



OH&S OCCUPATIONAL HEALTH AND SAFETY

SAFETY SHORT

Projects Involving Nanotechnology

Nanotechnology is a field based on the unique properties of extremely small particles. Nanomaterials are particles with at least one dimension in the 1 - 100 nm range and can be composed of many different base materials. Such particles can be produced naturally by fires, in industrial processes such as welding, and through engineering. These new material forms have different and unexpected properties which may include increased toxicity as well as desired benefits. Therefore, special precautions must be taken.

Projects that involve the generation or use of materials in the nanoparticle size range should be registered with OH&S. All persons working with nanomaterials must take HS239 Nanotechnology Awareness Training. <http://www.healthsafe.uab.edu/pages/educationandtraining/HS239.html>

Generally, working safely with nanomaterials involves following the same procedures that would be followed for any respirable particulate material of identical chemical composition. Consideration should always be given to the process in which the nanomaterial is generated and precautions taken to avoid inhalation of suspended particles. Other safety recommendations are:

- Avoid inhalation, ingestion, and skin contact. Wear a disposable protective outer garment such as a closed front type gown with long sleeves and knit cuffs. Wear appropriate gloves, such as nitrile, and protective eyewear. If the nanoparticle is combined with an infectious agent, use appropriate precautions. It may be necessary to work in a glove box, fume hood or Biosafety cabinet.
- Be aware that nanoparticles may be a fire and explosion hazard near sources of ignition.
- Use and store nanomaterials in secure areas.
- Maintain an inventory of nanomaterials in the lab, the workers involved, any special training conducted, and any emergency information.
- Call the Chemical Safety Director if **any quantity of a nanoparticle powder** is released in a manner that could cause exposure.
- Call the Department of Occupational Health and Safety (934-2487) for a hazardous waste determination before disposing of nanomaterials.

Other sources of information can be obtained at the following websites:

<http://www.cdc.gov/niosh/topics/nanotech/>

<http://www.nnin.org/>