Before using any particularly hazardous substance, please complete this form and have it approved by your Faculty Mentor and Chemical Hygiene Coordinator. See page 3 of this form for more complete definitions of a particularly hazardous substances and instructions for completing this form.

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Faculty Mentor\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Department \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# 1. Substance Information

1. Chemical name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. ❍ Carcinogen ❍ Reproductive Toxin ❍ High Acute Toxicity
3. Estimated Rate of Use (e.g., grams/month) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. MSDS reviewed and readily available ❍ Yes ❍ No

# 2. Hazards

***Physical Hazards***

A. Flammable ❍ Yes ❍ No B. Corrosive ❍ Yes ❍ No

C. Reactive ❍ Yes ❍ No D. Temperature sensitive ❍ Yes ❍ No

1. Stability (e.g., decomposes, forms peroxides, polymerizes, shelf-life concerns) ❍ Stable ❍ Unstable
2. Known incompatibilities \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Health Hazards***

1. Significant Route(s) of Exposure

 Inhalation Hazard ❍ Yes ❍ No

 Skin Absorption ❍ Yes ❍ No

1. Sensitizer ❍ Yes ❍ No I. Medical Consultation Needed ❍ Yes ❍ No



# 3. Procedure

1. Briefly describe how the material will be used

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Vacuum system used ❍ Yes ❍ No

1. 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



# 5. Location/Designated Area/Personnel

A. Building \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ B. Lab \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. List all individuals who will be using the ChemicaL

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Location where substances will be stored \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Storage Method/Precautions

 ❍ refrigerator/freezer ❍ hood

 ❍ double containment ❍ vented cabinet

 ❍ flammable liquid storage cabinet ❍ other, describe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



# 6. Spills and Decontamination

1. Spill control materials readily available ❍ Yes ❍ No
2. Special personal protective equipment needed (e.g., SCBA) ❍ Yes ❍ No Describe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Decontamination method \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



# 7. Waste Disposal

A. In-lab neutralization ❍ Yes ❍ No B. Deactivation ❍ Yes ❍ No

C. Dispose as hazardous waste ❍ Yes ❍ No



# 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.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (Faculty Mentor) Chemical Hygiene Coordinator

# 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.

# 1. Substance Information

1. Enter name and CAS (Chemical Abstract Service) number of the PHS.
2. *Carcinogen*: if on IARC, OSHA or NTP list *Reproductive toxin*: mutagens, teratogens, embryotoxins

*High Acute Toxicity:* oral LD50 ≤ 50 mg/kg, skin LD50 ≤ 200 mg, air LC50 ≤ 200 ppm or ≤ 2 mg/l.

See Chemical Hygiene Plan for more information.

1. Self-explanatory
2. MSDS may be available in hard copy or via the internet.

# 2. Hazards

Refer to *Physical Properties* section of MSDS

1. *Flammable liquid*: flashpoint ≤ 100° 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

1. *Corrosive*: Causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.
2. *Reactive*: May become unstable or contact with water produces flammable or toxic gas.
3. *Temperature Sensitive:* Must be kept within a certain temperature range to ensure stability.
4. *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.
5. List chemicals or materials that might cause instability or adverse conditions if mixed with the particularly hazardous substance(s).
6. *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.

1. 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.
2. Some chemicals can accumulate in body tissues and may require initial or periodic medical surveillance.

# 3. Procedure

1. Briefly describe the part of the experimental procedure that involves the substance, with particular attention to how the chemical will be manipulated.
2. Vacuum systems include central vacuum systems and vacuum pumps within the lab.
3. 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

1. A fume hood should be used for chemicals that may produce vapors, mists, or fumes, or if the procedure may cause generation of aerosols.
2. 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.
3. 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.
4. ***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 MSDS, 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 the Chemical Hygiene Coordinator.

***Self-Contained Breathing Apparatus***(SCBA). Contact the Chimical Hygiene Coordinator if you feel an SCBA is necessary

# Location/Designated Area

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

1. List all individuals that will be using the chemical.

This room or area must be posted with a *Designated Area* sticker available through the Chemical Hygiene Coordinator or on the Lab Safety Page of the College of Science and Health Web Page

1. Describe where the substance will be stored. Be specific, e.g, on a shelf, in a refrigerator, in a hood, etc.
2. 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

1. Some corrosive chemicals may be neutralized before disposal via the drain or the hazardous waste program.
2. Some materials, such as ethidium bromide, can be chemically deactivated before disposal via the drain or the hazardous waste program.
3. Particularly hazardous substances must not be poured down the drain without consulting the Chemical Hygiene Coordinator.