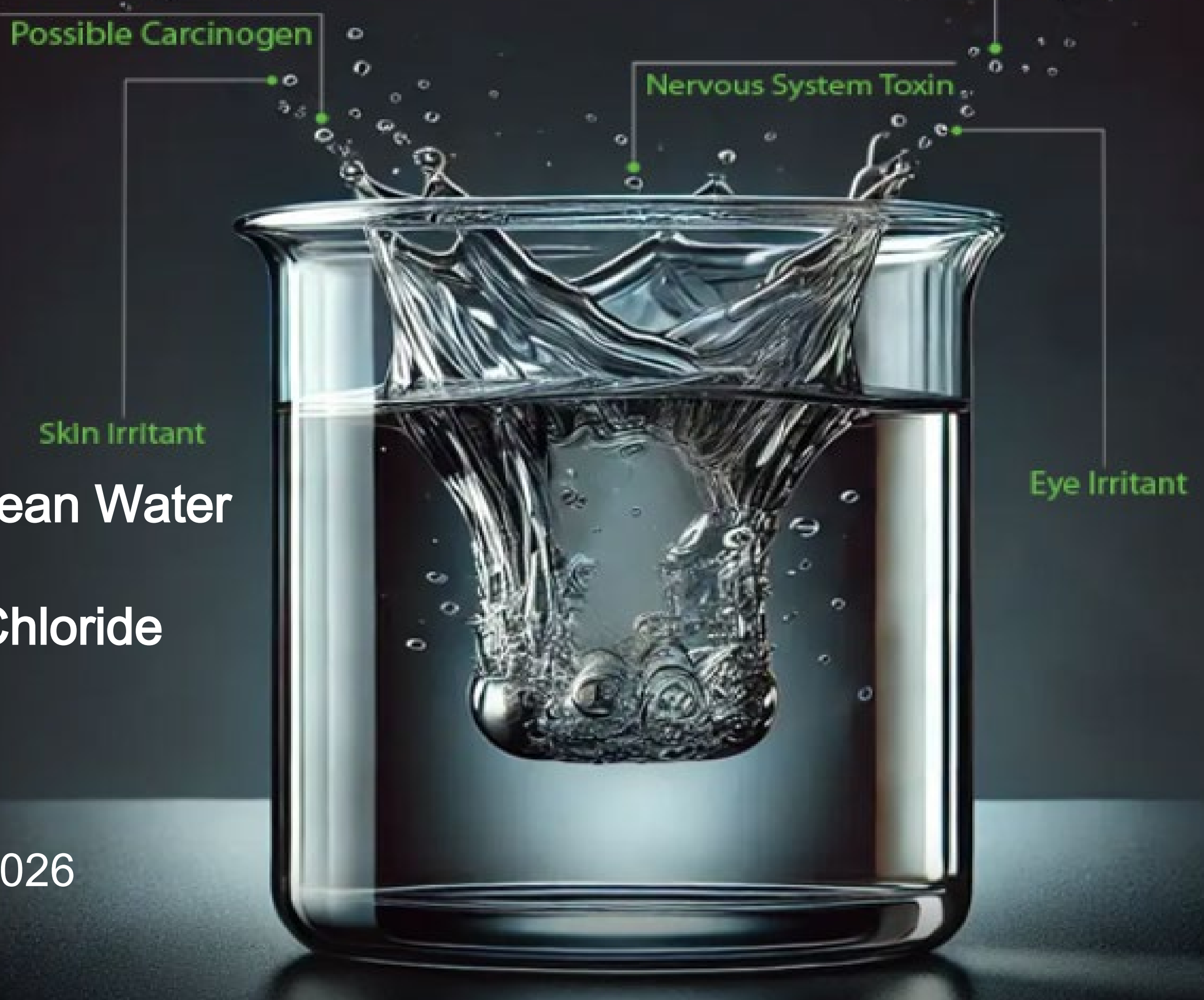


Bay Area Clean Water Agencies – Methylene Chloride Compliance

August 18, 2026

The Laboratory Safety Institute

Tim Barton, MS, CIH, CSP
Chief Safety Officer/Director of Research Safety Affairs
University of Tennessee Health Science Center

The Laboratory Safety Institute
40 Years | 1978-2018

192 Worcester St.
Natick, MA 01760

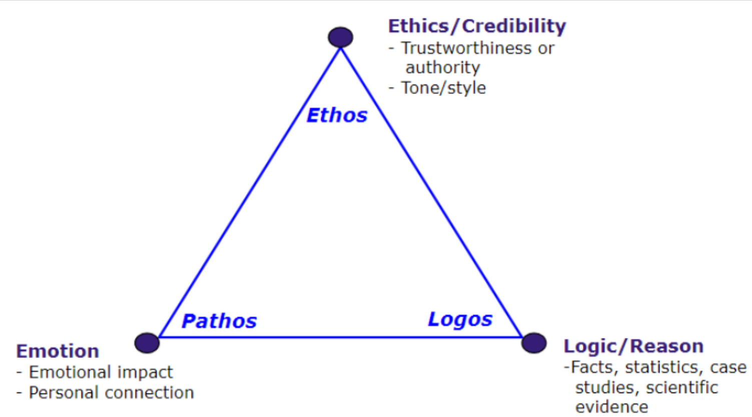
Agenda

- Elements of a Laboratory Safety Program
- R.A.M.P.
- EPA TSCA Methylene Chloride Final Rule *(May 8, 2024 Federal Register)*
- Workplace Chemical Protection Program (WCPP)
- WCCP Applicability in Labs
- Methylene Chloride Exposure Control Plan

