PolyOne Corporation 33587 Walker Road Avon Lake, OH 44012 phone 440.930.1000 www.polyone.com

September 19, 2006

VIA FACSIMILE

Mr. Ryan Rohn, Staff Accountant Securities and Exchange Commission 100 F Street, NE Washington, DC 20549

Dear Mr. Rohn:

This letter is to provide you with the information that you requested during our September 5, 2006 phone conversation regarding our August 30, 2006 response to the SEC's question regarding our Annual Report on Form 10-K for the year ended December 31, 2005.

You requested that we clarify how we determined that our North American Engineered Materials ("EM") and North American Color and Additives ("Color") product groups shared similar economic characteristics with the rest of our Performance Plastics segment for the last two years in light of their operating losses.

As we indicated in our August 30, 2006 response, the primary margin-related performance metric that we have used in the past is material margin. We changed our primary margin-related performance metric in the second quarter of 2006 to gross margin as a result of hiring a new Chief Executive Officer in 2006. Average material margins for our EM and Color product groups and the Performance Plastics segment for the three-year period ended December 31, 2005 have been in the range of 32.7% to 41.1%. As we noted in our August 30, 2006 response, long-term gross margins are projected to be consistent through 2009 for EM, Color and the Performance Plastics segment, and return on invested capital for EM, Color and the Performance Plastics segment is projected to continue the improvement trend that we have achieved since 2003 and be consistent by 2009.

We do not believe that "similar economic characteristics" discussed in FAS 131, "Disclosures about Segments of an Enterprise and Related Information," means similar current bottom line performance. The only guidance provided in FAS 131 concerning what constitutes similar economic characteristics is discussed in paragraph 17, citing long-term average gross margins as the only example. In "Segment Information: Guidance on Applying Statement 131" issued by the Financial Accounting Standards Board ("FASB"), the answer to question #8 states Mr. Ryan Rohn September 19, 2006 Page 2

that operating segments are considered to be similar if they can be expected to have essentially the same future prospects and that similarity of economic characteristics should be evaluated based on future prospects and not necessarily only on the current indicators. It goes on to state that similar long-term average gross margin is used as an example because gross margin is a measure of profitability that is less likely to be affected by allocations. A good portion of our selling and administrative costs are based on allocations.

Subsequent to issuing FAS 131, the FASB drafted proposed Staff Position FAS 131-a, "Determining Whether Operating Segments Have Similar Economic Characteristics under Paragraph 17 of FASB Statement No. 131," to attempt to clarify this issue. At the May 18, 2005 FASB meeting, the FASB decided not to issue the proposed FSP because it would not have met the FASB's objective of reducing the current diversity in financial reporting. The FASB based its decision on its review of comment letters, discussions with constituents and discussions with the SEC Staff. The FASB has planned no further action on this issue.

You also requested that we provide you with additional reports that are used by management and the chief operating decision-maker to assess performance and allocate resources. We will provide these reports to you separately on a supplemental basis under Rule 12b-4 of the Securities Exchange Act of 1934. In keeping with this rule, we would appreciate it if you would please return these reports to us when the staff's review has been completed:

We trust this information answers your questions, but please do not hesitate to call me at (440) 930-1251 if you have any questions or need more information.

Sincerely.

James R. Bower Senior Manager Financial Reporting

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