

Standard Operating Procedure (SOP)



CHLOROFORM

Effective Date: 8/23/2013

Revised Date: 8/23/2013

INTRODUCTION

- This SOP applies to CHLOROFORM. Chloroform is a probable human carcinogen and possible reproductive and developmental toxin. Target organs are: Central nervous system, Blood, Liver, Cardiovascular system, Kidney.

GENERAL LAB RULES

- No eating, drinking, smoking, handling contact lenses, or applying cosmetics in the laboratory.
- Persons shall wear buttoned lab coat, long pants, safety glasses or goggles and appropriate gloves when working with hazardous chemicals.
- Mouth pipetting is prohibited; mechanical pipetting devices are to be used at all times.
- All procedures are performed carefully to minimize the creation of splashes or aerosols.
- Wash hands
 - after handling chemicals materials,
 - after removing gloves, and
 - before leaving the laboratory.

POTENTIAL HAZARDS

- Exposure to fire or high temperatures may release Phosgene, a highly toxic gas.
- Inhalation of vapors may cause headaches, drowsiness, dizziness and / or nausea.
- Eye and skin irritant.

HEALTH HAZARDS

- The OSHA Permissible Exposure Limit for chloroform is 50 ppm as a ceiling limit (exposure must never exceed this level). ACGIH has a threshold limit value (TLV) for chloroform of 10 ppm for an 8-hour workday.
- The odor threshold for chloroform ranges from 85-307 ppm (above OSHA's ceiling limit), so it does not have good warning properties.
- Inhalation** May be harmful if inhaled. Causes respiratory tract irritation. Vapors may cause drowsiness and dizziness.
- Skin** Harmful if absorbed through skin. Causes skin irritation.
- Eyes** Causes eye irritation.
- Ingestion** Harmful if swallowed.

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PERSONAL PROTECTIVE EQUIPMENT

EYE PROTECTION

- Safety glasses, goggles or face shields shall be worn during operations in which CHLOROFORM might contact the eyes (e.g., through vapors or splashes of solution).
- Ordinary (street) prescription glasses do not provide adequate protection. Adequate safety glasses must meet the requirements of the Practice for Occupational Education Eye and Face Protection (ANSI Z87.1-1989) and must be equipped with side shields.

HAND PROTECTION

- Chloroform readily penetrates standard nitrile laboratory gloves (and many other types of gloves).
- Wear two pairs of standard nitrile gloves and work so that gloves do not contact chloroform.
- Remove outer gloves immediately if splashed. Remove inner gloves also if degradation is noted.

LAB COATS, ETC.

- Button lab coats, closed toed shoes, long pants and long sleeved clothing shall be worn when handling CHLOROFORM. Protective clothing shall be worn to prevent any possibility of skin contact with CHLOROFORM.

WORK PRACTICES

- Perform all work using Chloroform in the fume hood.
- Wear two pairs of standard nitrile gloves and work so that gloves do not contact chloroform.
- Remove outer gloves immediately if splashed. Remove inner gloves also if degradation is noted.
- Plan work so that minimal glove contact is expected, and purchase appropriate gloves for cleaning up small spills.
- **If phenol and chloroform will be used together**, please note that phenol is a severe skin hazard and chloroform's easy penetration of nitrile gloves increases the risk of skin contact. Wear doubled **8-mil thick** nitrile gloves (most lab gloves are 4 mils thick), and change gloves immediately if there is a splash.
- If extensive work with phenol and chloroform is done in the lab, use North Silver Shield/4H gloves or reusable [ChemTek Viton/Butyl glove](#) which provides good protection from both of these chemicals.



WAKE FOREST
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SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

- Do not store with incompatible material: Strong oxidizing agents, Strong bases, Magnesium, Sodium/sodium oxides, Lithium.

Additional Lab Specific Special Handling/Storage Procedures



WASTE DISPOSAL

- Chemicals shall not be drain disposed unless prior approval is given by EH&S.
- Excess CHLOROFORM and all waste material containing CHLOROFORM must be placed in a container labeled with the following **"HAZARDOUS WASTE CHLOROFORM"**, AND THE FULL CHEMICAL NAME.
Contact EHS at x3427 for hazardous waste removal.

EMERGENCY PROCEDURES

Emergency Numbers:

Fire and Medical Emergencies	x5911 (911 on cell phone)
Environmental Health and Safety	x3427
Hillcrest Urgent Care (employees)	336-760-8999
Student Health (students only)	x5218
Poison Control	800-222-1222

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FIRST AID			
<ol style="list-style-type: none"> 1. If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Call x5911 for medical assistance. 2. In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off in safety shower for at least 15 minutes. Call x5911 for medical assistance. 3. In case of eye contact: Rinse thoroughly with plenty of water at eyewash for at least 15 minutes and call x5911 for medical assistance. 4. If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Call x5911 for medical assistance. 5. Call x5911 and describe the extent of injuries. 6. Report all accidental exposures to EHS and Human Resources (employees) or Student Health (students). 7. Complete an online injury/illness report if there is an over-exposure to the chemical or if there is an accident involving the chemical. 			
SPILL AND ACCIDENT PROCEDURES			
SPILL QUANTITY		PROPER SPILL RESPONSE	
Spill less than 500 mL		Contact Environmental Health and Safety (x3427) and clean up spill using spill kit. Avoid breathing vapors. Wear Silver Shield, Neoprene, or ChemTek Viton gloves.	
Spill greater than 500 mL		Do not attempt to clean up spill. Leave the area and immediately report to WFU Police (x5911) and EHS (x3427).	