 million in the same period in 2018. The decrease in operating results was primarily driven by currency exchange losses as discussed above, partially offset by our continued focus on controlled spending.

Adjusted operating income. Americas adjusted operating income for the three months ended March 31, 2019, was \$54.8 million, an increase of \$4.7 million, or 9%, compared to \$50.1 million during the same period in 2018. The increase was related to the higher level of sales and improved margins driven primarily by new product launches and pricing initiatives as well as our continued focus on controlled spending.

International adjusted operating income for the three months ended March 31, 2019, was \$11.0 million, a decrease of \$1.8 million, or 14%, compared to \$12.8 million during the same period in 2018. The decrease in adjusted operating income is primarily attributable to a lower level of sales volumes in the Middle East.

Corporate segment adjusted operating loss for the three months ended March 31, 2019, was \$7.5 million, a decrease of \$0.7 million, or 8%, compared to an adjusted operating loss of \$8.2 million during the same period in 2018, reflecting lower compensation and legal expense.

The following tables represent a reconciliation from GAAP operating income to adjusted operating income (loss) and adjusted EBITDA. Adjusted operating margin % is calculated as adjusted operating income (loss) divided by net sales and adjusted EBITDA margin % is calculated as adjusted EBITDA divided by net sales.

(In thousands, except percentage amounts)	Three Months Ended March 31, 2019			
	Americas	International	Corporate	Consolidated
Net sales	\$ 213,687	\$ 112,351	\$ —	\$ 326,038
GAAP operating income				32,160
Restructuring charges (Note 4)				5,831
Currency exchange losses, net (Note 6)				16,961
Product liability expense (Note 18)				2,896
Strategic transaction costs				456
Adjusted operating income (loss)	54,803	11,040	(7,539)	58,304
Adjusted operating margin %	25.6%	9.8%		
Depreciation and amortization				9,326
Adjusted EBITDA	60,900	14,171	(7,441)	67,630
Adjusted EBITDA %	28.5%	12.6%		

(In thousands, except percentage amounts)	Three Months Ended March 31, 2018			
	Americas	International	Corporate	Consolidated
Net sales	\$ 209,129	\$ 116,765	\$ —	\$ 325,894
GAAP operating income				44,435
Restructuring charges (Note 4)				5,274
Currency exchange losses, net (Note 6)				2,008
Product liability expense (Note 18)				2,824
Strategic transaction costs				94
Adjusted operating income (loss)	50,086	12,778	(8,229)	54,635
Adjusted operating margin %	23.9%	10.9%		
Depreciation and amortization				\$ 9,671
Adjusted EBITDA	\$ 56,225	\$ 16,209	\$ (8,128)	\$ 64,306
Adjusted EBITDA %	26.9%	13.9%		

Note: Adjusted operating income (loss) and adjusted EBITDA are a non-GAAP financial measures used by the chief operating decision maker to evaluate segment performance and allocate resources. Adjusted operating income (loss) is reconciled above to the nearest GAAP financial measure, Operating income (loss), and excludes restructuring, currency exchange, product liability expense and strategic transaction costs. Adjusted EBITDA is reconciled above to the nearest GAAP financial measure, Operating income (loss) and excludes depreciation and amortization expense.

Total other (income) expense, net. Other income, net, during the three months ended March 31, 2019, was \$0.2 million, compared to other expense, net, of \$2.4 million during the same period in 2018 due to lower interest expense as a result of a favorable adjustment related to a foreign uncertain tax position for which the statute of limitations has expired as well as lower debt. We expect full-year 2019 interest expense to be between \$13 million and \$15 million.

Income taxes. The reported effective tax rate for the three months ended March 31, 2019, was 27.8%, which included an expense of 11.3% due to non-deductible foreign currency exchange losses on entity closures, partially offset by a benefit of 7.5% for certain share-based payments, compared to 22.6% for the same period in 2018, which included a benefit of 2.2% related to share-based payments.

Net income attributable to MSA Safety Incorporated. Net income was \$23.2 million for the three months ended March 31, 2019, or \$0.59 per diluted share compared to income of \$32.4 million, or \$0.83 per diluted share, for the same period last year.