Laboratory Safety Program Elements

- Leadership Commitment
- Employee Involvement
- Hazard Identification
- Risk Assessment and Control
- Training and Education
- Clear Policies and Procedures
- Incident and Near-Miss Reporting
- Emergency Preparedness
- Measurement and Continuous Improvement

Aristotle's Rhetorical Triangle



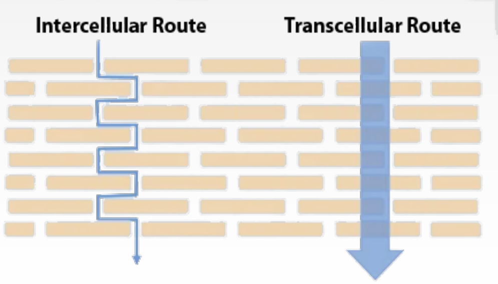
RAMP:

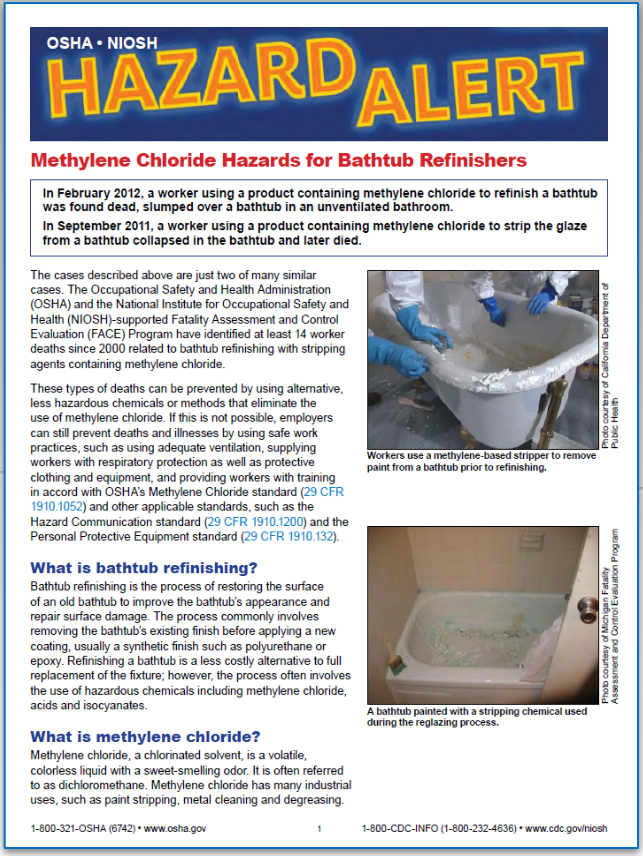
American Chemical Society (ACS) Approach for Managing Laboratory Hazards and Risks

https://institute.acs.org/acs-center/lab-safety/safety-basics-and-ramp/what-is-ramp.html

"Building strong safety cultures in any environment requires continual reinforcement. RAMP is an acronym to help educators and students keep science safety in the forefront of their work in a laboratory environment. The concept provides a framework for making chemical safety an integral part of chemistry education and practice."

Methylene Chloride
Health Hazards





OSHA • NIOSH
HAZARD ALERT

Methylene Chloride Hazards for Bathtub Refinishers

In February 2012, a worker using a product containing methylene chloride to refinish a bathtub was found dead, slumped over a bathtub in an unventilated bathroom.

In September 2011, a worker using a product containing methylene chloride to strip the glaze from a bathtub collapsed in the bathtub and later died.

The cases described above are just two of many similar cases. The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH)-supported Fatality Assessment and Control Evaluation (FACE) Program have identified at least 14 worker deaths since 2000 related to bathtub refinishing with stripping agents containing methylene chloride.

These types of deaths can be prevented by using alternative, less hazardous chemicals or methods that eliminate the use of methylene chloride. If this is not possible, employers can still prevent deaths and illnesses by using safe work practices, such as using adequate ventilation, supplying workers with respiratory protection as well as protective clothing and equipment, and providing workers with training in accord with OSHA's Methylene Chloride standard (29 CFR 1910.1052) and other applicable standards, such as the Hazard Communication standard (29 CFR 1910.1200) and the Personal Protective Equipment standard (29 CFR 1910.132).

Workers use a methylene-based stripper to remove paint from a bathtub prior to refinishing.

Photo courtesy of California Department of Public Health

A bathtub painted with a stripping chemical used during the reglazing process.

Photo courtesy of Michigan Fatality Assessment and Control Evaluation Program

What is bathtub refinishing?

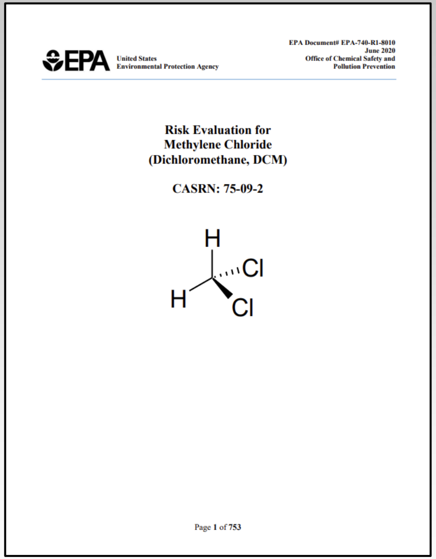
Bathtub refinishing is the process of restoring the surface of an old bathtub to improve the bathtub's appearance and repair surface damage. The process commonly involves removing the bathtub's existing finish before applying a new coating, usually a synthetic finish such as polyurethane or epoxy. Refinishing a bathtub is a less costly alternative to full replacement of the fixture; however, the process often involves the use of hazardous chemicals including methylene chloride, acids and isocyanates.

