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# Particularly Hazardous Substance Use Approval Form

Before using any particularly hazardous substance (PHS), please complete this form and submit to IBSCSC@etsu.edu to be reviewed by the Biosafety & Chemical Safety Committee. See the instructions below for more complete definitions of particularly hazardous substances and instructions for completing this form.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name: |  | Phone: |  | Building: |  |
| Department: |  | Supervisor/Chair/Administrator: |  |
| PO Box #: |  | E-mail Address: |  |
| Project Title: |  |

# 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. Safety Data Sheet (SDS) reviewed and readily available [ ]  Yes [ ]  No2. 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 Monitoring Needed [ ]  Yes [ ]  No

# 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. Fume hood required [ ]  Yes [ ]  No *See hood sticker for the following information*

 If yes, hood currently operates at greater than 90 feet per minute face velocity [ ]  Yes [ ]  No

 EH&S Hood number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B. Glove box required [ ]  Yes [ ]  No

C. Animal studies involved [ ]  Yes [ ]  No - **If YES, please complete APPENDIX A.**

D. If yes, is the chemical or its metabolites present in the animals’ feces/urine where disposal of bedding may

 present an exposure hazard (i.e. inhalation hazard) [ ]  Yes [ ]  No

If yes, describe safety procedure(s) to reduce exposure risks to personnel (i.e. biosafety cabinets used while handling bedding) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## E. Personal Protective Equipment (PPE) (Check all that apply)

[ ]  Safety glasses [ ]  Chemical splash goggles [ ]  Face shield

[ ]  Gloves (type \_\_\_\_\_\_\_\_\_) [ ]  Lab coat [ ]  Apron

[ ]  Respirator

[ ]  Other, please describe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# 6. Spills and Decontamination

A. Spill control materials readily available [ ]  Yes [ ]  No

B. Special personal protective equipment needed [ ]  Yes [ ]  No Describe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C. Decontamination method \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# 7. Waste Disposal

A. In-lab neutralization [ ]  Yes [ ]  No

If yes, describe neutralization method\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B. Deactivation [ ]  Yes [ ]  No

C. Dispose as hazardous waste [ ]  Yes [ ]  No

# 8. Authorization (Project Personnel)

These individuals have demonstrated an understanding of the hazards of the listed substance and have completed training on safe handling of the substance in a manner that minimizes risk to health and property:

|  |  |
| --- | --- |
| NAME | TITLE |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**9. Principal Investigator AFFIRMATION:**

I accept responsibility for the safe conduct of work with this material. I accept responsibility for ensuring that all personnel associated with this work have received the appropriate training on the hazards and the level of containment required to perform this research safely. I will report to Biosafety and Chemical Safety Committee any accident or incident that results in a potentially toxic exposure to personnel or any incident releasing recombinant DNA or other potentially hazardous materials into the environment.

|  |  |
| --- | --- |
| Principal/Responsible Investigator (please type or print): |  |

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grant Agency: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Award #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**10. Project Personnel AFFIRMATION:**  (All personnel listed in Section 8 must complete individually)

I accept responsibility for the safe conduct of work with this material and have received the appropriate training on the hazards and the level of containment required to perform this research safely. I will report to the Principal Investigator and the Biosafety and Chemical Safety Committee any accident or incident that results in a potentially toxic exposure to personnel or any incident releasing recombinant DNA or other potentially hazardous materials into the environment.

Project Personnel Names (please type):

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Add as many lines as necessary to allow for signatures for all personnel you listed.)

