

FORMALDEHYDE FACT SHEET

Prepared by the UCLA EH&S Staff (Rev. 12/02)



DESCRIPTION

Formaldehyde is a nearly colorless gas with a pungent suffocating odor. Most commonly, it is used as formalin, a liquid solution that is 37% formaldehyde by weight generally inhibited with 6-12% methyl alcohol. It is also used as a solid polymer (paraformaldehyde).

HEALTH HAZARDS

Formaldehyde and its solutions are potential human carcinogens, irritants, and chemical sensitizers.

- **Inhalation:** Concentrations as low as 0.1 parts per million (ppm) in air are capable of causing irritation to the mouth, nose, and throat. Exposure above 25 ppm can cause pulmonary edema (fluid in lungs) which may lead to death. Exposure greater than 100 ppm is immediately dangerous to life and health. If sensitized, inhalation exposure at any concentration may cause allergic respiratory reactions such as asthma, bronchitis, wheezing, and chest tightness.
- **Oral:** Ingestion can cause severe irritation of the mouth, throat, and stomach, nausea, vomiting, convulsions, coma, and death. An oral dose of 30 to 100 ml formalin can be fatal in humans.
- **Skin:** Formalin is a severe skin irritant and sensitizer. Repeated dermal contact may result in sensitization, resulting in allergic dermatitis at relatively low concentrations. Contact causes white discoloration, a burning sensation, drying and scaling of the skin.
- **Eyes:** Concentrations of 3 to 5 ppm may result in severe eye irritation. Direct contact with the eyes and skin may also cause severe burns, blurry vision, and loss of vision. Burns to eyes and skin may have a delayed effect, not appearing for hours after initial contact.
- **Chronic exposure:** Formaldehyde and its solutions are **potential human carcinogens** and have been associated with cancers of the lung and nasal passageways.

PHYSICAL HAZARDS

Formaldehyde and its solutions may ignite when exposed to heat, spark, or flame. Toxic vapors of formic acid may be emitted when formaldehyde is heated.

EXPOSURE LIMITS

California Occupation Safety and Health Administration (Cal/OSHA) permissible exposure limit (PEL) is **0.75 ppm** for an eight hour shift. The short term exposure limit (STEL) is **2 ppm** for a 15 minute period.

CONTROL MEASURES

- **Engineering controls:** Formaldehyde and its solutions must be used in an approved fume hood to prevent inhalation exposure.
- **Personal protective equipment:** When working with formaldehyde and its solutions, splash goggles, laboratory coats, and impermeable gloves should be worn at all times to prevent eye and skin contact.
- **Work practices:** Formaldehyde and its solutions should not be stored near strong oxidizers (such as permanganates, nitrates, peroxides, and chlorates), amines, acids, or alkaline materials. Formaldehyde reacts with HCl to form the potent carcinogen, bis-chloromethyl ether.
- **Administrative practices:** Comply with existing federal, state, and local regulations and guidelines developed to minimize personnel exposure to formaldehyde including the proper disposal of hazardous chemicals.

SPILL & DISPOSAL PROCEDURES

For **small spills**, clean up with absorbent material. You may neutralize the spill with sodium hydroxide or sodium sulfite. Enclose material plastic, air tight bag and store in a well ventilated area. Label and dispose of at regularly scheduled EH&S Hazardous Waste Pick-up. For **large spills**, leave the area and contact EH&S at 911 or x55689. Isolate and control access to the affected area.

Dispose of formaldehyde waste at regularly scheduled EH&S Hazardous Waste Pick-Ups.

EMERGENCY FIRST AID PROCEDURE

For dermal and eye exposure, wash area immediately in eyewash/shower. Flush affected area for at least fifteen minutes. Obtain medical attention immediately at the Occupational Health Facility (200 Medical Plaza, Suite 225) during regular business hours or at the UCLA Medical Center EF off hours.

FOR ADDITIONAL INFORMATION

Contact Biosafety Division of EH&S at extension 55689.