

Particularly Hazardous Substance Use Approval Form

Before using any particularly hazardous substance, please complete this form and have it approved by your supervisor or Chemical Hygiene Officer. See the back of this form for more complete definitions of a particularly hazardous substances and instructions for completing this form.

Name _____ Phone _____ Building _____

Supervisor _____ Lab Group _____

1. Substance Information

A. Chemical name _____ CAS number _____

B. Carcinogen Reproductive Toxin High Acute Toxicity

C. Estimated Rate of Use (e.g., grams/month) _____

D. SDS reviewed and readily available Yes No

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## 2. Hazards

### Physical Hazards

A. Flammable  Yes  No

B. Corrosive  Yes  No

C. Reactive  Yes  No

D. Temperature sensitive  Yes  No

E. Stability (e.g., decomposes, forms peroxides, polymerizes, shelf-life concerns)  Stable  Unstable

F. Known incompatibilities \_\_\_\_\_

### Health Hazards

G. Significant Route(s) of Exposure

Inhalation Hazard  Yes  No

Skin Absorption  Yes  No

H. Sensitizer  Yes  No

I. Medical Consultation Needed  Yes  No

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3. Procedure

A. Briefly describe how the material will be used

B. Vacuum system used Yes No

C. If yes, describe method for trapping effluents _____

4. Exposure Controls

Ventilation/Isolation

A. Hood required Yes No *See hood sticker for the following information*

If yes, hood currently operates at 95 - 125 feet per minute face velocity Yes No

EHS Hood number _____

B. Glove box required Yes No

C. Vented gas cabinet required Yes No

D. Personal Protective Equipment (PPE) (Check all that apply)

Safety glasses Chemical splash goggles Face shield

Gloves (type _____) Lab coat Apron

Respirator SCBA (*Respirators and SCBA require EHS approval*)

Other, please describe _____

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## 5. Location/Designated Area

A. Building \_\_\_\_\_ B. Room \_\_\_\_\_

C. Describe below the area where substance(s) will be used and the method of posting as a designated area.

D. Location where substances will be stored \_\_\_\_\_

E. Storage Method/Precautions

refrigerator/freezer

hood

double containment

vented cabinet

flammable liquid storage cabinet

other, describe \_\_\_\_\_

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6. Spills and Decontamination

A. Spill control materials readily available Yes No

B. Special personal protective equipment needed (e.g., SCBA) Yes No Describe _____

C. Decontamination method _____

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## 7. Waste Disposal

A. In-lab neutralization  Yes  No

B. Deactivation  Yes  No

C. Dispose as hazardous waste  Yes  No

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8. Authorization

This individual has demonstrated an understanding of the hazards of the listed substance and plans to handle the substance in a manner that minimizes risk to health and property. He/she is authorized to use the substance in the manner described.

Principal Investigator/Supervisor

Chemical Hygiene Officer

Please submit this form to _____. Do not use the substance until approval is granted.

Key to Form

Using this form

For purposes of this form, a particularly hazardous substance (PHS) includes known or suspected human carcinogens, reproductive toxins, and substances with acute toxicity above certain thresholds. A more complete definition is included in your departmental Chemical Hygiene Plan.

Each individual planning to use a PHS must complete this form and have it approved by their Principal Investigator or supervisor and the departmental Chemical Hygiene Officer prior to their initial use.

Responsibility for determining whether a chemical is a PHS and completing this form rests jointly with the supervisor and the individual seeking use approval.

To simplify the approval process, EHS has developed a list of the more commonly used PHSs; however, this list is not exhaustive. For help in determining whether a substance meets the PHS criteria, call EHS at x8-5294.

1. Substance Information

- A. Enter name and CAS (Chemical Abstract Service) number of the PHS.
- B. *Carcinogen*: if on IARC, OSHA or NTP list
Reproductive toxin: mutagens, teratogens, embryotoxins
High Acute Toxicity: oral $LD_{50} \leq 50$ mg/kg, skin $LD_{50} \leq 200$ mg, air $LC_{50} \leq 200$ ppm or ≤ 2 mg/l.
See Chemical Hygiene Plan for more information.
- C. Self-explanatory
- D. SDS may be available in hard copy or via the internet.