What is methylene chloride?

Methylene chloride, a chlorinated solvent, is a volatile, colorless liquid with a sweet-smelling odor. It is often referred to as dichloromethane. Methylene chloride has many industrial uses, such as paint stripping, metal cleaning and degreasing.

EPA Regulation of Methylene Chloride (a.k.a. DCM)

- EPA Risk Evaluation for DCM:
  - "…methylene chloride as a whole chemical substance presents an unreasonable risk of injury to health under its conditions of use."
- EPA Toxic Substance Control Act Final Rule for DCM
  - Banned use of DCM with the exception of 13 permissible "conditions of use."
  - Allows continued use of DCM as a laboratory reagent.
  - Use of DCM must take place under a Workplace Chemical Protection Plan (WCPP)
- Final Rule Requirement Implementation Schedule*
  - Initial Monitoring: November 6, 2026
  - Exposure Limits and regulated areas: February 8, 2027
  - Exposure Control Plan: May 10, 2027



EPA United States Environmental Protection Agency

EPA Document# EPA-740-R1-8010
June 2020
Office of Chemical Safety and Pollution Prevention

Risk Evaluation for Methylene Chloride (Dichloromethane, DCM)

CASRN: 75-09-2

Page 1 of 753

Compliance Guide

EPA

A GUIDE TO COMPLYING WITH THE 2024 METHYLENE CHLORIDE REGULATION UNDER THE TOXIC SUBSTANCES CONTROL ACT (TSCA) (RIN 2070-AK70)

Includes:

Includes Compliance Guidance on Prohibitions, Workplace Chemical Protection Program (WCPP), and Other Requirements

https://www.epa.gov/system/files/documents/2024-07/mecl-compliance-guide.pdf

Workplace Chemical Protection Program (WCPP) (US EPA 2, 2024)

- OSHA protections applied to potentially exposed persons:
  - 29 CFR 1910.132 (PPE)
  - 29 CFR 1910.134 (Respiratory Protection)
  - 29 CFR 1910.1052 (Methylene Chloride)
- Exposure limits
- Initial and periodic monitoring
- Exposure Control Plan development and communication
- Regulated areas (if applicable)
- Respirator selection (if applicable)
- Recordkeeping

29 CFR 1910.1052 Requirements:

- Monitoring
- Regulated areas
- Hygiene facilities (e.g., handwashing and eyewash)
- Leak and spill detection
- Respiratory protection
- Protective clothing
- Medical surveillance
- Hazard communication
- Employee training and information
- Recordkeeping

Comparison of Occupational Exposure Limits

Agency	8-Hr TWA	15-Min. STEL
OSHA	25 ppm	125 ppm
ACGIH	50 ppm	
EPA	2 ppm	16 ppm
NIOSH	Lowest feasible	
NIOSH IDLH	2,300 ppm	

Description

A colorless, volatile liquid with a sweet odor

Odor Threshold: 25 – 150 ppm

The Laboratory Safety Institute
45 Years | 1978-2023

Personal Monitoring Objectives

- Establish baseline exposure concentration.
- Characterize the worst-case exposure scenario for a full-shift exposure (8-hour time-weighted average)
- Characterize the worst-case scenario short-duration exposure (15-minute short term exposure limit)
- Determine frequency for ongoing periodic monitoring.

TSCA Requirement for Personal Monitoring § 751.109(d)

- Breathing zone air sample
- Exposure concentration without respiratory protection
- Each potentially exposed person's classification
- Each shift (unless same exposure across shifts)
- Air sample of each potentially exposed person's **or**
- Air samples representative of each potentially exposed person

Consider engaging a Certified Industrial Hygienist to perform personal monitoring

The Laboratory Safety Institute
45 Years | 1978-2023

Criteria for Representative Samples § 751.109(d)(B)(ii)

EPA ECEL

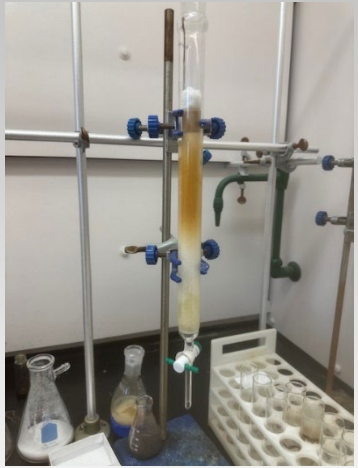
- One or more samples in each job classification
- Person with highest exposure over a full shift (EPA ECEL)
- Highest likely 15-minute exposure

The Laboratory Safety Institute
45 Years | 1978-2023

Accuracy of Monitoring § 751.109(d)(iii)

- Accurate to 95% confidence level
- ±25% accuracy at or above the ECEL/STEL
- ±35% accuracy at or above the action level (1ppm) but below ECEL (2ppm)

