



## LABORATORY SAFETY GUIDELINE

### Dimethylmercury [CAS No. 589-74-8]

All dimethylmercury users at Harvard must review this document and should contact their EHS Laboratory Safety Advisor and department safety officer prior to using this substance. Dimethylmercury is a clear liquid that is much denser than water. It has a weak, sweet odor and is volatile (with a high vapor pressure of 50-82 mm Hg at 20 °C).

<b>HAZARDS</b>	Highly toxic if absorbed through the skin, contacted by the eyes, swallowed, or inhaled. A neurotoxin that causes severe and irreversible health effects, including death, after skin exposure to very small amounts (<1mL).
	Suspected of causing cancer. Additionally, a developing fetus whose mother is exposed to dimethylmercury may be born with birth defects.
	Highly flammable (both liquid and vapor).
	Very toxic to aquatic life.

## PRECAUTIONS

### **Before starting work:**

- Determine if you can use a less hazardous substance in place of dimethylmercury (e.g., mercury salts);
- Review manufacturer's Safety Data Sheet and additional chemical information at <http://www.ehs.harvard.edu/safety-data-sheets-sds>;
- Ensure that a written experimental protocol including safety information is available;
- Be familiar with general University emergency procedures in the [EHS Emergency Response Guide](#);
- Order the most dilute solutions available that will meet experimental needs. Order only the quantity that you need;
- Identify the location of the nearest eyewash and shower and verify that they are accessible;
- Locate and verify that appropriate dimethylmercury spill cleanup materials are available, including the following:
  - polypropylene absorbent pads or equivalent; and
  - polypropylene containers that can hold the pads and be sealed tightly;
- Post a sign in the work area: "Danger: Dimethylmercury used in this Area"; and
- Do not work alone! Ensure another person who is familiar with your work and dimethylmercury hazards is in the area.

### **During work:**

- **AVOID INHALATION!** Perform all operations in a certified chemical fume hood. Keep the chemical fume hood sash lowered to about elbow height to protect your face and neck.
- **AVOID CONTACT!** Use appropriate personal protective equipment (PPE):
  - Wear a lab coat, a chemically-resistant apron over long pants, shirt and closed-toed shoes.

- Use highly-resistant laminate gloves (e.g., Silver Shield™ or 4H) under a pair of long-cuffed, 6 mil (minimum thickness) nitrile gloves to provide the best protection against dimethylmercury. DO NOT use latex, PVC, butyl, or neoprene gloves. [Highly toxic dimethylmercury penetrates these materials rapidly](#);
- Gloves must be thoroughly inspected prior to each use. Do not use damaged gloves;
- Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with dimethylmercury;
- Change gloves (outer and inner) at least once an hour and immediately whenever you suspect dimethylmercury has contacted your gloves;
- Wear chemically-protective goggles.
- Wash hands and forearms thoroughly with soap and water each time gloves are removed;
- Generally, because dimethylmercury can penetrate many plastics, glass containers (e.g., reaction vials) and materials work well. Keep in mind, however, that glass is fragile – overpack glass containers in plastic containers
- Keep all containers tightly closed when not in use and during transport.

### **After completing the work**

- Dispose of waste dimethylmercury following Harvard University [Hazardous Waste Procedures](#). Note that empty containers and other materials that once contacted dimethylmercury should also be disposed as hazardous waste.
  - Hazardous Waste Classification: Toxic
- Return container to storage area following Harvard University [Laboratory Chemical Storage Guide](#)
  - Storage Group FL [Flammable Liquids]
  - Store in original containers.
- Wash hands and forearms thoroughly with soap and water before leaving the lab.

## **EMERGENCY PROCEDURES**

### **First Aid**

#### SKIN CONTACT

- Flush skin with water for 15 minutes using the closest available sink, portable drench hose or safety shower. Remove any exposed clothing as well as any jewelry that may be trapping dimethylmercury;
- Call 911 on a landline phone for medical assistance (or provide location if calling on a mobile phone).

#### EYE CONTACT

- Using eyewash, flush eyes while holding eyelids open;
- Call 911 for medical assistance;
- Continue flushing eyes with water until emergency medical personnel arrive.

#### INHALATION

- If dimethylmercury mist or vapors are inhaled, immediately move to get fresh air;
- Call 911 for medical assistance.

#### INGESTION

- Do not induce vomiting;
- Call 911 for medical assistance;
- Rinse mouth with water if conscious;
- Never give anything by mouth to an unconscious person.

### **Spill Response**

#### OUTSIDE FUME HOOD OR VENTILATED ENCLOSURE

- Alert others and evacuate to a safe distance and prevent entry.
- Contact the University Operations Center at (617) 495-5560 [HMS/HSDM (617) 432-1901]
- Remain in a safe location until EHS or other response personnel arrive.

#### INSIDE FUME HOOD OR VENTILATED ENCLOSURE (< 500 ml)

- If trained and confident, apply polypropylene absorbent pads or equivalent from a spill kit. During clean-up, ensure you are wearing PPE described above plus a face shield if the hood sash needs to be raised.
- Otherwise close the fume hood sash and await support.