

Nanomaterials (NMs) Use in Research Laboratories  
**Appendix B: Hazard Assessment Data Capture Form**

Environmental Health & Safety 100 EHS, University of Iowa, Phone: 335-8501; <http://ehs.research.uiowa.edu/>

Please fill-in or select all applicable choices for your work in each section.

Fax to EHS 335-7564 attn.: Subu or email for to: [periyasamy-subramanian@uiowa.edu](mailto:periyasamy-subramanian@uiowa.edu)

Principal Investigator: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Primary Lab Contact for NMs Work: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Department: \_\_\_\_\_ Building: \_\_\_\_\_ Room Numbers: \_\_\_\_\_

**Use of Dry NMs**

New NMs are synthesized in the lab:  Yes  No  Used as purchased  Modified in the lab

Dry NMs are weighed and handled in:  Chemical hood  Biosafety cabinet  Enclosure hood

**Note: Dry NMs should not be weighed or handled on the lab bench without the engineering controls such as local capture hoods**

Frequency of dry NMs handling (example, 2X per month):  per day  per week  per month  per year

Typical amount of NMs used per weighing or preparation (10mg, 20mg, 100mg, etc.): \_\_\_\_\_ mg

PPE: At a minimum, nitrile gloves, N95 dust mask, safety glasses and lab coat should be used.

**Reconstitution of NMs and Usage**

NM Name	Maximum Weighed NM Quantity per Use (mg)	Solvent/Buffer Used for NM Reconstitution	Maximum Use NM Conc. (in Solution/Dispersion)	Solution Contains Multiple NMs (Yes/No)	NM Solution Contains Other Biological/ Chemical Species (Yes/No)
Example – TiO <sub>2</sub> + ZnO	2 mg, each	Hexane/oleic acid	1 mg/ml	Yes, 2 components	Yes, endotoxin + acyclovir

**Intended Use of NMs**

Animal Research:  Yes  No Animal Toxicology Work:  Yes  No

In Vivo Study:  Yes  No In Vitro Study:  Yes  No

Route of Application:  Topical  Injection  Aerosols (Inhalation)  Single Dose  Multiple Doses

Nanomaterial Use Conc.: \_\_\_\_\_ mg/ml Total Volume: \_\_\_\_\_ ml Duration of Aerosol Generation: \_\_\_\_\_ minutes

Drug Delivery:  Yes  No Methods Development:  Yes  No Material Characterization:  Yes  No

Environmental/Atmospheric Aerosol Study:  Yes  No Environmental Microbes Used  Yes  No

Frequency of Use (example (1X per week):  per day  per week  per month

EHS recommends the use of following PPE and prudent practices while working with NMs.

**Quantity:** Use lowest concentration and lowest quantity of NMs possible (typically ≤ 1mg/ml in solution). Consult EHS for the work requiring the use of higher concentrations.

**Engineering Control:** Perform all NMs work within a chemical fume hood, BSC or enclosure hood. If needed, animal work on the work bench/operation table should be carried out under the local ventilation system such as elephant trunk and exhausted outside.

**PPE:** At a minimum, nitrile gloves, safety glasses and lab coat must be used. Respiratory protection with N95 dust mask or better may be required while working with dry powders and aerosols. Nonwoven coverall (such as Tyvek) and double nitrile gloves are recommended to protect against the animal skin/hair shedding and NMs.

**Cleaning:** Clean the work benches, animal cages and bins/carriers by wet wipe method, using paper towels soaked with household bleach or alcohol-wipe, and then rinse-off/wet wipe the cages and work benches with water. If required, the dry cleaning of work bench or animal shedding should be performed with a vacuum equipment fitted with HEPA filter and ducted outside (or fume hood).