

## Standard Operating Procedure (SOP)



### PHENOL

**Effective Date:** 8/23/2013

**Revised Date:** 8/23/2013

#### INTRODUCTION

- This SOP applies to PHENOL. Phenol is a very toxic mutagen. Target organs are Central nervous system, Kidney, Liver, Pancreas, and Spleen. Phenol is a vesicant and is rapidly absorbed through the skin.

#### GENERAL LAB RULES

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

#### POTENTIAL HAZARDS

- Very hazardous on contact with skin. Corrosive and toxic.

#### HEALTH HAZARDS

- Contact may cause numbness or slight tingling, so employees may not be immediately aware of contact. If absorbed through the skin, it can cause muscle weakness, tremors, loss of coordination, shock, sudden collapse, coma, convulsions, organ damage, and death.
- Inhalation exposure is less likely – it does not evaporate easily at room temperature, but can be inhaled if heated and/or misted, or in the case of a large spill. If inhaled, phenol can cause upper respiratory irritation, lung damage, and CNS impairment. The OSHA PEL and ACGIH TLV are both 5 ppm as an 8 hour time-weighted average.

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#### PERSONAL PROTECTIVE EQUIPMENT

##### EYE PROTECTION

- Safety glasses, goggles or face shields shall be worn during operations in which PHENOL 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

- Use two pair disposable nitrile gloves when working with Phenol. Replace immediately if contaminated.
- Laboratory personnel should thoroughly wash hands with soap and water before and immediately upon removal of gloves.
- If using phenol and chloroform together, North Silver Shield/4H gloves are to be worn.

##### LAB COATS, ETC.

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

#### WORK PRACTICES

- Labs using Phenol or reagents containing Phenol (TRIZOL) will have PEG300 or 400 available in the event of dermal exposure.
- Purchase in a shatter-resistant container if available (such as PVC-coated glass).
- Keep containers closed as much as possible.
- Use in the smallest quantities and lowest concentration practicable for the experiment being performed.
- Avoid heating if possible as this increases risk of inhalation exposure.
- After work with phenol is complete, wipe down work area with soap and water solution.

#### SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS

- Do not store with incompatible material.
- Store in secondary containment away from moisture, strong oxidizers, strong caustics, plastics, rubber, nitric acid, water + heat, and chemically active metals, such as aluminum and magnesium powder, sodium, potassium, and lithium.

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Additional Lab Specific Special Handling/Storage Procedures

#### WASTE DISPOSAL

- Chemicals shall not be drain disposed unless prior approval is given by EH&S.
- Excess PHENOL and all waste material containing PHENOL must be placed in a container labeled with the following **“HAZARDOUS WASTE PHENOL”**, 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

#### FIRST AID

1. If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Call x5911 for medical assistance.
2. **Quickly remove contaminated clothing.**
3. **If a small area of skin has been exposed to phenol, swab polyethylene glycol 300 or 400 (PEG-300 or 400) onto the affected area immediately and repeatedly until the smell of phenol is no longer evident, then seek medical attention. If PEG-300 or 400 is not available, flush area with COPIOUS amounts of water (such as from a drench hose or safety shower) for at least 15 minutes, then seek medical attention.**
4. **For larger areas of exposed skin or eye exposure, flush area with COPIOUS amounts of water for at least 15 minutes, then seek immediate medical attention. Please note that using high-density water irrigation will reduce phenol uptake, but if lesser amounts of water are used it will merely dilute the phenol and increase the area of exposure.**
5. In case of eye contact: Rinse thoroughly with plenty of water at eyewash for at least 15 minutes and call x5911 for medical assistance.
6. If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Call x5911 for medical assistance.



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- 7. Call x5911 and describe the extent of injuries.
- 8. Report all accidental exposures to EHS and Human Resources (employees) or Student Health (students).
- 9. 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).