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Nanotechnology

Government, Industry, Advocacy Groups Work on Carbon Nanotube Release Measures

Government officials, chemical manufacturers, and representatives of labor and consumer advocacy groups are working to forge an agreement on ways to measure whether multiwalled carbon nanotubes are released from products, potentially exposing workers, consumers, or the environment.

The answer to that question could affect regulatory oversight, risk estimates, worker protections, product stewardship efforts, and the design of multiwalled carbon nanotubes as well as the plastics, resins, and other materials that contain them, government, industry, and other experts told Bloomberg BNA in interviews conducted in January.

The NanoRelease project is managed by the ILSI Research Foundation Center for Risk Science Innovation and Application (RSIA) with funding and technical support from U.S. and Canadian agencies and industry associations, primarily the American Chemistry Council, according to RSIA Director Richard Canady. ILSI, the International Life Sciences Institute, is a global non-profit organization that describes its mission as providing “science that improves public health and wellbeing.”

Broad Participation. Overseeing NanoRelease is a steering committee that includes representatives of the Environmental Protection Agency, the National Institute for Occupational Safety and Health, the Occupational Safety and Health Administration, the Consumer Product Safety Commission, Environment Canada, Health Canada, Swiss Federal Laboratories for Materials Science and Technology (Empa), the American Chemistry Council’s Nanotechnology Panel, the AFL-CIO, and Consumers Union.

Some research suggests multiwalled carbon nanotubes may behave like asbestos fibers if inhaled (182 DEN A-12, 9/20/11).

At the same time, carbon nanotubes can conduct heat and electricity easily and make plastics and other materials light, yet very strong. Applications include space satellites, computers, medicines, wind turbines, car bumpers, and sports equipment.

“Carbon nanotubes (CNTs) are currently incorporated into various consumer products and numerous new applications and products containing CNTs are expected in the future. The potential for negative effects caused by CNT release into the environment is a prominent concern” but analytic methods to measure such releases are lacking, National Institute of Standards and Technology researcher Elijah Peterson and a team of scientists wrote in the October 2011 journal *Environmental Science and Technology*.

Cathy Fehrenbacher, chief of the exposure assessment branch within EPA’s Office of Pollution Prevention and Toxics, told Bloomberg BNA that “we are very interested in the development of methods to assist us in understanding the potential for release and exposure.”

Steering Committee co-chair Darrell Boverhof, a toxicologist with the Dow Chemical Co. who serves as a representative of ACC’s Nanotechnology Panel, said chemical manufacturers are responsible for the safety of their products.

Chemical manufacturers hope to provide confidence in the safety tests they conduct by working with government officials, university scientists, and advocates to agree upon methods to conduct such tests, he said.

Canady said that “providing the tools to generate trusted data should benefit all and harm none because the methods can be used to inform safer product development from the start.”

Information Sought Prior to June Workshop. To prepare for a June workshop, Canady and other steering committee members told Bloomberg BNA they are seeking

unpublished information about methods chemical manufacturers, universities, government agencies, or other parties have used to measure releases of multi-walled carbon nanotubes from polymers such as plastics and resins.

Committee member John Monica, an attorney with Porter Wright Morris & Arthur LLP who helped organize carbon nanotube manufacturers into a NanoSafety Consortium for Carbon in 2010, said he is lining up companies that will contribute their nanotube products to the project.

Canady said participants also are working to identify the types of plastics or other polymers that will be

tested. Different materials may be more or less likely to release multiwalled carbon nanotubes, he said.

Laboratory tests of the different materials and different types of multiwalled carbon nanotubes are expected to begin in 2013, he said. Comments on the project are invited, Canady said.

BY PAT RIZZUTO

Information about the NanoRelease project is available at <http://www.ilsa.org/ResearchFoundation/Pages/NanoReleaseOverview.aspx>.