Standard Operating Procedure

**Mercury**

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and insert into your
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.
Refer to instructions for assistance.

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:** [ ]  Process [x] Hazardous Chemical [x]  Hazardous Class

**Purpose**

Mercury (Hg) is a reproductive toxin and a carcinogen. Mercury was once used in thermometers and other scientific devices. Concerns about the element's toxicity have led to mercury being replaced by alcohol-filled or digitally-based instruments. It remains in use in scientific research applications and in amalgam material for dental restoration.

**Physical & Chemical Properties/Definition of Chemical Group**

CAS#: 7439-97-6

Class: **Reproductive toxin, carcinogen**

Molecular Formula: Hg

Form (physical state): Heavy liquid

Color: Silver

 Boiling point: 356.73°C (674.1°F)

**Potential Hazards/Toxicity**

Eye irritation and possible burns. Ulceration of the conjunctiva and cornea in case of eye contact. Skin sensitization, irritation, and possible burns. May cause skin rash and cold and clammy skin with cyanosis or pale color.May cause perforation of the digestive tract. Causes chemical burns to the respiratory tract. May cause respiratory sensitization. May cause reproductive and fetal effects. May cause permanent central nervous system damage. Prolonged or repeated exposure may cause inflammation of the mouth and gums, excessive salivation, and loosening of the teeth.

**Personal Protective Equipment (PPE)**

A ½ or full face respirator equipped with appropriate cartridges should be used any time there is the potential for exposure to vapor and/or dust and a fume hood cannot be used.

**Respirator Protection:**

Respirators should be used only under any of the following circumstances:

* As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
* When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded.
* Regulations require the use of a respirator.
* An employer requires the use of a respirator.
* There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL)
* As PPE in the event of a chemical spill clean-up process

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by ORS and should contact occhealt@uga.edu. This is a UGA requirement described in more detail in the [UGA Respiratory Protection Plan](https://esd.uga.edu/sites/default/files/respiratoryprotection.pdf) and supported by the [Office of Research Occupational Health and Safety Program](https://research.uga.edu/ohsp/).

**Hand Protection**

Handle only with extended cuff, Neoprene/Nitrile disposable gloves.

NOTE: Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with mercury.

Refer to glove selection chart from the links below:

<http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

**Eye Protection**

ANSI approved safety glasses or goggles.

**Skin and Body Protection**

Lab coats should be worn. These laboratory coats must be appropriately sized for the individual and be buttoned to their full length. Laboratory coat sleeves must be of a sufficient length to prevent skin exposure while wearing gloves. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle should not be exposed.

**Hygiene Measures**

Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse.

**Engineering Controls**

* All operations involving Mercury must be carried out in a certified chemical fume hood.
* Chemical fume hoods used as containment areas for Mercury must have a face velocity of 100 linear feet/minute averaged over the face of the fume hood.
* Laboratory rooms must be at negative pressure with respect to the corridors and external environment. To achieve this, the laboratory/room door must be kept closed at all times.

**First Aid Procedures**

**If inhaled**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**In case of skin contact**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**In case of eye contact**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Tepid / warm water must be used. Get medical attention immediately.

**If swallowed**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Special Handling and Storage Requirements**

As a part of hazard communication, clearly label Mercury storage area as ‘Mercury storage area – Reproductive Toxin’. Even the secondary containment must be clearly labeled. Always store in a Nalgene/polypropylene secondary container. Keep mercury container dry. Do not breathe fumes/ vapor. Never add water to mercury. Keep away from incompatibles such as oxidizing agents, metals. Keep container tightly closed at all times. Containers must be in good condition. Keep container in a cool, well-ventilated area. Do not store above 25°C (77°F)

**Spill and Accident Procedure**

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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# **Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

All dry hazardous waste (such as Hg contaminated gloves, Hg contaminated lab coats, pipettes, vials etc.), must be double bagged (*use transparent bags only*) and affixed with an on-line waste tag.

On the on-line waste tag for the dry waste generated from Mercury;

**Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

**Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with Mercury, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

**Principal Investigator SOP Approval**

Print name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approval Date:

I have read and understand the content of this SOP:

|  |  |  |
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| **Name** | **Signature** | **Date** |
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