



**Environment, Health, & Safety
Training Program**

**EHS 344 Safe Handling of Engineered Nanoscale Particulate Matter
Course Syllabus**

Subject Category: General
Course Length: 30 minutes
Delivery Mode: Web-based Training

Course Prerequisite: None
Medical Approval: None
Frequency: Based on Need

Course Purpose: This course is designed for employees and guests, (and their supervisor or Work Lead) who synthesize, investigate or otherwise work with engineered nanomaterials in a manner that could result in a potential exposure or environmental release. "Engineered nanomaterials" are intentionally created and have structures <100 nanometers. NOTE: "Engineered materials" do NOT include larger materials with nanoscale features (e.g., etched silicon wafers) nor biomolecules (e.g., proteins, nucleic acids, and carbohydrates).

Course Objectives:

Upon completion of this training employees should be able to:

- Identify how exposure to nanoparticles might occur
- Recall that nanomaterials may display novel toxicity and reactivity
- Name which type of nanomaterial is not likely to present new hazards
- Recognize that high surface area may drive toxicity
- Recall the toxic properties of carbon nanotubes
- Select the locations nanoparticles have been shown to distribute and travel in the body
- Define what someone should always assume about novel nanoparticles
- Recall engineering controls for handling nanoparticles
- Recall proper housekeeping methods when working with nanoparticles
- Identify proper labeling and storage methods for work with nanoparticles
- Recall the personal protective equipment, including respirators needed while performing work with nanoparticles
- Define the correct nanoparticle waste disposal methods
- Recall emergency and spill procedures

Subject Matter Expert: Larry Mclouth

Training Compliance Requirements: DOE Notice 456.1 The Safe Handling of Unbound Engineered Nanoparticles

Course Instructional Materials: Web-based course and a PDF downloadable version of the course is available within the course.

Performance Criteria: Employees will be asked to demonstrate what they have learned from the web-based training by taking a quiz at the end of the course. Employees must pass the quiz with a 80% score to receive course credit.

Web Resource: Chemical Hygiene and Safety Plan - <http://www.lbl.gov/ehs/chsp/index.shtml> , EH&S Training Program web page @ <http://www.lbl.gov/ehs/html/training.htm>