

**STANDARD OPERATING PROCEDURE**

**Chloroform**

According to the Safety Data Sheet (SDS) for **Chloroform** special precautions must be taken when working with this chemical. Below are some of the characteristics of **Chloroform** followed by some recommendations in handling the chemical and finally any paperwork needed in order to use the chemical in the laboratory. This Standard Operating Procedure will be followed along with the requirements of the Chemical Hygiene Plan.

GHS Classifications: **Signal Word: Warning**

 **Pictograms: General Hazard and Health Hazard**

Additional Classification: **Carcinogen, Reproductive Toxin and Department of Homeland Security (DHS) Chemical of Interest**

Brief description of proposed chemical work: **Chloroform is commonly used as a solvent in the laboratory and as a reagent in organic synthesis.**

**Section 1: Brief Safety Overview:**

● The Principal Investigator is responsible for training employees using the material on site. The training should include a discussion of the known and potential hazards; an explanation of the relevant policies, techniques and procedures including the proper use of personal protective equipment, emergency/spill procedures and containment equipment (engineering controls).

● Limit access to authorized users.

● Minimize the possibility of inadvertent ingestion, inhalation and direct skin or eye contact with the substance.

● Chemical has been entered in the Chemical Inventory (EHS Assistant)

● Require annual training.

**Section 2: Research Laboratory Procedures**

* **Handling Instructions**

Example: (Preparation of the stock solutions): **Preparation can depend upon the laboratory practices. Proper laboratory procedure must be followed and employees must be trained to handle the material.**

* **Storage:**

**Chloroform may explode if it comes in contact with acetone, alkalis, aluminum powder, lithium, perchlorate pentoxide, bis-dimethylanstannane, potassium, potassium-sodium alloy, sodium or methanol. Chloroform should be protected from heat sources, direct sunlight, and moisture. Chemicals should never be stored above eye level. Chemical containers must be closed and labeled.**

***Location – Engineering controls***

[x]  Ventilation (example: Fume Hood, Canopy Hoods, etc): **Fume Hood**

[x]  Designated area (specify): **Fume Hood**

***PPE required:***

[x]  Skin/Body Protection (example: Lab Coat) **Laboratory Coat**

[x]  Eye protection

[ ]  Face shield

[ ]  Respirator (example: N95):

[x]  Hand protection (example: Nitrile gloves): **Polyvinyl Alcohol (PVA) or** ***Other Chemically Compatible Gloves***

* **Cleanup/Decontamination procedures for work area after use:**

**Laboratory personnel should use 70% Ethanol to decontaminate work surfaces after use.**

* **Disposal Procedures**

**All unused Chloroform or waste must be collected and disposed of through Environmental Health and Safety. Waste must be collected in an appropriate specifically labeled, leak-proof container.**

**Section 3: Occupational Exposures**

* **Routes of Exposure**

Skin - **May be fatal if absorbed through skin.**

Inhalation - **May be fatal if inhaled.**

Ingestion- **May be fatal if ingested.**

Injection- **N/A**

* **Toxicological Effects**

Acute Effects/ Precautionary Safety Measures: **May affect nervous system, gastrointestinal systems, and respiratory system, can cause a coma and death.**

Chronic Effects/ Precautionary Safety Measures: **May be toxic to kidneys, liver and heart. Repeated or prolonged exposure to substance can produce target organ damage.**

* **Occupational Exposure Response and First Aid Measures**

Skin: **Wash skin with plenty of water and remove contaminated clothing. Seek immediate medical treatment.**

Eyes: **Flush eyes for at least 15 minutes while holding eyelids open. Remove contacts if they do not flush out. Seek immediate medical treatment.**

Inhalation: **Remove victim from the exposure area and take to fresh air immediately. Seek immediate medical treatment. Do not perform mouth-to-mouth resuscitation.**

Ingestion: **Do not induce vomiting. Seek immediate medical treatment. Do not perform mouth-to-mouth resuscitation.**

* **Emergency Procedure for Chemical Spills and Accidental Releases**

**Small Spills (less than 1 gallon):**

**Small spills which do not enter drains can be cleaned by trained personnel. Proper PPE must be worn when cleaning the spill. Neutralize the spill with Isopropanol (IPA) or Polyethylene Glycol (PEG) 300. Post the door with the chemical spill sign from the spill kit. Collect all contaminated materials in a bag labeled as “Chloroform waste” and contact Environmental Health and Safety for chemical pickup.**

**Large Spills (more than 1 gallon):**

**Make sure that the fume hood is working properly for appropriate ventilation. Place some absorbent materials on top of the spill. Evacuate all personnel from the space and shut the door. Post the door with the chemical spill sign from the spill kit. Call Environmental Health and Safety Emergency Response Team and report the chemical spill**

This Standard Operating Procedure must be placed in the Chemical Hygiene Plan and the SDS must be accessible. Also, all laboratory personnel must be familiar with safe handling practices (i.e., training with documentation of training) when working with these chemicals. This must be incorporated into the comprehensive chemical hygiene plan of the laboratory. If you have any questions regarding a comprehensive mandatory laboratory chemical hygiene plan please contact your Representative at Environmental Health and Safety (292-1284).

For any other questions or concerns, please contact:

PI contact information

Name:

Primary Contact Number:

Emergency Contact Number:

P.I. Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_