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20 March 2015

Mr. John Cash
Accounting Branch Chief
U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, NE
Washington, D.C. 20549

RE: Air Products and Chemicals, Inc.
Form 10-K for the Year Ended September 30, 2014
Filed November 24, 2014
File No. 1-4534

Dear Mr. Cash:

We have provided the information below in response to your letter dated March 12, 2015. Our responses have been numbered to correspond with the comments in your letter. The original comments contained in your letter have been included in italics for reference during your review.

Comment 1 – Critical Accounting Policies and Estimates, Goodwill, page 41

We note your response to prior comment three from our letter dated February 26, 2015 and appreciate the additional information you provided; however, please address the following:

- Tell us the number of operating segments in each reportable segment before and after the reorganization. If you aggregate operating segments after the reorganization, explain how you determined aggregation is appropriate; and*
- Your response indicates you had thirteen reporting units before and after the reorganization. Your response also indicates one instance in which one reporting unit before the reorganization was divided into three reporting units after the reorganization; therefore, it is not clear to us why the number of reporting units before and after the reorganization did not change. If you combined reporting units as a result of the reorganization, tell us the reporting units you combined, the amount of goodwill related to each such reporting unit, and your basis for combining them.*

Response:

Prior to the reorganization, we had four global operating segments that were equal to our four reportable segments. After the reorganization, we began operating under a regional management structure and identified eight operating segments. For six of our segments, the operating segments are the reportable segments. We aggregated the remaining two operating segments — the liquefied natural gas and helium storage and distribution sale of equipment businesses — into the Corporate and other reportable segment, as neither of these operating segments met the thresholds in ASC 280-10-50-12. This is consistent with our disclosure in our fiscal year 2015 first quarter 10-Q Note 18, Business Segment Information, page 22:

“The Company began operating under a new structure effective 1 October 2014. Our new reporting segments reflect the manner in which our chief operating decision maker reviews results and allocates resources. Except in the Corporate and other segment, each reporting segment meets the definition of an operating segment and does not include the aggregation of multiple operating segments. Our liquefied natural gas (LNG) and helium storage and distribution sale of equipment businesses are aggregated within the Corporate and other segment.”

We did not combine entire reporting units as a result of the reorganization. The reorganization of reporting units reflects the Company’s change in strategy, how the businesses are now managed, and how employees are compensated. This resulted in the realignment of certain facilities associated with our core business of supplying industrial gases into existing reporting units. The largest change resulting from this realignment was that on-site facilities within our regional Tonnage Gases reporting units and the Electronics reporting unit were realigned with preexisting regional Merchant Gases reporting units. The regional tonnage hydrogen businesses and the Electronics Materials business operate as separate reporting units in the new organization.

To clarify our previous response, the on-site facilities that supplied industrial gases (e.g. gaseous nitrogen) to Electronics customers were previously part of our Electronics reporting unit and were not a separate reporting unit in accordance with ASC 350-20-35-33 through 38. These facilities and \$127 million of goodwill (determined based on the relative fair value method) were reallocated from the Electronics reporting unit to reporting units within the regional Industrial Gases segments. We continue to have an Electronics Materials reporting unit after the reorganization. This reporting unit does not include industrial gases, but rather is primarily focused on specialty materials and chemicals. The total remaining goodwill which we reallocated was \$13 million and related to the realignment of facilities noted in the paragraph above.

We tested our reporting units for goodwill impairment under the old reporting units as of 30 September 2014 and the new reporting units as of 1 October 2014. With the exception of our Latin America reporting unit, which was not impacted by the reorganization, the fair value of our reporting units significantly exceeded the carrying value on both testing dates.

Comment 2 – Critical Accounting Policies and Estimates, Goodwill, page 41

We note your response to prior comment four from our letter dated February 26, 2015 and appreciate the information you provided; however, please revise your proposed disclosures to provide some context for the changes in significant assumptions you intend to disclose and the related sensitivity analysis. Absent any additional context, it appears to us that disclosing changes in significant assumptions without disclosing the initial assumptions or indicating the magnitude of the changes relative to the initial assumptions would not provide investors with adequate information to fully understand the impairment charge you recorded or assess the likelihood of additional impairment charges.

