

Via Facsimile and U.S. Mail
Mail Stop 6010

March 5, 2009

Peter L. Buzy
Chief Financial Officer
Martek Biosciences Corporation
6480 Dobbin Road
Columbia, MD 21045

Re: Martek Biosciences Corporation
Form 10-K for the Fiscal Year Ended October 31, 2008
Filed December 29, 2008
File Number: 000-22354

Dear Mr. Buzy:

We have reviewed your filing and have the following comments. In our comments, we ask you to provide us with information to better understand your disclosure. Where a comment requests you to revise disclosure, the information you provide should show us what the revised disclosure will look like and identify the annual or quarterly filing, as applicable, in which you intend to first include it. If you do not believe that revised disclosure is necessary, explain the reason in your response. After reviewing the information provided, we may raise additional comments and/or request that you amend your filing.

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.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Critical Accounting Policies and the Use of Estimates
Revenue Recognition, page 39

1. Please revise to disclose your return policy for product sales and, if applicable, the balance of your sales return allowance for each period presented. Disclose how you estimate sales returns and allowances and discuss any significant changes in the balance.

Results of Operations
Income Tax Provision (Benefit), page 42

2. Please expand your disclosure to identify the net operating loss carryforwards that were previously fully reserved and discuss the specific factors in 2007 that impacted your determination that these deferred tax assets were more likely than not to be realized.

Item 15. Exhibits and Financial Statement Schedules

3. We note that you lease laboratory, technical and administrative space in Columbia, Maryland that appears to include the company's headquarters. Please file the underlying lease agreement for this property as an exhibit to your filing or provide an analysis for why the lease is not required to be filed under Item 601(b)(10)(ii)(D) of Regulation S-K.

* * * *

Please provide us the information requested within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter with your response that keys your response to our comments. Detailed cover letters greatly facilitate our review. Please furnish your letter on EDGAR under the form type label CORRESP.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment 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 your letter, a 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.

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.

Peter L. Buzy
Martek Biosciences Corporation
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Please contact Dana Hartz, Staff Accountant, at (202) 551-3648 or Don Abbott, Review Accountant, at (202) 551-3608 if you have any questions regarding the processing of your response as well as any questions regarding comments on the financial statements and related matters. You may contact Bryan Pitko, Staff Attorney, at (202) 551-3203 or Jeffrey Riedler, Assistant Director, at (202) 551-3715 with questions on any of the other comments. In this regard, do not hesitate to contact me, at (202) 551-3679.

Sincerely,

Jim B. Rosenberg
Senior Assistant Chief
Accountant