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*OWLinks is brought to you by the Workplace Safety and Health (WSH) Institute to enable leaders and professionals to keep abreast of the latest WSH developments and trends from around the world.*

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## SPOTLIGHT

### WSH Institute Forum on "The Next WSH Frontier"

More than 300 professionals attended the forum at the Furama City Centre Hotel on 11 Sep 2013 to hear 7 international WSH thought leaders and experts speak on their insights and their respective countries' experiences and challenges in the growing international movement of 'Vision Zero' to drive improvements in WSH outcomes.



Dr Walter Eichendorf, Deputy Director General of German Social Accident Insurance presented "Vision Zero – A strategy for safety and health at work and on the road" while Mr Kevin Myers, Acting Chief Executive, Health and Safety Executive (HSE) from United Kingdom presented "Building the London Olympics 2012 – How this was achieved with an exemplary OSH performance including zero fatalities."



You may view the presentation slides [HERE](#).

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### Articles Reviewed In This Issue:

1. Using nanomaterials at work
  2. Safety hazards of engineered nanomaterials: Information sheet
  3. Tools for the management of nanomaterials in the workplace and prevention measures
  4. Occupational exposures in nanotubes and nanofibers
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### Using nanomaterials at work

**Date of publication:** 2013

**Source:** Health and safety guidance HSG272, Health and Safety Executive

**Author:** Health and Safety Executive

### Synopsis:

This guidance described how to control occupational exposure to manufactured nanomaterials in the workplace, in response to the emerging evidence that certain types of carbon nanotubes (CNTs) and other biopersistent high aspect ratio nanomaterials (HARNs) can cause inflammation and fibrosis in the lungs. Not all nanomaterials are hazardous, not all nanomaterials are equally hazardous and there can be considerable variation in toxicity between nanomaterials with similar chemical composition because of their physico-chemical characteristics.

The document highlights the precautionary risk management approach for exposures to CNTs and HARNs. It is essential to determine the characteristics of nanomaterials to understand their potential hazards and to identify the work activities whereby exposure can occur through inhalation, ingestion or skin contact/injury so that appropriate preventive measures can be put in place. General control principles, and the right methods to

handle and dispose of nanomaterials used in the workplace are outlined with useful resources provided.

To read more, click [HERE](#).

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### **Safety hazards of engineered nanomaterials: Information sheet**

**Date of publication:** May 2013

**Source:** Information sheet, Safe Work Australia

**Author:** Safe Work Australia

#### **Synopsis:**

The Information Sheet provides an update on the current understanding of safety hazards of engineered nanomaterials. Metal nanopowder explosions had resulted in fatalities in Australia. The risk of fire, explosion or unexpected catalytic activity due to formation of dust clouds during nanotechnology processes can be controlled with a well managed workplace.

When key properties of the engineered nanomaterials are not known a precautionary approach should be adopted. Workplace procedures should be implemented to reduce or remove the possibility of dust cloud formation. It stated that the approach on choosing the appropriate controls for working with engineered nanomaterials would generally be the same as for other chemicals, following the hierarchy of controls.

To read more, click [HERE](#).

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### **Tools for the management of nanomaterials in the workplace and prevention measures**

**Date of publication:** Jun 2013

**Source:** E-facts, European Agency for Safety and Health at Work

**Author:** European Agency for Safety and Health at Work

#### **Synopsis:**

The smaller size of nanoparticles gives rise to a larger surface area for interaction. This leads to increased toxicity even if the similar material at a larger macro size scale has previously been declared safe.

This factsheet describes and compares a number of risk management tools that can be used by employers and workers to manage the nanoparticle risks in the workplace, with details of the recommended prevention measures. It provides guidance and comparative reviews on a number of available tools for the management of nanomaterials in the workplace. It also recommended adherence to the hierarchy of control of Elimination, Substitution, Engineering Control, Administrative Control and Personal Protective Equipment.

To read more, click [HERE](#).

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### **Occupational exposures to carbon nanotubes and nanofibers**

**Date of publication:** Apr 2013

**Source:** DHHS (NIOSH) Publication No. 2013–145, NIOSH

**Author:** Department of Health and Human Services, Centre for Disease Control and Prevention

#### **Synopsis:**

This bulletin provides an overview of evidences from animal studies which indicate that carbon nanotubes (CNT) and carbon nanofibres (CNF) have potential adverse health effects. It indicates the need for suitable protective measures to limit worker exposure to CNT and CNF in facilities where these nanoparticles are being processed, used, disposed or recycled.

Based on dose-response information from the animal studies, a recommended exposure limit (REL) of 1µg/m<sup>3</sup> as an 8-hr TWA respirable mass concentration was suggested. For exposures to other types of elemental carbon (e.g. diesel soot, carbon black), additional analytical techniques may be required to better characterize exposures. Transmission electron microscopy (TEM) equipped with energy dispersive x-ray spectroscopy (EDS) may be used to verify the presence of CNT and CNF.

Due to the high hazard potential of CNT and CNF, it is recommended that appropriate steps be taken to minimize worker exposure to as low as possible below the REL through a risk management program. The program elements could include: conducting comprehensive exposure assessments (including exposures to other potential hazards) as part of an overall hazard surveillance program; developing guidelines for selecting, installing, and evaluating engineering controls; worker education on potential exposures and good work practices in the handling of CNT/CNF; developing procedures for the selection and use of personal protective equipment; implementation of a medical surveillance program; establishment of showering and changing facilities to prevent inadvertent cross contamination of other areas.

To read more, click [HERE](#).

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**Other Useful Resources:**

- [Emissions of nanomaterials during machining processes](#) (Safe Work Australia)
- [Nanomaterials in maintenance work: Occupational risks and prevention](#) (European Agency for Safety and Health at Work)
- [Approaches to safe nanotechnology](#) (The National Institute for Occupational Safety and Health)
- [General safe practices for working with engineered nanomaterials in research laboratories](#) (The National Institute for Occupational Safety and Health)