Laboratory Processes and Tasks

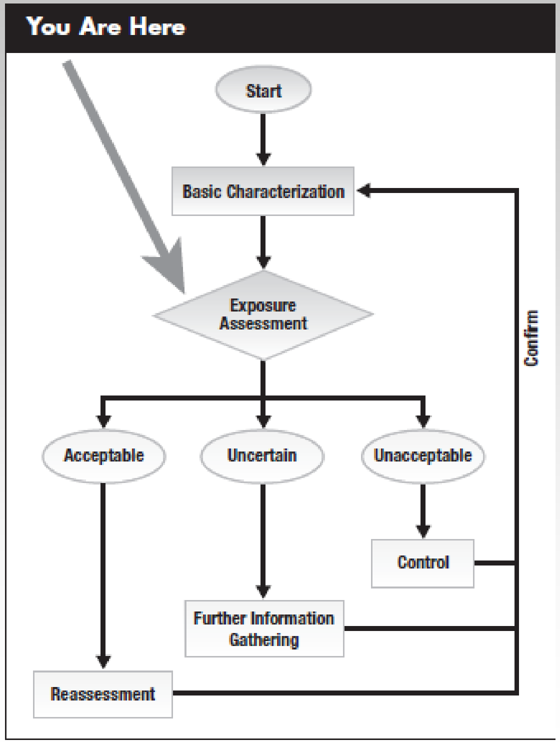


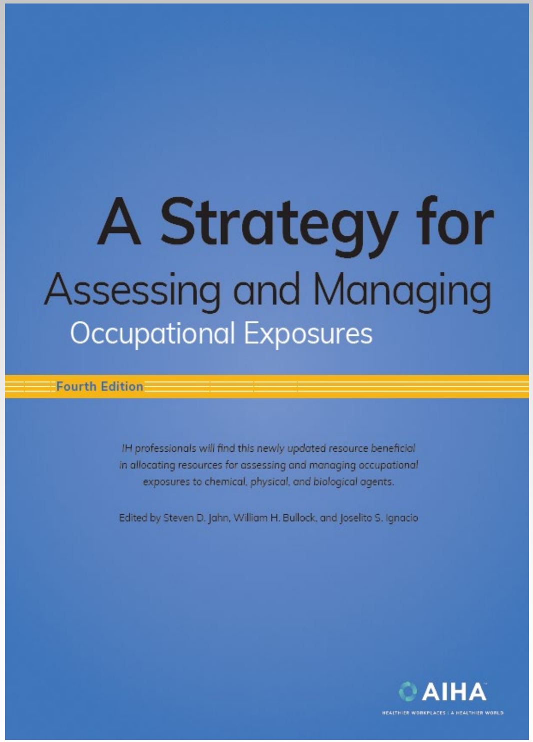
- Transfers from larger containers
- Filling reservoirs
- Chromatography
- Synthesis
- Emptying rotary evaporator traps
- Creating stock solutions
- Combining purification fractions
- Pouring into waste containers
- Waste handling

The Laboratory Safety Institute
45 Years | 1978-2023

Exposure Assessment

A Strategy for Assessing and Managing Occupational Exposures, 4th Edition





The Laboratory Safety Institute
45 Years | 1978-2023

Personal Monitoring Objectives

- Establish baseline exposure concentration.
- Characterize the worst-case exposure scenario for a full-shift exposure (8-hour time-weighted average)
- Characterize the worst-case scenario short-duration exposure (15-minute short term exposure limit)
- Determine frequency for ongoing periodic monitoring.

TSCA Requirement for Personal Monitoring

§ 751.109(d)

- Breathing zone air sample
- Exposure concentration without respiratory protection
- Each potentially exposed person's classification
- Each shift (unless same exposure across shifts)
- Air sample of each potentially exposed person's **or**
- Air samples representative of each potentially exposed person

Consider engaging a Certified Industrial Hygienist to perform personal monitoring

The Laboratory Safety Institute
45 Years | 1978-2023

Criteria for Representative Samples § 751.109(d)(B)(ii)

EPA ECEL

- One or more samples in each job classification
- Person with highest exposure over a full shift (EPA ECEL)
- Highest likely 15-minute exposure

Accuracy of Monitoring § 751.109(d)(iii)

- Accurate to 95% confidence level
- ±25% accuracy at or above the ECEL/STEL
- ±35% accuracy at or above the action level (1ppm) but below ECEL (2ppm)

Assess Full Shift Exposure and Short Term Exposure

- Based 8-hour time weighted average (8-hr TWA)
- Exposure averaged over full 8-hour day
- Assumes fluctuating exposures
- If appropriate, assume no exposure during unmonitored periods

$$TWA = \frac{C_1 T_1 + C_2 T_2 \ldots + C_n T_n}{T_1 + T_2 \ldots + T_n}$$

The Rule of 10

"For every step change in containment (through the use of engineering controls), the maximum concentration is reduced by an order of 10."