Non-GAAP Financial Information

We may provide information regarding financial measures such as constant currency changes, adjusted operating income, adjusted operating margin percentage, adjusted EBITDA and adjusted EBITDA margin percentage, which are not recognized terms under U.S. GAAP and do not purport to be alternatives to net sales, selling, general and administrative expense, operating income or net income as a measure of operating performance. We believe that the use of these non-GAAP financial measures provide investors with additional useful information and provide a more complete understanding of the underlying results. Because not all companies use identical calculations, these presentations may not be comparable to similarly titled measures from other companies. For more information about these non-GAAP measures and a reconciliation to the nearest U.S. GAAP measure, please refer to the reconciliations referenced above in Management's Discussion & Analysis section and in Note 8—Segment Information to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q.

We may also provide financial information on a constant currency basis, which is a non-GAAP financial measure. These references to a constant currency basis do not include operational impacts that could result from fluctuations in foreign currency rates, which are outside of management's control. To provide information on a constant currency basis, the applicable financial results are adjusted by translating current and prior period results in local currency to a fixed foreign exchange rate. This approach is used for countries where the functional currency is the local country currency. This information is provided so that certain financial results can be viewed without the impact of fluctuations in foreign currency rates, thereby facilitating period-to-period comparisons of business performance. Constant currency information is not recognized under U.S. GAAP and it is not intended as an alternative to U.S. GAAP measures.

LIQUIDITY AND CAPITAL RESOURCES

Our primary source of liquidity is operating cash flows, supplemented by borrowings. Our principal liquidity requirements are for working capital, capital expenditures, principal and interest payments on debt, dividend payments and acquisitions. At March 31, 2019, approximately 35% of our long-term debt is at fixed interest rates with repayment schedules through 2031. The remainder of our long-term debt is at variable rates on an unsecured revolving credit facility that is due in 2023. At March 31, 2019, approximately 80% of our borrowings are denominated in U.S. dollars.

At March 31, 2019, we had cash, cash equivalents and restricted cash totaling \$108.2 million, which included \$88.7 million of cash and cash equivalents held by our foreign subsidiaries. Cash, cash equivalents and restricted cash decreased \$32.4 million during the three months ended March 31, 2019, compared to decreasing \$9.1 million during the same period in 2018. We continue to employ a balanced capital allocation strategy that prioritizes growth investments, funding our dividend and servicing debt obligations.

Operating activities. Operating activities provided cash of \$1.2 million during the three months ended March 31, 2019, compared to providing \$17.4 million during the same period in 2018. The decrease in operating cash flows during the period was primarily attributable to higher product liability payments partially offset by working capital improvement. We made product liability payments of \$11.9 million, net of collections on insurance receivables, in the three months ended March 31, 2019, while we collected \$12.1 million from insurance companies, net of product liability settlements paid, in the same period of 2018. Historically, cumulative trauma liability payments were funded with the Company's operating cash flow, pending resolution of disputed insurance coverage. For more than a decade, we have funded product liability settlements from operating cash flow. The vast majority of the insurance receivable and notes receivable - insurance companies balances at March 31, 2019, is attributable to reimbursement believed to be due under the terms of signed agreements with insurers and are not currently subject to litigation. While the timing of cash flows for product liability and insurance receivable can and do vary from quarter to quarter, we have been successful in establishing cash flow streams that have allowed us to fund these liabilities without a material impact on our capital allocation priorities.

Investing activities. Investing activities used cash of \$23.8 million during the three months ended March 31, 2019, compared to using \$3.2 million during the same period in 2018. Purchase of short-term investments, net of proceeds from maturities and capital expenditures drove cash outflows from investing activities during the three months ended March 31, 2019, while capital expenditures drove cash outflows from investing in the same period in 2018.

Financing activities. Financing activities used cash of \$6.5 million during the three months ended March 31, 2019, compared to using \$24.6 million during the same period in 2018. During the three months ended March 31, 2019, we had net proceeds on long-term debt of \$14.0 million as compared to net payments of \$9.5 million during the same period in 2018. We paid cash dividends of \$14.7 million during the three months ended March 31, 2019, compared to \$13.4 million in the same period in 2018.

