

Ashland Global Holdings Inc.

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Senior Vice President and
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VIA EDGAR

March 26, 2020

Division of Corporation Finance
Office of Trade & Services
100 F Street, N.E.
Washington, DC 20549

Ashland Global Holdings Inc.
Form 10-K for the year ended September 30, 2019
Filed November 25, 2019
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Dear Division of Corporation Finance:

Set forth below is the response from Ashland Global Holdings Inc. (“Ashland” or “we”) to the comment (the “Comment”) of the staff (the “Staff”) of the United States Securities and Exchange Commission (the “SEC”), dated March 20, 2020, concerning Ashland’s Annual Report on Form 10-K for the fiscal year ended September 30, 2019 (the “2019 Form 10-K”).

For your convenience, the response set forth below repeats the Comment from the Staff prior to the response. The Comment is highlighted in bold.

Form 10-K for the year ended September 30, 2019
MD&A
Results of Operations – Consolidated Review, page M-3

Comment

We note your discussion and reconciliation of non-GAAP measures precedes your caption review of results on a consolidated and segment basis under GAAP. Please revise to provide prominence to your discussion and analysis of GAAP results. Refer to non-GAAP C&DI 102.10.

Response

In order to provide increased prominence to our discussion and analysis of GAAP results we have provided an example of the type of prospective disclosure we will make beginning with our second quarterly report on Form 10-Q for the interim period ending March 31, 2020 and thereafter. The changes noted below utilize the 2019 Form 10-K filing information (starting with page M-3 and ending with page M-22). The additional disclosure presentation changes have been bolded and underlined for ease of reference as follows:

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RESULTS OF OPERATIONS – CONSOLIDATED REVIEW

Consolidated review

Net income

Ashland's net income is primarily affected by results within operating income, net interest and other financing expense, net loss on acquisitions and divestitures, income taxes, discontinued operations and other significant events or transactions that are unusual or nonrecurring. Net income also includes Ashland's adjustment for the immediate recognition of the change in the fair value of the plan assets and net actuarial gains and losses for defined benefit pension plans and other postretirement benefit plans for each fiscal year.

Key financial results for 2019, 2018 and 2017 included the following:

- Ashland's net income attributable to Ashland amounted to income of \$505 million in 2019, \$114 million in 2018, and \$1 million in 2017, or \$8.03, \$1.79 and \$0.01 diluted earnings per share, respectively.
 - Ashland's net income attributable to noncontrolling interest amounted to \$27 million during 2017 and reflects the noncontrolling interest of Valvoline Inc. for the period after the IPO close on September 28, 2016 and before the final separation occurred on May 12, 2017.
 - Discontinued operations, which are reported net of taxes, resulted in income of \$481 million, \$95 million and \$208 million during 2019, 2018 and 2017, respectively. The activity within discontinued operations includes the gain on the disposal of the Composites segment (excluding the Maleic business) and the Intermediates and Solvents Marl facility in 2019, the operating results of the Composites segment (including the Maleic business) and the Intermediates and Solvents Marl facility for all periods reported, and Valvoline Inc. for the period in fiscal year 2017 prior to the final separation on May 12, 2017. Discontinued operations also includes adjustments related to other retained liabilities for previously divested businesses within discontinued operations.
 - Results from continuing operations, which excludes results from discontinued operations, amounted to income of \$24 million in 2019, \$19 million in 2018 and a loss of \$180 million in 2017.
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- The effective income tax expense rate of 66% for 2019, income tax benefit rate of 73% for 2018, and income tax benefit rate of 8% for 2017, were significantly impacted by certain tax specific key items and tax discrete items.
- Ashland incurred pretax net interest and other financing expense of \$99 million, \$102 million and \$229 million during 2019, 2018 and 2017, respectively, and was impacted by debt principal payments and certain charges associated with debt financing activity during each year.
- Other net periodic benefit income (costs) totaled income of \$5 million and \$15 million during 2019 and 2018, respectively, and costs of \$6 million during 2017.
- Net loss on acquisitions and divestitures totaled \$2 million, \$4 million and \$10 million during 2019, 2018 and 2017, respectively.
- Operating income amounted to income of \$166 million, \$102 million and \$49 million in 2019, 2018 and 2017, respectively.

For further information on the items reported above, see the discussion in the comparative Statements of Consolidated Comprehensive Income (Loss) caption review analysis.

Operating income

Operating income amounted to income of \$166 million, \$102 million and \$49 million in 2019, 2018 and 2017, respectively. **The current and prior years' operating income included certain key items that were excluded to arrive at Adjusted EBITDA and are quantified in the table below in the "EBITDA and Adjusted EBITDA" section.** These operating key items for the applicable periods are summarized as follows:

- Restructuring, separation and other costs - Ashland periodically implements company-wide restructuring programs related to acquisitions, divestitures and other cost reduction programs in order to enhance profitability through streamlined operations and an improved overall cost structure. Ashland often incurs severance, facility and integration costs associated with these programs. See Notes C, D and F in the Notes to Consolidated Financial Statements for further information. Also included within this key item category are separation costs incurred as a result of the separation from Valvoline, which primarily related to transaction, consulting and legal fees. See Note B of the Notes to Consolidated Financial Statements for more information on the separation of Valvoline.
 - Accelerated depreciation – As a result of various restructuring activities at certain office facilities and manufacturing plants, Ashland recorded accelerated depreciation due to changes in the expected useful life of certain property, plant and equipment. See Note H of the Notes to Consolidated Financial Statements for more information.
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- Proxy costs – Ashland incurred significant consulting and other costs associated with the 2019 Annual Meeting of Stockholders and agreement with the Cruiser Group (as defined in the agreement).
- Environmental reserve adjustments – Ashland is subject to various federal, state and local environmental laws and regulations that require environmental assessment or remediation efforts (collectively environmental remediation) at multiple locations. As a result of these activities, Ashland recorded non-cash adjustments during each year to its environmental liabilities and receivables related to previously divested businesses or non-operational sites. See Note O of the Notes to Consolidated Financial Statements for more information.
- Asset impairments – Consistent with historical policies and U.S. GAAP provisions, Ashland recognizes assets at fair value less cost to sell which resulted in impairment charges to certain assets during 2019 and 2018. The charges during 2018 primarily related to the impairment of an office facility as a result of a company-wide restructuring program. See Note F of the Notes to Consolidated Financial Statements for more information.
- Tax indemnity expense – During 2019 and 2018, Ashland recorded an adjustment to a tax indemnity receivable that was associated with the acquisition of Pharmachem.
- Legal settlement/reserve – Ashland recorded adjustments related to settlements and/or reserves for certain legal matters.
- Unplanned plant shutdowns – During 2019 and 2017, Ashland incurred costs related to temporary shutdowns as follows: (a) for the Specialty Ingredients Parlin facility as a result of force majeure contract issues in 2019 and (b) from a Specialty Ingredients manufacturing plant due to a hurricane in 2017.
- Inventory fair value adjustment – During 2017, Ashland recorded non-cash charges related to the fair value adjustment of inventory acquired from Pharmachem at the date of acquisition. See Note C for more information on the acquisition of Pharmachem.

Operating income for 2019, 2018 and 2017 included depreciation and amortization of \$289 million, \$277 million and \$265 million, respectively (which includes accelerated depreciation of \$39 million, \$14 million, and \$19 million, respectively, for each year).

