UF UNIVERSITY of FLORIDA	EH&S **Methylene Chloride Worker Chemical Protection Program**	**PROJECT SIZE: XL** **PRIORITY: HIGH** **COVERAGE: ALL UF**
SOG #:		**SPONSORING DEPARTMENT: EH&S** Business Affairs: Operations
REVISION #: 01 – February 10, 2025		

PURPOSE

The purpose of this guideline is to implement the new Environmental Protection Agency (EPA) regulation for users of methylene chloride, commonly known as dichloromethane (DCM). The EPA's evaluation of methylene chloride under the Toxic Substances Control Act (TSCA) found that it presents an unreasonable risk to human health, leading to the Risk Management Rule for Methylene Chloride, effective July 8, 2024. The rule bans most uses of DCM but allows limited use for research with strict worker protections.

SCOPE

This guideline is applicable to all users of DCM or DCM-containing products at the University of Florida. This includes users in Research Labs, Facilities Services, Housing, off-campus IFAS facilities, and all other workplaces within the university's purview.

The EPA has determined that DCM presents an unreasonable risk to human health. Consequently, the agency has banned most uses of the chemical and implemented strict rules around the use of DCM for the limited cases in which it's use are allowed to continue, such as research.

This document serves as the University of Florida's Workplace Chemical Protection Program (WCPP).

OBJECTIVE

Environmental Health and Safety (EH&S) requests the following actions to be taken immediately regarding the use and management of methylene chloride (dichloromethane, DCM) in laboratories:

1. **Chemical Inventory Update**:
   If your laboratory utilizes methylene chloride (DCM), ensure it is listed in your chemical inventory.
2. **Non-Use of DCM**:
   If you possess DCM in your laboratory but do not use it, submit an EH&S pick-up request and remove it from your chemical inventory. Hazardous Waste Forms » UF | EHS
3. **Non-Research Use of DCM**:
   If DCM is being used for non-research purposes (e.g., paint stripper, arts-related applications), submit an EH&S pick-up request to remove DCM and any associated products containing DCM. Please consult the list of DCM-containing products for reference. Non-research use of DCM is no longer permitted at UF under the new regulations.
4. **Laboratories opting to continue using methylene chloride** must implement additional safety measures, including an Exposure Control Plan. Workers are required to undergo initial exposure monitoring and complete specialized training on its proper use and handling. Please

notify EH&S by February 21, 2025, if you intend to continue using DCM, or if you are a new user of DCM.

Please act promptly to ensure compliance with these requirements.

Timeline for Compliance

- **By May 5, 2025**: Complete initial monitoring of methylene chloride exposure.
    - Notify monitored persons and similar exposure group of the results within 15 working days.
    - Provide required PPE and establish regulated areas within 90 days of monitoring.
- **By October 30, 2025**: Write and implement the Exposure Control Plan for ongoing uses under the WCPP.
- **By April 28, 2026**: Cease use and properly dispose of methylene chloride for prohibited uses.

DEFINITIONS

As needed monitoring - Exposure measurements taken when there is a change of use.

De minimis - The threshold concentration for which the regulatory restrictions are not required. For methylene chloride this concentration is 0.01% by weight.

Exposure Control Plan (ECP) - This documents actions taken to mitigate occupational exposures and comply with the WCPP.

Owners / operators - Anyone who owns, leases, operates, controls, or supervises a workplace. This can include Principal Investigators (PI), Laboratory Managers, Supervisors, or any other employee that operates, controls, or supervises a workplace a workplace.

Periodic monitoring - Dependent upon the results of the initial and/or repeat monitoring; the frequency for gathering new monitoring data ranges from 3 months and 5 years.

Potentially exposed person - Any person who may be exposed to a chemical or mixture in a workplace as a result of a condition of use of that chemical substance or mixture. This applies regardless of whether a person is a user of the chemical or an employee.

Prohibited Uses - the EPA has established exposure limits for methylene chloride for ***some*** conditions of use, including “use as a laboratory chemical” and “use as a bonding agent for solvent welding.” Nearly all other commercial and industrial uses, such as use as a solvent or paint remover, are prohibited. EPA has a full list of prohibited uses in its Guide to Complying with the 2024 Methylene Chloride Regulation.

Regulated area - An area demarcated where airborne concentrations exceed, or there is a reasonable possibility they may exceed, the Existing Chemical Exposure Limit (ECEL) of 2 ppm or EPA Short Term Exposure Limit (STEL) of 16 ppm.

Retailer - An entity that distributes or makes available products to consumers.

Workplace Chemical Protection Program (WCPP) - A written program to protect potentially exposed persons in the workplace who are engaged in conditions of use that are not prohibited.

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RESPONSIBILITIES

A. EH&S:

I. EH&S has the responsibility to develop and implement this rule across UF research labs, shops, and all other workplaces.

