



DIVISION OF
CORPORATION FINANCE

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

April 28, 2014

Via E-mail

Ms. Jan A. Bertsch
Chief Financial Officer
Sigma-Aldrich Corporation
3050 Spruce Street
St. Louis, MO 63103

**Re: Sigma-Aldrich Corporation
Form 10-K for the Fiscal Year Ended December 31, 2013
Filed February 6, 2014
Definitive Proxy Statement on Schedule 14A
Filed March 21, 2014
File No. 0-8135**

Dear Ms. Bertsch:

We have reviewed your filings and have the following comment. In our comment, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to this comment, we may have additional comments.

Definitive Proxy Statement on Schedule 14A filed March 21, 2014

1. Please clarify supplementally why you consider the company target for adjusted EPS to be confidential. In particular, explain how disclosure of this target would cause you competitive harm, applying the standards that would be used in making a request for confidential treatment under Rule 406 or Rule 24b-2. We also note your disclosure that achievement of this and the business unit targets requires 'superior performance' requiring 'significant time and energy, skill and ingenuity.' However, you have not disclosed how difficult it would be for the executive or how likely it would be for the company to have achieved this target, as required by Instruction 4 to Item 402(b) of Regulation S-K. Please tell us how you will address this requirement in future filings.

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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 the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. 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 responding to our comment, please provide a written 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.

You may contact Dale Welcome at (202) 551-3865 or Kevin Stertzel at (202) 551-3723 if you have questions regarding comments on the financial statements and related matters. Please contact Leland Benton at (202) 551-3791 or Pamela Long at (202) 551-3765 with any other questions.

Sincerely,

/s/ John Cash

John Cash
Accounting Branch Chief