Non-operating key items affecting EBITDA

During the current and prior years, there were certain key items that were not included in operating income but were excluded to arrive at Adjusted EBITDA **and are quantified in the table below in the**

“EBITDA and Adjusted EBITDA” section. These non-operating key items for the applicable periods are summarized as follows:

- Net loss on acquisitions and divestitures – Ashland recorded a loss on certain divestitures during each year and incurred certain transaction costs associated with the acquisition of Pharmachem during 2017. See Notes C and D of the Notes to Consolidated Financial Statements for more information on these acquisitions and divestitures.
- Loss (gain) on pension and other postretirement plan remeasurements - Ashland recognized actuarial gains and losses for defined benefit pension and other postretirement benefit plans annually in the fourth quarter of each fiscal year and whenever a plan is determined to qualify for a remeasurement during a fiscal year. See Note N of the Notes to Consolidated Financial Statements for more information.

Statements of Consolidated Comprehensive Income (Loss) – caption review

A comparative analysis of the Statements of Consolidated Comprehensive Income (Loss) by caption is provided as follows for the years ended September 30, 2019, 2018 and 2017.

(In millions)	2019	2018	2017	2019 change	2018 change
Sales	\$ 2,493	\$ 2,589	\$ 2,309	\$ (96)	\$ 280

The following table provides a reconciliation of the change in sales between fiscal years 2019 and 2018 and between fiscal years 2018 and 2017.

(In millions)	2019 change	2018 change
Volume/product mix	\$ (58)	\$ 88
Currency exchange	(45)	45
Acquisitions and Divestitures (including plant realignment)	(11)	107
Pricing	18	40
Change in sales	\$ (96)	\$ 280

Sales for 2019 decreased \$96 million, or 4%, compared to 2018. Unfavorable volume/product mix, foreign currency exchange and acquisitions and divestitures decreased sales by \$58 million, \$45 million and \$11 million, respectively. These decreases were partially offset by product pricing which increased sales by \$18 million.

Sales for 2018 increased \$280 million, or 12%, compared to 2017. The acquisition of Pharmachem within the Specialty Ingredients reportable segment increased sales by \$140 million while the net impact of other acquisitions and divestitures decreased sales by \$33 million. Improved volume, higher pricing and favorable foreign currency increased sales by \$88 million, \$40 million and \$45 million, respectively.

(In millions)	2019	2018	2017	2019 change	2018 change
Cost of sales	\$ 1,726	\$ 1,726	\$ 1,580	\$ —	\$ 146
Gross profit as a percent of sales	30.8%	33.3%	31.6%		

Fluctuations in cost of sales are driven primarily by raw material prices, volume and changes in product mix, currency exchange, acquisitions and divestitures and other certain charges incurred as a result of changes or events within the businesses or restructuring activities.

The following table provides a reconciliation of the changes in cost of sales between fiscal years 2019 and 2018 and between fiscal years 2018 and 2017.

(In millions)	2019 change	2018 change
Volume/product mix	\$ (27)	\$ 54
Currency exchange	(23)	24
Acquisitions and divestitures (including plant realignment)	(11)	72
Accelerated depreciation	39	(13)
Production costs	14	20
Unplanned plant shutdowns	8	(4)
Inventory fair value adjustment	—	(7)
Change in cost of sales	\$ —	\$ 146

Cost of sales for 2019 was flat compared to 2018. Accelerated depreciation, higher production costs and charges for unplanned plant shutdowns increased cost of sales by \$39 million, \$14 million and \$8 million, respectively. Those increases were offset by declines in volume and product mix, currency exchange and the net impact of acquisitions and divestitures which decreased cost of sales by \$27 million, \$23 million and \$11 million, respectively.

Cost of sales for 2018 increased \$146 million, or 9%, compared to 2017. The Pharmachem acquisition increased cost of sales by \$101 million, while the net impact of other acquisitions and divestitures decreased cost of sales by \$29 million. Changes in volume and product mix and higher production costs increased cost of sales by \$54 million and \$20 million, respectively. Unfavorable currency exchange increased cost of sales by \$24 million. Charges for accelerated depreciation, unplanned plant shutdowns and inventory fair value adjustments decreased cost of sales by \$13 million, \$4 million and \$7 million, respectively.

(In millions)	2019	2018	2017	2019 change	2018 change
Selling, general and administrative expense	\$ 539	\$ 692	\$ 610	\$ (153)	\$ 82
As a percent of sales	21.6%	26.7%	26.4%		

Selling, general and administrative expense for 2019 decreased \$153 million compared to 2018, with expenses as a percent of sales decreasing 5.1 percentage points. Key drivers of the fluctuation in selling, general and administrative expense compared to 2018 were:

- \$27 million and \$60 million in net environmental-related expenses during 2019 and 2018, respectively (see Note O for more information);
- \$43 million and \$83 million of key items for restructuring, separation and other costs during the current and prior year, respectively, comprised of the following:
 - \$43 million and \$56 million of severance, lease abandonment and other restructuring costs related to company-wide cost-savings initiatives during 2019 and 2018, respectively;
 - \$10 million of costs related to the separation of Valvoline during 2018;
 - \$8 million of accelerated depreciation related to the planned closure of an office building during 2018; and
 - \$9 million of Pharmachem integration costs during 2018;
- \$16 million of asset impairment charges during 2018;
- \$4 million of consulting and other costs associated with the proxy contest during 2019;
- Lower variable compensation of \$21 million during 2019;
- Favorable currency exchange of \$9 million as well as achieved cost savings during 2019.

Selling, general and administrative expense for 2018 increased \$82 million compared to 2017, while expenses as a percent of sales increased 0.3 percentage points. Key drivers of the fluctuation in selling, general and administrative expense compared to 2017 were:

- \$75 million and \$86 million of restructuring, separation and other costs during 2018 and 2017, respectively, comprised of the following:
 - \$56 million of severance, lease abandonment and other restructuring costs related to company-wide cost-savings initiatives during 2018;
 - \$10 million of costs related to the separation of Valvoline during 2018 compared to \$82 million during 2017; and
 - \$9 million of Pharmachem integration costs during 2018 compared to \$4 million during 2017;
 - \$60 million and \$21 million in net environmental-related expenses during 2018 and 2017, respectively;
 - \$23 million of incremental costs related to Pharmachem's operations in 2018;
 - \$16 million of asset impairment charges during 2018;
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- \$8 million increase during 2018 due to foreign currency exchange; and
- \$8 million of accelerated depreciation related to the closure of an office building during 2018 compared to \$3 million during 2017.

(In millions)	2019	2018	2017	2019 change	2018 change
Research and development expense	\$ 66	\$ 73	\$ 73	\$ (7)	\$ —

Research and development expense decreased \$7 million in 2019 compared to 2018 primarily due to the overall company-wide cost reduction program. The 2018 expense remained relatively consistent compared to 2017.

(In millions)	2019	2018	2017	2019 change	2018 change
Equity and other income					
Equity income	\$ —	\$ —	\$ —	\$ —	\$ —
Other income	4	4	3	—	1
	<u>\$ 4</u>	<u>\$ 4</u>	<u>\$ 3</u>	<u>\$ —</u>	<u>\$ 1</u>

Total equity and other income remained relatively consistent during each year.

