



UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549-4631

December 17, 2010

Mr. Paul E. Huck  
Senior Vice President and Chief Financial Officer  
Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195

**RE: Air Products and Chemicals, Inc.  
Form 10-K for the year ended September 30, 2010  
File No. 1-4534**

Dear Mr. Huck:

We have limited our review 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 this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

Item 1A - Risk Factors, page 9

Interest Rate Increases..., page 11

1. Please revise in future filings to illustrate this risk by disclosing the impact of a 1% change in the interest rates.

Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations, page 18

Liquidity and Capital Resources, page 30

2. We note your discussion of your credit facilities on page 32. Please revise in future filings to disclose whether you were in compliance with all financial and any other affirmative and negative covenants under your debt agreements.

Item 8 – Financial Statements and Supplementary Data, page 43

Note 17 - Commitments and Contingencies, page 80

Litigation, page 80

CADE Decision, page 80

3. As indicated in your prior letter dated February 3, 2010, please revise your disclosure in future filings to provide the reasonably possible range of loss related to this litigation or state that such an amount cannot be estimated. It would also be helpful to convert the Real into US dollars. If the Real amount is intended to indicate a possible range of loss please clarify future disclosures.

If you believe that you cannot estimate a range of reasonably possible loss, please provide us with a more comprehensive discussion about this issue, in sufficient detail, so we can understand why such an estimate cannot be made. Also, we remind you that it would normally be expected, taking into consideration the specific nature of a contingency, that the ability to estimate losses will increase with the passage of time.

Item 9A - Controls and Procedures, page 95

4. We note the conclusion of your Chief Executive Officer and Chief Financial Officer that your disclosure controls and procedures “have been effective”. Please be advised that the conclusion must indicate whether your disclosure controls and procedures were effective as of the end of the period covered by the report. Please confirm this to us and revise accordingly in future filings. Refer to Item 307 of Regulation S-K.

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 their filing;

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- 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.

You may contact Jessica Kane, Staff Attorney, at (202) 551-3235 or, in her absence, Andrew Schoeffler, Staff Attorney, at (202) 551-3748 if you have any questions regarding legal or disclosure matters. Please contact Jeffrey Gordon, Staff Accountant, at (202) 551-3866 or, in his absence, the undersigned at (202) 551-3689 if you have questions regarding comments on the financial statements and related matters.

Sincerely,

John Hartz  
Senior Assistant  
Chief Accountant