CUMULATIVE TRANSLATION ADJUSTMENTS

The position of the U.S. dollar relative to international currencies at March 31, 2019, resulted in a translation gain of \$0.2 million being recorded to the cumulative translation adjustments shareholders' equity account during the three months ended March 31, 2019, compared to \$13.2 million during the same period in 2018. The translation gain during the three months ended March 31, 2018, was primarily related to the strengthening of the euro, British pound and Mexican peso relative to the U.S. dollar.

During the three months ended March 31, 2019, we recognized approximately \$15.4 million of cumulative translation losses in our unaudited Condensed Consolidated Statement of Income as non-cash currency exchange losses due primarily to an approved plan to close our South Africa affiliates. This charge is related to the historical translation of the elements of the financial statements for the business from the functional currency to the U.S. Dollar. The translation impact has been historically recorded as currency translation adjustment ("CTA"), a separate component of accumulated other comprehensive loss within the equity section of the unaudited Condensed Consolidated Balance Sheet.

Inflation in Argentina in the second quarter of 2018 increased at an accelerated rate and effective June 30, 2018, Argentina's economy is considered highly inflationary. Beginning July 1, 2018, under a highly-inflationary basis of accounting, the Company's monetary assets (such as cash and receivables) and monetary liabilities (such as payables and accruals) at its operations in Argentina are remeasured at the end of each reporting period with such entries recorded to the unaudited Condensed Consolidated Statement of Income rather than to accumulated other comprehensive loss on the unaudited Condensed Consolidated Balance Sheet. Because the Argentinian peso is subject to fluctuation, such remeasurement will increase the volatility of reported results of operations in future periods. However, as the Company has a small presence, including one manufacturing plant in the country, the impact from the highly-inflationary basis of accounting is not material to our unaudited condensed consolidated financial statements.

Brexit has caused, and may continue to create, volatility in global stock markets and regional and global economic uncertainty particularly in the U.K. financial and banking markets. Weakening of economic conditions or economic uncertainties tend to harm our business, and if such conditions worsen in the U.K. or in the rest of Europe, it may have an adverse effect on our operations and sales. The Company continues to monitor the economic situation related to Brexit and current analysis indicates that exposure in our supply chain related to additional duties and sourcing costs is not material. MSA has approximately \$45 million of annual sales denominated in the British pound which are subject to exchange rate risk associated with any volatility in the British pound. Our debt in the U.K. associated with the Latchways acquisition was \$71.5 million at March 31, 2019 and is denominated in British pounds. Because the debt is denominated in local currency, the value of the debt and local cash flows are aligned with respect to movements in the exchange rate between the British pound and U.S. dollar.

COMMITMENTS AND CONTINGENCIES

We made contributions of \$1.8 million to our pension plans during the three months ended March 31, 2019. We expect to make total contributions of approximately \$7.1 million to our pension plans in 2019 which are primarily associated with our International segment.

The Company had outstanding bank guarantees and standby letters of credit with banks as of March 31, 2019, totaling \$10.2 million, of which \$2.7 million related to the senior revolving credit facility. These letters of credit serve to cover customer requirements in connection with certain sales orders and insurance companies. The Company is also required to provide cash collateral in connection with certain arrangements. At March 31, 2019, the Company has \$0.6 million of restricted cash in support of these arrangements.

We have purchase commitments for materials, supplies, services, and property, plant and equipment as part of our ordinary conduct of business.

Please refer to Note 18—Contingencies to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q for further discussion on the Company's single incident and cumulative trauma product liabilities.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

We prepare our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP). The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and the related disclosures. We evaluate these estimates and judgments on an on-going basis based on historical experience and various assumptions that we believe to be reasonable under the circumstances. However, different amounts could be reported if we had used different assumptions and in light of different facts and circumstances. Actual amounts could differ from the estimates and judgments reflected in our consolidated financial statements.

The more critical judgments and estimates used in the preparation of our consolidated financial statements are discussed in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the year ended December 31, 2018.

Refer to Note 14—Leases to the unaudited condensed consolidated financial statements for an update to the accounting policy for leases as a result of the adoption of ASU 2016-02, *Leases*, on January 1, 2019.

