



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4631

September 26, 2016

Via E-mail

M. Scott Crocco
Chief Financial Officer
Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, Pennsylvania 18195-1501

**Re: Air Products and Chemicals, Inc.
Form 8-K Filed July 28, 2016
File No. 1-04534**

Dear Mr. Crocco:

We have limited our review of your filing to those issues we have addressed in our comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response to these comments, we may have additional comments.

1. We note you present adjusted Return on Capital Employed (ROCE) in your discussion of third quarter 2016 results without presenting ROCE calculated using the most comparable GAAP amounts. In your next earnings release, please follow the guidance in Question 102.10 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016 to present this ratio on a GAAP basis with equal or greater prominence.
2. On page 2 of your earnings release, your CEO is quoted as referring to "EPS," "EBITDA Margin," and "ROCE," which are presented on an adjusted basis despite no indication of that in the quote. All three are non-GAAP measures and EBITDA margin is calculated by excluding more than interest, taxes, depreciation, and amortization from earnings. In future earnings releases, please ensure that your measures are appropriately characterized throughout, including in the executive commentary.
3. We note that you omit a quantitative reconciliation with respect to your forward looking non-GAAP guidance, but you do not provide the disclosures required when the reconciliation is omitted. In your next earnings release, please follow the guidance in Question 102.10 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.

4. In your next earnings release, please provide a more substantive, and concise, discussion of how your non-GAAP measures are useful to investors. Please provide us with your proposed changes in your response letter.
5. Please revise future earnings releases to separate the tax impact attributable to the repatriation of the South Korean subsidiary's earnings from the business separation costs. See Question 102.11 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.
6. Please explain how you calculated the income tax effects of your non-GAAP adjustments in your next earnings release. Also, tell us why the tax rate for the total pre-tax adjustments from continuing operations attributable to Air Products is 15% for the nine-month period ended June 30, 2016, excluding repatriation. See Question 102.11 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.
7. Please revise your reconciliation of Earnings after Tax – Non-GAAP to begin with net income rather than a measure that is not on the face of your consolidated income statements and does not include income taxes. See Question 103.02 of the updated Non-GAAP Compliance and Disclosure Interpretations issued on May 17, 2016.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from the company acknowledging 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.

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You may contact Tracey Houser, Staff Accountant, at (202) 551-3736, or Robert Shapiro, Staff Accountant, at (202) 551-3273 with any questions.

Sincerely,

/s/ Melissa N. Rocha

Melissa N. Rocha
Senior Assistant Chief Accountant

Office of Manufacturing and
Construction