(In millions)	2019	2018	2017	2019 change	2018 change
Net interest and other expense (income)					
Interest expense	\$ 114	\$ 116	\$ 227	\$ (2)	\$ (111)
Interest income	(2)	(4)	(4)	2	—
Loss (income) from restricted investments	(17)	(14)	(11)	(3)	(3)
Other financing costs	4	4	17	—	(13)
	<u>\$ 99</u>	<u>\$ 102</u>	<u>\$ 229</u>	<u>\$ (3)</u>	<u>\$ (127)</u>

Net interest and other financing expense decreased \$3 million in 2019 compared to 2018. The current year decrease in interest expense was primarily due to lower debt levels during 2019 compared to 2018. This decrease was partially offset by \$6 million of accelerated debt issuance costs related to the early repayments of term loans. The investment securities income of \$17 million compared to \$14 million in 2018 represents investment income related to restricted investments discussed in Note G of the Notes to Consolidated Financial Statements. Interest income and other financing costs were relatively consistent.

Net interest and other financing expense decreased \$127 million in 2018 compared to 2017. The decrease in interest expense from 2017 to 2018 was primarily due to 2017 including \$92 million of accelerated accretion related to the December 2016 tender offer of the 2029 notes. In addition, there was also interest expense of \$9 million in 2018 related to accelerated debt issuance costs associated with 2017 financing activity, which was comprised of \$7 million of accelerated amortization of previously capitalized debt issuance costs and \$2 million of new debt issuance costs immediately recognized. Interest expense in 2018 included \$1 million of charges for new debt issuance costs incurred with the re-pricing of the 2017 term loan B facility. The investment securities income of \$14 million in 2018 compared to \$11 million in 2017 represents investment income related to restricted investments discussed in Note G

of the Notes to Consolidated Financial Statements. The 2018 decrease in other financing costs was primarily due to a net \$11 million charge during 2017 related to early redemption premium payments and bondholder consent fees for senior notes due 2018 and 2022, partially offset by a net gain related to the repayment of notes due 2029.

(In millions)	2019	2018	2017	2019 change	2018 change
Other net periodic benefit income (costs)	\$ 5	\$ 15	\$ (6)	\$ (10)	\$ 21

Other net periodic benefit income (costs) during 2019 primarily included an \$11 million loss on pension and other postretirement plan remeasurements, offset by a curtailment gain of \$18 million due to the settlement of a non-U.S. pension plan in 2019. 2019 also included an \$12 million charge for interest cost, partially offset by a \$10 million expected return on plan assets.

Other net periodic benefit income (costs) during 2018 primarily included a gain on pension and other postretirement plan remeasurements of \$14 million and an expected return on plan assets of \$12 million, offset by interest cost of \$11 million.

Other net periodic benefit income (costs) during 2017 primarily included interest cost of \$10 million and a loss on pension and other postretirement plan remeasurements of \$8 million, partially offset by an expected return on plan assets of \$12 million.

(In millions)	2019	2018	2017	2019 change	2018 change
Net loss on acquisitions and divestitures	\$ (2)	\$ (4)	\$ (10)	\$ 2	\$ 6

Net loss on acquisitions and divestitures during 2019 primarily included a loss of \$2 million related to the impairment of an investment offset by a gain on sale of a manufacturing facility, along with post-closing adjustments related to other previous divestitures.

Net loss on acquisitions and divestitures during 2018 primarily included a loss of \$2 million related to the sale of a manufacturing facility, along with post-closing adjustments related to other previous divestitures.

Net loss on acquisitions and divestitures during 2017 included a net loss of \$5 million from the acquisition of Pharmachem, a loss of \$4 million recognized for the Specialty Ingredients joint venture divestiture in China and a loss of \$1 million due to post-closing adjustments related to other previous divestitures.

(In millions)	2019	2018	2017	2019 change	2018 change
Income tax expense (benefit)	\$ 46	\$ (8)	\$ (16)	\$ 54	\$ 8
Effective tax rate	66%	(73)%	8%		

The 2019 effective tax rate was impacted by jurisdictional income mix, restructuring activities, and the U.S. tax reform.

The 2018 effective tax rate was impacted by jurisdictional income mix and restructuring activities, while the impact of U.S. tax reform and other items netted together to have an insignificant impact.

The 2017 effective tax rate was impacted by jurisdictional income mix, tax expense related to deemed dividend inclusions and a tax benefit for the reversal of a valuation allowance related to the utilization of foreign tax credits.

Adjusted income tax expense (benefit)

Key items are defined as the financial effects from significant transactions that may have caused short-term fluctuations in net income and/or operating income which Ashland believes do not accurately reflect Ashland's underlying business performance and trends. Tax specific key items are defined as the financial effects from tax specific financial transactions, tax law changes or other matters that fall within the definition of key items as previously described. The effective tax rate, excluding key items, which is a non-GAAP measure, has been prepared to illustrate the ongoing tax effects of Ashland's operations. Management believes investors and analysts use this financial measure in assessing Ashland's business performance and that presenting this non-GAAP measure on a consolidated basis assists investors in better understanding Ashland's ongoing business performance and enhancing their ability to compare period-to-period financial results.

The effective tax rates during 2019, 2018 and 2017 were significantly impacted by the following tax specific key items:

- Deferred tax rate changes - Includes the impact from the remeasurement of Ashland's domestic deferred tax balances resulting from the enactment of the Tax Act as well as the impact from deferred rate changes for other jurisdictions during 2019 and 2018;
- One-time transition tax - Includes the one-time transition tax resulting from the enactment of the Tax Act during 2019 and 2018;

- Uncertain tax position - Includes the impact from the settlement of uncertain tax positions with various tax authorities during 2019 and 2018;
- Restructuring and separation activity - Includes the impact from company-wide restructuring activities during 2018 and the separation of Valvoline during 2017. These adjustments related to various tax impacts including state tax costs, foreign tax costs and other tax account adjustments;
- Other tax reform - Includes the impact from other tax law changes resulting from the enactment of the Tax Act during 2019 and 2018. These adjustments include the impact from the deductibility of compensation items and miscellaneous state tax items;
- Valuation allowances - Includes the impact from net operating loss and foreign tax credit valuation allowances during 2019, 2018 and 2017; and
- Foreign dividends - Includes the impact from a significant deemed dividend inclusion in the U.S. during 2017. This deemed dividend transaction allowed Ashland to utilize foreign tax credit carryforwards which may have otherwise expired. This transaction was driven in part by projected changes to Ashland's business and tax profile as a result of the Valvoline separation.

The following table is a calculation of the effective tax rate, excluding the impact of these key items:

(In millions)	2019	2018	2017
Income (loss) from continuing operations			
before income taxes	\$ 70	\$ 11	\$ (196)
Key items (pre-tax) (a)	112	140	263
Adjusted income from continuing operations			
before income taxes	\$ 182	\$ 151	\$ 67
Income tax expense (benefit)	46	(8)	(16)
Income tax rate adjustments:			
Tax effect of key items (b)	14	30	88
Tax specific key items: (c)			
Deferred tax rate changes	(2)	139	—
One-time transition tax	(28)	(128)	—
Uncertain tax positions	6	26	—
Restructuring and separation activity	(12)	(36)	(17)
Other tax reform related activity	1	(11)	—
Valuation allowances	—	—	21
Foreign dividends	—	—	(87)
Total income tax rate adjustments	(21)	20	5
Adjusted income tax expense (benefit)	\$ 25	\$ 12	\$ (11)
Effective tax rate, excluding key items (Non-GAAP)	14%	8%	(16)%

(a) See Adjusted EBITDA reconciliation table previously disclosed in this Management, Discussion and Analysis for a summary of the key items, before tax.

