

Frequently Asked Questions (FAQs) About Dichloromethane (DCM) and the New EPA Rule

In April of 2024, the EPA published a new rule prohibiting most uses of dichloromethane, or DCM. Below are some frequently asked questions about DCM and the new EPA rule. The full EPA guide to complying with the new rule can be found [here](#).

What is DCM and what are its synonyms?

- DCM is a colorless, volatile liquid with a sweet odor.
- DCM, or Dichloromethane, is also known as methylene chloride (MC).

How is DCM used?

- DCM is a laboratory solvent. Because of its polarity, aprotic structure, and low boiling point, chemists frequently use it to synthesize, extract, and purify compounds.
- DCM is also found in industrial cleaners and degreasers.

What is the new regulation and what does it say?

- The new EPA rule was published in April of 2024 under the Toxic Substances Control Act (TSCA). TSCA applies to anybody who manufactures, processes, distributes, uses, or disposes of chemicals regulated under the Act. This includes universities.
- The new rule supersedes OSHA Standard 1910.1052 Methylene Chloride and prohibits most uses of the chemical. Certain activities, like use in research labs, are exempted if specific safeguards are put in place.
- The rule requires several new safe work practices, including:
 - Adhering to new exposure limits
 - Performing initial and periodic exposure monitoring
 - Creating a Workplace Chemical Protection Program (WCPP)
 - Establishing demarcated/regulated areas where DCM will be used
 - Providing additional training
 - And more

Who is affected by the new EPA rule?

- All producers, suppliers, distributors, and users manipulating solutions of DCM of 0.1% or greater are required to follow the new rule. This includes the use of DCM for research at USF.
- All “potentially exposed persons” which includes, students, faculty, staff, volunteers, and contractors fall within the scope of the rule.

Why is the EPA regulating DCM?

- After an extensive review and research of the health effects of DCM, the EPA has recognized that the risks associated with DCM use outweigh the benefits.
 - More information can be found in the [Final Revised Risk Determination for Methylene Chloride, November 2022](#)
- Both acute and chronic hazards exist when exposed to DCM, including fatigue, headache, chest pain, irregular or stopped heart rhythm, lung irritation and pulmonary edema, liver and lung cancers, brain damage, and more.

How will the regulation affect my research?

- Research labs will still be able to use DCM if appropriate work practices are implemented and adhered to. These include additional training, PPE, and exposure monitoring (to be funded by the lab).
- It is strongly recommended that research labs consider eliminating or substituting DCM because of the added cost and difficulty of compliance with the new rule.

Will teaching labs be able to comply with the new regulation?

- While the new rule does not explicitly prohibit the use of DCM in teaching laboratories, the safety and financial requirements for exposure monitoring and workplace controls are not feasible to implement.
- USF EH&S will require that teaching labs use an alternative chemical solution or laboratory experiments. These alternative measures must be in place before the beginning of the fall academic semester of 2025.

When will the new rule go into effect?

- The new rule has several requirements that will go into effect over the course of the next year. Final implementation is required by October 30th, 2025.
- Initial exposure monitoring of users of DCM must be completed before May 5, 2025.
 - A regulated/demarcated area must be established within 3 months of initial monitoring.
 - Periodic monitoring must be conducted at least every 5 years or as frequently as 3 months depending on the initial monitoring results.
- A Workplace Chemical Protection Program (WCPP) must be developed and implemented before Oct 30, 2025.
 - All potentially exposed individuals must be notified within 30 days of October 30th, 2025, or their initial exposure to DCM.

Initial Exposure Monitoring	May 5, 2025
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Creation of demarcated/regulated area	Within 3 months of results
Control below ECEL and STEL	August 1, 2025
Provide respiratory protection and dermal protection as necessary	August 1, 2025 (or within 3 months of results)
Exposure Control Plan	October 30, 2025

What is included in the WCPP? Where can I get one?

- The WCPP must be developed by PIs, Lab Managers/supervisors who are unable to eliminate DCM use in their labs, and it must be specific to their lab and research. USF’s EH&S team will create and post a WCPP template on our website ahead of the deadline for implementation.
- The WCPP will include:
 - Monitoring schedule: Places where DCM is used must have initial monitoring performed. Monitoring may involve all employees or a single individual who represents the procedures being performed. Regulated areas as determined by the WCPP may be required to perform periodic monitoring to ensure exposure levels are below EPA regulations. Monitoring will be paid for by the PI, Department or both.
 - Regulated areas: Areas where DCM is used need to be clearly marked and posted.
 - PPE selection and criteria: If DCM levels cannot be lowered to acceptable levels, supplied-air respirators must be purchased for affected employees. These employees must also abide by the USF Respiratory Protection Program. Protection against dermal exposures requires the use of PVA or Silver Shield gloves. Double nitrile gloves do not provide sufficient protection.
 - Record keeping for at least 30 years
 - Exposure Control Plan

What are the new training requirements for DCM?

- Training is required for anybody who uses or could be exposed to DCM, as well as anybody who enters a regulated/demarcated area.
- Training will be provided by USF EH&S.
- Training will include but is not limited to an overview of regulations pertaining to DCM, the hazards of working with DCM, work practice controls, and PPE use including the use of appropriate respirators.

How could I be exposed to DCM? What are the routes of exposure?

- The routes of exposure are dermal contact and inhalation.
- Injection injuries are uncommon, yet extremely severe.

How does DCM affect my health?

- The EPA identified acute and chronic illnesses, including cancer, from inhalation and dermal exposures.
- It affects the central nervous system and the liver.
- Acute exposures can lead to dizziness, loss of consciousness, and death.

What work practice controls and PPE are required when working with DCM?

- Once the new rule is in effect, DCM must only be used in established regulated/demarcated areas; access to these areas must be controlled to prevent any unauthorized entry by untrained individuals.
- Engineering controls such as fume hoods must be used; if used, they must have been certified within the past year.
- Appropriate gloves or other dermal protection. Note: Nitrile or double nitrile gloves do not protect against dermal exposure as the breakthrough time is less than 1 min.
 - Gloves made of polyethylene (PE), ethylene vinyl alcohol (EVOH), PE, or laminate are required to be purchased by the lab.
- Standard PPE such as a lab coat, closed toe shoes and goggles are also required.

What are the occupational exposure limits?

- The EPA has created a new 8-hour time-weighted average (TWA) exposure limit called the Existing Chemical Exposure Limit (ECEL). The new rule also establishes an Action Level (or level which, when exceeded, certain actions or controls must be implemented), and a 15-minute short-term exposure limit, or STEL.
- The OSHA exposure limits, called permissible exposure limits, or PELs, are also noted in the table below for reference. Note: The new EPA exposure limits take precedence.

Exposure Limit Type	New EPA Limit	OSHA Limit
8-hr TWA Action Level	1 ppm	12.5 ppm
8-hr TWA Exposure Limit	2 ppm	25 ppm
15 min STEL	16 ppm	125 ppm