

<p align="center">University of Pittsburgh Safety Manual</p>	<p align="center">EH&S Guideline Number: 04-037</p>	
<p>Subject: METHYLENE CHLORIDE</p>	<p align="center">Effective Date 4/1/2025</p>	<p align="center">Page 1 of 4</p>

METHYLENE CHLORIDE

Methylene Chloride – also referred to as Dichloromethane or DCM – is a colorless liquid and a volatile chemical with a sweet odor. Methylene Chloride vapors are heavier than air and naturally descend under normal conditions, creating an inhalation hazard. University faculty, staff and students must be aware of the potential risks of Methylene Chloride and are advised to take appropriate precautions to reduce exposures.

Acute exposure to Methylene Chloride can result in harm to the central nervous system, or neurotoxicity. Chronic symptoms of over-exposure can include liver toxicity, liver cancer, and lung cancer. Information on the specific health effects can be found on the Safety Data Sheet (SDS).

To prevent injuries, long-term illness, and any unnecessary exposures, the following instructions help identify the potential for Methylene Chloride exposure and provide guidance on air monitoring, safe handling, medical surveillance, worker training and waste disposal.

To protect individuals from the unreasonable risks of inhaling Methylene Chloride in the workplace, the Environmental Protection Agency (EPA) has set Occupational Exposure Levels (OELs) for the substance. The Existing Chemical Exposure Limit (ECEL) for Methylene Chloride is 2 parts per million (ppm) based on an 8-hour Time Weighted Average (TWA). The ECEL is supported by an Action Level of 1 ppm, also calculated as an 8-hour TWA. Additionally, the EPA's Short-Term Exposure Limit (STEL) for Methylene Chloride is 16 ppm, based on a 15-minute TWA.

1. Air Monitoring

Workplace air concentrations of Methylene Chloride must be determined through personal breathing zone samples and remain at or below the OELs. Personal breathing zone sampling must be used to determine what actions are necessary to mitigate exposure (e.g. implementing additional feasible engineering and administrative controls, or, until such feasible engineering and administrative controls can be implemented, donning the appropriate level of respiratory protection and PPE). Any questions or requests for EH&S services regarding Methylene Chloride, should be directed to EH&S at 412-624-9505 or safety@ehs.pitt.edu.

To ensure that the ECEL and EPA STEL inhalation exposure limits described above are not exceeded, initial monitoring is required to establish a baseline of exposure for potentially exposed persons. Periodic monitoring is required to assure continued compliance and protection from Methylene Chloride exposure over time. The frequency of monitoring is determined by the Methylene Chloride levels measured in the initial monitoring and then by successive monitoring activities. The table below summarizes the frequency for periodic monitoring that must occur following initial or other monitoring results:

University of Pittsburgh Safety Manual	EH&S Guideline Number: 04-037	
Subject: METHYLENE CHLORIDE	Effective Date 4/1/2025	Page 2 of 4

Table 1: Periodic Monitoring Requirements Based on Initial Exposure Monitoring Results

Air Concentration Condition	Periodic Monitoring Requirement
The initial exposure monitoring result is below the ECEL action level (1 ppm) and at or below the EPA STEL (16 ppm).	ECEL and EPA STEL periodic monitoring at least once every 5 years
The initial exposure monitoring result is below the ECEL action level (1 ppm) and above the EPA STEL (16 ppm).	ECEL periodic monitoring at least once every 5 years AND EPA STEL periodic monitoring required every 3 months
The initial exposure monitoring result is at or above the ECEL action level (1 ppm) and at or below the ECEL (2 ppm), and at or below the EPA STEL (16 ppm).	ECEL monitoring every 6 months
The initial exposure monitoring result is at or above the ECEL action level (1 ppm) and at or below the ECEL (2 ppm), and above the EPA STEL (16 ppm).	ECEL periodic monitoring every 6 months AND EPA STEL periodic monitoring every 3 months
The initial exposure monitoring concentration is above the ECEL (2 ppm) and below, at, or above the EPA STEL (16 ppm).	ECEL periodic monitoring every 3 months AND EPA STEL periodic monitoring every 3 months

The monitoring sample must be taken when and where operating conditions are best representative of each potentially exposed person's highest likely full shift and 15-minute exposure.

