

Mail Stop 6010

August 30, 2006

By U.S. Mail and Facsimile to (978) 715-1385

Ms. Kathleen B. Allen
Vice President and Chief Financial Officer
Millipore Corporation
290 Concord Road
Billerica, MA 01821

**RE: Millipore Corporation
Form 10-K for the fiscal year ended December 31, 2005
Form 10-Q for the Quarterly Period Ended July 1, 2006
File No. 1-09781**

Dear Ms. Allen:

We have reviewed your letter filed on June 8, 2006 and have the following comments. Where indicated, we think you should revise your future documents in response to these comments. If you disagree, 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 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 any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

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Form 10-Q for the Quarterly Period Ended July 1, 2006

Financial Statements, page 3

Note 10, Debt, page 12

1. Please refer to prior comment 6. Please respond to the following comments regarding your evaluation of the accounting for the 3.75% convertible senior notes due 2026:
 - We note from your response that you “concluded that all of the conversion options qualify for the scope exception of SFAS No. 133, except for the conversion option upon satisfaction of trading price condition.” Based upon your response, it appears that you separately evaluated each of the contingent events that could cause conversion of the debt as separate embedded features and not as a single conversion option. Please explain why you believe that each of the contingencies represents a separate embedded that is evaluated under SFAS 133 and not a single conversion option. Discuss whether or not these are separate conversion features that are separately exercisable.
 - Please tell us how the make-whole premium is calculated and whether or not the amount would be settled in a variable number of shares. Discuss how you considered paragraphs 12 – 32 of EITF 00-19 in determining whether or not the feature would be classified in equity if it were freestanding.

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

You may contact Eric Atallah, Staff Accountant at (202) 551-3663 or me at (202) 551-3604 regarding comments on the financial statements and related matters. In this regard, do not hesitate to contact Angela Crane, Branch Chief, at (202) 551-3554 with any other questions.

Sincerely,

Kate Tillan
Assistant Chief Accountant