(b) The tax rate specific to the jurisdiction in which the key item originates is used to calculate the tax effect of key items.

(c) For additional information on the effect that these tax specific key items had on EPS, see the Adjusted Diluted EPS table previously disclosed in this Management Discussion and Analysis.

The following table provides a reconciliation of tax specific key items within the statutory federal income tax with the provision for income taxes summary disclosed in Note M of the Notes to Consolidated Financial Statements.

(In millions)	2019	2018	2017
Tax effect of key items computed at applicable statutory rate	\$ 14	\$ 30	\$ 88
Tax reform	(30)	44	—
Uncertain tax positions	(9)	22	(1)
Foreign dividend, deemed inclusions and other restructuring	—	(10)	(87)
Foreign tax credits	—	(44)	—
Valuation allowance changes (a)	1	1	7
State taxes	(3)	—	7
Other items	6	(23)	(9)
	<u>\$ (21)</u>	<u>\$ 20</u>	<u>\$ 5</u>

(a) Includes \$14 million of charges during 2017 that were included in the “Restructuring and separation activity” line in previous table, which is an activity-based reconciliation.

(In millions)	2019	2018	2017	2019 change	2018 change
Income (loss) from discontinued operations (net of taxes)					
Composites and Marl Facility	\$ 94	\$ 86	\$ 75	\$ 8	\$ 11
Asbestos-related litigation	—	13	(25)	(13)	38
Water Technologies	1	3	2	(2)	1
Distribution	14	(6)	(3)	20	(3)
Valvoline	—	(1)	159	1	(160)
Gain on disposal of discontinued operations					
Composites/Marl facility	372	—	—	372	—
	<u>\$ 481</u>	<u>\$ 95</u>	<u>\$ 208</u>	<u>\$ 386</u>	<u>\$ (113)</u>

As a result of the divestiture of the Composites segment (including the Maleic business) and Marl facility, the related operating results have been reflected as discontinued operations (net of tax) within the Statements of Consolidated Comprehensive Income (Loss). See Note E for more information on this divestiture. In 2019, the sales and pre-tax operating income included in discontinued operations were \$1,012 million and \$145 million, respectively. In 2018, the sales and pre-tax operating income included in discontinued operations were \$1,154 million and \$125 million, respectively. In 2017, the sales and pre-tax operating income included in discontinued operations were \$951 million and \$97 million, respectively. A \$372 million gain on disposal was recorded in the fourth quarter associated with the August 30, 2019 closing of the Composites business (excluding the Maleic business) and the Marl facility with INEOS.

Asbestos-related activity during 2019, 2018 and 2017 included after-tax net adjustments to the asbestos reserves and receivables of zero, \$13 million of income and \$25 million of expense, respectively, including the adjustments for the annual update.

The activity for Water Technologies and Distribution during 2019, 2018 and 2017 was related to post-closing adjustments.

The Valvoline activity within 2019 and 2018 primarily represents subsequent adjustments that were made in conjunction with the Tax Matters Agreement. Prior to the full separation of Valvoline Inc. on

May 12, 2017, the operating results related to Valvoline Inc., including the operating results of the former Valvoline reportable segment, have been reflected as discontinued operations (net of tax) within the Statements of Consolidated Comprehensive Income (Loss) for 2017. Valvoline's sales included in discontinued operations during 2017 were \$1,237 million (reflective of sales until the full separation on May 12, 2017). Valvoline's pre-tax income of discontinued operations during 2017 totaled \$240 million.

(In millions)	2019	2018	2017	2019 change	2018 change
Net income attributable to noncontrolling interest	\$ —	\$ —	\$ 27	\$ —	\$ (27)

Since Ashland's ownership interest in Valvoline Inc. was approximately 83% after completing the IPO on September 28, 2016 and before the distribution of its remaining shares of Valvoline on May 12, 2017, the amount of net income attributable to the outside stockholders' approximately 17% noncontrolling interest in Valvoline Inc. was presented within this caption in the Statements of Consolidated Comprehensive Income (Loss) for 2017.

Other comprehensive income (loss)

A comparative analysis of the components of other comprehensive income (loss) is provided below for the last three fiscal years ended September 30.

(In millions)	2019	2018	2017	2019 change	2018 change
Other comprehensive income (loss) (net of taxes)					
Unrealized translation gain (loss)	\$ (80)	\$ (82)	\$ 81	\$ 2	\$ (163)
Pension and postretirement obligation adjustment	(5)	—	(4)	(5)	4
Net change in investment securities	—	13	15	(13)	(2)
	<u>\$ (85)</u>	<u>\$ (69)</u>	<u>\$ 92</u>	<u>\$ (16)</u>	<u>\$ (161)</u>

Total other comprehensive income (loss), net of tax, decreased \$16 million in 2019 as compared to 2018 as a result of the following components.

- In 2019, the change in unrealized gain (loss) from foreign currency translation adjustments resulted in a loss of \$80 million, compared to a loss of \$82 million during 2018. The fluctuations in unrealized translation gains and losses were primarily due to translating foreign subsidiary financial statements from local currencies to U.S. Dollars.
- The pension and postretirement obligation adjustment was \$5 million during 2019 compared to zero during 2018. The adjustment during 2019 related to amortization of unrecognized prior services credits for pension and other postretirement benefit plans, net of tax, and were reclassified into net income.

- Due to the adoption of new accounting guidance in 2019, unrealized gains and losses on Ashland's equity securities are now recognized in net income rather than AOCI. See Notes A and G for more information. A \$13 million gain on investment securities, net of tax, related to restricted investments, were recognized within other comprehensive income (loss) during 2018.

Total other comprehensive income (loss), net of tax, decreased \$161 million in 2018 as compared to 2017 as a result of the following components.

- In 2018, the change in unrealized gain (loss) from foreign currency translation adjustments resulted in a loss of \$82 million, compared to a gain of \$81 million during 2017. The fluctuations in unrealized translation gains and losses are primarily due to translating foreign subsidiary financial statements from local currencies to U.S. Dollars.
- The pension and postretirement obligation adjustment was zero during 2018 compared to a loss of \$4 million during 2017 due to unrecognized prior service credits, net of tax, relating to pension and other postretirement benefit plans were amortized and reclassified into net income.
- Gains of \$13 million and \$15 million on restricted investments, net of tax, were recognized within other comprehensive income (loss) during 2018 and 2017, respectively.

