

# **Workshop on Measurement Methods for Release of MWCNT from Polymer Matrices**

*Thursday, June 21, 2012 - Friday, June 22, 2012*

Consumer Product Safety Commission

Hearing Room

4330 East-West Highway, Bethesda, MD 20814

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## **· OVERVIEW ·**

This workshop will seek to identify key methods-development needs for detection and measurement of multi-walled carbon nanotubes as they are released from products in the marketplace. The workshop will do this through evaluation of the efforts of expert groups working in Phase 2 of the NanoRelease project.

NanoRelease is working to advance the science in measurement methods for describing the release of nanomaterials from solid materials used in commercial products. The project is a public private partnership<sup>1</sup> governed by a multi-stakeholder steering group. In Phase 2 of the project, three expert Task Groups have prepared detailed White Papers evaluating MWCNTs in polymer composites as used in commercial products. Task Groups evaluated:

1. MWCNT Release Measurement Methods
2. MWCNT/Polymer Material Characteristics Affecting MWCNT Release
3. Potential Exposure/Release Scenarios from Commercial Production and Use of MWCNT

Experts for the project are also preparing a State of the Science paper that evaluates current knowledge of and needs for detection and measurement methods for carbon nanotubes as released from polymer composites. The NanoRelease project will also develop a Methods Development Workplan to address the methods development needs identified by the project and the State of the Science paper. Review of these efforts should provide critical information regarding methods to determine the safety of products and our ability to sustainably manufacture new products using nanomaterials. Furthermore, through deliberations of the experts convened, the workshop will advance the practical science of standardized detection and measurement of nanomaterials released from products.

## **· OBJECTIVES ·**

This workshop will review the results of the NanoRelease expert Task Group evaluations and identify development needs for detection and measurement methods applicable to MWCNT-polymer composites in commercially available products. The workshop will inform development of State-of-the-Science and Methods Development Workplan documents that will chart the next steps for development of confidence in measuring the release of nanomaterials from commercial applications. The workshop is science-focused, interested in methods development and standardization, and will not focus on regulatory actions.

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<sup>1</sup> Phase 2 of the NanoRelease project is funded by the American Chemistry Council's Nanotechnology Panel, the Government of Canada through the Federal Department of the Environment and the Federal Department of Health, and the United States Environmental Protection Agency. Direct funding from public sources makes up over half of the funding for the project.

Expected workshop deliverables are the documents to be developed in response to the charges of Breakout Sessions on Day 1 and Day 2. The Steering Committee will use these Breakout Session response documents as input for release measurement methods development to carry forward into Phase 3 (Interlaboratory Testing).

· **SUPPORTING DOCUMENTS** ·

- List of Participants & Collaborating Organizations
- Charges for Task Groups 1-3, Interlaboratory Testing Group, and State-of-the-Science Team
- Task Groups 1-3 White Papers (Methods, Materials, Release Scenarios)
- Breakout Session Topics

· **PARTICIPATION** ·

The workshop will be held over a two day period and will consist of working group members from various stakeholder groups and global regions, with expertise in life cycle assessment, release scenarios, relevant materials and materials chemistry, sampling, analytical methods, and informatics. Participants include representatives from industry, academia, non-government organizations, and government and come from U.S., Canada, European Union, and Australia. The meeting is open to the public.

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## · AGENDA ·

**Day 1: Thursday, June 21, 2012**

- 7:30 – 8:30            Registration and Continental Breakfast
- 8:30 – 8:45            Welcome & Opening Statements
- ❖ **Consumer Product Safety Commission**
- ❖ **John Howard** (*Director, U.S. National Institute for Occupational Safety and Health*)
- 8:45 – 9:15            Background & Expected Outcomes for Workshop  
*Steering Committee Co-Chairs & Workshop Moderators:  
Darrell Boverhof (The Dow Chemical Company) & Yasir Sultan (Environment Canada)*
- 9:15 – 9:55            White Paper Presentation: Task Group 3 (Release Scenarios)  
*Includes 5 minute Q&A for clarifications  
Task Group 3 Co-Chairs: Bernd Nowack (Empa-Swiss Federal Laboratories for Materials  
Science and Technology), Charles Geraci (U.S. National Institute for Occupational Safety and  
Health), Derk Brouwer (TNO Research Group)*
- 9:55 – 10:10          COFFEE BREAK
- 10:10 – 10:50        White Paper Presentation: Task Group 2 (Materials)  
*Includes 5 minute Q&A for clarifications  
Task Group 2 Co-Chairs: Christopher Kingston (National Research Council Canada), Richard  
Zepp (U. S. Environmental Protection Agency)*
- 10:50 – 11:30        White Paper Presentation: Task Group 1 (Methods)  
*Includes 5 minute Q&A for clarifications  
Task Group 1 Co-Chairs: Debra Kaiser (U.S. National Institute of Standards and Technology),  
Aleksandr Stefaniak (U.S. Centers for Disease Control and Prevention)*
- 11:30 – 12:00        Introduction to the State-of-the-Science Evaluation for MWCNT Release from  
Polymer Composites  
*Includes 5 minute Q&A for clarifications  
Objective: Presentation of the State-of-the-Science (SOS) charge and initial strategies for  
completion.  
SOS Authors: Richard Canady (ILSI Research Foundation), Shaun Clancy (Evonik Degussa  
Corporation), Maria Doa (U.S. Environmental Protection Agency), Stacey Harper (Oregon  
State University), Andrew Maynard (University of Michigan), Bernd Nowack (Empa-Swiss  
Federal Laboratories for Materials Science and Technology), Wendel Wohlleben (BASF SE)*
- 12:00 – 1:15         LUNCH (*a list of nearby restaurants will be provided*)