RECENTLY ADOPTED AND RECENTLY ISSUED ACCOUNTING STANDARDS

Please refer to Note 2— Recently Adopted and Recently Issued Accounting Standards to the unaudited condensed consolidated financial statements in Part I Item 1 of this Form 10-Q.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Market risk represents the risk of adverse changes in the value of a financial instrument caused by changes in currency exchange rates, interest rates and equity prices. We are exposed to market risks related to currency exchange rates and interest rates.

Currency exchange rate sensitivity. We are subject to the effects of fluctuations in currency exchange rates on various transactions and on the translation of the reported financial position and operating results of our non-U.S. companies from local currencies to U.S. dollars. A hypothetical 10% strengthening or weakening of the U.S. dollar would decrease or increase our reported sales and net income by approximately \$14.8 million or 4.5% and \$0.9 million or 3.7%, respectively, for the three months ended March 31, 2019.

When appropriate, we may attempt to limit our transactional exposure to changes in currency exchange rates through contracts or other actions intended to reduce existing exposures by creating offsetting currency exposures. At March 31, 2019, we had open foreign currency forward contracts with a U.S. dollar notional value of \$76.4 million. A hypothetical 10% strengthening or weakening of the U.S. dollar would result in a \$7.6 million increase or decrease in the fair value of these contracts at March 31, 2019.

Interest rates. We are exposed to changes in interest rates primarily as a result of borrowing and investing activities used to maintain liquidity and fund business operations.

At March 31, 2019, we had \$131.7 million of fixed rate debt which matures at various dates through 2031. The incremental increase in the fair value of fixed rate long-term debt resulting from a hypothetical 10% decrease in interest rates would be approximately \$10.9 million. However, our sensitivity to interest rate declines and the corresponding increase in the fair value of our debt portfolio would unfavorably affect earnings and cash flows only to the extent that we elected to repurchase or retire all or a portion of our fixed rate debt portfolio at prices above carrying values.

At March 31, 2019, we had \$247.5 million of variable rate borrowings under our revolving credit facility. A 100 basis point increase or decrease in interest rates could impact our future earnings under our current capital structure.

Item 4. Controls and Procedures

- (a) *Evaluation of disclosure controls and procedures.* Based on their evaluation as of the end of the period covered by this Form 10-Q, the Company's principal executive officer and principal financial officer have concluded that the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act")) are effective to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and (ii) accumulated and communicated to our management, including the principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding disclosure.
- (b) *Changes in internal control.* There were no changes in the Company's internal control over financial reporting that occurred during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1A. Risk Factors

Claims of injuries from our products, product defects or recalls of our products could have a materially adverse effect on our business, operating results, financial condition and liquidity.

MSA and its subsidiaries face an inherent business risk of exposure to product liability claims arising from the alleged failure of our products to prevent the types of personal injury or death against which they are designed to protect. In the event the parties using our products are injured or any of our products prove to be defective, we could be subject to claims with respect to such injuries. In addition, we may be required to or may voluntarily recall or redesign certain products that could potentially be harmful to end users. Any claim or product recall that results in significant expense or negative publicity against us could have a material adverse effect on our business, operating results, financial condition and liquidity, including any successful claim brought against us in excess or outside of available insurance coverage.

Our subsidiary, Mine Safety Appliances Company, LLC, may experience losses from cumulative trauma product liability claims. The inability to collect insurance receivables and the transition to becoming largely self-insured for cumulative trauma product liability claims could have a material adverse effect on our business, operating results, financial condition and liquidity.