Use of non-GAAP measures

Ashland has included within this document the following non-GAAP measures, on both a consolidated and reportable segment basis, which are not defined within U.S. GAAP and do not purport to be alternatives to net income or cash flows from operating activities as a measure of operating performance or cash flows:

- **EBITDA - net income (loss), plus income tax expense (benefit), net interest and other financing expenses, and depreciation and amortization.**
 - **Adjusted EBITDA - EBITDA adjusted for noncontrolling interests, discontinued operations, net gain (loss) on acquisitions and divestitures, other income and (expense) and key items (including the remeasurement gains and losses related to pension and other postretirement plans).**
 - **Adjusted EBITDA margin - Adjusted EBITDA, which can include pro forma adjustments, divided by sales.**
 - **Adjusted diluted earnings per share (EPS) - income (loss) from continuing operations, adjusted for key items, net of tax, divided by the average outstanding diluted shares for the applicable period.**
 - **Free cash flow - operating cash flows less capital expenditures and certain other adjustments as applicable.**
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Management believes the use of EBITDA and Adjusted EBITDA measures on a consolidated and reportable segment basis assists investors in understanding the ongoing operating performance by presenting comparable financial results between periods. Ashland believes that by removing the impact of depreciation and amortization and excluding certain non-cash charges, amounts spent on interest and taxes and certain other charges that are highly variable from year to year, EBITDA and Adjusted EBITDA provide Ashland's investors with performance measures that reflect the impact to operations from trends in changes in sales, margin and operating expenses, providing a perspective not immediately apparent from net income and operating income. The adjustments Ashland makes to derive the non-GAAP measures of EBITDA and Adjusted EBITDA exclude items which may cause short-term fluctuations in net income and operating income and which Ashland does not consider to be the fundamental attributes or primary drivers of its business. EBITDA and Adjusted EBITDA provide disclosure on the same basis as that used by Ashland's management to evaluate financial performance on a consolidated and reportable segment basis and provide consistency in our financial reporting, facilitate internal and external comparisons of Ashland's historical operating performance and its business units and provide continuity to investors for comparability purposes.

The Adjusted diluted EPS metric enables Ashland to demonstrate what effect key items have on an earnings per diluted share basis by taking income (loss) from continuing operations, adjusted for key items after tax that have been identified in the Adjusted EBITDA table, and dividing by the average outstanding diluted shares for the applicable period. Ashland's management believes this presentation is helpful to illustrate how the key items have impacted this metric during the applicable period.

The free cash flow metric enables Ashland to provide a better indication of the ongoing cash being generated that is ultimately available for both debt and equity holders as well as other investment opportunities. Unlike cash flow provided by operating activities, free cash flow includes the impact of capital expenditures from continuing operations, providing a more complete picture of cash generation. Free cash flow has certain limitations, including that it does not reflect adjustment for certain non-discretionary cash flows such as mandatory debt repayments. The amount of mandatory versus discretionary expenditures can vary significantly between periods.

Although Ashland may provide forward-looking guidance for Adjusted EBITDA, Adjusted diluted EPS and free cash flow, Ashland is not reaffirming or providing forward-looking guidance for U.S. GAAP-reported financial measures or a reconciliation of forward-looking non-GAAP financial measures to the most directly comparable U.S. GAAP measure because it is unable to predict with reasonable certainty the ultimate outcome of certain significant items that affect these metrics such as domestic and international economic, political, legislative, regulatory and legal actions. In addition, certain economic conditions, such as recessionary trends, inflation, interest and

monetary exchange rates, government fiscal policies and changes in the prices of certain key raw materials, can have a significant effect on operations and are difficult to predict with certainty.

These non-GAAP measures should be considered supplemental in nature and should not be construed as more significant than comparable measures defined by U.S. GAAP. Limitations associated with the use of these non-GAAP measures include that these measures do not present all of the amounts associated with our results as determined in accordance with U.S. GAAP. The non-GAAP measures provided are used by Ashland management and may not be determined in a manner consistent with the methodologies used by other companies. EBITDA and Adjusted EBITDA provide a supplemental presentation of Ashland's operating performance on a consolidated and reportable segment basis. Adjusted EBITDA generally includes adjustments for items that impact comparability between periods. In addition, certain financial covenants related to Ashland's 2017 Credit Agreement are based on similar non-GAAP measures and are defined further in the sections that reference this metric.

In accordance with U.S. GAAP, Ashland recognizes actuarial gains and losses for defined benefit pension and other postretirement benefit plans annually in the fourth quarter of each fiscal year and whenever a plan is determined to qualify for a remeasurement during a fiscal year. Actuarial gains and losses occur when actual experience differs from the estimates used to allocate the change in value of pension and other postretirement benefit plans to expense throughout the year or when assumptions change, as they may each year. Significant factors that can contribute to the recognition of actuarial gains and losses include changes in discount rates used to remeasure pension and other postretirement obligations on an annual basis or upon a qualifying remeasurement, differences between actual and expected returns on plan assets and other changes in actuarial assumptions, for example, the life expectancy of plan participants. Management believes Adjusted EBITDA, which includes the expected return on pension plan assets yet excludes both the actual return on pension plan assets and the impact of actuarial gains and losses, provides investors with a meaningful supplemental presentation of Ashland's operating performance (see the Adjusted EBITDA reconciliation table on page M-8 for additional details on exact amounts included within this non-GAAP measure related to pension and other postretirement plans). Management believes these actuarial gains and losses are primarily financing activities that are more reflective of changes in current conditions in global financial markets (and in particular interest rates) that are not directly related to the underlying business. For further information on the actuarial assumptions and plan assets referenced above, see Note N of the Notes to Consolidated Financial Statements.

EBITDA and Adjusted EBITDA

EBITDA totaled \$900 million, \$471 million and \$487 million for 2019, 2018 and 2017, respectively. EBITDA and Adjusted EBITDA results in the following table have been prepared to illustrate the ongoing effects of Ashland's operations, which exclude certain key items previously described. Management believes the use of such non-GAAP measures on a consolidated and

reportable segment basis assists investors in understanding the ongoing operating performance by presenting the financial results between periods on a more comparable basis.

(In millions)	2019	2018	2017
Net income (loss)	\$ 505	\$ 114	\$ 28
Income tax expense (benefit)	46	(8)	(16)
Net interest and other financing expense	99	102	229
Depreciation and amortization (a)	250	263	246
EBITDA	900	471	487
Income from discontinued operations (net of taxes)	(481)	(95)	(208)
Key items included in EBITDA:			
Restructuring, separation and other costs (b)	51	77	88
Proxy costs	4	=	=
Accelerated depreciation	39	14	19
Environmental reserve adjustments	15	44	9
Asset impairments	=	16	=
Tax indemnity expense	6	5	=
Net loss on acquisitions and divestitures (c)	3	2	9
Loss (gain) on pension and other postretirement plan remeasurements	(7)	(14)	8
Legal settlement/reserve	=	(5)	5
Unplanned plant shutdowns	2	=	6
Inventory fair value adjustment	=	=	7
Total key items included in EBITDA	113	139	151
Adjusted EBITDA (d)	\$ 532	\$ 515	\$ 430
Total key items included in EBITDA	\$ 113	\$ 139	\$ 151
Unrealized gain on securities (e)	(7)	=	=
Debt refinancing costs (f)	6	1	112
Total key items, before tax	\$ 112	\$ 140	\$ 263

(a) Excludes \$39 million, \$14 million and \$19 million of accelerated depreciation during 2019, 2018 and 2017, respectively.

(b) Includes impairments of \$8 million during 2019.

(c) Excludes expense of \$3 million, \$2 million and \$9 million during 2019, 2018 and 2017, respectively, related to ongoing adjustments of previous divestiture transactions.

