



Particularly Hazardous Substance (PHS) Assessment Form

The UNMC Environmental Health and Safety, Chemical Hygiene Plan and Laboratory Safety Manual are resources available to university personnel that can be used as guidelines for complying with OSHA's Standard for Occupational Exposures to Hazardous Chemicals in Laboratories. Additional information may be found in the National Research Council's publication *Prudent Practices in the Laboratory* in the chapter entitled 'Working with Chemicals' that is available on-line from the National Academies Press.

Particularly Hazardous Substance (PHS) include chemicals that are known or suspect carcinogens, reproductive toxins, and/or highly toxic materials. Before working with any PHS, it is advisable that you perform an assessment to determine if additional protective work practices are needed. The listing provided in the Hazardous Material Fact Sheet, [PHS List](#) contains examples of chemicals that may be used in your lab. They are examples of Particularly Hazardous Substances (PHS) which are a special subset of OSHA Hazardous Chemicals.

Principal Investigator _____ **Building/Room** _____

1. Substance Information

A. Chemical Name: _____ CAS number: _____

B. ☐ Carcinogen ☐ Reproductive Toxin ☐ High Acute Toxicity ☐ Mutagen

C. Attach Safety Data Sheet (SDS) to this document

2. Hazards

Physical Hazards	Yes	No
A. Flammable		
B. Corrosive		
C. Reactive		
D. Temperature Sensitive		

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

F. Known incompatibilities: _____

Health Hazards Significant Routes of Exposure	Yes	No
G. Inhalation Hazard		
H. Skin Absorption		
I. Sensitizer		

3. Procedure

Briefly describe how the material will be used.

[illegible]

4. Exposure Controls

Ventilation/Isolation

- A. Is a hood required?** ☐ Yes ☐ No

- B. Is a glove box required?** ☐ Yes ☐ No

- C. Personnel Protective Equipment (PPE) *mark all the apply**

- ☐ Safety Glasses ☐ Chemical Splash Goggles ☐ Face Shield ☐ Apron

- ☐ Lab Coat ☐ Gloves (type: _____) ☐ Respirator (type: _____)

*Annual fit testing required

- ☐ Other, please describe:

5. Location/Designated Area

A. Building _____

B. Room _____

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

D. Storage Method/Precautions *mark all that apply

☐ Refrigerator/Freezer ☐ Hood ☐ Vented cabinet ☐ Double containment

☐ Flammable Liquids Cabinet ☐ Other, please describe: _____

6. Spills and Decontamination

A. Are spill control materials readily available? ☐ Yes ☐ No

B. Have you reviewed the [UNMC Chemical Spill Plan](#)? ☐ Yes ☐ No

C. Decontamination Method:

7. Waste Disposal

A. Have you reviewed waste disposal guidelines? ☐ Yes ☐ No

Please reference [Hazardous Materials Facts Sheets](#) for chemical disposal information at UNMC.

8. Authorization

Individual working with this substance 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.

Authorized User(s) of this Material/Substance	
First Name:	Last Name:
First Name:	Last Name:
First Name:	Last Name:
First Name:	Last Name:
First Name:	Last Name:
First Name:	Last Name:
First Name:	Last Name:
First Name:	Last Name:

Signature of Principal Investigator

Date

Key to Form

Use of 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. Each individual planning to use a PHS **must** complete this form and have it approved by their Principal Investigator. Responsibility for determining whether a chemical is a PHS and completing this form rests jointly with the Principal Investigator/Supervisor and the individual seeking use approval. To simplify the approval process, utilize the developed list in the Hazardous Material Fact Sheet, Laboratory Standard List for PHS.

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 LD₅₀ ≤ 50 mg/kg, skin LD₅₀ ≤ 200 mg, air LC₅₀ ≤ 200 ppm or ≤ 2 mg/l.
- C. SDS may be available in hard copy or via the internet.

2. Hazards

Refer to *Physical Properties* section of SDS.

- A. *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.
- 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. *Skin Absorption*: substance is readily absorbed through the skin or can cause significant damage to skin upon contact.
- I. *Sensitizer*: 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.

Some chemicals can accumulate in body tissues and may require initial or periodic medical surveillance. Contact EHS at (402) 559-6356 for more information.

3. Procedure

Briefly describe the part of the experimental procedure that involves the substance, with particular attention to how the chemical will be manipulated. Vacuum systems include central vacuum systems and vacuum pumps within the lab. 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.
- B.** A glove box is an important device used in research laboratories and industry to work with air- and water sensitive compounds, and radioactive and biohazardous materials. Glove boxes provide an isolated and enclosed environment with an inert atmosphere.
- C.** *Personal protective equipment (PPE)* is protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection.
- *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. Reference the SDS for specific glove type use.
 - *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. Personnel must be fit tested annually to wear a respirator. Contact EHS for additional information on respirator fit testing.

D. Location/Designated Area

- A.** Provide the building information where the substance will be used.
- B.** Provide the room information where the substance will be used.
- C.** Describe where in this room that the substance will be used, on how this area will be posted as a designated area for use of the substance. For example, in a hood, on a specific benchtop, in several areas of the lab.
- D.** Describe where the substance will be store. Please be specific (i.e., in a flammable liquids storage cabinet). *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.** A chemical spill kits must be readily accessible in the laboratory. Please reference the Hazardous Material Fact Sheet, [Chemical Spill Kits](#) for additional information.
- 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.** Please reference [Hazardous Materials Facts Sheets](#) for chemical disposal information at UNMC.

8. Authorization

Self -explanatory.