



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 required when using large volumes of DCM or when work occurs outside of a fume hood without local exhaust. Please contact EHS for assistance in these situations.

DCM is a colorless liquid with a mild, sweet odor, commonly used as a solvent in laboratories. Due to its unique chemical properties, alternative substances are not always feasible.

[In April 2024, the Environmental Protection Agency \(EPA\) issued a final rule regulating dichloromethane \(methylene chloride, DCM\) under the Toxic Substances Control Act \(TSCA\).](#) This new rule prohibits most uses of DCM. The use of DCM in laboratories and for solvent welding may continue under a strict Workplace Chemical Protection Program. This rule applies to all products and mixtures containing 0.1% or more DCM.

Only uses reviewed by EHS may continue past May 5, 2025.

Hazards

Hazard Symbol	Hazard Description
	Suspected of causing cancer.
	Skin and eye irritant. May cause skin burns with prolonged contact. May cause drowsiness or dizziness.



Training

Lab personnel working with DCM must complete applicable EHS 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 [EHS 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 minimum, wear safety glasses with side shields. Use safety goggles when there is a greater risk of splashes and for spill cleanup.



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PPE Type	Requirement
Gloves	<p>Wear compatible chemically resistant gloves when handling potentially hazardous chemicals.</p> <p>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.</p> <p>For DCM spill cleanup, work with larger volumes, where contact may occur, 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. Note that any spills outside of a fume hood require evacuation of the room and contacting the Operations Center for assistance. 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 EHS Lab Glove Selection Guide for help identifying compatible gloves.</p>
Lab Coat	<p>Lab coats are required when handling DCM, such as when carrying stock bottles or hazardous waste to a mini-main accumulation area.</p>
Respiratory Protection	<p>The EPA has set strict requirements related to respiratory protection wherever exposure limits may exceed 2 parts per million (ppm) as an 8-hour time-weighted average (TWA) or short-term exposures could reach 16 ppm as a 15-minute TWA.</p> <p>EHS conducts exposure monitoring to determine activities where these limits may be exceeded and works with labs to implement controls to reduce potential exposure if it exceeds the regulatory limits.</p>



Before Starting Work

- Determine if a less hazardous substance can be used instead of DCM. **The EPA mandates using alternatives whenever possible. Refer to [Laboratory Safety Guideline: Dichloromethane Substitutes](#) for more detailed information.**
- Review the manufacturer's SDS and additional chemical safety information available on the [EHS website](#).
- Be familiar with the general University emergency procedures in the [Lab Emergency Response Guide](#).
- Identify the location of the nearest eyewash and shower.
- Verify the availability of appropriate spill cleanup materials.

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 six inches behind the face of the fume hood and keep the sash at or below the line on the certification sticker.
- **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 the 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 the principal investigator (PI) or supervisor of any DCM exposures or incidents. 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. Ensure nobody remains in the room where DCM has spilled.
- 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 EHS or other response personnel arrive.

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



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- A person may assist in the clean-up effort of small amounts of DCM in a fume hood or ventilated enclosure if trained and comfortable.
- Wear the PPE described in the [Personal Protective Equipment section](#) and use appropriate spill supplies.
- Collect debris in appropriate container and move it 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

- [A Guide to Complying with the 2024 Methylene Chloride Regulation](#)
- [Chemical Waste](#)
- [EHS Lab Emergency Response Guide](#)
- [Fact Sheet: 2024 Final Risk Management Rule for Methylene Chloride under TSCA](#)
- [Final Risk Management Rule for Methylene Chloride](#)
- [Methylene Chloride OSHA Standard - 29 CFR 1910.1052 PPE Selection by Task or Activity Guide](#)
- [PubChem Laboratory Chemical Safety Summary \(LCSS\) Datasheet](#)
- [Safe Chemical Work Practices](#)