Response:

Effective with the 2015 Form 10-K, we will revise our Critical Accounting Policies and Estimates disclosure on pages 41 and 42 as underlined below:

We conducted our annual goodwill impairment testing as of 1 July 2014. Other than our Latin America reporting unit within the Merchant Gases segment, we determined that the fair value of each of our reporting units substantially exceeded its carrying value, and therefore there were no indications of impairment.

The Latin America reporting unit is composed predominately of our Indura business with business units in Chile, Colombia and other Latin America countries, which the Company acquired in 2012. The reporting unit represents approximately 5% of the Company's total revenue.

The acquisition price in 2012 reflected the Company's expectations for Indura revenue growth in Chile and across Latin America. At the time of the acquisition, the Indura business had approximately \$480 million in revenue and 21% EBITDA margin. We anticipated average revenue to grow at a multiple of up to two times long-term manufacturing growth, which was projected at approximately 4%. In addition, we expected additional revenue growth from the Company's ability to fund increased on-site plant investment and its applications technology capability. We also expected EBITDA margins to expand based on production, distribution, supply chain, and overhead synergies. Revenue growth was also anticipated to drive expanding EBITDA margins and increase future cash flows.

In 2014, economic conditions impacting our Latin America reporting unit began to weaken, including a decline in Chilean manufacturing growth, increasing inflation, weaker export demand for many commodities, and the enactment of higher tax rates in Chile. While we achieved expected cost synergies for the Indura business, we did not realize projected revenue growth primarily due to the weakening Chilean economy. Additionally, long-term manufacturing growth forecasts have been reduced to 2% to 3% in Chile and the other countries in which Indura operates. As a result of these events, we lowered our growth projections to be in line with lower published growth rates, reduced our expectations for EBITDA margin expansion by approximately 600 basis points, and determined that the associated goodwill was impaired. In the fourth quarter, we recorded a noncash impairment charge of \$305.2. Refer to Note 9, Goodwill, to the consolidated financial statements for additional information.

Due to the reorganization of our business effective as of 1 October 2014, we conducted an additional impairment test on our existing reporting units as of 30 September 2014. The fair value of all of our reporting units except Latin America substantially exceeded their carrying value at 30 September 2014. The fair value of our Latin America reporting unit exceeded its carrying value by approximately 10%. The fair value of the Latin America reporting unit at 30 September was estimated based on a similar outlook and assumptions as those used for the 1 July 2014 testing, and the fair value of the reporting unit exceeded its carrying value primarily due to depreciation and amortization and the \$20.6 impact of the Chilean tax rate change.

As of 30 September 2014, the carrying value of Latin America goodwill was \$232.7, or approximately 1.3% of consolidated total assets. Revenue growth and EBITDA margin assumptions are two primary drivers of the fair value of our Latin America reporting unit, and these assumptions are underpinned by our expectations for long-term manufacturing growth in the region. In the event of further declines in long-term Latin American manufacturing growth projections, we may need to perform additional impairment analysis. We determined that with other assumptions held constant, a decrease in revenue growth rates of approximately 200 basis points or a decrease in EBITDA margins of approximately 300 basis points would result in the fair value of the reporting unit being equal to its carrying value, which would require that we perform step 2 of the impairment analysis to assess the need for additional goodwill impairment.

The Latin America reporting unit has other material assets that include: Plant and equipment, net of \$454.6, Customer relationships of \$222.0, and Trade names and trademarks of \$74.6. The Trade names and trademarks are classified as indefinite-lived intangible assets. See impairment considerations for these assets within the Plant and Equipment and Intangible Assets sections of our Critical Accounting Policy and Estimates.

* * * * *

In connection with this response, management acknowledges that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Should the staff require any additional information, please contact me at 610-481-6931.

Sincerely,

A handwritten signature in black ink that reads "M. Scott Crocco". The signature is written in a cursive style with a large, prominent "M" and "C".

M. Scott Crocco
Senior Vice President and Chief Financial Officer