Standard Operating Procedure

Ethyleneimine or Aziridine

*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.

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| --- | --- |
| **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 ☒Hazardous Chemical ☐ Hazardous Class

**Purpose**

This SOP is designed to provide a general description of how to safely work with ethyleneimine. Ethyleneimine is a **Regulated Carcinogen**.This SOP is general in nature, and since ethyleneimine can be used for a variety of different processes (nucleophilic ring opening, 1,3-dipole formation), other SOPs may be aplicable to the desired process as well. If there are additional questions regarding the use of ethyleneimine in a specific process, please consult the PI.

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

Ethyleneimine is a colorless liquid with an ammonia-like smell. It has a melting point of -78oC, a boiling point of 56oC, and a flash point of -11oC. It is a highly flammable chemical that reacts with a wide variety of materials.

**Potential Hazards/Toxicity**

Ethyleneimine is a poison. It is toxic if swallowed, inhaled or absorbed through the skin. It is a carcinogen and a reproductive hazard. It is a chemical that is readily absorbed through skin and may cause sensitization. It is a severe irritant.

**Personal Protective Equipment (PPE)**

Gloves (heavy duty nitrile, viton or butyl), approved eye protection, lab coat, and appropriate lab attire (closed-toe shoes, long pants, etc.) are required whenever working with ethyleneimine**.** Good ventilation is also required. If splash occurs replace gloves immediately.

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/).

**Engineering Controls**

A functioning certified ducted fume hood with adequate ventilation is required for all procedures involving ethyleneimine.

**First Aid Procedures**

In case of contact, remove contaminated materials (gloves, clothing, etc.) and wash the affected area with water. Consult the SDS for further guidance depending on the type of exposure.

**Special Handling and Storage Requirements**

Ethyleneimine and it’s solutions must be stored in a secondary container. It must be segregated from other chemicals that are not classified as select or regulated carcinogens and labeled as a carinogen.

**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”]**

**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**

Ethyleneimine is a three membered heterocyclic organic compound with one amine group and two methylene groups. It is a very reactive substrate in ring-opening reactions with many nucleophiles due to it’s ring strain. All work should be carried out inside a functioning chemical fume hood with appropriate PPE. After work is completed, the area should be cleaned, and any contaminated materials disposed of properly. Before leaving the work area, researchers should wash their hands in order to reduce the risk of contamination of non-lab areas.

**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 Ethionamide, 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:

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