Additional exposure monitoring is required after any change that may introduce additional sources of Methylene Chloride exposure or otherwise result in increased exposure compared to the most recent monitoring event (e.g. Changes in production, use rate, process, control equipment, or work practices and start-up, shutdown, or malfunction of facility equipment.

Sampling results of the air monitoring along with any necessary exposure reduction measures are reported to the supervisor and should be shared with the monitored employee(s). Air monitoring is completed by EH&S at no cost to your department/laboratory. Contact EH&S at 412-624-9505 or safety@ehs.pitt.edu.

2. Regulated Areas

A regulated area distinguishes places where airborne concentrations of a specific chemical substance exceed, or there is a reasonable possibility they may exceed, the applicable ECEL or the EPA STEL.

To establish a regulated area, appropriate door signage must be used to adequately establish and alert potentially exposed personnel to the boundaries of the area and to

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<p>Subject: METHYLENE CHLORIDE</p>	<p align="center">Effective Date 4/1/2025</p>	<p align="center">Page 3 of 4</p>

minimize the number of unauthorized individuals exposed to Methylene Chloride within the regulated area.

3. Engineering Controls

Preferred methods to capture Methylene Chloride vapors are to work within a certified chemical fume hood, backdraft, or downdraft table, work near a slotted vent exhaust, or use a snorkel exhaust. If you have questions about engineering controls, contact EH&S.

Note that Methylene Chloride vapors are heavier than air and naturally descend under normal conditions. Local exhaust ventilation placed underneath a workstation assists this natural tendency, thus pulling vapors down and away, mitigating vapors from reaching the user's personal breathing zone. Local exhaust systems pulling Methylene Chloride vapors away from workers must prevent vapors from entering and/or crossing a potentially exposed person's personal breathing zone.

The HVAC system for the room should not be relied upon as the sole source for ventilation.

4. Personal Protective Equipment (PPE)

Respiratory protection or PPE should be used where the feasible elimination, substitution, engineering, and administrative controls do not reduce exposures below the ECEL or EPA STEL.

If respiratory protection is needed, Supplied-Air Respirators (SARs) must be used for Methylene Chloride. Due to the short service life of chemical cartridges when used for Methylene Chloride, the use of air-purifying respirators is not permitted.

Chemically resistant gloves must be worn during tasks where dermal exposure may occur. [Personal Protective Equipment | Office of Public Safety & Emergency Management \(pitt.edu\)](#)

5. Medical Surveillance

Individuals who are monitored or are in a similar exposure group that had results at or above the OSHA action level on 30 or more days a year, or above the 8-hour TWA OSHA PEL or the OSHA STEL on 10 or more days a year will have the opportunity to participate in a medical surveillance program. EH&S will provide medical surveillance information for those specific employees by following the requirements listed in 29 CFR 1910.1052(j).

Additionally, faculty, staff and students with symptoms of over-exposures to Methylene Chloride should be directed to promptly visit Employee Health Services for a clinical consultation. A medical consultation at no cost to the employee is to be

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<p>Subject: METHYLENE CHLORIDE</p>	<p align="center">Effective Date 4/1/2025</p>	<p align="center">Page 4 of 4</p>

performed at Employee Health Services, Room 500.59 Medical Arts Building, 3708 Fifth Avenue, or at the UPMC Presbyterian Hospital Emergency Department.

6. Training

Supervisors are responsible to assure that workers involved with Methylene Chloride are trained to recognize, understand and reduce health and safety risks of exposure to Methylene Chloride prior to job assignments. The training should align with the employee information and training component of the OSHA Methylene Chloride standard (29CFR 1910.1052(I)(1) through (6)). Training and questions can be supported by EH&S.

7. Disposal of Methylene Chloride

Methylene Chloride waste must be properly disposed of through the University of Pittsburgh's Chemical Waste Program. Waste should be placed in a chemically compatible container with a sealed lid and clearly labeled with a chemical waste label.

Contact EH&S if you need additional labels or have any questions regarding the disposal of Methylene Chloride wastes.