1:15 – 2:30	<p>Discussion of White Papers and State-of-the-Science Report</p> <p><i>Objective: Workshop attendees will participate in clarifying and identifying issues of White Papers for discussion and development of the State-of-the-Science report.</i></p> <p><i>Chairs: Darrell Boverhof &amp; Yasir Sultan</i></p>
2:30 – 3:00	<p>Introduction to the Workplan for Methods Development for MWCNT Release Measurement from Polymer Composites</p> <p><i>Objective: Presentation of the Inter-Laboratory Group (ITG) charge, initial strategies for drafting the Workplan for Methods Development, and plans for commencing the methods development testing phase. To be followed by audience discussion.</i></p> <p><i>ITG Co-Chairs: Carolyn Cairns (Consumers Union), Janet Carter (U.S. Department of Labor – Occupational Safety &amp; Health Administration)</i></p>
3:00 – 3:15	BREAK
3:15 – 4:00	<p>Adjustments to Breakout Session Charges</p> <p><i>Objective: To review the charges for each text development topic of breakout groups, in order to make potential adjustments based on White Paper outcomes and panel discussions. Note that if no adjustments are needed, the workshop will proceed immediately to Breakout Sessions.</i></p> <p><i>Chairs: Darrell Boverhof &amp; Yasir Sultan</i></p>
4:00 – 5:30	<p>Breakout Sessions</p> <p><i>Topics &amp; charges may be adapted throughout Day 1. Breakout sessions will resume on Day 2.</i></p> <p><b>3-4 concurrent breakout groups</b> will each cover the following set of topics:</p> <ol style="list-style-type: none"> <li>1) Composition considerations</li> <li>2) Use and scenarios selection across life cycles and effect on materials and methods selection</li> <li>3) General principles for relevance of the released material</li> <li>4) Goals for Detection and Characterization of Released Material</li> <li>5) Release &amp; measurement considerations</li> <li>6) Informatics, modeling, and integration with other projects</li> </ol>
5:30 – 6:00	Day 1 Final Comments & Planning of Day 2 Breakout Sessions
6:00 PM	ADJOURN

### Day 2: Friday, June 22, 2012

7:30 – 8:30	Continental Breakfast
8:30 – 9:00	<p>Recap of Day 1 &amp; Summary of Day 2 Objectives</p> <p><i>Richard Canady (ILSI Research Foundation)</i></p>
9:00 – 9:30	Collaborating & Related Projects

*Objective: Review goals and collaborating interests of other projects with NanoRelease, as relevant to the formation of plans for methods development.  
Richard Canady (ILSI Research Foundation)*

- 9:30 – 10:30      Brief Report Out of Breakout Sessions: Status, Expectations, and Need for Regrouping  
*Breakout Session Chairs will summarize progress and results of Day 1 breakout discussions. Note that if this session ends early, the workshop will move to Break and then to Public Comment session.*
- 10:30-10:45      BREAK
- 10:45- 11:15      Public Comment Period  
*Opportunity for public comment on the state-of-the-science for release measurement and on methods development needs.  
Moderator: Treye Thomas (Consumer Product Safety Commission)  
Chairs: Darrell Boverhof & Yasir Sultan*
- 11:15 – 11:45      Discussion of Breakout Session Progress  
*Objective: Provide advice from the full workshop on issues encountered by the breakout sessions in fulfilling their charges. Note that if this session is deemed unnecessary, the workshop will move to Resume Breakout Sessions.  
Chair: Darrell Boverhof & Yasir Sultan*
- 11:45 – 3:00      LUNCH: Resume Breakout Sessions – *(box lunches provided)*  
*Objective: To refine breakout session data based on feedback from morning sessions and finalize responses to breakout charges.*
- 3:00 – 3:15      BREAK
- 3:15 - 4:30      Final Reports from Breakout Sessions  
*(15-20 minutes per Breakout Group)*
- 4:30 – 5:00      Final Comments/Questions & Presentation of Plans for Document Completion
- 5:00 PM          ADJOURN