(d) Includes \$9 million, \$8 million and \$7 million during 2019, 2018 and 2017, respectively, of net periodic pension and other postretirement costs (income) recognized ratably through the fiscal year. These costs (income) are comprised of service cost, interest cost, expected return on plan assets, and amortization of prior service credit and are disclosed in further detail in Note N of the Notes to Consolidated Financial Statements.

(e) Due to the adoption of new accounting guidance in 2019, the unrealized (gains) losses on certain investment securities directly impact earnings and are recorded within the net interest and other expense caption on the Statements of Consolidated Comprehensive Income (Loss). See Note A of the Notes to Consolidated Financial Statements for more information.

(f) Debt refinancing costs during 2019 included a \$6 million debt issuance costs amortization charge for the early repayment of term loans A and B. Debt refinancing costs during 2018 primarily included a \$1 million charge for new debt issuance costs incurred with the re-pricing of the term loan B facility. Debt refinancing costs during 2017 included \$92 million of accelerated accretion from the tender offer of the 2029 notes, a \$16 million charge for early redemption premium payments and bondholder consent fees for senior notes due 2018 and 2022, a \$9 million charge for debt issuance costs resulting from financing activity for the 2017 Credit Agreement and a net gain of \$5 million related to the repayment of notes due 2029. All debt refinancing costs were recorded within the net interest and other financing expense caption on the Statements of Consolidated Comprehensive Income (Loss). See Note J of the Notes to Consolidated Financial Statements for more information.

Diluted EPS and Adjusted Diluted EPS

The following table reflects the U.S. GAAP calculation for the income (loss) from continuing operations adjusted for the cumulative diluted EPS effect for key items after tax that have been identified in the Adjusted EBITDA table in the previous section. Key items are defined as the financial effects from significant transactions that may have caused short-term fluctuations in net income and/or operating income which Ashland believes do not accurately reflect Ashland's underlying business performance and trends. The Adjusted Diluted EPS for the income (loss) from continuing operations in the following table has been prepared to illustrate the ongoing effects of Ashland's operations. Management believes investors and analysts use this financial measure in assessing Ashland's business performance and that presenting this non-GAAP measure on a consolidated basis assists investors in better understanding Ashland's ongoing business performance and enhancing their ability to compare period-to-period financial results.

	<u>2019</u>	<u>2018</u>	<u>2017</u>
<u>Diluted EPS from continuing operations (as reported)</u>	<u>\$ 0.39</u>	<u>\$ 0.29</u>	<u>\$ (2.90)</u>
<u>Key items, before tax:</u>			
<u>Restructuring, separation and other costs (including accelerated depreciation)</u>	<u>1.42</u>	<u>1.43</u>	<u>1.70</u>
<u>Proxy costs</u>	<u>0.07</u>	<u>=</u>	<u>=</u>
<u>Environmental reserve adjustments</u>	<u>0.24</u>	<u>0.68</u>	<u>0.15</u>
<u>Asset impairments</u>	<u>=</u>	<u>0.25</u>	<u>=</u>
<u>Loss (gain) on pension and other postretirement plan remeasurements</u>	<u>(0.11)</u>	<u>(0.22)</u>	<u>0.13</u>
<u>Tax indemnity expense</u>	<u>0.10</u>	<u>0.08</u>	<u>=</u>
<u>Net loss on acquisitions and divestitures</u>	<u>0.05</u>	<u>0.04</u>	<u>0.16</u>
<u>Legal settlement/reserve</u>	<u>=</u>	<u>(0.07)</u>	<u>0.07</u>
<u>Unplanned plant shutdowns</u>	<u>0.03</u>	<u>=</u>	<u>0.10</u>
<u>Unrealized (gain) loss on securities</u>	<u>(0.11)</u>	<u>=</u>	<u>=</u>
<u>Inventory fair value adjustment</u>	<u>=</u>	<u>=</u>	<u>0.11</u>
<u>Debt refinancing costs</u>	<u>0.09</u>	<u>0.02</u>	<u>1.78</u>
<u>Key items, before tax</u>	<u>1.78</u>	<u>2.21</u>	<u>4.20</u>
<u>Tax effect of key items (a)</u>	<u>(0.22)</u>	<u>(0.47)</u>	<u>(1.39)</u>
<u>Key items, after tax</u>	<u>1.56</u>	<u>1.74</u>	<u>2.81</u>
<u>Tax specific key items:</u>			
<u>Deferred tax rate changes</u>	<u>0.03</u>	<u>(2.18)</u>	<u>=</u>
<u>One-time transition tax</u>	<u>0.44</u>	<u>2.00</u>	<u>=</u>
<u>Uncertain tax positions</u>	<u>(0.09)</u>	<u>(0.39)</u>	<u>=</u>
<u>Restructuring and separation activity</u>	<u>0.19</u>	<u>0.56</u>	<u>0.28</u>
<u>Other tax reform related activity</u>	<u>(0.02)</u>	<u>0.17</u>	<u>=</u>
<u>Valuation allowances</u>	<u>=</u>	<u>=</u>	<u>(0.33)</u>
<u>Foreign dividends</u>	<u>=</u>	<u>=</u>	<u>1.38</u>
<u>Tax specific key items (b)</u>	<u>0.55</u>	<u>0.16</u>	<u>1.33</u>
<u>Total key items</u>	<u>2.11</u>	<u>1.90</u>	<u>4.14</u>
<u>Adjusted diluted EPS from continuing operations (non-GAAP)</u>	<u>\$ 2.50</u>	<u>\$ 2.19</u>	<u>\$ 1.24</u>

(a) Represents the diluted EPS impact from the tax effect of the key items that are previously identified above.

- (b) Represents the diluted EPS impact from tax specific financial transactions, tax law changes or other matters that fall within the definition of tax specific key items. For additional explanation of these tax specific key items, see the income tax expense (benefit) discussion within the following caption review section.
-

RESULTS OF OPERATIONS – REPORTABLE SEGMENT REVIEW

Ashland's operations are managed within the following two reportable segments: Specialty Ingredients and Intermediates and Solvents. Results of Ashland's reportable segments are presented based on its management and internal accounting structure. The structure is specific to Ashland; therefore, the financial results of Ashland's reportable segments are not necessarily comparable with similar information for other comparable companies. Ashland allocates all costs to its reportable segments except for certain significant company-wide restructuring activities and other costs or adjustments that relate to former businesses that Ashland no longer operates. The service cost component of pension and other postretirement benefits costs is allocated to each reportable segment on a ratable basis; while the remaining components of pension and other postretirement benefits costs are recorded within the other net periodic benefit income (costs) caption on the Statements of Consolidated Comprehensive Income (Loss). Ashland refines its expense allocation methodologies to the reportable segments from time to time as internal accounting practices are improved, more refined information becomes available and the industry or market changes. Significant revisions to Ashland's methodologies are adjusted for all segments on a retrospective basis.

The following table shows sales, operating income, depreciation and amortization and statistical operating information by reportable segment for each of the last three years ended September 30.

