

August 3, 2006

VIA EDGAR

Securities and Exchange Commission
100 F Street, NE
Washington, D.C. 20549
Attention: Nili Shah, Accounting Branch Chief

Re: PolyOne Corporation
Form 10-K for Fiscal Year Ended December 31, 2005
Filed March 15, 2006
File Number 001-16091

Ladies and Gentlemen:

PolyOne Corporation (“PolyOne” or the “Company”) is submitting this letter in response to the comment letter received from the staff (the “Staff”) of the Securities and Exchange Commission (the “Commission”), dated July 10, 2006 (the “Comment Letter”), with respect to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2005.

Below is the Company’s response to the comment raised by the Staff in the Comment Letter. For the convenience of the Staff, we have repeated the Staff’s comment before the response.

Note R — Segment Information, page 56

- 1. We note that you have three reportable segments. However, we note that your performance plastics segment serves a number of markets for which we would expect economic performance to differ, such as North America compared to Europe and Asia. We note your disclosure on page 16 that you “are implementing specific plans to bring three product groups, North American Color, North American Engineered Materials and the newly formed Producer Services, to a combined level of profitability in 2006.” We also note in your Note P — Income Taxes on page 54 that your domestic and foreign income before income taxes and discontinued operations have fluctuated differently year over year with your domestic income increasing 583% over the prior year while your foreign income decreased 69%. In addition, we note that in your schedule of executives with continuity agreements filed as Exhibit 10.11(b) to your Form 10-K for the year ended December 31, 2005, your management structure appears to include a Vice President for each of the various businesses within your performance plastics segment. Accordingly, it is unclear how you have determined that you have only three reportable segments. Given the above, please provide us with the internal financial reports provided to your chief operating decision maker as of December 31, 2005 and March 31,*
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2006. If you aggregate your operating segments, please explain to us, in detail, the basis for the aggregation of your operating segments into your three reportable segments. In this regard, please tell us, for each bullet point below, how you determined that:

- *all of your operating segments are economically similar. Please provide us with an analysis that includes historical revenues, gross profits, gross profit margins, operating profits, and operating profit margins, along with any other information you believe would be useful for each of your products operating segments to help us understand how these operations are economically similar. Please also address any differences in the trends these financial indicators depict (e.g. if gross profit margin is decreasing for one operation and increasing for another),*
- *all of your operating segments have similar products,*
- *the production processes for all of your product-related operating segments are similar,*
- *the customers for all of your product-related operating segments are similar,*
- *the distribution methods of all of your product-related operating segments are similar.*

Response:

Company Structure

The Company determines and discloses its segments in accordance with Statement of Financial Accounting Standards No. 131, "Disclosures about Segments of an Enterprise and Related Information" ("SFAS No. 131"), which uses a "management" approach to determine segments. The management approach designates the internal organization that is used by management to make operating decisions and assess performance to determine the Company's reportable segments.

The Company manages its business on the basis of three reporting segments, which also represent the Company's three operating segments: Performance Plastics, Distribution, and Resin and Intermediates. PolyOne's chief operating decision maker regularly reviews reports of operating results for each reporting segment and uses this information as a basis to make operating and strategic decisions, to allocate resources and to assess performance.

The Performance Plastics operating segment manufactures and sells thermoplastic compounds and resins. Thermoplastics, one of three defined and differentiable classifications of plastic materials, with the other two being thermosets and elastomers, can be processed at lower temperatures than the other two types of plastic materials and, importantly, can be remelted after processing and then processed again. Neither thermosets nor elastomeric materials can be reprocessed. PolyOne manufactures only thermoplastic compounds and resins in the

Performance Plastics operating segment. All of the Company's thermoplastics products are used by its customers as raw or intermediate materials to make a final saleable product, either as a finished good (such as a plastic bottle, a bottle closure or window profiles) or as a component part (such as a housing assembly for a washing machine or a paper feed system for a computer printer). All of the products manufactured by this segment are broken down into the following product groups: Vinyl Compounds, North American Colors and Additives, North American Engineered Materials, International Colors and Engineered Materials, Producer Services, Polymer Coating Systems and Specialty Resins.

