



Statement of Paul D. Ziegler, PPG Industries
On behalf of the American Chemistry Council
Nanotechnology Panel
Before the National Nanotechnology Coordination Office (NNCO)
January 4, 2007

Good day. My name is Paul Ziegler, Chair of the Nanotechnology Panel of the American Chemistry Council. I'm pleased to offer comments today on behalf of the Panel, which consists of member companies that are engaged in the manufacture, distribution, and/or use of chemicals, and have a business interest in the products of nanotechnology. Panel member companies are strongly committed to developing nanotechnology through responsible product stewardship and sustainable development practices.

The Panel would like to commend the NNCO for convening this meeting to elicit views on research needs and prioritization criteria for the research identified in the Nanoscale Science, Engineering and Technology Subcommittee (NSET) document *Environment, Health, and Safety Research Needs for Engineered Nanoscale Materials*, released on September 15, 2006. We support and compliment the NSET Subcommittee on its document – the identification of research and information needs relating to the understanding and management of potential risks of nanomaterials is

comprehensive and thoughtful. We believe that the document is the “foundational document”, which will be used by the NSET Subcommittee and federal agencies participating in the NNI to set and coordinate priorities for government-funded nanotechnology research programs, including valuable EHS research.

In particular, the Panel wishes to support the NSET Subcommittee’s identification of guiding principles for identifying and prioritizing EHS research, which include:

1. Prioritizing research based on the value of information;
2. Leveraging international and private sector research efforts; and
3. Using adaptive management for nanomaterial EHS research.

The Nanotechnology Panel whole-heartedly concurs that prioritizing research - based on the value of information derived from it - is critically important. Additionally, we strongly see the critical need for federal research related to the environmental, health, and safety (EHS) implications of nanotechnology to be commensurate with growing federal investments in nanotechnology applications and developments. EHS research projects undertaken by government agencies such as EPA and NIOSH, as well as publicly funded projects, must be coordinated and strategically targeted to achieve the goals set by the National Nanotechnology Initiative (NNI). In this regard, the Panel acknowledges and applauds the substantial effort NNI has devoted to enhancing coordination across nanoscale R&D programs at federal agencies, as succinctly outlined in the recent National Research Council’s review of the NNI, *A Matter of Size: Triennial Review of the National Nanotechnology Initiative*.

We'd like to address several additional points pertinent to the prioritization of EHS research, based on a December 2006 ICF International publication entitled, *Characterizing the Environmental, Health and Safety Implications of nanotechnology: Where Should the Federal Government Go From Here?* This report recommends that EHS research priorities reflect a "mix" of top-down and bottom-up priorities forwarded to NNI by regulatory and research agencies. The Panel supports this type of approach: We believe that it is consistent with the NSET Subcommittee's first principle for identifying and prioritizing EHS research and we encourage federal agencies across the government to take an active, top-down strategic review of the EHS research projects forwarded to NNI. The Panel also urges NNI to coordinate strategic research reviews to avoid duplication of efforts and ensure that proposed projects are fully reflective of and consistent with the core principles set forth by NSET.

In 2006, the Panel urged EPA, in its comments on the *Nanotechnology White Paper External Review Draft* (Draft White Paper – Dec. 2, 2005), to *reprioritize* its nanotechnology research priorities and focus research efforts in the following order:

- Chemical identification and characterization; metrology;
- Exposure, fate, and effects;
- Risk assessment;
- Work place practices/manufacturing practices; and
- Green manufacturing/end use applications.

These priorities provide a logical structure to maximize the consistency, timeliness, and *value* of the information generated by the research. The Panel similarly urges NNCO to acknowledge that this research hierarchy is consistent with its first guiding principle for identifying and prioritizing EHS research, and to prioritize EHS research accordingly.

Consistent with the NSET Subcommittee's **second guiding principle** – to leverage international and private sector research efforts - the Panel believes NNCO should coordinate its research strategies with the activities of the OECD Working Party on Manufactured Nanomaterials (WPMN). For 2007, the Working Party has identified six specific projects to focus on:

1. Developing a database on EHS research;
2. Identifying and coordinating of EHS research strategies;
3. Testing of a representative set of manufactured nanomaterials;
4. Reviewing and developing of test guidelines for testing;
5. Sharing information on voluntary and regulatory programs; and
6. Sharing information on risk assessment and exposure measuring.

The timetables being discussed by the WPMN for each of these projects is aggressive, but achievable. The Panel encourages the NSET Subcommittee to coordinate regularly with the OECD WPMN and we urge the NNCO to factor the WPMN schedules into its EHS research planning.

Finally, the Panel urges the NNCO to apply the NSET Subcommittee's guiding principles for identifying and prioritizing EHS research and conclude that there is an urgent need for increased federal *funding* for EHS research. This conclusion is entirely consistent with the NSET

Subcommittee's **third guiding principle** for identifying and prioritizing EHS research—to use adaptive management for nanomaterial EHS research. Implicit in this principle is the need to adjust funding levels to reflect the realities of the day. In this regard, the Panel wishes to bring to the NNCO's attention a letter sent to Members of the House and Senate Appropriations Committees on February 14, 2006. Signed by a diverse group including large and small companies, non-governmental organizations, and other entities engaged in various aspects of nanotechnology research and development, the letter calls for increased federal funding for nanotechnology EHS research.

The letter further notes that “[f]ederal research is essential to providing the underlying methods and tools critical to developing a fundamental understanding of the risk potential of nanomaterials and nanotechnologies—methods and tools that all producers and users can then use.” While reasonable people may disagree on what counts as nanotechnology “EHS research” - for purposes of a quantitative analysis of federal government research dollars, this letter's purpose is entirely consistent with virtually all of the key findings and cross-cutting recommendations noted in the documents mentioned above. It is also entirely consistent with the NSET Subcommittee's third guiding principle – to use adaptive management strategies to ensure that we “avoid missed opportunities and to remain focused on research with the greatest value.”

In conclusion, the Nanotechnology Panel supports the NSET Subcommittee's three principles for identifying and prioritizing EHS research. We urge the NNCO to apply these principles as it continues to

develop recommendations for future EHS research priorities and ensure that related nanotechnology research is strategically prioritized, coordinated, and funded to achieve the maximum impact within the shortest period of time.

Thank you for the opportunity to make this statement. I would happy to answer any questions.