

Standard Operating Procedure

SAMPLE

Using This Form

For purposes of this form, a highly toxic chemical includes select carcinogens, reproductive toxins, and substances with a high degree of acute toxicity. A more complete definition is included in the Institutional Chemical Hygiene Plan. Each researcher planning to use a toxic chemical must complete this form and have it approved by their Principal Investigator or supervisor. Responsibility for determining whether a chemical is a toxic chemical and completing this form rests jointly with the supervisor, principle investigator and individual seeking approval.

Substance Information

Carcinogen: if on IARC, OSHA or NTP list. **Reproductive toxin:** mutagens, teratogens, embryotoxins. **Heavy Metals:** Arsenic, Cadmium, Lead, Mercury, Thallium, etc. **Pyrophoric Materials:** Substances which are liable to ignite spontaneously upon exposure to air. **High Acute Toxicity:** Oral LD50 < 50 mg/kg, skin LD50 < 200 mg, air LC50 < 200 ppm or < 2 ppm. **SDS** may be available in hard copy or via the internet.

Hazards (Refer to *Physical Properties* section of SDS)

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. **Corrosive:** causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. **Reactive:** May become unstable or contact with water produces flammable or toxic gas. **Temperature Sensitive:** within a certain temperature range to ensure stability. **Unstable:** substance will vigorously polymerize, decompose, condense, or will become reactive under conditions of shock, or high or elevated pressure or temperature. Also includes time sensitive materials, particularly those that produce peroxides over time. **Incompatibilities:** chemicals or materials that might cause instability or adverse conditions if mixed with the particularly hazardous substance(s). **Inhalation:** inhalation of the substance may cause adverse health effects. **Skin Effects:** substance is readily absorbed through the skin or can cause significant damage to skin upon contact. **Sensitizer:** chemicals are known to affect 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. **Environmental Health and Radiation Safety** for more information.

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. Catch traps or filters are some examples of such measures. Toxic chemicals administered to animals may pose a hazard to animal handlers via contact with excreta and metabolites. Separate Hazard Controls will be designated on another sheet and on the door to your animal room. You are required to comply with all posted Personal Protective Equipment Signage and recommendations.

Location/Designated Area

Building and room number where the substance will be used. 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. Describe where the substance will be stored. Be specific, e.g., on a shelf, in a refrigerator, in a hood, etc. **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.

Spills, Decontamination and Waste Disposal

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. Some corrosive chemicals may be neutralized before disposal via the drain or the hazardous waste program. Some materials, such as ethidium bromide, can be chemically deactivated before disposal via the drain or the hazardous waste program. **Environmental Health and Radiation Safety** for more information about the hazardous waste program. Toxic chemicals must not be poured down the drain without consulting Safety.

Exposure Controls

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 shields* with splash goggles, provides full face protection when working with large volumes of chemicals or exposed to bright light. *Gloves* should be worn when working with any particularly hazardous substance. Since not all gloves provide significant protection from every chemical, it is important to choose the glove that resists the chemical. See the SDS, glove manufacturer compatibility charts, or contact Safety and Health for more information. *Lab coats* should be worn when working with hazardous substances.