(In millions)	2019	2018	2017
Sales			
Specialty Ingredients	\$ 2,382	\$ 2,470	\$ 2,216
Intermediates and Solvents	111	119	93
	<u>\$ 2,493</u>	<u>\$ 2,589</u>	<u>\$ 2,309</u>
Operating income (loss)			
Specialty Ingredients	\$ 272	\$ 314	\$ 233
Intermediates and Solvents	16	17	(6)
Unallocated and Other	(122)	(229)	(178)
	<u>\$ 166</u>	<u>\$ 102</u>	<u>\$ 49</u>
Depreciation and amortization			
Specialty Ingredients	\$ 273	\$ 252	\$ 243
Intermediates and Solvents	13	14	14
Unallocated and Other	3	11	8
	<u>\$ 289</u>	<u>\$ 277</u>	<u>\$ 265</u>
Operating information			
Specialty Ingredients (a)			
Sales per shipping day	\$ 9.4	\$ 9.8	\$ 8.8
Metric tons sold (thousands)	317.2	324.7	317.2
Gross profit as a percent of sales	31.1%	33.8%	32.7%
Intermediates and Solvents (a)			
Sales per shipping day	\$ 0.4	\$ 0.5	\$ 0.4
Metric tons sold (thousands)	35.3	37.5	34.9
Gross profit as a percent of sales	23.1%	23.0%	4.1%

(a) Sales are defined as sales and operating revenues. Gross profit is defined as sales, less cost of sales.

Sales by region expressed as a percentage of reportable segment sales for each of the last three fiscal years ended September 30 were as follows. Ashland includes only U.S. and Canada in its North American designation.

Sales by Geography	2019	
	Specialty Ingredients	Intermediates and Solvents
North America	40%	52%
Europe	33%	21%
Asia Pacific	19%	22%
Latin America & other	8%	5%
	<u>100%</u>	<u>100%</u>

Sales by Geography	2018	
	Specialty Ingredients	Intermediates and Solvents
North America	40%	49%
Europe	33%	20%
Asia Pacific	18%	26%
Latin America & other	9%	5%
	<u>100%</u>	<u>100%</u>

	2017	
Sales by Geography	Specialty Ingredients	Intermediates and Solvents
North America	40%	37%
Europe	31%	22%
Asia Pacific	19%	35%
Latin America & other	10%	6%
	<u>100%</u>	<u>100%</u>

Specialty Ingredients

Specialty Ingredients offers industry-leading products, technologies and resources for solving formulation and product-performance challenges. Using natural, synthetic and semisynthetic polymers derived from cellulose ethers, vinyl pyrrolidones, acrylic polymers, polyester and polyurethane-based adhesives, and plant and seed extract, Specialty Ingredients offers comprehensive and innovative solutions for consumer and industrial applications.

Key customers include pharmaceutical companies; makers of personal care products, food and beverages manufacturers; makers of nutraceuticals and supplements; manufacturers of paint, coatings and construction materials; packaging and converting; and oilfield service companies.

On May 17, 2017, Ashland completed its acquisition of the stock of Pharmachem, a leading provider of quality ingredients to the global health and wellness industries and high-value differentiated products to fragrance and flavor houses. At the acquisition date, Pharmachem had approximately \$300 million in annual revenues and 14 manufacturing facilities located in the United States and Mexico. New Jersey-based Pharmachem develops, manufactures and supplies custom and branded nutritional and fragrance products. See Note C of the Notes to Consolidated Financial Statements for more information.

Ashland completed the transfer of its ownership interest in a consolidated joint venture during 2017. See Note D of the Notes to Consolidated Financial Statements for information on this divestiture.

2019 compared to 2018

Specialty Ingredients' sales decreased \$88 million, or 4%, to \$2,382 million in 2019. Volume/mix, unfavorable foreign currency exchange and the closures of a manufacturing plant decreased sales by \$49 million, \$44 million and \$11 million, respectively. Improved product pricing increased sales by \$16 million.

Gross profit during 2019 decreased \$95 million compared to 2018. Unfavorable foreign currency exchange and the net impact of volume and mix decreased gross profit by \$21 million and \$28 million, respectively. The net impact of pricing and costs decreased gross profit by \$46 million, which included a \$42 million net impact from the following key items during 2019 and 2018:

- \$45 million and \$3 million of costs related to restructuring activity related to certain manufacturing plants during 2019 and 2018, respectively (including \$38 million of accelerated depreciation for 2019);
- \$2 million of unplanned plant shutdown costs for a manufacturing facility during 2019; and
- \$2 million of impairment of an asset during 2018.

In total, gross profit margin during 2019 decreased 2.7 percentage points to 31.1% as compared to 2018.

Selling, general and administrative expenses (which includes research and development expenses throughout the reportable segment discussion and analysis) decreased \$50 million during 2019 as compared to 2018, largely due to the company-wide cost reduction program, lower employee incentive program costs and favorable foreign currency exchange. Equity and other income increased \$3 million compared to 2018.

Operating income totaled \$272 million for 2019 compared to \$314 million in 2018. EBITDA decreased \$53 million to \$507 million in 2019, while Adjusted EBITDA decreased \$16 million to \$558 million. Operating income margin decreased 1.3 percentage points in 2019 to 11.4%. Adjusted EBITDA margin increased 0.2 percentage points in 2019 to 23.4%.

2018 compared to 2017

Specialty Ingredients' sales increased \$254 million, or 11%, to \$2,470 million in 2018. The acquisition of Pharmachem increased sales by \$140 million, or 6%. Volume and mix combined to increase sales by \$87 million while favorable foreign currency exchange increased sales by \$42 million. In addition, improved product pricing increased sales by \$18 million. These increases were partially offset by a decrease of \$33 million primarily related to the transfer of ownership interest in a consolidated joint venture.

Gross profit during 2018 increased \$110 million compared to 2017. The acquisition of Pharmachem and improved volume and mix increased gross profit by \$39 million each, while favorable foreign currency exchange increased gross profit by \$18 million. Additionally, the net impact of pricing and costs

increased gross profit by \$18 million, which included a \$24 million net impact from the following key items during 2018 and 2017:

- \$3 million of costs related to restructuring activity at certain manufacturing plants during 2018;
- \$7 million of non-cash charges related to the fair value assessment of inventory acquired from Pharmachem at the date of acquisition during 2017; and
- \$6 million of costs related to the temporary shutdown of a manufacturing plant due to a hurricane during 2017.

These increases to gross profit were partially offset by a decrease of \$4 million related to the joint venture divestiture. In total, gross profit margin during 2018 increased 1.1 percentage points to 33.8% as compared to 2017.

Selling, general and administrative expenses increased \$27 million during 2018 as compared to 2017, largely due to incremental costs of \$23 million related to the acquisition of Pharmachem's operations. The remaining increase to selling, general and administrative expense was primarily attributable to unfavorable foreign currency exchange. Equity and other income (loss) decreased \$2 million compared to 2017.

Operating income totaled \$314 million for 2018 compared to \$233 million in 2017. EBITDA increased \$98 million to \$560 million in 2018, while Adjusted EBITDA increased \$81 million to \$574 million. Operating income margin increased 2.2 percentage points in 2018 to 12.7%. Adjusted EBITDA margin increased 1.0 percentage point in 2018 to 23.2%.