**Appendix A: Animal Safety Protocol**

|  |  |
| --- | --- |
| **Animal Safety Protocol For** **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ In Mice And Rats****\_\_\_\_\_ type of \_\_\_\_\_\_\_ TOXIN** | https://www.osha.gov/dsg/hazcom/pictograms/image7.jpg |
| **Investigator Name:****IACUC #:****Emergency Phone #:** **Date:** | **IBSCSC Approval** **Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| Investigator Responsibility-**Notification of Animal Resources:** | Research staff will inform animal care staff ahead of time that **\_\_\_\_\_\_\_\_\_\_\_\_\_** will be used, and arrangements will be made for housing of animals. Fresh cages will be used for the animals at the time of administration. |
| All Responsible-**Basic Precautions:** | ***NOTE THAT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will be administered continuously for up to \_\_\_\_\_\_ days/weeks/months so precautions will need to be followed for the duration of study when handling animal cages.**** Animal bedding is not to be changed for at least \_\_\_\_ days after the administration of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Disposable gown and a 2nd pair of nitrile gloves in addition to the usual protective clothing worn.
* Safety glasses with side shields at a minimum will be worn.
* Additional PPE should be removed before leaving the animal room.
 |
| Investigator’s Responsibility-**Posting** **Requirements:** | * This ASP will be posted on the door of the cubicle in which the animals will be housed.
* Cages will be labeled with a green card denoting **“\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”** along with date of the initial administration and stated that “\_\_\_\_\_\_\_\_\_\_ will be administered continuously for \_\_\_\_\_ days/weeks/months
 |
| Investigator’s Responsibility-**Administration:** | Follow dosage and precautions in the PI’s approved IBC protocol. |
| DLAR Responsibility-**Cage Change:** | The **first cage change** after the initial drug administration is to be done by the animal care technicians **no sooner than** **\_\_\_\_\_\_ days after administration.**  The bedding is considered contaminated for the duration of the study. ***All cage manipulations/changes that occur during the study must be done using the requirements listed above in the Basic Precautions following the below procedures.*** * Transfer the animals to clean cages.
* Replace the tops on the soiled cages and transport to dirty cage wash.
* Cages are dumped using a HEPA filtered dumping station that draws air away from the user.
* Soiled cages are processed in rack washer
 |

# Key to Form[[1]](#footnote-1)\*

# 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. **If you are submitting your Protocol Submissions, and chemical(s) used in your study are considered PHS, then the Biosafety Committee will request that you complete this form and submit to the committee.**

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, EH&S 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 EH&S at x9-6028.

# 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.
3. Self-explanatory
4. SDS may be available in hard copy or via the internet at EH&S’s website at <http://healthsafety.etsu.edu/> .

# 2. Hazards

Refer to *Physical Properties* section of SDS

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
2. *Corrosive*: Causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.
3. *Reactive*: May become unstable or contact with water produces flammable or toxic gas.
4. *Temperature Sensitive:* Must be kept within a certain temperature range to ensure stability.
5. *Unstable*: substance will vigorously polymer-ize, 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.
6. List chemicals or materials that might cause instability or adverse conditions if mixed with the particularly hazardous substance(s).
7. *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.
8. 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.
9. Some chemicals can accumulate in body tissues and may require initial or periodic medical surveillance. Contact EH&S for more information.

# 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.

The hood must have an average face velocity of greater than 90 feet per minute. This measurement is noted on the hood survey sticker. If the hood has not been inspected within the past year, contact EH&S at x9-6028 for re-inspection before using the hood.

The E&HS hood number is noted on the top of the fume hood inspection sticker.

1. 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.
2. Self – explanatory
3. If the chemical or metabolites is present in feces/urine and an exposure hazard exists in handling the cage and bedding material, describe how you will minimize the exposure potential to the researchers or others handling these materials.
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 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 EH&S. Contact EH&S at 9-6028 if a respirator is needed.

# Location/Designated Area

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

1. 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.
2. Describe where the substance will be stored. Be specific, e.g, on a shelf, in a refrigerator, in a hood, etc.
3. 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.

1. 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. See the EH&S web page for more information about the hazardous waste program. Particularly hazardous substances shall not be poured down the drain. Consult with EH&S for the proper disposal instructions.
1. \* NOTE: Much of the information requested for this form is available from the chemical's safety data sheet (SDS) or the container label. [↑](#footnote-ref-1)