***Task Risk Assessment‑Word Document***



Printed By: Wendy Armstrong

**Preparation and use of nanoparticles** (insert name of sample here) **in electron microscopy (SEM or TEM)**

**Name:**

**Task/Process ID:**

**Task/Process Details**

Based on **35509**

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**Author:**

**Supervisor:**

**Last Updated By:**

------------------------------------ On --/--/201-

**Effective Risk Level:**

**Low**

**Action:**

Risk is normally acceptable

**Campus:**

**Faculty/Division:**

**School/Centre:**

**Workplace:**

St Lucia

Fac ‑ Science

CMM Hawken and AIBN Labs

Approval Date:

**Workplace Location of the Task/Process**

**Status: Approved**

Nanoparticle materials are transported, processed and viewed in the CMM. The long term health effects of most nanoparticles are unknown. The determination of these health effects cannot be based on the bulk properties of the material. It is wise to treat all nanoparticle materials as potentially hazardous substances until firm scientific data can confirm otherwise.

**Process\Job Desc:**

**Transportation and use of nanoparticle material in SEM and TEM**

**Risk Situation:**

**Current Controls:**

Isolation/containment: Samples transported in double sealed plastic container. Outer container should be impact resistant plastic. Strongly recommend sample is mounted on substrate prior to transport.

Fumehood use required to process material if any loose particles are likely to be present.

Administration: Mandatory training and risk assessment required before use of equipment.

PPE: Gloves (nitrile or latex) required when handling nanoparticle substrate. NB: The protective properties of gloves are minimal. Discard immediately after contamination. Mask (P2) required for powder spills. NB Masks provide minimal protection from airborne particles.

Training: General OH&S and lab specific induction as well as instrument specific training.

Chemical

**Energy Source:**

During processing of material or insertion of sample into machines, person contacts sample or inhales powder.

**Hazard Event:**

Long term contact with chemical or substance

**Incident Category:**

**Prepared By:**

**Assessment Date:**

04/07/2012

***Risk Analysis***

**Consequence:**

Very Serious

**Rationale:**

Long term health effects unknown ‑ potential consequences range from none/minor to multiple fatalities ‑ although extremely unlikely.

**Exposure:**

**Rationale:**

Occasional

Individual clients use the equipment approximately once per week.

**Probability:**

**Rationale:**

Conceivable

Fatality has not occurred but it is conceivable that a nanoparticle material may have the potential to cause such an injury.

**Risk Level:**

**Low**

**Action:**

**Risk is normally acceptable**

No Additional Controls

**Risks Associated with this Task/Process or Situation**

**Audited By:**

**Audit Date:**

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**Chemical Risk Assessment Details**

**Substances: (1)**

**Substance Name:**

**Form:**

**Concentration:**

**Hazardous Substance:**

**UN Number:**

**DG Class:**

**Yes**

Solid

Not classified as a Dangerous Good

**Nanoparticle material: ----------------------------------**

100%

Long term health effects of nanoparticles have yet to be determined. Treat as potentially hazardous.

**Storage Location:**

**Health Effects**

**Hazardous Reactions**

**Route of Exposure**

**Evidence of Exposure**

NIL:

NIL:

NIL:

NIL:

**Yes**

**No**

**No**

**Yes**

Irritant:

**No**

Explosive:

**No**

Inhalation:

**Yes**

Presence of dusts/fumes/odours:

**No**

Corrosive:

**No**

Flammable:

**No**

Skin absorption:

**Yes**

Leaks/spills/residues:

**No**

Sensitiser:

**No**

Peroxide forming chemicals:

**No**

Eye contact:

**No**

Worker symptoms and complaints:

**No**

Asphyxiant:

**No**

Water reactive:

**No**

Ingestion:

**Yes**

Previous incidents and exposures:

**No**

Toxic:

**Yes**

Oxidising agents:

**No**

Needlestick:

**No**

Neighbouring activities impact:

**No**

Carcinogenic:

**No**

Cryogenic:

**No**

Mutagenic:

**No**

Pyrophoric:

**No**

Teratogenic:

**No**

Cytotoxic:

**No**

Neurotoxic:

**No**

Reproductive:

**No**

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**Risk Control**

**Elimination/Substitution:**

The nanoparticle materials described here are necessary to complete the process and cannot be eliminated.

Isolation/containment: Samples transported in double sealed plastic container. Strongly recommend sample is mounted on substrate. Fume cupboard: For all unmounted sample processing. Adhesion to substrate should be checked before remove from fumehood (e.g. gently blow compressed air over sample).

**Engineering Controls:**

Effective and maintained well

**Effectiveness:**

Written emergency procedures: Risk assessment containing spill procedures available in lab. Good housekeeping practices: Spills cleaned up immediately. Detailed labels required. Good personal hygiene practices: Wash hands after use.

**Administrative Controls:**

Effective and maintained well

**Effectiveness:**

UQ on‑line OHS induction required. Lab specific OHS induction required. One on one training in use of chemicals required before allowed to use facilities.

**Training Controls:**

Effective and maintained well

**Effectiveness:**

Gloves: Nitrile or latex (when directly handling mounted material). Eye protection: Required in chemical lab area. s Coat/apron: Required in chemical lab areas Footwear: Enclosed shoes. Respirator: P2 particle mask required for spills of powder outside fumehood. NB: Masks provide minimal protection from dust.

**PPE Controls:**

Effective and maintained well

**Effectiveness:**

**Waste Disposal:**

No waste usually generated in this process. Material returned to lab of origin. SPILLS: Notify/ alert people in surrounding areas. Notify staff. Clean up only if safe to do so. Mounted material (minimal/ no loose material): wear PPE. Pick up and place in labelled, sealed plastic container. Avoid generating dust. Unmounted material (e.g. powders): Wear PPE (including mask). Avoid generating dust. Use wet clean up procedures i.e. absorb material with wet paper towelling or absorbent pads. Clean residual with water. Place spill and contaminated material in labelled sealed plastic container/bag in fumehood. Dispose of lightly contaminated PPE (masks and gloves) in fumehood clinical waste stream.

**Storage Incompatibilities:**

Unknown ‑ take bulk chemical properties into account

**Safety Instructions:**

Treat symptomatically. Long term health affects unknown. If contamination occurs wash affected area with water and remove contaminated clothing as a precautionary measure.

**Risk Determination**

**Health Surveillance Req:**

**Air Monitoring:**

**Exposure Frequency:**

**Risk Level:**

No

**Significant but controlled**

Unusual

No

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