Guidelines for Handling Dichloromethane (Methylene Chloride)
SafetyNet #: 140

What is dichloromethane?
Dichloromethane, also called methylene chloride, is a colorless liquid with a density heavier than water. At room temperature, dichloromethane is volatile, has a chloroform-like odor but it isn't flammable. Dichloromethane is used as a solvent, especially where high volatility is required. It’s a good solvent for oils, fats, waxes, resins, bitumen, rubber, and cellulose acetate, and is a useful paint stripper and degreaser. It is used in paint removers, in propellant mixtures for aerosol containers, as a solvent for plastics, as a degreasing agent, as an extracting agent in the pharmaceutical industry, and as a blowing agent in polyurethane foams. Its solvent property is sometimes increased by mixing with methanol, petroleum naphtha, or tetrachloroethylene.

Symptoms of Exposure
Inhaling dichloromethane vapor may cause mental confusion, light-headedness, nausea, vomiting, and headache. Exposure to dichloromethane may make the symptoms of angina (chest pains) worse. Skin contact with liquid dichloromethane may cause irritation. If liquid dichloromethane remains on the skin, it may cause skin burns. Splashes of the liquid into the eyes may cause irritation. Dichloromethane has low acute toxicity.

Dichloromethane has significant chronic exposure hazards, including human carcinogenicity. Cal/OSHA has enacted specific regulations (Title 8, California Code of Regulations, Section 5202) regarding safe handling requirements and allowable exposure levels. The following elements must be included in a dichloromethane safety program:

A laboratory-specific Standard Operating Procedure (template attached) for the use of dichloromethane must be developed.

Employees who handle dichloromethane must receive documented training on the hazards of dichloromethane and what to do in case of an exposure or spill.

Exposure monitoring may be required to ensure that employees are not exposed above
Dichloromethane must always be used with adequate ventilation, preferably in a fume hood, to minimize inhalation of dichloromethane vapor.

Employee Information and Training
Employees who handle dichloromethane must receive documented training on the hazards of dichloromethane and what to do in case of an exposure or spill. A Safety Data Sheet (SDS) for dichloromethane should be kept in the work area where dichloromethane is being used. The SDS and this SafetyNet are excellent tools for training employees on the hazards of dichloromethane. SDSs are available from EH&S website.

- Standard Operating Procedure Template [1]

Exposure Monitoring
Contact EH&S for assistance in determining exposure monitoring needs in your laboratory or workplace if you work with dichloromethane.

Ventilation
Dichloromethane should always be used in a chemical fume hood, with spot (snorkel) ventilation or in an enclosure exhausted to the outside of the building. Re-circulating clean benches or bio-safety cabinets are not appropriate for the use of dichloromethane.

Eye Protection
Always use chemical splash goggles when handling dichloromethane to minimize the risk of even a small splash or vapor exposure to the eyes.

Body Protection
Wear a laboratory coat and appropriate footwear that covers the entire foot.

Gloves
Viton, neoprene, or butyl rubber gloves should be used when handling large quantities of dichloromethane or if the hands will be immersed in dichloromethane. Disposable nitrile gloves may be used when handling small quantities or for protection against incidental splash. The nitrile gloves should be at least 6 mil thick and removed and replaced immediately if splashed with dichloromethane. If you have questions about selecting gloves, contact EH&S. Heavily contaminated gloves must be disposed as chemical hazardous waste.

Respiratory Protection
It may be determined that respiratory protection is required to conduct work with dichloromethane. Work with your Supervisor and EH&S ((530) 752-1493) to determine if a respirator is warranted for this work.
Safe Work Practices
Be sure that dichloromethane containers are clearly labeled with the chemical name and hazards. As with any laboratory chemical, do not mouth-pipette dichloromethane. Do not eat, drink, or apply cosmetics where dichloromethane is handled, processed, or stored, since the chemical can be ingested or swallowed. Always wash hands thoroughly after using dichloromethane, even if gloves are worn.

Storage
Store dichloromethane in labeled, chemically compatible containers (typically glass), away from heat and flame. Always place large-volume containers on a low, protected shelf or in another location where they will not be accidentally spilled or knocked over. Containers larger than 4L (1 gallon) should be stored in secondary containment. Do not store dichloromethane bottles in any area where a leak would flow to a drain.

Waste Management
Please see Safety Nets #8 [2], #34 [3] and #43 [4] for guidance on disposal of dichloromethane.

Contact
Hazardous Waste Management
hazwaste@ucdavis.edu 530-754-5058
FAX: 530-752-4527

More information

Related content
1. Chemical Waste Disposal Guidelines
2. Managing Chemical Waste Streams To Reduce Disposal Cost
3. Identification and Segregation of Chemical Waste

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