II. EH&S selects a vendor for industrial hygiene (IH) services, specifically for DCM exposure sampling.

III. Collaborates with Principal Investigators and vendors conducting air monitoring for designated DCM tasks.

IV. Provides all required template documents to ensure proper documentation.

V. Reviews submitted forms for accuracy, completeness, and compliance with regulations.

VI. Delivers training on DCM procedures to relevant personnel.

VII. Assistance with identifying solvent alternatives (link to resources at bottom).

B. Research Groups using DCM

I. Self-identify if intending to continue using DCM by February 21, 2025, or if intending new use of DCM

II. Submit an EH&S pick-up request and remove it from your chemical inventory if not requested by April 1, 2025. Hazardous Waste Forms » UF | EHS

III. Work proactively to discover alternative solvents and processes to eliminate the use of DCM.

IV. Meet all EPA regulatory requirements and deadlines in a timely manner. This includes requirements for exposure monitoring, the development of an Exposure Control Plan, training, and recordkeeping. These requirements are detailed in the sections below.

V. Provide approved PPE as determined by a hazard assessment.

VI. Plan to discontinue the use of DCM by December 2026 or sooner.

PROCEDURES

Workplace Chemical Protection Program (WCPP) for Methylene Chloride

This procedure outlines the requirements for a Workplace Chemical Protection Program (WCPP) to ensure compliance with the Environmental Protection Agency's (EPA) regulations under the Toxic Substances Control Act (TSCA) regarding methylene chloride. The goal is to minimize exposure to methylene chloride and protect the health and safety of employees.

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1. Occupational Exposure Limits

The following occupational exposure limits for methylene chloride must be adhered to:

- **Action Level (8-hour TWA)**: 1 ppm
- **ECEL (8-hour TWA)**: 2 ppm
- **STEL (15-minute TWA)**: 16 ppm

Action:

- **Action Level**: If the action level is exceeded, immediate steps must be taken to reduce exposure.
- **ECEL**: If exceeded, initiate corrective actions as required by regulations.
- **STEL**: If the short-term exposure limit is exceeded, more stringent protective actions must be implemented immediately.

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2. Monitoring Requirements

a) Initial Monitoring

- Conduct initial monitoring of workplace areas where methylene chloride is used to determine exposure levels.

b) Periodic Monitoring

- **Every 5 years** or whenever there are changes in conditions of use.
- **Every 6 months** if the Action Level of 1ppm is exceeded.
- **Every 3 months** if the ECEL (2ppm 8-hour TWA) or STEL (15-minute TWA) is exceeded.

c) Sampling Requirements

- Personal breathing zone sampling must be used to monitor exposure.
- For similar exposure groups, the person monitored should be the most exposed individual. All members of this group should have an opportunity to observe the monitoring.
- Direct exposure monitoring is allowed if the estimated exposure frequency is less than 30 days in one calendar year.

d) Notification of Monitoring Results

- **Individual Notifications**: Must be provided within 15 working days after receiving the results. Notices must be in a language the monitored person understands.
- **Public Notifications**: Must be posted in a visible location, in English and the most-represented non-English language.

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3. Regulated Areas

Regulated areas must be established where methylene chloride exposure limits are reasonably expected to be exceeded. These areas require:

- **Respiratory Protection**: Provide supplied-air respirators.
- **Hazardous Waste Operations**: Regulated areas may be necessary for operations such as bulking of waste.

PREVENTION/EXPOSURE CONTROL PLAN

The Exposure Control Plan (ECP) should describe and implement control measures in the following order of priority:

i) Elimination

- Justify the essential use of methylene chloride and explore elimination options where possible.

ii) Substitution

- Describe any inadequacy of available substitutes to methylene chloride for the specific application.

iii) Engineering Controls

- Implement controls such as fume hoods, glove boxes, snorkels, and other closed systems to reduce exposure.

iv) Administrative Controls

- Establish standard operating procedures (SOPs).
- Ensure that closed containers are used outside of engineered controls.
- Use access controls and designated storage locations.
- Implement procurement controls to limit use.
- Worker rotation cannot be used as an administrative control.
- Provide appropriate training for workers.

v) Personal Protective Equipment (PPE)

- **Respirators**: Supplied-air respirators are required for waste operations and emergency response, as well as when other controls are not sufficient. Other types of respirators are not acceptable under the EPA rule. Respirators must be supplied-air.
- **Dermal Protection**: Use gloves and protective clothing made from materials such as polyvinyl alcohol, LLDPE, Viton, Silvershield, or nitrile (double-gloved) to prevent skin exposure.

