

DESERT RESEARCH INSTITUTE  
STANDARD OPERATING PROCEDURE

**PHENOL**

(Carbolic acid, hydroxybenzene)

**PROCESS**

Conducting laboratory scale experiments with liquid phenol. Usage area &/or entire lab should be designated with appropriate warnings, per Section 5.7 of the DRI Chemical Hygiene Plan.

**POTENTIAL HAZARDS**

Poison, combustible and toxic via ingestion, inhalation and skin absorption. Phenol is regarded as a substance with good warning properties and has a sweet, medicinal odor. Due to its local anesthetizing properties, skin burns may be painless.

**Acute:** Contact with eyes may cause severe damage and blindness, contact with skin may cause severe burns or systematic poisoning. Ingestion of phenol leads to burning of the mouth and throat with rapid development of digestive disturbances. Acute overexposure by any route may lead to nausea, vomiting, muscle weakness, and coma. As little as 1 gram can be fatal to humans.

**Chronic:** Repeated or prolonged exposure to phenol may cause vomiting, diarrhea, difficulty in swallowing, headache, skin discoloration and injury to the liver. There is some evidence from animal studies that phenol may be a reproductive hazard.

**PERSONAL PROTECTIVE EQUIPMENT**

This chemical is easily absorbed through skin, fatalities have been documented from skin absorption of a relatively small surface area. Use double gloves, Viton (R), rubber or neoprene. ANSI Z87 safety glasses or chemical goggles must be worn, in addition a face shield should be included if splashing may occur. Laboratory coats should be worn when handling phenol. If body splash potential exists, wear a rubber or neoprene apron.

**ENGINEERING CONTROLS**

Large quantities should be used in a chemical hood. Use splash shielding if phenol use is in a pressurized system or if splash or spray is possible. An emergency eyewash must be readily available. A safety shower must also be available if handling quantities of phenol exceed 50 mL.

**SPECIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS**

This chemical is easily absorbed through the skin and extra preventative steps should be taken to ensure skin contact is not made. If airborne exposure is suspected to approach the Threshold Limit Value (5ppm) contact EH&S for proper worksite procedural evaluation. When phenol is heated, it can react violently with oxidizing agents. Keep in a tightly closed container. Store away from oxidizers such as chlorine, bromine and calcium hypochlorite.

**SPILL AND ACCIDENT PROCEDURES**

**Skin contact:** immediately wash with soap and water, being careful not to spread contamination, and remove contaminated clothing.

**Eye contact:** promptly wash with copious amounts of water for 15 minutes (lifting upper and lower lids occasionally) and obtain medical attention immediately.

**Inhalation:** remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:** immediately administer castor oil or other vegetable oil (15-30 cc). Never give anything by mouth to an unconscious person. Be ready to induce vomiting at the advice of physician or Poison Control Center 1-800-222-1222. Get medical attention immediately.

**Incidental spill:** Do not attempt cleanup if you feel unsure of your ability to do so, or if you perceive the risk to be greater than normal laboratory operations. Small spills of 250 mL or less may be absorbed using paper towels, vermiculite, or other absorbent and placed in a sealed container or double plastic bag.

**Large spills:** if the spill is larger than 250 mL, alert others in immediate area, remove ignition sources, provide adequate ventilation, evacuate the laboratory, close the doors, and call EH&S emergency number (775) 742-6330.

**WASTE DISPOSAL PROCEDURES**

Phenol waste should be placed in a properly labeled glass bottle with a securely sealed lid. Request for Waste Disposal forms are located under the EH&S Forms link at <http://safety.dri.edu/>.

**MSDS LOCATION**

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