Methylene Chloride Exposure Control Plan

In compliance with the EPA Methylene Chloride Workplace Chemical Protection Program (WCPP), all departments and units that use, handle, or possess methylene chloride, or any mixture or product containing methylene chloride at or above concentrations of 0.1% must have a written operation-specific Exposure Control Plan (ECP).

The PI, supervisor, or a designated competent representative should complete the Exposure Control Plan. Please complete each section of the form to detail specific measures taken to comply with the requirements defined in the WCPP. Send completed ECPs to MSU EH&S and, upon approval, maintain a readily accessible copy in the work environment.

Methylene chloride (CAS # 75-09-2) is a volatile, colorless liquid with a chloroform-like odor. Synonyms include: Dichloromethane; DCM; MeCl & $MeCl_2$; Methane dichloride; Methylene bichloride; Methylene dichloride; Freon-30 (R-30); Solmethine, Narkotil. This Program applies to all isotopologues of methylene chloride, including its deuterated form (CAS # 1665-00-5).

Potential hazards include:

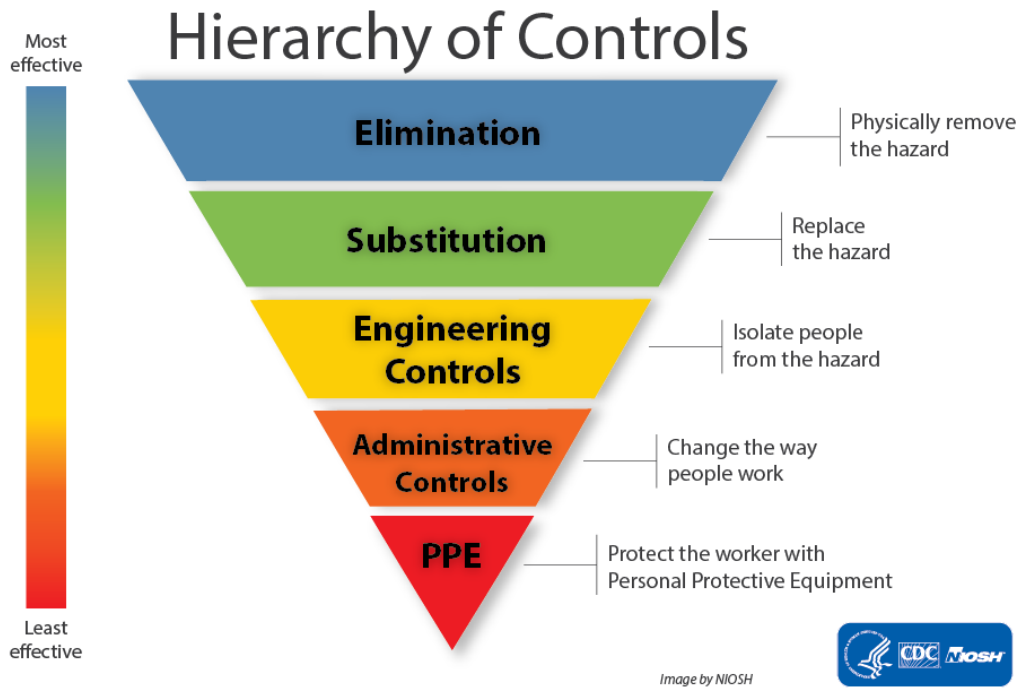
- Methylene chloride exposure can cause adverse health effects to the central nervous system (CNS), liver, and cardiovascular system, including mental confusion, light-headedness, nausea, vomiting, and headache.
- The body metabolizes Methylene Chloride to carbon monoxide, reducing the blood's ability to transport oxygen. It is also a suspected carcinogen.
- Exposure may also cause eye and respiratory tract irritation.
- Skin exposure to liquid may cause irritation and skin burns after extended exposures.
- For more information, consult the manufacturer's Safety Data Sheet (SDS)

Hierarchy of Controls

The hierarchy of controls is a method of identifying and ranking safeguards to protect workers from hazards. They are arranged from the most to least effective and include elimination, substitution, engineering controls, administrative controls, and personal protective equipment. Often, you'll need to combine control methods to best protect workers. For example, a local exhaust system (engineering control) requires training, periodic inspections, and preventative maintenance (administrative controls).

Feasibility of controls must also be considered. To decide if a control is feasible, you need to know how well it can protect workers and whether it can be implemented successfully. Consider whether it is:

- Right for the hazard
- Appropriate, given how likely injuries/illness are
- Consistent with laws, regulations, and MSU policies
- Not too burdensome to personnel
- Recognized as appropriate practice in the industry
- Effective, reliable, and durable
- Readily available
- Cost-effective, but in the short-term and long-term



Creation Date:

PI Name:

Procedure Title (an individual ECP must be submitted for each procedure)**:**

Frequency of Operation:

Location(s) of Operation

Building:

Room Number(s):

Specify Sublocation Within Room (fume hood, bench, workspace, etc.)**:**

Volume of Methylene Chloride or Mixture Containing Methylene Chloride Used:

Concentration:

Explain why elimination or substitution of methylene chloride from this procedure is not feasible, effective, or otherwise not implemented.
Provide a step-by-step outline of the procedure.

Describe engineering controls utilized to reduce exposures. Engineering controls protect workers by removing hazardous conditions or by placing a barrier between the worker and the hazard. Examples of engineering controls include ventilation devices (fume hoods, local exhaust ventilation), containment devices (glove boxes), and vapor control devices (snorkels, scrubbers).

Describe administrative or work practice controls utilized to reduce exposures. Examples include limiting personnel access to areas where methylene chloride is used, posting signage and delineating the hazardous areas, limiting time spent in the hazardous areas, training in work and operation processes, and ensuring adequate rest breaks.

Describe personal protective equipment (PPE) required for the operation. Examples include respiratory and eye, face, and hand and dermal protection.

Describe operation-specific training required to be completed by potentially exposed personnel:

List any Regulated Areas in your space (such as a fume hood) and how they are identified and delineated. Regulated Areas are any location where airborne concentrations of methylene chloride exceed, or are reasonably suspected to exceed, EPA occupational exposure limits (OELs). Enter “N/A” if this does not apply.

ECP Review, Revision, and Updates

PIs, supervisors, or a competent representative must review and update the ECP when changes are made to the operation, processes, controls, etc. Additionally, the ECP must be updated at least every 5 years to ensure the effectiveness of the exposure controls, identify any updates necessary to the exposure controls, and confirm that all persons are properly implementing them. Updates should reflect any significant changes in the status of the approach to compliance with the exposure control requirements. Any change that may reasonably be expected to introduce additional sources of exposure to methylene chloride or otherwise result in increased exposure to methylene chloride must be documented.

Revised and updated ECPs must be sent to MSU EH&S for authorization. Maintain a copy of approved ECPs readily accessible in the work environment.

Reviewer	Date of Review	Summary of Revisions

Certification (required for all individuals who will directly perform this procedure)

I attest that I have read and understand the above Exposure Control Plan. I have received the required training and prior approval from my PI and/or Supervisor to perform this operation. I agree to contact my PI and/or Supervisor if I plan to modify this operation in any way.

Name	Signature	Job Title	Date