Table 26.1 – Rule of Ten

Level of Control	*Fraction of Saturation Vapor Concentration (SVC)*
Confined Space – Virtually no circulation	1/10th of Saturation
Poor – Limited Circulation	1/100th of Saturation
Good – General ~ 6 air turnovers/hr.	1/1,000th of Saturation
Capture	1/10,000th of Saturation
Containment	1/100,000th of Saturation

Saturation Vapor Concentration of Methylene Chloride

DCM Vapor Pressure = 350 mm Hg @ 20 °C

1 ATM = 760 mm Hg

$$\text{Concentration in ppm} = \frac{\text{VP mm Hg}}{\text{760 mm Hg}} \text{ X 1,000,000}$$

$$\text{Concentration in ppm} = \frac{\text{350 mm Hg}}{\text{760 mm Hg}} \text{ X 1,000,000}$$

Concentration in ppm = 460,526 ppm

Rule of 10 Applied to Methylene Chloride

Level of Control	Fraction of SVC	DCM Concentration
Confined Space – Virtually no circulation	1/10th of Saturation	46,000 ppm
Poor – Limited Circulation	1/100th of Saturation	4,600 ppm
Good – General ~6 air changes/hr	1/1,000th of Saturation	460 ppm
Capture	1/10,000th of Saturation	46 ppm
Containment	1/100,000th of Saturation	4.6 ppm

The Laboratory Safety Institute
45 Years | 1978-2023

Rule of 10
Applied to the Laboratory Environment

Table 26.1 – Rule of Ten

Level of Control	*Fraction of Saturation Vapor Concentration (SVC)*
Confined Space – Virtually no circulation	1/10th of Saturation
Poor – Limited Circulation	1/100th of Saturation
Good – General ~ 6 air turnovers/hr.	1/1,000th of Saturation
Capture	1/10,000th of Saturation
Containment	1/100,000th of Saturation

Inside of unventilated flammable liquid cabinet
Fraction of Saturation Vapor Concentration: **46,000 ppm**

Rule of 10
Applied to the Laboratory Environment

Table 26.1 – Rule of Ten

Level of Control	*Fraction of Saturation Vapor Concentration (SVC)*
Confined Space – Virtually no circulation	1/10th of Saturation
Poor – Limited Circulation	1/100th of Saturation
Good – General ~ 6 air turnovers/hr.	1/1,000th of Saturation
Capture	1/10,000th of Saturation
Containment	1/100,000th of Saturation

Obstructed corner of lab with poor air mixing

Fraction of Saturation Vapor Concentration: **4,600 ppm**

The Laboratory Safety Institute
45 Years | 1978-2023

Rule of 10
Applied to the Laboratory Environment

Table 26.1 – Rule of Ten

Level of Control	*Fraction of Saturation Vapor Concentration (SVC)*
Confined Space – Virtually no circulation	1/10th of Saturation
Poor – Limited Circulation	1/100th of Saturation
Good – General ~ 6 air turnovers/hr.	1/1,000th of Saturation
Capture	1/10,000th of Saturation
Containment	1/100,000th of Saturation

Inside of lab with 6 -8 air changes per hour
Fraction of Saturation Vapor Concentration: 460 ppm

The Laboratory Safety Institute
45 Years | 1978-2023

Rule of 10
Applied to the Laboratory Environment

Table 26.1 – Rule of Ten

Level of Control	*Fraction of Saturation Vapor Concentration (SVC)*
Confined Space – Virtually no circulation	1/10th of Saturation
Poor – Limited Circulation	1/100th of Saturation
Good – General ~ 6 air turnovers/hr.	1/1,000th of Saturation
Capture	1/10,000th of Saturation
Containment	1/100,000th of Saturation

Capture ventilation such as slotted hood

Fraction of Saturation Vapor Concentration: **46 ppm**

The Laboratory Safety Institute
45 Years | 1978-2023

Rule of 10
Applied to the Laboratory Environment

Inside of ventilated enclosure such as fume hood with sash down

Fraction of Saturation Vapor Concentration: **4.6 ppm**

Table 26.1 – Rule of Ten

Level of Control	*Fraction of Saturation Vapor Concentration (SVC)*
Confined Space – Virtually no circulation	1/10th of Saturation
Poor – Limited Circulation	1/100th of Saturation
Good – General ~ 6 air turnovers/hr.	1/1,000th of Saturation
Capture	1/10,000th of Saturation
Containment	1/100,000th of Saturation

The Laboratory Safety Institute
45 Years | 1978-2023

DCM Exposure Characterization

- Procedures outside of containment at risk of exceeding the exposure limit.
- Containment
  - Properly functioning fume hood
  - Sash at appropriate operating height
  - Proper use of fume hood

Periodic Monitoring (simplified) §751.109 Table 1

- Assures continued compliance
- Frequency varies with exposure concentration

Initial Monitoring Concentration	Periodic Monitoring Requirement
<ECEL action level & STEL	At least every 5 years
≥ ECEL action level & ≤ ECEL/STEL	Every 6 months
>ECEL /STEL	Every 3 months

The Laboratory Safety Institute
40 Years \| 1978-2018

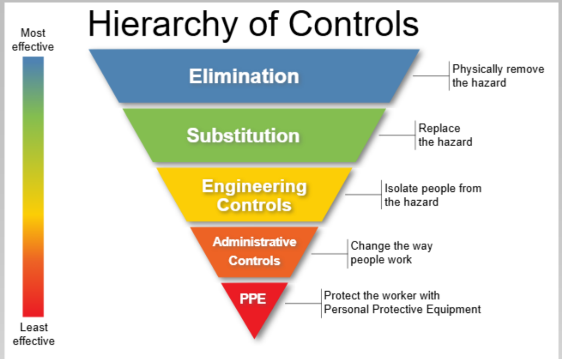
AIHA Exposure Decision Analysis Registry

- Develop proficiency in analyzing exposure assessment data
- Refine ability to identify similar exposure groups
- Free online course

