

Principal Investigator: _____

Date Approved: _____

This Chemical Safety Protocol (CSP) covers basic chemical safety information for mercury and organomercury compounds and supplements the laboratory Chemical Hygiene Plan as appropriate. Additional lab-specific safety operating procedures for mercury and organomercury compounds may also be required. The use of any mercury and organomercury compounds is subject to pre-approval by the Principal Investigator (PI) and/or the designated Laboratory Responsible Safety Person. DO NOT USE ANY USE MERCURY OR ANY ORGANOMERCURY UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL AND TRAINING.

Mercury and Organomercury

Mercury is primarily used in the manufacture of industrial chemicals or for electrical/electronic applications. It can be found in some thermometers, especially older ones or ones which are used to measure high temperatures. Mercury is also found in the gas phase in fluorescent lamps. It is a reproductive toxicant and acutely toxic by inhalation.



Organomercury compounds are substances with at least one mercury-carbon bond. These substances are primarily used in organic synthesis or as antiseptics and fungicides. Low molecular weight organomercury compounds (e.g. dimethylmercury) can easily penetrate human skin and protective materials. Organomercury compounds are acutely toxic by all exposure routes, and dimethyl mercury is also carcinogenic and flammable.



Personal Protective Equipment & Personnel Monitoring

**Lab Coat**

Traditional white lab coat. Consider using a flame resistant lab coat when working with dimethylmercury, as it is flammable.

**Gloves**

Nitrile gloves typically provide adequate protection against minor splashes. Silver Shield/4H gloves worn underneath nitrile gloves can provide added protection when handling large quantities – or whenever dimethylmercury is used.

Do not wear latex gloves.

**Eye Protection****Face Shield**

ANSI Z87.1-compliant safety glasses or safety goggles, or face shield if a splash hazard is present.

Labeling & Storage

Store upright & tightly closed in a secondary container located in a cool, dry, and well-ventilated place. Keep away from incompatible materials, light, heat, and (especially in the case of dimethylmercury) ignition sources. Incompatible materials include strong oxidizing agents, ammonia, azides, and copper. Each container's label must include a skull-and-crossbones pictogram, the word "Danger", and identify the material as both acutely toxic and a reproductive toxicant or carcinogen. Containers of mercury or organomercury must be stored in leak-proof secondary containment within a Designated Area. Use an unbreakable secondary container when transporting mercury thermometers or other mercury-containing equipment. Dispense mercury over a secondary container to contain spills. Place a plastic tub under equipment containing large amounts of mercury. The secondary container's

label must include a skull-and-crossbones pictogram, the word "Danger", and identify the material as both acutely toxic and a reproductive toxicant or carcinogen. Also, if not plainly visible (e.g. through a cabinet window), labeling must be applied to storage locations where these substances are kept to avoid an inadvertent encounter.

Engineering Controls, Equipment & Materials

Fume Hood

Use a fume hood when working with materials which are toxic by inhalation. If your protocol does not permit the handling of such materials in a fume hood, contact the Office of Environment, Health, Safety, and Sustainability (EHSS) to determine whether additional respiratory protection is warranted.

Housekeeping

Releases

Immediately notify others in the area of the release and evacuate the location where the release occurred. Notify your PI/Responsible Safety Person and call Vanderbilt University Public Safety (VUPS) at 615-421-1911 or use the Vandysafe app on your smart phone. Report any exposure through Risk and Insurance Management's Origami portal and mark that it occurred in research when prompted. Both VUPS and the Origami system will notify EHS of the incident. Remain on-site at a safe distance to provide detailed information to first responders.

Decontamination

Decontamination methods will vary based on the materials handled and equipment being used. Please review the chemical SDS for guidance on cleaning materials.

Waste

Refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

First Aid & Emergencies

Skin Contact

Immediately remove contaminated clothing and shoes; flush skin with water for at least 15 minutes. Get medical attention immediately.

Eye Contact

Check for and remove contact lenses. Immediately flush eyes with water for at least 15 minutes. Get medical attention immediately.

Inhalation

Move person into fresh air. Get medical attention immediately.

Ingestion

Get medical attention immediately.