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5. Training Requirements

Training must be provided to all employees prior to initial job assignment, and must include:

- Information consistent with OSHA's Methylene Chloride Standard (1910.1052).
- Understanding of methylene chloride hazards and safety measures.
- Recognition of situations where exposure may exceed the 8-hour TWA or STEL.
- Training must be repeated as needed to maintain safety standards.
- Update training as conditions of use change.
- Include information on glove selection, use, and disposal.
- Provide respirator training consistent with OSHA's Respiratory Protection Standard (1910.134).

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6. Recordkeeping

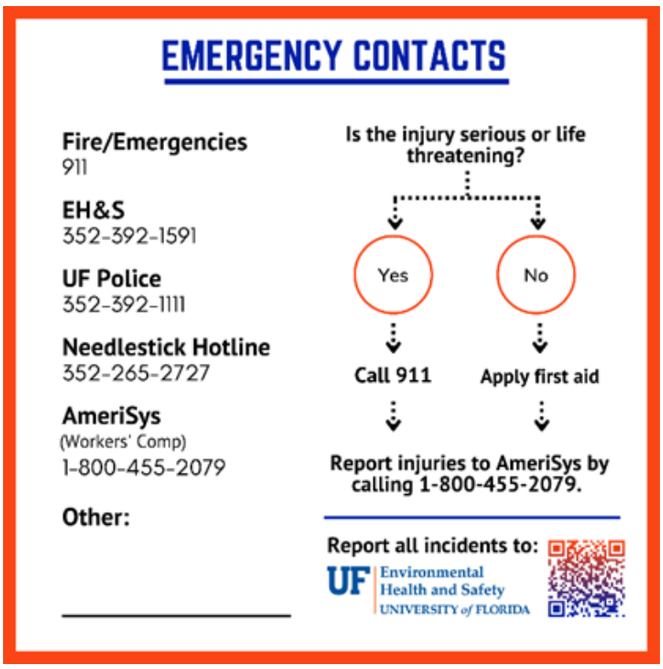
Employers must maintain records for at least 5 years for the following:

- **Compliance Records**: Bills of lading, invoices, receipts, and exposure control records.
- **Monitoring Records**: Document monitoring events and exposures. Length of employment + 30 years
- **Training Records**: Maintain records of employee training sessions.
- **Inspection Records**: Document laboratory inspections and ventilation system certifications.

a) Record Maintenance

- Records can be stored in either electronic or hard copy format and may be centralized or dispersed across departments.

EMERGENCY RESPONSE CONTACTS



- **AmeriSys (WC Claims) – call 24/7 (1-800-455-2079)**
- **UFHR (WC) - Employee Relations Phone: (352) 392-1072**
- **Needlestick Hotline – (352) 265-2727**
- **UF Police Department – (352) 392-1111**
- **EH&S – (352) 392-1591**
- **EH&S Risk Management – risk@ehs.ufl.edu**
- **EH&S Injury/Incident questions – incidents@ehs.ufl.edu**
- **Hazardous Material Spill – Contact EH&S (Business Hours) (352) 392-1591 and UFPD at (352) 392-1111 (After Hours)**
- **Facilities Services – Work Management Center (352) 392-1121**

REFERENCES AND OTHER RESOURCES

EPA Fact Sheet: Methylene Chloride or Dichloromethane

A Guide to Complying with the 2024 Methylene Chloride Regulation

FACT SHEET: 2024 Final Risk Management Rule for Methylene Chloride under TSCA

Methylene Chloride Hazards for Bathtub Refinishers

Risk Evaluation for Methylene Chloride - See Appendix F for details on glove materials

Ansell Chemical Glove Resistance Guide

Preliminary Information on Manufacturing, Processing, Distribution, Use, and Disposal: Methylene Chloride

Alternative Resources for methylene chloride
Fact Sheet: Solvent Alternatives

Peptide Synthesis: 2-methyl tetrahydrofuran (2-MeTHF) or Ethyl acetate

Extractions or Chromatography: Ethyl acetate, Heptane, Toluene, 2-MeTHF, Methyl tert-butyl ether

Methylene Chloride (DCM) Replacements from Green Chemistry Teaching and Learning Community

Chromatography Separations: Cyclopentyl methyl ether, or mixtures like dimethyl carbonate and methanol or ethyl acetate and isopropanol; can use reverse phase chromatography instead

Green Chromatography Solvent Mixtures: eluents and mixtures with heptanes, methyl tert-butyl ether, methanol, ethanol, ethyl acetate, and isopropanol for separations involving neutral, acidic, and basic compounds

Replacements in Reactions: benzotrifluoride for Dess-Martin/Swern, Sakurai, Friedel-Crafts, and Diels-Alder reactions; 2-methyltetrahydrofuran for reductive amination; dimethyl carbonate for methylation and carbonylation reactions

DOCUMENTS AND REVISIONS

Date	Documented Changes	Initials