The Laboratory Safety Institute
45 Years | 1978-2023

Controlling Exposures

Applying the Hierarchy of Controls



- Elimination
- Substitution
  - Explore alternatives to DCM on a case-by-case basis
- Engineering Controls
  - Fume hoods
  - Laboratory dilution ventilation
- Administrative Controls
  - Chemical Hygiene Plan
  - Standard Operating Procedures
  - Work practices
    - Proper fume hood use
    - Utilization and maintenance of equipment
    - Waste handling practices
  - Training
    - Supports safe work practices
    - Supports appropriate use of PPE
- PPE

Gloves

Recommended for Use

- Polyvinyl alcohol
- Silver Shield®
- Laminate
- Viton

Not Recommended for Use

- Nitrile
- Latex
- Neoprene
- Polyethylene gloves

Glove Compatibility (Ansell, 2024)

Degradation and Permeation Breakthrough Times

Material				Butyl		LLDPE		Natural Rubber/ Neoprene		Neoprene		Neoprene		Nitrile		Nitrile		Polyvinyl Alcohol		PVC		Viton Butyl	
Thickness (mil)				14		2.5		27		18		55		11		18		37.5		70		12	
Product Name / Style				ChemTek™		Barrier®		Chemi-Pro®		Neoprene®		Scorpio®		Solvex®		AlphaTec®		PVA™		Snorkel®		ChemTek™	
Type	CAS	Chemical name	%	38-514		02-100		87-224		29-865		08-352 08-354		37-145		58-435		15-554		04-414		38-612	
				D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P	D	P
sgl	1634-04-4	Methyl tert-Butyl Ether	100	G	10-30'	E	>480'	NR	<10'	P	30-60'	P	30-60'	E	>480'	E	>480'	G	>480'	NR	<10'	–	<10'
sgl	74-89-5	Methylamine, aqueous solution	40	E	>480'	E	>480'	E	10-30'	E	>480'	E	>480'	E	>480'	E	>480'	NR	<10'	E	60-120'	E	–
sgl	75-09-2	Methylenechloride	100	G	<10'	E	10-30'	NR	<10'	R	<10'	NR	<10'	NR	<10'	NR	<10'	G	>480'	NR	<10'	E	30-60'
[illegible]	[illegible]	Methylmethacrylate	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
sgl	8012-95-1	Mineral Oil	100	P	<10'	E	>480'	P	10-30'	E	60-120'	E	60-120'	E	>480'	E	>480'	G	>480'	NR	10-30'	E	>480'

Glove Training

- Use
  - When use is required
  - How to obtain or where to find
  - Proper donning and doffing
  - Reuseable or disposable
- Maintenance
  - When to replace
  - Decontamination if reuseable?
- Limitations
  - Incompatible materials
  - Situations to avoid

Glove Protection Factors (PF)

- PF > 1 recommended only for glove materials tested for permeation
- PF 5 use of gloves with minimal to no employee training
- PF 10 Use of gloves with basic training
- PF 20 training on proper use

Lab Coats

- Wear a lab buttoned up lab coat
- Consider lab hazards to facilitate selection
  - Cotton/poly blend
  - 100% cotton
  - Flame Resistant (FR)
  - Others

Eye Protection

- Indirect vent goggles
  - Use with hazardous liquids
  - Prevent splash
- Unvented goggles
  - Prevent eye irritation from vapor exposure

The Laboratory Safety Institute
40 Years | 1978-2018

Photo Credit:
https://ehs.ucsc.edu/programs/research-safety/ppe/ppe-eye-protection.html

Respiratory Protection

- No air purifying respirators (short service life of filters)
- No half-mask respirators (eye irritation)
- Supplied air respirators only (e.g., airline or SCBA)

Assigned Protection Factor (APF)

Major Types of Respirators

Air-purifying respirators, which remove contaminants from the air.

Half mask/Dust mask
APF=10
Needs to be fit tested

Half mask (Elastomeric)
APF=10
Needs to be fit tested

Full facepiece (Elastomeric)
APF=50
Needs to be fit tested

Loose-Fitting Powered Air-Purifying Respirator (PAPR)
APF= 25

Hood Powered Air-Purifying Respirator (PAPR)
APF= 25

Atmosphere-supplying respirators, which provide clean air from an uncontaminated source.

Full Facepiece Supplied-Air Respirator (SAR) with an auxiliary Escape Bottle
APF=1,000
APF = 10,000 (if used in "escape" mode)
Needs to be fit tested

Full Facepiece Abrasive Blasting Continuous Flow
APF=1,000
Needs to be fit tested

Full Facepiece Self-Contained Breathing Apparatus (SCBA)
Pressure demand mode is APF=10,000
Needs to be fit tested

Requirements for Respirator Use

- OSHA Standard 29 CFR 1910.134
  - Medical evaluation
  - Training
  - Fit testing

Photo Credit: https://www.draeger.com/en-us_us/Products/Supplied-Air-Respiratory-Level-II-Training