2. Hazards

Refer to *Physical Properties* section of SDS

- A. *Flammable liquid*: flashpoint $\leq 100^\circ$ F
Flammable solid: liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or which can be ignited readily and when ignited burns vigorously

- B. *Corrosive*: Causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.
- C. *Reactive*: May become unstable or contact with water produces flammable or toxic gas.
- D. *Temperature Sensitive*: Must be kept within a certain temperature range to ensure stability.
- E. *Unstable*: substance will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, or high or elevated pressure or temperature. Also includes time-sensitive materials, particularly those that produce peroxides over time.
- F. List chemicals or materials that might cause instability or adverse conditions if mixed with the particularly hazardous substance(s).
- G. *Inhalation*: inhalation of the substance may cause adverse health effects.
Skin exposure: substance is readily absorbed through the skin or can cause significant damage to skin upon contact.
- H. Certain chemicals are known to effect the immune system, causing a person to experience allergic reactions, up to and including anaphylactic shock, upon exposure to the chemical, after the initial sensitization.
- I. Some chemicals can accumulate in body tissues and may require initial or periodic medical surveillance. Contact EHS or McCosh Health Center for more information.

3. Procedure

- A. Briefly describe the part of the experimental procedure that involves the substance, with particular attention to how the chemical will be manipulated.
- B. Vacuum systems include central vacuum systems and vacuum pumps within the lab.
- C. Describe what will be done to ensure that the substance is not accidentally drawn into the vacuum system. Cold traps or filters are some examples of such measures.

4. Exposure Controls

- A. A fume hood should be used for chemicals that may produce vapors, mists, or fumes, or if the procedure may cause generation of aerosols.

The hood must have an average face velocity of between 95 and 125 feet per minute. This measurement is noted on the hood survey sticker. If the hood has not been inspected within the past year, contact EHS at 8-5294 for re-inspection before using the hood.

The EHS hood number is noted on the top of the fume hood inspection sticker.

- B. A glove box should be used if protection from atmospheric moisture or oxygen is needed or when a fume hood may not provide adequate protection from exposure to the substance; e.g., a protection factor of 10,000 or more is needed.
- C. Highly toxic gases must be used and stored in a vented gas cabinet connected to a laboratory exhaust system. Gas feed lines operating above atmospheric pressure must use coaxial tubing.
- D. **Safety glasses** protect from flying particles and minor chemical splashes, for instance, from opening a centrifuge tube.

Chemical splash goggles should be worn when there is a possibility of a significant chemical splash. Most chemical manipulations, particularly where pressure is involved, warrant chemical splash goggles.

Face shield, worn with splash goggles, provides full face protection when working with large volumes of chemicals.

Gloves should be worn when working with any particularly hazardous substance. Since not all gloves offer significant protection from every chemical, it is important to choose the glove that offers the best resistance. See the SDS, the EHS web page or glove manufacturer compatibility charts for more information.

Lab coats should be worn when working with hazardous substances. The coat should not be worn outside the laboratory and should be laundered separately from other clothing.

Aprons offer chemical resistance and protection from splashes and can be used in conjunction with a lab coat.

Respirators offer protection from inhalation of substances when engineering controls are not

sufficient. Use of respirators must be approved by EHS and McCosh Health Center. Contact EHS at 8-5294 if a respirator is needed.

Self-Contained Breathing Apparatus (SCBA) is available in E-Quad laboratories. SCBA users must be approved by EHS and McCosh Health Center and must attend training at least annually. Contact EHS at 8-5294 for more information.

Location/Designated Area

A and B. Building and room number where the substance will be used.

- C. Describe where in this room the substance will be used. For example, in a hood, on a specific benchtop, in several areas of the laboratory, etc. This room or area must be posted with a *Designated Area* sticker available through EHS or your department Chemical Hygiene Officer.
- D. Describe where the substance will be stored. Be specific, e.g, on a shelf, in a refrigerator, in a hood, etc.
- E. Self-explanatory. *Double containment* means that the container will be placed inside another container that is capable of holding the contents in the event of a leak and provides a protective outer covering in the event of contamination of the primary container.

6. Spills and Decontamination

A and B. Self-explanatory.

- C. Describe how the work area will be decontaminated after use, in the event of a spill, or upon completion of the work and before removal of the designated area signage.

7. Waste Disposal

- A. Some corrosive chemicals may be neutralized before disposal via the drain or the hazardous waste program.
- B. Some materials, such as ethidium bromide, can be chemically deactivated before disposal via the drain or the hazardous waste program.
- C. See the EHS web page for more information about the hazardous waste program. Particularly hazardous substances must not be poured down the drain without consulting EHS.