



DIVISION OF  
CORPORATION FINANCE

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

Mail Stop 7010

October 2, 2006

Mr. W. David Wilson  
Vice President and Chief Financial Officer  
PolyOne Corporation  
33587 Walker Road  
Avon Lake, OH 44012

**RE: PolyOne Corporation  
Form 10-K for Fiscal Year Ended December 31, 2005  
Filed March 15, 2006  
File No. 001-16091**

Dear Mr. Wilson:

We have reviewed your responses furnished on August 3, 2006, August 30, 2006, and September 19, 2006 to our letter dated July 10, 2006 and have the following comment. If you disagree with a comment, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

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.

Note R – Segment Information, page 56

1. We have reviewed your prior responses which you believe supports your basis to aggregate the businesses within your Performance Plastics segment. It remains unclear to us how you have determined that you have only three reportable segments. Specifically, we note the following:
  - Paragraph 10 of SFAS 131 defines an operating segment. Based on the information that you provided to us on August 3, 2006, August 30, 2006 and September 19, 2006, discrete financial information is available for each of

your product groups. We note individual, specific reports are created for each of your product groups that you have aggregated into performance plastics.

- On page 3 of your response dated August 3, 2006, under Management Structure, we note, “With the hiring of a new chief executive officer earlier this year, a new organizational structure was implemented, whereby all product group vice presidents, as well as the vice presidents leading corporate functions, report to him so that he can learn about each product group and their respective challenges more rapidly.” Refer to paragraph 14 of SFAS 131.
- Your response, dated August 3, 2006, under Markets on page 3, that “the Company believes that, viewed over a reasonable strategic planning horizon, each of the markets that it serves share economic similarities” is not necessarily indicative of each of your markets exhibiting similar economic characteristics when compared to another market. Specifically, we note your disclosure on page 24 of your Form 10-Q for the quarterly period ended June 30, 2006, that your Performance Plastics’ business was impacted by volume improvements in Europe and Asia as a result of general economic improvements.
- Paragraph 17 of SFAS 131 states that in order to aggregate operating segments, they often exhibit similar economic characteristics. We note in your response dated September 19, 2006 that you reference that this paragraph cites long-term average gross margins. However, one would expect other relevant financial measures to be similar if operating segments had similar economic characteristics i.e revenue growth rates.
- We further note in your response dated September 19, 2006, that “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. Your conclusion is unclear to us. We note in the CODM reports that you provided to us, that operating income (loss) is presented and discussed. From a management perspective, we would expect operating margins to be a critical financial measurement.
- In consideration of the reports that you provided to us, we note that two of your product groups within performance plastics have experienced operating losses for each year since 2002 while your other product groups have not experienced this negative performance.
- We note the revenue growth of an additional product group within performance plastics was significant in 2003 over 2002, but then significantly decreased in 2004 and remained fairly constant in 2005. In contrast, another product group within this operating segment had significant revenue growth in 2004 compared to 2003 and continued to grow in 2005. If these two product groups shared similar economic characteristics, one would expect similar revenue growth rates between the two.

Paragraph 17 of SFAS 131 states that in order to aggregate operating segments into a reportable segment, they must have similar economic characteristics. After consideration of the above, it does not appear that each of the businesses that you have aggregated into your performance plastics reportable segment have experienced similar economic characteristics. Therefore, please amend your Form 10-K for year ended December 31, 2005 and any subsequent filings on Form 10-Q to include segment disclosures as required in paragraphs 25 through 28 and 33 of SFAS 131. Specifically, if the international business exceeds the SFAS 131 materiality thresholds, and exhibits dissimilar revenue growth rates and gross margins relative to the other performance plastics businesses, then it appears that the international business should be presented as a separate reportable segment. If the specialty resin business exceeds the SFAS 131 materiality thresholds, and exhibits dissimilar revenue growth rates and gross margins relative to the other performance plastics businesses, then it appears that the specialty resin should be presented as a separate reportable segment. Also, if the Engineered Materials and polymers businesses exhibit dissimilar revenue growth rates and gross margins from the other performance plastics businesses, then they may not be aggregated in that segment.

We remind you that when you file your restated Form 10-K for December 31, 2005, and your restated Form 10-Q for the quarters ended March 31, 2006 and June 30, 2006, you should appropriately address the following:

- an explanatory paragraph in the audit opinion,
- full compliance with SFAS 154, paragraphs 25 and 26,
- fully update all affected portions of the document, including MD&A,
- Item 9A. disclosures that include the following:
  - a discussion of the restatement and the facts and circumstances surrounding it,
  - how the restatement impacted the CEO and CFO's conclusions regarding the effectiveness of their disclosure controls and procedures,
  - changes to internal controls over financial reporting, and
  - anticipated changes to disclosure controls and procedures and/or internal controls over financial reporting to prevent future misstatements of a similar nature.

Refer to Items 307 and 308(c) of Regulation S-K.

- updated reports from management and your independent auditors regarding your internal controls over financial reporting.
- updated certifications.

Please be advised that you are required to disclose the information listed under Item 4.02(a) of Form 8-K within four days of your conclusion that previously issued financial statements cannot be relied upon.

Mr. W. David Wilson  
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Please respond to this comment within 10 business days, or tell us when you will provide us with a response. Please provide us with a supplemental response letter that keys your response to our comment and provide any requested supplemental information. Detailed letters greatly facilitate our review. Please furnish your supplemental response on EDGAR as a correspondence file. Please understand that we may have additional comments after reviewing your responses to our comments.

If you have any questions regarding this comment, please direct them to Ryan Rohn, Staff Accountant, at (202) 551-3739 or, in his absence, to Al Pavot, Staff Accountant, at (202) 551-3738, or to the undersigned at (202) 551-3255.

Sincerely,

Nili Shah  
Accounting Branch Chief