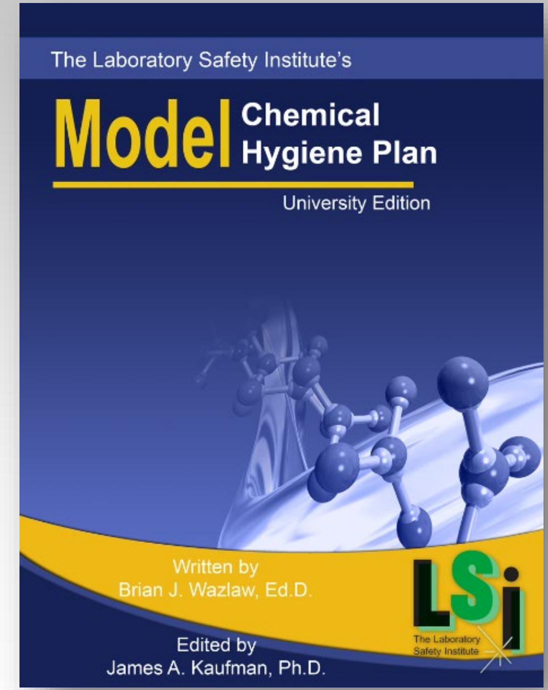
LSi
The Laboratory Safety Institute
40 Years | 1978-2018

Exposure Control Plan

Exposure Control Plan (ECP)

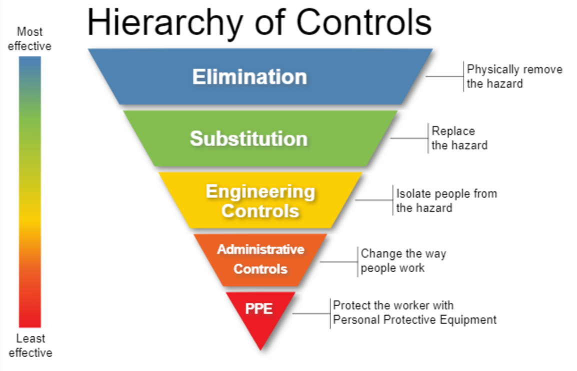
ECP may be:

- Stand-alone document
- Incorporated into Chemical Hygiene Plan
- Standard Operating Procedure



ECP Contents

- Identification of possible control measures
- Rationale for using or not using available controls in the sequence described by the hierarchy of controls
- Actions the owner must take to implement exposure controls
- Description of regulated areas
- Description of activities to review, update and ensure effectiveness of the ECP
- Procedures for responding to changes



Additional ECP Requirements

- Maintain effectiveness of engineering controls
- Associated records must be available to potentially exposed persons and EPA enforcement

Summary

- DCM is a hazardous chemical associated with acute and chronic health effects
- EPA TSCA only permits laboratory handling of DCM under the requirements of a Workplace Chemical Protection Program
- Initial monitoring must be completed by Nov. 9, 2026
- Handling procedures outside of containment may exceed exposure limit.
- Exposure Control Plan must be completed by May 10, 2027
- Periodic re-monitoring required

The Laboratory Safety Institute
45 Years | 1978-2023

Courses Available From LSI

Upcoming Courses **(All courses are virtual unless noted otherwise)**

Event	
Lab Waste Management September 15 (9 to 5 Eastern) (ZOOM)	More Info / Register
Two-Day Lab Safety Short Course: September 16-17 (9 to 5 Eastern) (Zoom)	More Info / Register
NFPA 45 (For Labs) Sept. 18 (9 to 5 Eastern) (ZOOM)	More Info / Register
Chemical Handling and Storage 9/18/26 (One-Hour Webinar)	More Info / Register
How to Be a More Effective Chemical Hygiene Officer September 22 (9 to 5 Eastern) (ZOOM)	More Info / Register
Members-Only Webinar: Safer Lab Design September 25	More Info / Register
OSHA 10-Hour General Industry (Lab Safety Focused) Oct. 1-2	More Info / Register
Two-Day Lab Safety Short Course: October 5-6 (9 to 5 Eastern) (Zoom)	More Info / Register
Chemical Labeling & GHS 10/9/26 (One-Hour Webinar)	More Info / Register
Members-Only Webinar: Unknown Hazards October 16	More Info / Register

Information at www.labsafety.org

The Laboratory Safety Institute
45 Years | 1978-2023

Works Cited

AIHA. (2015). Establishing Similar Exposure Groups. In J. Mulhausen, *A Strategy for Assessing and Managing Occupational Exposures* (pp. 37-52). AIHA.

Aircuity. (2012, January 3). *White Paper Series*. Retrieved from Laboratory Ventilation ACH Rates Standards and Guidelines: https://www.aircuity.com/wp-content/uploads/Aircuity-White-Paper_Lab-Ventilation-ACH-Rates_Standards-Guidelines_ACHWP_20120103-2.pdf

American Industrial Hygiene Association. (2015). Approaches to Improving Professional Judgement Accuracy. In S. Arnold, & M. Stenzel, *A Strategy for Assessing and Managing Occupational Exposures* (pp. 79-96). AIHA.

American Industrial Hygiene Association. (2015). Rules and Guidelines to Facilitate Professional Judgements. In M. Stenzel, & A. Susan, *A Strategy for Assessing and Managing Occupational Exposures* (pp. 347-360). American Industrial Hygiene Association.

Ansell. (2024, July 10). *Chemical Glove Resistance Guide*. Retrieved from Ansell Guardian: https://cdn.mscdirect.com/global/media/pdf/search/ansell/ansell-chemical-glove-resistance-guide.pdf

ANSI. (2022). *ANSI/ASSP Z9.5-2022.* ANSI.

