

7 - New horizons, lessons from the Nanotechnology Research Center: Understanding and managing laboratory health and safety of a new or emerging technology

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As with any new technology or new material, the earliest exposures will likely occur for those workers conducting discovery research in laboratories or developing production processes in pilot plants. The research community is at the front line of creating new engineered nanomaterials, testing their usefulness in a variety of applications, and determining their toxicological and environmental impacts. Researchers handling nanomaterials in laboratories should perform that work in a manner that protects their safety and health. In 2012, NIOSH published General Safe Practices for Working with Engineered Nanomaterials in Research Laboratories. This document contains recommendations on engineering controls and safe practices for handling engineered nanomaterials. An overview of that free publically available guidance document <http://www.cdc.gov/niosh/docs/2012-147/> will be presented.

Exposures to engineered nanomaterials can be controlled in the research laboratory by a comprehensive risk management program that includes task hazard/risk analysis, engineering controls, administrative controls, and use of personal protective equipment. Implementing an effective program should address the following elements of hazard surveillance:

Hazard Identification: Is there reason to believe that the nanomaterial of interest could be harmful?

Exposure Assessment: Is there the potential for exposure to the nanomaterial or other chemical or physical hazards?

Exposure Control: What procedures are in place or should be developed to minimize or eliminate worker exposure(s)?

The answers to these questions will help to formulate a program that will protect the laboratory and research community.

Sunday, September 8, 2013 04:05 PM

[New Horizons in Chemical Health and Safety \(02:50 PM - 06:40 PM\)](#)

Location: Indiana Convention Center

Room: 115

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