

**Standard Operating Procedure for Using Dichloromethane/Methylene Chloride
in the Insert Name Lab**

**Print a copy of this SOP and keep with your lab’s training documents.**

1. **Purpose**

The purpose of this document is to provide the information necessary to safely use dichloromethane (DCM), also known as methylene chloride, in a laboratory setting, and to comply with requirements of the UNM Chemical Hygiene Plan and the OSHA Hazard Communication Standard, which specifies that employees have a right to know about hazardous chemicals in the workplace.

1. **Training Requirements**

All UNM personnel who use/work with dichloromethane must be trained before working with it. At a minimum, training must include:

* Reading and signing this SOP
* Reading the Safety Data Sheet for dichloromethane
* Information on the location of emergency equipment (safety shower, eyewash, fire extinguisher, fire alarm pulls, first aid kit, and spill kit)
* Information on how to collect, label, and dispose of waste containing dichloromethane
* Applicable trainings listed on page 66 of the UNM Chemical Hygiene Plan
1. ****Hazards of Dichloromethane**

***Health Hazard*** – Dichloromethane is a category 2 carcinogen, which means the International Agency for Research on Cancer (IARC) has determined that dichloromethane is **probably carcinogenic** to humans.

NOTE: EHS has confirmed that any amount of dichloromethane used outside of a chemical fume hood will result in exposure to dichloromethane vapors in excess of the OSHA Permissible Exposure Limit. DO NOT USE DICHLOROMETHANE ON THE BENCHTOP.

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***Irritant*** – Inhalation of dichloromethane vapors may have anesthetic effects and may cause nausea, drunkenness, and temporary incapacitation. Contact with skin and eyes will cause irritation. Repeated contact may cause dermatitis.

1. **Hazard Controls**

Dichloromethane must only be handled/used within a chemical fume hood, which is designed to pull air, vapors, fumes, and dust up and away from the user (Engineering Control).

All lab personnel who use dichloromethane must be trained on the hazards of this material, including being familiar with this SOP and the material’s Safety Data Sheet (Administrative Control).

1. **Personal Protective Equipment (PPE)**
* *Hand Protection*: When mixing or when full contact with dichloromethane is anticipated, user must wear gloves made of supported polyvinyl alcohol (PVA), neoprene/natural butyl rubber blend, or Viton. When only minor splash contact is anticipated, user may wear **two pairs** of nitrile gloves.
* *Eye Protection*: Safety glasses or goggles must be worn when handling dichloromethane. Splash goggles must be worn when mixing large (>1L) quantities of solutions containing dichloromethane.
* *Skin and Body Protection:* A lab coat must be worn when handling dichloromethane.
* *Respiratory Protection*: There is currently no respirator cartridge that is effective at filtering out dichloromethane vapors. Use of a chemical fume hood is the only safe method in which to use dichloromethane.
1. **Lab-Specific Procedures for Using Dichloromethane in the Insert Name Lab:**
2. Put on PPE (eye protection, gloves, lab coat)
3. Remove container of dichloromethane from its storage location and place the container inside the chemical fume hood
4. Continue listing the steps for the procedure in which dichloromethane is used in the lab (i.e. quantity used, how to mix, etc.)
5. Step
6. Step
7. Step
8. Place container back in the storage location
9. Wash hands after removing gloves
10. **Spill Procedures:**

For small/minor spills (<1L) of dichloromethane *inside a fume hood*, use the materials in the lab’s spill kit to clean up the spill. Minimum PPE for cleaning up a spill of dichloromethane in a chemical fume hood is safety glasses/goggles, supported polyvinyl alcohol (PVA), neoprene/natural butyl rubber blend, or Viton gloves, and lab coat or apron. The spill clean-up materials must be double-bagged, tightly closed, labeled and picked up by EHS for disposal.

Spills of any quantity of dichloromethane outside of a chemical fume hood should not be cleaned up by laboratory personnel. In the event of a dichloromethane spill outside of a chemical fume hood, notify nearby individuals, evacuate the area, and call:

* 911 and
* Environmental Health & Safety (EHS) – 505-277-2753 during business hours, or
* EHS Duty Officer Pager -- 505-951-0194 (enter your phone number after the message)
1. **First Aid Procedures**

In the event of an overexposure to dichloromethane:

* Rinse affected area (skin and/or eyes) with water for 15 minutes.
* If inhaled, move to well-ventilated area or move outdoors.
* If the exposure is severe or occurs after hours, seek medical attention at the emergency room.
	+ If heading to UNMH, a non-injured person should contact the UNMH charge nurse in advance at 505-604-9349 with information on the chemical and nature of exposure.
	+ If possible, bring a hard copy of the dichloromethane Safety Data Sheet to the emergency room
* UNM employees should contact Employee Occupational Health Services (EOHS) at 505-272-8034 as soon as practical after the incident.
* UNM students should contact Student Health Services at 505-277-7810.
* The supervisor of the injured/exposed person and EHS must be notified as soon as possible after the exposure.
* The notice of Accident, Incident, or Spill form should be filled out on the [EHS website](https://ehs.unm.edu/index.html).
1. **Other Emergencies**
* Fire or Life-Threatening Emergency – Call UNM Police – 505-277-2241 or 911
* After Hours, Weekends, Holidays -- Call UNM Police – 505-277-2241 or 911
* Non-Life-Threatening Emergency – Call EHS at 505-277-2753 to seek assistance and report the incident
1. **Disposal Procedures**

All dichloromethane waste must be collected in suitable containers (preferably glass) and properly labeled as soon as waste is added to the container. Label waste as such:

**HAZARDOUS WASTE
Dichloromethane (include quantity and/or concentration)
Include all other constituents
TOXIC**

Click on the “Waste Disposal” button on the [EHS website](https://ehs.unm.edu/index.html) for more information on how to label and dispose of chemical waste. Waste label templates are available.

**END OF SOP**

**SIGNATURE PAGE FOLLOWS**

**I have read and understand the content of this SOP:**

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| --- | --- | --- |
| **Name** | **Signature** | **Date** |
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