ANSI/ASHRAE 110-2016. (2016). *Methods of Testing Performance of Laboratory Fume Hoods.* ANSI.
Brown, K. (2024, May 28). *How the EPA ban of methylene chloride will impact laboratories*. Retrieved from Schishield Corporation Community Hub Web Site: https://www.scishield.com/community-hub/how-the-epa-ban-of-methylene-chloride-will-impact-laboratories

LSi™
The Laboratory Safety Institute
45 Years | 1978-2023

Works Cited

Burke, M. (2020, March 10). *Gruesome Accident Prompts Call to Find Alternative to Needles in Chemistry Labs*. Retrieved from Chemistry World: https://www.chemistryworld.com/news/gruesome-accident-prompts-call-to-find-alternative-to-needles-in-chemistry-labs/4011322.article

Julien, R, DiBerardinis, L., & Edwards, R. (2001). Strategy to Assess Exposure of Laboratory Personnel to Select OSHA-Regulated Chemicals at Massachusetts Institute of Technology. *Chemical Health and Safety*, 25-29.

New Jersey Department of Health. (2016, September). *Methyene Chloride*. Retrieved from Right to Know Hazardous Substance Fact Sheet: https://nj.gov/health/eoh/rtkweb/documents/fs/1255.pdf

NIOSH. (1988, January 15). *NIOSH Manual of Analytical Methods*. Retrieved from Methylene Chloride 1005: https://www.cdc.gov/niosh/docs/2003-154/pdfs/1005.pdf

NIOSH. (2013, January). *DHHS (NIOSH) Publication Number 2013-110*. Retrieved from Methylene Chloride Hazards for Bathtub Refinishers: https://www.osha.gov/sites/default/files/publications/methylene_chloride_hazard_alert.pdf

NIOSH. (2013, February). *Methylene Chloride Hazards for Bathtub Refinishers*. Retrieved from NIOSH Hazard Alert: https://www.cdc.gov/niosh/docs/2013-110/pdfs/2013-110.pdf?id=10.26616/NIOSHPUB2013110

NIOSH. (2019, October 30). *NIOSH Pocket Guide to Chemical Hazards*. Retrieved from Methylene Chloride: https://www.cdc.gov/niosh/npg/npgd0414.html

Works Cited

Phalen, R. N. (2023, September). *Our First Line of Defence: Protecting the Skin Against Chemical Agents*. Retrieved from The Synergist: https://synergist.aiha.org/202309-skin-chemical-agents

RAE Systems by Honeywell. (2024, July 9). Technical Note 133 Methylene Chloride-Specific Measurements Using the UltraRAE. Retrieved from RAE Systems Technical Note 133: https://sps.honeywell.com/content/dam/his-sandbox/marketing/gas-and-flame-detection/documents/RS_app-notes_technical-note-133_methylene-chloride-specific-measurements-using-the-ultrarae_05-98.pdf

Sigma Aldrich. (2024, September 6). *Dichloromethane Safety Data Sheet*. Retrieved from https://www.sigmaaldrich.com/US/en/sds/sial/270997?srsltid=AfmBOoqYUSuHBgrECL6HIesX5j5ikxi5AGIh5-Cz_0wfGT_PFjoZnGJ4

ThermoFisher Scientific. (2021, December 24). *Methylene Chloride Safety Data Sheet*. Retrieved from Fishersci.com: https://www.fishersci.com/msdsproxy%3FproductName%3DD3720%26productDescr

Trager, R. (2024, May 23). *What the Dichloromethane Ban Might Mean for University Labs in the US*. Retrieved from Chemistryworld.com: https://www.chemistryworld.com/news/what-the-dichloromethane-ban-might-mean-for-university-labs-in-the-us/4019529.article

Works Cited

ThermoFisher Scientific. (2021, December 24). *Methylene Chloride Safety Data Sheet*. Retrieved from US EPA 2. (2024, May 8). *Methylene Chloride; Regulation Under the Toxic Substances Control Act (TSCA)*. Retrieved from Federal Register: https://www.federalregister.gov/documents/2024/05/08/2024-09606/methylene-chloride-regulation-under-the-toxic-substances-control-act-tsca

US EPA. (2024, May 14). Retrieved from About Acute Exposure Guide Levels (AEGLs): https://www.epa.gov/aegl/about-acute-exposure-guideline-levels-aegls

US EPA. (2024, July). *A Guide to Complying with the 2024 Methylene Chloride Regulation Under the Toxic Substances Control Act (TSCA)*. Retrieved from https://www.epa.gov/system/files/documents/2024-07/mecl-compliance-guide.pdf

US EPA. (2024, July). *Compliance Guide: Regulation of Methylene Chloride under TSCA*. Retrieved from EPA Risk Management for Methylene Chloride: https://www.epa.gov/system/files/documents/2024-07/mecl-compliance-guide.pdf

US EPA. (2024, April 30). *Final Risk Evaluation for Methylene Chloride*. Retrieved from Assessing and Managing Chemicals Under TSCA: https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/final-risk-evaluation-methylene-chloride#:~:text=risk%20evaluation%20process.-,Risk%20Evaluation%20Findings,under%20its%20conditions%20of%20use.

Vasquez, K. (2024, July 12). *What Does the New EPA Methylene Chloride Rule Mean for Academic Labs*. Retrieved from C&EN: https://cen.acs.org/policy/chemical-regulation/EPA-methylene-chloride-academic-labs/102/i21#:~:text=On%20April%2030%2C%20the%20US,use%20as%20a%20laboratory%20chemical.

The Laboratory Safety Institute
45 Years | 1978-2023