EBITDA and Adjusted EBITDA reconciliation

The EBITDA and Adjusted EBITDA amounts presented within this business section are provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for each segment. Each of these non-GAAP measures is defined as follows: EBITDA (operating income plus depreciation and amortization), Adjusted EBITDA (EBITDA adjusted for key items, which may include pro forma effects for significant acquisitions or divestitures, as applicable), and Adjusted EBITDA margin (Adjusted EBITDA, which may include pro forma adjustments, divided by sales or sales adjusted for pro forma results). Ashland does not allocate items to each reportable segment below operating income, such as interest expense and income taxes. As a result, reportable segment EBITDA and Adjusted EBITDA are reconciled directly to operating income since it is the most directly comparable Statements of Consolidated Comprehensive Income (Loss) caption.

The following EBITDA and Adjusted EBITDA presentation for the three annual periods is provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for the results of Specialty Ingredients. Adjusted EBITDA results have been prepared to illustrate the ongoing effects of Ashland's operations, which exclude certain key items.

The key items during 2019 included \$38 million of accelerated depreciation related to a planned facility closure, \$10 million of costs related to restructuring activity at certain manufacturing plants, \$2 million of an unplanned plant shutdown and \$1 million of environmental reserve adjustments.

The key items during 2018 included \$6 million of accelerated depreciation related to the termination of a contract at a manufacturing facility, \$2 million of integration costs related to the acquisition of Pharmachem and \$3 million of costs related to restructuring activity at certain manufacturing plants. Additional key items during 2018 included \$2 million of asset impairment charges and \$1 million of environmental reserve adjustments.

The key items during 2017 included \$18 million of restructuring charges for the closure of a manufacturing plant and the termination of a contract at a manufacturing facility (which included \$14 million of accelerated depreciation and \$4 million of severance and other restructuring costs), \$7 million for the revaluation of Pharmachem inventory and \$6 million of charges related to an unplanned plant shutdown.

(In millions)	September 30		
	2019	2018	2017
Operating income	\$ 272	\$ 314	\$ 233
Depreciation and amortization (a)	235	246	229
EBITDA	507	560	462
Accelerated depreciation	38	6	14
Severance and other costs	10	5	4
Asset impairment	—	2	—
Environmental reserve adjustment	1	1	—
Inventory fair value adjustment	—	—	7
Unplanned plant shutdown	2	—	6
Adjusted EBITDA	<u>\$ 558</u>	<u>\$ 574</u>	<u>\$ 493</u>

(a) Excludes \$38 million, \$6 million and \$14 million of accelerated depreciation during 2019, 2018 and 2017, respectively.

Intermediates and Solvents

Intermediates and Solvents is a leading producer of 1,4 butanediol and related derivatives, including n-methylpyrrolidone. These products are used as chemical intermediates in the production of engineering polymers and polyurethanes, and as specialty process solvents in a wide array of applications including electronics, pharmaceuticals, water filtration membranes and more. Butanediol is also supplied to Ashland's Specialty Ingredients business for use as a raw material at cost.

2019 compared to 2018

Intermediates and Solvents sales decreased \$8 million, or 7%, to \$111 million in 2019. Volume and mix combined to decrease sales by \$8 million and unfavorable foreign currency exchange decreased sales by another \$1 million. Lower product pricing increased sales by \$1 million.

Gross profit during 2019 decreased \$2 million compared to 2018. Unfavorable foreign currency exchange decreased gross profit by \$1 million, while the net impact of pricing and costs decreased gross profit by an additional \$1 million.

In total, gross profit margin during 2019 increased 0.1 percentage points to 23.1% as compared to 2018.

Selling, general and administrative expenses decreased \$1 million during 2019 as compared to 2018.

Operating income totaled \$16 million for 2019 compared to \$17 million in 2018. EBITDA decreased \$2 million to \$29 million in 2019. Operating income margin increased 0.1 percentage point in 2019 to 14.4%. EBITDA margin of 26.1% in 2019 was flat compared to 2018.

2018 compared to 2017

Intermediates and Solvents' sales increased \$26 million, or 28%, to \$119 million in 2018. Improved product pricing increased sales by \$22 million, while volume and favorable foreign currency exchange added an additional \$2 million each.

Gross profit during 2018 increased \$23 million compared to 2017. Pricing and higher costs combined to increase gross profit by \$19 million, while volume and mix combined to increase gross profit by \$2 million. Additionally, favorable foreign currency exchange increased gross profit by \$2 million. In total, gross profit margin during 2018 increased 18.9 percentage points to 23.0% as compared to 2017.

Selling, general and administrative expenses and equity and other income (loss) remained consistent as compared to 2017.

Operating income totaled \$17 million for 2018 compared to a loss of \$6 million in 2017. EBITDA increased \$23 million to \$31 million in 2018. Operating income margin increased 20.8 percentage points in 2018 to 14.3%. Adjusted EBITDA margin increased 17.5 percentage points in 2018 to 26.1%.

EBITDA and Adjusted EBITDA reconciliation

The following EBITDA presentation (**as defined and described in the section above**) for the three annual periods is provided as a means to enhance the understanding of financial measurements that Ashland has internally determined to be relevant measures of comparison for the results of Intermediates and Solvents. There were no unusual or key items that affected comparability for EBITDA during 2019, 2018 or 2017.

(In millions)	September 30		
	2019	2018	2017
Operating income	\$ 16	\$ 17	\$ (6)
Depreciation and amortization	13	14	14
EBITDA	29	31	8

Unallocated and other

The following table summarizes the key components of the Unallocated and other segment's operating income (loss) for each of the last three years ended September 30.

(In millions)	September 30		
	2019	2018	2017
Restructuring activities	\$ (87)	\$ (139)	\$ (136)
Environmental expenses	(25)	(58)	(20)
Asset impairment charges	—	(14)	—
Legal settlement/reserve	—	5	(5)
Tax indemnity expense	(6)	(5)	—
Proxy costs	(4)	—	—
Other income (expense)	—	(18)	(17)
Total unallocated expense	\$ (122)	\$ (229)	\$ (178)

Unallocated and other recorded expense of \$122 million, \$229 million and \$178 million for 2019, 2018, and 2017, respectively. The charges for restructuring activities of \$87 million, \$139 million and \$136 million during 2019, 2018 and 2017, respectively, were primarily comprised of the following items:

- \$42 million and \$49 million of severance, lease abandonment and other restructuring costs related to company-wide cost-savings initiatives during 2019 and 2018, respectively;
- \$4 million of impairment related to the planned sale of an office building during 2019;
- \$41 million, \$59 million and \$50 million of stranded divestiture costs during 2019, 2018 and 2017, respectively;
- \$10 million and \$82 million of costs related to the separation of Valvoline during 2018 and 2017 respectively;
- \$14 million of accelerated depreciation related to the closure of an office building during 2018; and
- \$7 million and \$4 million of integration costs related to the acquisition of Pharmachem during 2018 and 2017, respectively.

We believe that the information contained in this letter is responsive to the Comment in the Comment Letter.

Please acknowledge receipt of this response letter by electronic confirmation.

Please call Peter J. Ganz, Senior Vice President, General Counsel, Chief Compliance Officer and Secretary, or Samuel A. Richardson, Controller, at (859) 815-3048 and (614) 790-2370, respectively, if you have any questions regarding this submission.

Sincerely,

/s/ J. Kevin Willis

J. Kevin Willis
Senior Vice President
and Chief Financial Officer

cc: Aamira Chaudhry
Lyn Shenk