

# WORKING SAFELY WITH NANOMATERIALS IN THE LABORATORY

## CONTROL STRATEGIES FOR WORKING WITH NANOMATERIALS



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### ENGINEERING CONTROLS

- Use exhausted enclosures for any work that may produce aerosols, such as synthesis of nanomaterials, agitation of nanomaterial-containing liquids, or mechanical disruption of solids containing nanomaterial.
- If highly toxic, fibrous/tubular, or high volumes of aerosols will be created, use enclosures with HEPA filtration (or other scrubbing mechanism) AND exhaust.

### PERSONAL PROTECTIVE EQUIPMENT

- Wear eye/face protection, gloves and a lab coat or protective clothing when handling nanomaterials.
  - For dry particulate, use standard powder-free nitrile or latex lab gloves.
  - For solutions containing nanomaterials, choose a glove that is protective against the solvent.
  - For extensive skin contact, double glove with extended cuff gloves and use sleeves, gowns, or suits made of Tyvek or other air-tight non-woven textile.
- Consider HEPA-filtered respirators if work activities will disable engineering controls or cause them to be ineffective. Compliance with the respiratory protection program is required—contact OESO (684-5996) for information.

### GOOD WORK PRACTICES

- Assess hazards of the materials you will be using (keeping in mind that there is considerable uncertainty about the toxicity of nanomaterials) and adopt prudent written laboratory practices for use of these materials.
- Establish designated work areas where nanomaterials will be used.
- Wash hands before eating, smoking or leaving the work area.
- Follow guidelines for working safely with toxic powders.
- Clean work area daily (or when there are spills) using a wet wiping method or HEPA vacuum. Large-scale decontamination may be necessary after uncontained spills.
- Dispose of nanomaterials as hazardous waste through OESO Environmental Programs (call 684-2794 for more information).

### FOR MORE INFORMATION

- Contact OESO OHS at 684-5996 for assistance with risk assessment.
- Seek guidance from other researchers working with nanomaterials, including the Center for Environmental Implications of NanoTechnology, based at Duke, and GoodNanoGuide.org and the National Nanotechnology Initiative, which link to safe nano protocols and more information.