Our subsidiary, Mine Safety Appliances Company, LLC (“MSA LLC”) was named as a defendant in 1,481 cumulative trauma lawsuits comprised of 2,371 claims at March 31, 2019. Cumulative trauma product liability claims involve exposures to harmful substances (e.g., silica, asbestos and coal dust) that occurred years ago and may have developed over long periods of time into diseases such as silicosis, asbestosis, mesothelioma or coal worker’s pneumoconiosis. The products at issue were manufactured many years ago and are not currently offered by MSA LLC. A reserve has been established with respect to cumulative trauma product liability claims currently asserted and estimated incurred but not reported (“IBNR”) cumulative trauma product liability claims. Because our cumulative trauma product liability risk is subject to inherent uncertainties, including unfavorable trial rulings or developments, an increase in newly filed claims, or more aggressive settlement demands, and since MSA LLC is largely self-insured, there can be no certainty that MSA LLC may not ultimately incur losses in excess of presently recorded liabilities. These losses could have a material adverse effect on our business, operating results, financial condition and liquidity. We will adjust the reserve relating to cumulative trauma product liability claims from time to time based on whether the actual numbers, types and settlement values of claims asserted differ from current projections and estimates or there are significant changes in the facts underlying the assumptions used in establishing the reserve. These adjustments may be material and could materially impact future periods in which the reserve is adjusted.

In the normal course of business, MSA LLC makes payments to settle these types of cumulative trauma product liability claims and for related defense costs, and records receivables for the estimated amounts believed to be recoverable under insurance. MSA LLC has recorded insurance receivables totaling \$64.1 million and notes receivables of \$60.0 million at March 31, 2019. Since MSA LLC is now largely self-insured for cumulative trauma claims, additional amounts recorded as insurance receivables will be limited and based on calculating the amounts to be reimbursed pursuant to negotiated Coverage-in-Place Agreements. Various factors could affect the timing and amount of recovery of the insurance receivable, including assumptions regarding claims composition (which are relevant to calculating reimbursement under the terms of certain Coverage-In-Place Arrangements) and the extent to which the issuing insurers may become insolvent in the future.

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

(c) Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased As Part of Publicly Announced Plans or Programs	Maximum Number of Shares That May Yet Be Purchased Under the Plans or Programs
January 2019	430	\$ 100.18	—	809,694
February 2019	5,931	103.55	—	784,555
March 2019	67,356	101.33	—	784,479

The share repurchase program authorizes up to \$100.0 million in repurchases of MSA common stock in the open market and in private transactions. The share purchase program has no expiration date. The maximum shares that may be purchased is calculated based on the dollars remaining under the program and the respective month-end closing share price.

Shares purchased during the quarter relate to stock compensation transactions.

We do not have any other share repurchase programs.

Item 6. Exhibits

(a) Exhibits

31.1 [Certification of Chief Executive Officer pursuant to Rule 13a-14\(a\)](#)

31.2 [Certification of Chief Financial Officer pursuant to Rule 13a-14\(a\)](#)

32 [Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. \(S\)1350](#)

101.INS XBRL Instance Document

101.SCH XBRL Taxonomy Extension Schema Document

101.CAL XBRL Taxonomy Extension Calculation Linkbase Document

101.DEF XBRL Taxonomy Extension Definition Linkbase Document

101.LAB XBRL Taxonomy Extension Label Linkbase Document

101.PRE XBRL Taxonomy Extension Presentation Linkbase Document

SIGNATURE

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

MSA SAFETY INCORPORATED

April 25, 2019

/s/ Kenneth D. Krause

Kenneth D. Krause

Sr. Vice President, Chief Financial Officer and Treasurer
Duly Authorized Officer and Principal Financial Officer

CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO RULE 13a-14(a)

I, Nishan J. Vartanian, certify that:

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

April 25, 2019

/s/ Nishan J. Vartanian

Nishan J. Vartanian

President and Chief Executive Officer

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a)

I, Kenneth D. Krause certify that:

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

April 25, 2019

/s/ Kenneth D. Krause

Kenneth D. Krause

Sr. Vice President, Chief Financial Officer and Treasurer

CERTIFICATION

Pursuant to 18 U.S.C. (S) 1350, the undersigned officers of MSA Safety Incorporated (the “Company”), hereby certify, to the best of their knowledge, that the Company’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2019 (the “Report”) fully complies with the requirements of Section 13 (a) or 15 (d), as applicable, of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

April 25, 2019

/s/ Nishan J. Vartanian

Nishan J. Vartanian

President and Chief Executive Officer

/s/ Kenneth D. Krause

Kenneth D. Krause

Sr. Vice President, Chief Financial Officer and Treasurer