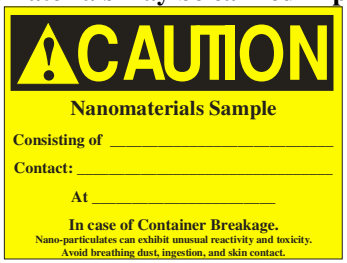
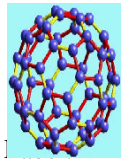
Lower ⟵ **Risk** ⟶ **Higher**

Material Form → / Requirements ↓	NP embedded or fixed to substrate	UNP in liquid	UNP Dispersible Dry/Powder
PPE Requirements for Handling	PPE: Standard PPE required for the work area. See postings for lab or area if any additional PPE must be used.	Standard PPE required for the work area plus: • Gauntlet-type nitrile gloves "or" wrist length disposable nitrile gloves with extended sleeves and labcoat. • Eye protection: Safety glasses with side shields for handling powders only. Chemical splash goggle for handling liquids or powders that could become airborne.	
Handling Requirements	• No Mechanical abrasion. • No thermal stresses. • Cover samples when practical to protect the sample, e.g., (slide cover), samples/container must be labeled if not to be used immediately. • Store in sealed container when not in use. Label the container with "NANO" plus material identifier. (e.g. "Nanoscale Zinc Oxide")	• Volumes should be limited. • Manipulate within a HEPA filtered laboratory exhaust hood or other approved controlled containment.	• Must be manipulated within a HEPA filtered laboratory exhaust hood or other approved controlled containment. • Experiments that involve gas flowing over particles must include a water scrubber for the gas exhaust to provide a final barrier to capture any potential particle loss or exhaust into a HEPA filtered hood. • Exhaust hood work surfaces must be wiped with a dampened adsorbent paper towels at the completion of the experiment. • Nano-scale materials transferred between laboratories must be: o Sealed within a closed sample container, a capillary tube, or with at least two layers of Kapton, Mylar or cellophane tape.
Spill Response	N/A	• For large spills call x 2222. • Use wet wiping methods for small spills. If you feel competent to handle the spill or call x-2222. • For spills outside of an exhaust hood, control access to the area and immediately notify the ES&H Staff.	
Laboratory Posting Requirements	No Posting Requirements	Post a sign at each designated nanomaterials work area. This can be an entire lab or workstation (i.e., laboratory exhaust hood, glove box). 	

UNP – Unbound Nanoparticle NP - Nanoparticle

Lower ⟵ **Risk** ⟶ **Higher**

Material Form → / Requirements ↓	NP embedded or fixed to substrate	UNP in liquid	UNP Dispersible Dry/Powder
Labeling of Containers	Follow the labeling requirements list below in the "Transportation & Labeling Requirements" section. See your ESH Coordinator for Labels		
Transportation & Labeling Requirements	Any nanomaterial that meets the definition of hazardous materials according to **49 CFR 171.8** or has known hazardous properties (toxic, flammable, reactive) must be shipped according to the SBMS Transportation of Hazardous Materials Subject Area. **Other nanomaterials may be carried in private vehicles when labeled and packaged as follows;** **Labeling:**  **Packaging:** 1. Inner containers must be tightly sealed, rigid, and leak proof. Use tape on the cap to prevent the container from being unintentionally opened. 2. Place the inner container in a = />6mil plastic bag. 3. The outer package (sealed cardboard box "or" sealed plastic container) must be filled with absorbent materials to protect the inner container and absorb liquids in the event of an inner container failure.		
Waste Management Requirements	All waste in contact with nanomaterials must be disposed as hazardous waste e.g., (gloves, lab coats, swabs, Kimwipes, blotter paper, beakers, flasks, tape, sample holders). Chemicals containing nanomaterials must NOT be released to the sink or disposed in the regular trash. See SBMS Hazardous Waste Management for more information. **Waste Containers and labeling:** Liquids must be stored in a rigid leak proof container. Particulates must be stored in a rigid leak proof containers "OR" =/> 6 mil plastic bags. Spell out the chemical name (do not use formulas or trade names) on the RED Hazardous Waste L The contents line on the label must contain the chemical composition and the word "NANO" A second label, in addition to the Red Hazardous Waste Label, is required on the outside other container/bag stating "CONTAINS NANOMATERIALS" see ES&H Coor. or 90-Day area manager for labels.  Contains Nanomaterials		

R. Sabatini Rev. 1b