



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

Mail Stop 4631

January 25, 2010

Mr. Eduardo E. Cordeiro
Executive Vice President and Chief Financial Officer
Cabot Corporation
Two Seaport Lane, Suite 1300
Boston, MA 02210

**RE: Form 10-K for the year ended September 30, 2009
File No. 1-5667**

Dear Mr. Cordeiro:

We have reviewed your filing 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 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, 2009

Item 1 - Business, page 3

Research and Development, page 11

1. In future filings please include a cross-reference here to your discussion on page 39 regarding your Research and Technical Expenses.

Legal Proceedings, page 21

Environmental Proceedings, page 21

2. We note your April 11, 2008 response to comment three of our letter dated March 28, 2008. We further note that at the end of the fourth paragraph you continue to disclose that the claims relative to Cabot are without merit without explaining the basis of such belief. Please advise or otherwise, in future filings comply with our prior comment three in full.
3. In future filings please ensure your disclosure in this section complies with Item 103 of Regulation S-K, including disclosure about the name of the court or agency in which a proceeding is pending, the date instituted, the parties thereto, a description of the factual basis alleged to underlie the proceeding and the relief sought. Please refer in particular to instruction 2 of Item 103 of Regulation S-K.

Respirator Liabilities, page 22

4. We note your proposed disclosure in response to comment four of our letter dated March 28, 2008. We are unable to locate disclosure regarding your total cash payments with respect to the Aearo-related liabilities, as indicated at the end of your proposed disclosure. Please advise, or otherwise, in future filings ensure that your revised disclosure is responsive to our prior comment.

Item 7 – Management’s Discussion and Analysis of Financial Condition and Results of Operations, page 29

Critical Accounting Policies, page 29

Goodwill and Other Intangible Assets and Valuation of Long-Lived Assets, page 31

5. In the interest of providing readers with a better insight into management’s judgments in accounting for goodwill, please disclose the following in future filings:
 - The reporting unit level at which you test goodwill for impairment and your basis for that determination;
 - How you weight each of the methods used to value goodwill, including the basis for that weighting;
 - How the methodologies used for valuing goodwill in the current year have changed since the prior year; and
 - To the extent that any of your reporting units have estimated fair values that are not substantially in excess of the carrying value and to the extent that goodwill for these reporting units, in the aggregate or individually, if

impaired, could materially impact your operating results, please provide the following disclosures for each of these reporting units in future filings:

- Identify the reporting unit;
- The percentage by which fair value exceeds the carrying value as of the most-recent step-one test;
- The amount of goodwill;
- A description of the assumptions that drive the estimated fair value;
- A discussion of the uncertainty associated with the key assumptions. For example, to the extent that you have included assumptions in your discounted cash flow model that materially deviates from your historical results, please include a discussion of these assumptions; and
- A discussion of any potential events and/or circumstances that could have a negative effect to the estimated fair value.

If you have determined that the estimated fair value substantially exceeds the carrying value for all of your reporting units, please disclose this determination. Please also provide the above disclosures, as applicable, for any long-lived assets or asset groups for which you have determined that undiscounted cash flows is not substantially in excess of the carrying value and to the extent that the asset amounts, in the aggregate or individually, could materially impact your operating results or total shareholder's equity. Please refer to Item 303 of Regulation S-K and Sections 216 and 501.14 of the SEC's Codification of Financial Reporting Policies for guidance. Please show us in your supplemental response what the revisions will look like.

Cash Flows and Liquidity, page 46

6. We note your credit facility agreement, which expires on August 3, 2010, contains various affirmative, negative and financial covenants, among other restrictions. We further note that you intend to replace the credit facility when it expires. In future filings, please ensure that you clearly disclose the specific terms of any material debt covenants and whether you were in compliance with the covenants as of the reporting date. In addition, if it is reasonably likely that you will not be in compliance with any of your material debt covenants, please disclose the required ratios/amounts as well as the actual ratios/amounts as of each reporting date. This will allow readers to understand how much cushion there is between the required ratios/amounts and the actual ratios/amounts. Please also consider showing the specific computations used to arrive at the actual ratios/amounts with corresponding reconciliations to US GAAP amounts, if necessary. See Sections I.D and IV.C of the SEC Interpretive Release No. 33-8350. Please show us in your supplemental response what the revisions will look like.

Item 8 – Financial Statements and Supplementary Data, page 53

Note S – Income Taxes, page 92

7. Given your disclosure on page 92 that you have recognized losses from continuing operations in the U.S. for each of the three years ended September 30, 2009, please enhance your disclosure in future filings to discuss the nature of the U.S. deferred tax assets which have not been offset by a valuation allowance and how you determined that these would be realized. In this regard, please address the following:
- Please expand your discussion of the nature of the positive and negative evidence that you considered, how that evidence was weighted, and how that evidence led you to determine it was not appropriate to record a valuation allowance on the remaining deferred income tax assets. You should consider discussing the significant estimates and assumptions used in your analysis. Please discuss how you determined the amount of the valuation allowance to record;
 - Please disclose the amount of pre-tax income that you need to generate to realize the deferred tax assets;
 - Please include an explanation of the anticipated future trends included in your projections of future taxable income; and
 - Please disclose that the deferred tax liabilities you are relying on in your assessment of the realizability of your deferred tax assets will reverse in the same period and jurisdiction and are of the same character as the temporary differences giving rise to the deferred tax assets.
- Please show us in your supplemental response what the revisions will look like.

Note T – Commitments and Contingencies, page 96

Contingencies, page 97

Environmental Matters, page 97

8. Regarding the environmental matters which you are a party to, please confirm there is not a reasonable possibility that a loss exceeding amounts already recognized may have been incurred and the amount of that additional loss is material. If there is a reasonable possibility, please disclose in future filings the estimated additional loss, or range of loss, or state that such an estimate cannot be made as required by FASB ASC 450-20-50. Refer to SAB Topic 5:Y as well. Please show us in your supplemental response what the revisions will look like.

Respirator Liabilities, page 98

9. Please disclose the number of claims in connection with respiratory products at each balance sheet date, the number of claims filed for each period presented, the number of claims dismissed, settled, or otherwise resolved for each period, and the average settlement amount and total costs per claim. Also, please address historical and expected trends in these amounts and their reasonably likely effects on operating results and liquidity. Refer to Question 3 of SAB Topic 5:Y.

Item 15. Exhibits, Financial Statement Schedules

10. We note that you have not filed the exhibits and schedules to the Credit Agreement dated August 3, 2005 (Exhibit 10(a)(i)). Please advise. Refer to Item 601(b)(10) of Regulation S-K. Otherwise, please file a complete copy of this agreement with your next Exchange Act report.

* * * *

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 response letter that keys your responses to our comments and provides any requested 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 required under the Securities Exchange Act of 1934 and 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.

Mr. Eduardo E. Cordeiro
Cabot Corporation
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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.

You may contact Era Anagnosti, Staff Attorney, at (202) 551-3369 or, in her absence, Craig Slivka, Special Counsel, at (202) 551-3729 if you have any questions regarding legal or disclosure matters. Please contact Jeffrey Gordon, Staff Accountant, at (202) 551-3866 or, in his absence, Nudrat Salik, Staff Accountant, at (202) 551-3692 if you have questions regarding comments on the financial statements and related matters.

Sincerely,

Rufus Decker
Accounting Branch Chief