



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-7010

Mail Stop 7010

February 15, 2007

Via U.S. mail and facsimile

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

RE: Form 10-K for the fiscal year ended September 30, 2006
Form 10-Q for the period ended December 31, 2006
File No. 1-4534

Dear Mr. Huck:

We have reviewed these filings and have the following comments. If you disagree with a comment, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

FORM 10-K FOR THE YEAR ENDED SEPTEMBER 30, 2006

General

1. Where a comment below requests additional disclosures or other revisions to be made, please show us in your supplemental response what the revisions will look like. These revisions should be included in your future filings.

Available Information, page 6

2. Please disclose our new address, which is 100 F Street, N.E., Washington D.C. 20549.

Item 9A. Controls and Procedures, page 15

3. Please disclose whether there have been any changes in your internal controls over financial reporting that occurred during the most recent quarter rather than subsequent to the date of the most recent evaluation. Refer to Item 308(c) of Regulation S-K.

Exhibit 13

Management's Discussion and Analysis

Results of Operations

Effective Tax Rate, page 24

4. On pages 24 and 25, you discuss the effective tax rate excluding certain items. These amounts constitute non-GAAP measures. Please revise your MD&A for each period presented to remove these non-GAAP measures and instead discuss the changes between periods in your GAAP amounts. Amounts that are a business reason for the change between periods, such as the specified items you refer to, should be discussed as one of the business reasons for the change in the applicable GAAP amount between periods. Please make the appropriate revisions.

Financial Statements

Statements of Cash Flows, page 48

5. You present a subtotal of cash provided by operating activities prior to working capital changes. This amount constitutes a non-GAAP measure. Please remove this subtotal from your statements. Refer to Item 10(e)(1)(ii)(C) of Regulation S-K.
6. Please separately present changes in inventories in your determination of cash provided by operating activities. Refer to paragraph 29 of SFAS 95.

Consolidated Statements of Shareholders' Equity, page 49

7. Please disclose the components of accumulated other comprehensive income (loss) as of each balance sheet date as required by paragraph 26 of SFAS 140. Please also disclose for all periods presented the amounts of the reclassification adjustments for each classification of other comprehensive income. See paragraph 20 of SFAS 130.

Notes to the Financial Statements

Note 1. Major Accounting Policies

General

8. Please disclose the types of expenses that you include in the cost of sales line item and the types of expenses that you include in the selling and administrative expenses line item.

Inventories, page 53

9. You should use one inventory method for similar types of inventories. A mixture of methods should only be used for different types of inventories, particularly when there are valid business reasons for doing so. Please disclose which types of inventory you use each method for. Please also disclose the dollar amounts of inventory accounted for under each method. Please disclose whether you use more than one method for any similar types of inventory. If so, please also disclose your basis for doing this. In a portion of these instances, this may be due to a specific method not being allowed in certain countries.

Adjustments, page 54

10. For each adjustment related to prior periods which was recorded during the fourth quarter of 2006, please provide us with additional background information so we may better understand the nature of each adjustment. Please tell us how you determined that both individually and in the aggregate these adjustments were not material to any prior annual and quarterly period. SAB 99 notes that a materiality evaluation must be based on all relevant quantitative and qualitative factors. Please provide your SAB 99 materiality analysis explaining how you determined that the errors related to each prior period were immaterial on both a quantitative and qualitative basis. Please ensure your response addresses all of the qualitative factors outlined in SAB 99 and any other relevant qualitative factors.

Note 5. Discontinued Operations, page 59

11. Throughout the filing, including on page 21, you state that you are currently marketing your Polymer Emulsions business and actively engaging its partner and potential buyers. Please disclose whether or not you have reported the operations of this business as discontinued. Please also tell us how you determined you did or did not meet the criteria of paragraph 30 of SFAS 144 to report these operations as discontinued.

Note 9. Plant and Equipment, page 62

12. Please breakout the gas generating and chemical facilities, machinery and equipment line item into smaller and more meaningful components. In addition, we see from page 51 that the range of useful lives for this line item is also very broad. Please separately disclose the range of useful lives for each new category presented. For categories that still have very broad useful lives, you should separately discuss the types of assets that fall in each part of the range.

Note 12. Long-Term Debt, page 63

13. Please tell us how you determined you met the criteria of paragraphs 10 and 11 of SFAS 6 to classify the 6.5% Eurobond maturing in 2007 as long-term debt as of September 30, 2006. In doing so, please specifically address when you intend to refinance this debt.

Note 19. Commitments and Contingencies

Environmental, page 73

14. You provide further information regarding your environmental matters in MD&A on page 33 and in your Critical Accounting Policies on page 41. These disclosures include that there are approximately 32 sites on which a final settlement has not been reached where you, along with others, have been designated a potentially responsible party by the Environmental Protection Agency or are otherwise engaged in investigation or remediation. In the notes to your financial statements, please provide the disclosures required by SAB Topic 5:Y. These disclosures should include the following:

- The extent to which unasserted claims are reflected in your accrual or may affect the magnitude of the contingency;
- Uncertainties with respect to joint and several liability that may affect the magnitude of the contingency, including disclosure of the aggregate expected cost to remediate particular sites that are individually material if the likelihood of contribution by the other significant parties has not been established;

- Disclosure of the nature and terms of cost-sharing arrangements with other potentially responsible parties;
- The time frame over which the accrued or presently unrecognized amounts may be paid out;
- Material components of the accruals and significant assumptions underlying estimates; and
- Disaggregated disclosure that describes accrued and reasonably likely losses with respect to particular environmental sites that are individually material. Also, if management's investigation of potential liability and remediation cost is at different stages with respect to individual sites, the consequences of this with respect to amounts accrued and disclosed.

Refer to Questions 2 and 3 of SAB Topic 5:Y.

Other Commitments and Contingencies, page 74

15. Please disclose how you account for the put options which give the other shareholders of INOXAP and San Fu Gas Company, Ltd. the right to require you to purchase their shares.

Note 20. Supplemental Information

Payables and Accrued Liabilities, page 74

16. Given that the trade creditors, payables, and accrued expenses line item represents approximately 36% of total current liabilities at September 30, 2006, please separately disclose any component of this line item that is in excess of 5 percent of total current liabilities. Refer to Rule 5-02.20 of Regulation S-X.

FORM 10-Q FOR THE PERIOD ENDED DECEMBER 31, 2006

General

17. Please address the above comments in your interim filings as well.

* * * *

Please respond to these comments within 10 business days, or tell us when you will provide us with a response. Please provide us with a supplemental response letter that keys your responses to our comments and provides any requested supplemental information. Detailed letters greatly facilitate our review. Please file your supplemental response on EDGAR as a correspondence file. Please understand that we may have additional comments after reviewing your responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require for an informed decision. 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 connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in their filings;
- 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

If you have any questions regarding these comments, please direct them to Nudrat Salik, Staff Accountant, at (202) 551-3692 or, in her absence, to the undersigned at (202) 551-3769.

Sincerely,

Rufus Decker
Accounting Branch Chief