



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-3561

Mail Stop 3561

January 27, 2009

Elazar Rabbani, Ph.D.
Chief Executive Officer
Enzo Biochem, Inc.
527 Madison Avenue
New York, NY 10022

Re: Enzo Biochem, Inc.
Form 10-K for fiscal year ended July 31, 2008
Filed October 14, 2008
File No. 001-09974

Dear Mr. Rabbani:

We have reviewed your filing and have the following comment. If you disagree, we will consider your explanation as to why our comment is inapplicable. Please be as detailed as necessary in your explanation. We think you should revise your document in response to this comment. Alternatively, and as applicable, you should comply with this comment in all future filings. In doing so, please confirm in writing that you will comply and also explain to us how you intend to comply, within the time frame set forth below. Please understand that after our review of your response, we may raise additional comments.

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 comment or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Signatures

1. Please include the signature of your controller or principal accounting officer as required by Form 10-K. See Instruction D(2)(a) to Form 10-K. If your Controller or Principal Accounting Officer has signed the Form 10-K, but the signature page does not indicate that the person signing occupies that position, then please confirm that your Controller or Principal Accounting Officer has signed the form

and that in future filings you will indicate each capacity in which the officers are signing the report. See Instruction D(2)(b) to Form 10-K.

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Closing Comments

Please respond to this comment within 10 business days or tell us when you will provide us with a response. Please understand that we may have additional comments after reviewing your response to our comment.

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 comment, please provide, in writing, 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 comment on your filing.

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Please direct questions to John Dana Brown at (202) 551-3859 or Pamela Howell at (202) 551-3357.

Sincerely,

John Reynolds
Assistant Director

cc: Natalie Bogdanos, Esq.
Fax: (212) 583-0150