Management Structure

The management structure of the Performance Plastics segment, under the direction of the Company's chief executive officer, has been in an ongoing state of transformation over the past several years to best address the evolving needs of the business, and is expected to continue to evolve as future needs dictate. As the chief operating decision maker of the Performance Plastics segment, the chief executive officer has employed several different organizational structures to improve the profitability and long-term viability of certain products within the segment that are crucial to the Company's strategy. While this segment has historically had a group vice-president to whom the various product group vice-presidents reported, alterations have taken place as needed to address more specific tactical needs. 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.

Markets

In response to the Staff's observation that PolyOne's "performance plastics segment serves a number of markets for which we would expect economic performance to differ, such as North America compared to Europe and Asia," the Company believes that, viewed over a reasonable strategic planning horizon, each of the markets that it serves share economic similarities. PolyOne manages its markets on a global basis and has "global councils" for three of its product groups (International Colors and Engineered Materials, North American Colors and Additives, and North American Engineered Materials). Sales from these three product groups make up a majority of the Company's international sales. These global councils are comprised of representatives from different disciplines within PolyOne, including commercial development, sourcing and technology. These councils meet on a periodic basis to ensure that the product groups are coordinated in their approach to common customers and markets; are sharing technology developments across each global region; and are leveraging the purchasing of common raw materials effectively. The products manufactured, the types of customers who purchase the Company's products and the end use of the Company's products by its customers are similar in all parts of the world in which PolyOne conducts business. PolyOne's customers have come to expect a consistency in the products they purchase from the Company, wherever they may be manufactured, whether it is in Asia, Europe, Canada or the United States. This

consistency ensures that PolyOne's customers will receive consistent product identity (that is to say, the same product formulations with common raw materials and processing conditions) and product quality. Moreover, this ability to supply common customers and markets across each geographical boundary with an array of product formulation and service solutions to meet specific end market requirements underpins the rationale for why PolyOne was formed in 2000. It also underscores the Company's initial tag line "*We help people work wonders with polymers.*"

Additionally, the Company has recently created a new position and hired a senior vice-president of commercial development. This executive's duties include implementing common commercial policies and practices across the Performance Plastics segment consistent with the Company's new chief executive officer's mandate. Specifically, this executive will lead the development of common tools and market strategies across the Performance Plastics segment, which will include establishing sales capability assessment and training programs; initiating effective global key account plans, actions and strategies; creating marketing and market development functions to identify new application and end-market opportunities; assuring appropriate linkages between technology development groups and marketing regarding common new opportunity feasibility assessment processes; and implementing common product branding and pricing strategies.

Domestic vs. Foreign Income

We would like to respond to the Staff's observation that the Company's domestic income before taxes increased 583% over the prior year (2005 versus 2004) while foreign income decreased 69% over the same period. Domestic income includes all three reporting segments plus Other (the Other segment includes both the elimination of intersegment sales and certain unallocated corporate expenses), and the combined results of interest expense, interest income and other expense, net. Both of these latter two cost groupings are predominantly associated with domestic income before tax. The Distribution and the Resin and Intermediates segments each reported increases in operating income in 2005 compared to 2004. Removing the impact of this operating income increase in these segments from the total company domestic income before taxes, as well as the impacts of the Other reporting segment and the items reported below operating income, results in domestic Performance Plastics income before taxes declining from 2004 to 2005, consistent with foreign income results. Foreign income before income taxes and discontinued operations is almost exclusively contained within the Performance Plastics reporting segment and reflects a decline from 2004 to 2005. In summary, Performance Plastics' domestic and international operations each reflected the same negative trend in income before income taxes and discontinued operations between 2004 and 2005.

Other Matters

The Company advises the Staff that the internal financial reports provided to the Company's chief operating decision maker as of December 31, 2005 and March 31, 2006 are being provided under separate cover on a supplemental basis pursuant to Rule 12b-4 under the Securities Exchange Act of 1934. In accordance with Rule 12b-4, the Company has requested

that the internal financial reports be returned promptly to the Company following completion of the staff's review.

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In connection with the Company's response to the Staff's comment, the Company acknowledges 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.

If you have any questions regarding these matters, please do not hesitate to contact the undersigned at (440) 930-3204.

Sincerely,

PolyOne Corporation

/s/ W. David Wilson

By: W. David Wilson

Title: Senior Vice President and
Chief Financial Officer

cc: Wendy C. Shiba, Esq.
David P. Porter, Esq.
Michael J. Solecki, Esq.
Michael J. Meier