HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

Laboratory Safety Guideline

Dichloromethane (Methylene Chloride) [CAS 75-09-2]

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Overview

This document outlines minimum expectations for use of dichloromethane (DCM) in Harvard labs. Departments or labs may choose to implement more stringent requirements for those operating in their spaces. Additional precautions may be needed if larger volumes of DCM will be used or if work will be done outside of a fume hood with no local exhaust. Reach out to EH&S for assistance in assessing these situations.

DCM is a colorless liquid with a mild, sweet odor. It is typically used as a solvent in the lab setting. Due to its unique chemical properties, substitution is not always feasible.

Hazards

Hazard Symbol	Hazard Description
	Suspected of causing cancer.
	Skin and eye irritant. May cause skin burns if it stays on the skin. May cause drowsiness or dizziness.

Training

Lab personnel working with DCM must complete applicable EH&S training and keep it up to date.

- General Lab Safety: Renewed annually.
- Laboratory Safety Orientation Checklist: Completed for each lab a person works in and kept on file by the lab.

In addition, DCM users and those working in spaces where this chemical is used should review this document and be familiar with emergency procedures.

Precautions

Personal Protective Equipment

Proper Personal Protective Equipment (PPE) and attire are important whenever working with hazardous chemicals. Each space should have a lab-specific PPE Assessment posted for reference by lab users. More information can be found on the EH&S Lab PPE webpage.

The following are basic requirements when handling DCM.

PPE Type	Requirement
Attire	Wear a combination of clothing and shoes that fully cover the legs and feet.
Eye Protection	At a minimum, wear safety glasses with side shields. Use safety goggles when there is a greater risk of splashes and for spill cleanup.
Gloves	Wear compatible chemically resistant gloves when handling potentially hazardous chemicals. At a minimum, double-glove with nitrile or nitrile and neoprene combination gloves such as Ansell 93-260 when performing low-risk work with DCM. Immediately remove gloves if they become contaminated. For spill cleanup, work with larger volumes, or where there is a greater splash hazard, wear a more resistant glove such as Ansell 2-100 liners or SilverShield gloves under a nitrile or nitrile and neoprene combination glove. These gloves are recommended any time a person is using DCM.

PPE Type	Requirement
	Glove compatibility with other chemicals used in combination with DCM must also be considered. Refer to each chemical's Safety Data Sheet (SDS) and the EH&S Lab Glove Selection Guide for help identifying compatible gloves.
Lab Coat	Lab coats are required when handling DCM, such as when carrying stock bottles or hazardous waste to a mini-main accumulation area.
Respiratory Protection	Respiratory protection should not be needed if using engineering controls such as fume hoods or local exhaust ventilation. If work with DCM is conducted without engineering controls, contact EH&S for an assessment.

Before Starting Work

- Determine if a less hazardous substance can be used instead of DCM.
- Review the manufacturer's SDS and additional chemical safety information available on the EH&S website.
- Be familiar with the general University emergency procedures in the Lab Emergency Response Guide.
- Identify the location of the nearest eyewash and shower and verify that they are accessible.
- Locate and verify that appropriate spill cleanup materials are available.

During Work

- **Avoid inhaling DCM!** Perform operations in a certified chemical fume hood or other approved ventilated enclosure when possible. Keep sash lowered as much as possible. Always work at least 6 inches into the fume hood and behind the sash.
- **Avoid any contact with DCM!** Wear PPE as outlined in the PPE section of this document.
- Wash hands and forearms thoroughly with soap and water each time gloves are removed.

- Be aware of potential incompatibilities, such as strong bases, strong oxidizers, and metals such as lithium, sodium, and potassium.
- Use materials and containers appropriate for DCM, such as glass.
- Keep all containers tightly closed when not in use and during transport.

After Completing Work

Clean work area. Return DCM and other chemicals to appropriate storage locations following the Lab Chemical Storage Guide. Store DCM in its original container or a container made of chemically compatible materials, such as glass. Store DCM away from incompatible materials, including but not limited to metals, strong bases, and strong oxidizers.

Dispose of DCM-containing waste following standard hazardous waste procedures. Mark "Toxic" as the chemical hazard on the waste tag. Other chemicals in solutions may have additional hazards.

Wash hands and forearms thoroughly with soap and water before leaving the lab.

Emergency Procedures

Refer to the Lab Emergency Response Guide and the information outlined below.

Notify PI or supervisor of any exposures or incidents involving DCM. The PI or their designee must report all exposures or injuries within 24 hours.

First Aid

Skin Contact

Treatment starts immediately following exposure.

- Remove all potentially contaminated clothing and jewelry and treat as hazardous waste.

- Flush affected skin area using sink if on hands or arms or safety shower for 15 minutes.
- Seek medical attention.

Eye Contact

- Rinse eyes at an eyewash station for at least 15 minutes.
- Seek medical attention.

Inhalation

- Move person to a location with fresh air.
- Seek medical attention.

Ingestion

- Do not induce vomiting if DCM is swallowed.
- Never give anything by mouth to an unconscious person.
- Call 911 for medical assistance.

Sharps Injury

- Injection of DCM, such as through a needlestick injury, can cause significant tissue damage. For more information, see Safety First: A Recent Case of a Dichloromethane Injection Injury. Note that there are graphic images in the paper.
- Seek immediate medical assistance.

Spill Response

Spills outside fume hood or ventilated enclosure:

- Alert others of the spill.

- Evacuate to a safe distance and prevent entry.
- Contact the Operations Center by calling 617-495-5560. Harvard Medical School (HMS) and Harvard Dental School of Medicine (HSDM) labs should call 617-432-1901.
- Remain in a safe location until EH&S or other response personnel arrive.

Spill inside fume hood or ventilated enclosure less than 500 mL:

- A person may assist in the clean-up effort of small amounts of DCM if trained and comfortable.
- Wear PPE described above and use appropriate spill supplies.
- Collect debris in appropriate container and move to the Satellite Accumulation Area (SAA).
- Label container with appropriately completed hazardous waste tag and request a waste pickup.
- If not trained or if uncomfortable with cleanup, close the fume hood sash and contact the Operations Center by calling 617-495-5560. HMS and HSDM labs should call 617-432-1901.

Supporting Documents

- PubChem Laboratory Chemical Safety Summary (LCSS) Datasheet
- Methylene Chloride OSHA Standard - 29 CFR 1910.1052
- EH&S Lab Glove Selection Guide
- PPE Selection by Task or Activity Guide
- Safe Chemical Work Practices
- Chemical Waste
- EH&S Lab Emergency Response Guide