



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549-7010

December 22, 2006

Room 7010

Louis S. Massimo
Executive Vice President and Chief Financial Officer
Arch Chemicals, Inc.
501 Meritt Seven
Norwalk, CT 06851

Re: Arch Chemicals, Inc.
Form 10-K for Fiscal Year Ended December 31, 2005
Form 10-Q for the Fiscal Quarter Ended March 31, 2006
Form 10-Q for the Fiscal Quarter Ended June 30, 2006
Form 10-Q for the Fiscal Quarter Ended September 30, 2006
File No. 001-14601

Dear Mr. Massimo:

We have reviewed your response letter dated December 11, 2006 and have the following comment. Please be as detailed as necessary in your explanation. After reviewing this information, we may raise additional comments.

Forms 10-Q for the quarters ended March 31, 2006, June 30, 2006 and September 30, 2006

1. We note your response to prior comment 4 which indicates your view that the fair value of your performance awards is the same as the intrinsic value or the market value of your stock at each reporting date. However, your performance awards do not settle for a number of years, during which time the market value of your shares will change, depending on the volatility of your share price. Because the market value of your shares does not reflect this component, or time value, the market value of your shares does not appear to be the same as the fair value of your performance awards. However, we acknowledge that as the settlement date nears, the time value of the awards will decline to zero. As such, please clarify for us whether the market value of your shares differed materially from the fair value of your performance awards. In this regard, please provide us with your analysis of the quantitative and qualitative factors pursuant to SAB 99 for each quarter in 2006, as they relate to the time value component of your awards.

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As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please submit all correspondence and supplemental materials on EDGAR as required by Rule 101 of Regulation S-T. Detailed cover letters greatly facilitate our review.

You may contact Melissa Rocha at (202) 551-3854 or me at (202) 551-3689 if you have questions regarding comments on the financial statements and related matters.

Sincerely,

John Hartz
Senior Assistant Chief Accountant