



SAFE USE OF PHENOL

SafetyNet #22

Phenol (carbolic acid) is a colorless or pink crystalline solid or viscous liquid with a characteristic sweet, tarry odor. It can affect the body if it is inhaled, ingested, or contacts eyes or skin. Exposure to vapors may cause eye, nose and throat irritation. The OSHA Permissible Exposure Limit is 5 ppm (19 mg/m³).

Synonyms: Carbolic acid, hydroxybenzene, monohydroxybenzene, phenyl alcohol, phenol hydroxide.

Hazards With Acute Exposure

- Contact with eyes may cause severe damage and blindness.
- Contact with skin may cause severe burns or systemic poisoning.
- Systemic effects may occur from any route of exposure, especially after skin absorption.

Hazards With Chronic Exposure

- Repeated or prolonged skin exposure to phenol or vapors from heated phenol may cause headache, nausea, dizziness, muscle ache, difficulty swallowing, diarrhea, vomiting, shock, convulsions, and death.
- Phenol affects the central nervous system, liver, and kidneys.

Special Safety Precautions

- Phenol should be used with adequate ventilation to minimize inhalation. When heating phenol, use a water bath inside a chemical fume hood. **Never** heat or melt phenol in an incubator, microwave, drying oven, or similar appliance.
- **Prevent** contact with skin by wearing neoprene gloves, lab coat, and chemical resistant apron.
- **Wear** safety glasses or a face shield if splashing may occur.
- **Store** phenol in a cool, dry, well-ventilated area, away from heated surfaces or ignition sources. Do not store with acids, strong oxidizers, calcium hypochlorite, and aluminum chloride.
- Skin contact requires immediate washing of the affected area with soap and water. Remove contaminated clothing and laundry before wearing again.

- When phenol is heated, it can react vigorously with oxidizing agents.
- Phenol waste should be placed in a properly labeled glass bottle with a securely sealed lid. See SafetyNet #8, “Guidelines for Disposal of Chemical Waste” for more information.
- **Spills of undiluted phenol should be considered serious and cleaned up immediately.** Small liquid spills of 50 ml or less may be absorbed using paper towels, or commercially available absorbent and placed in a sealed container or double plastic bags. If the spill is larger than 50 ml, remove ignition sources, provide adequate ventilation, evacuate the laboratory, close the doors, and call the UC Davis Fire Department at **911**.

Prior to use of phenol or any chemical, it is important to review the manufacturer-specific Material Safety Data Sheet (MSDS). For additional information, contact your EH&S Safety Advisor, EH&S at 752-1493 or ehsdesk@ucdavis.edu.