

Complying with the 2024 Methylene Chloride Regulation at a Small College: A Case Study

PEGGY A. MILLER, CHMM

SAINT MARY'S COLLEGE, NOTRE DAME, IN

PRESENTED AT THE 2025 CUHMMC

VIRGINIA TECH UNIVERSITY, BLACKSBURG, VA

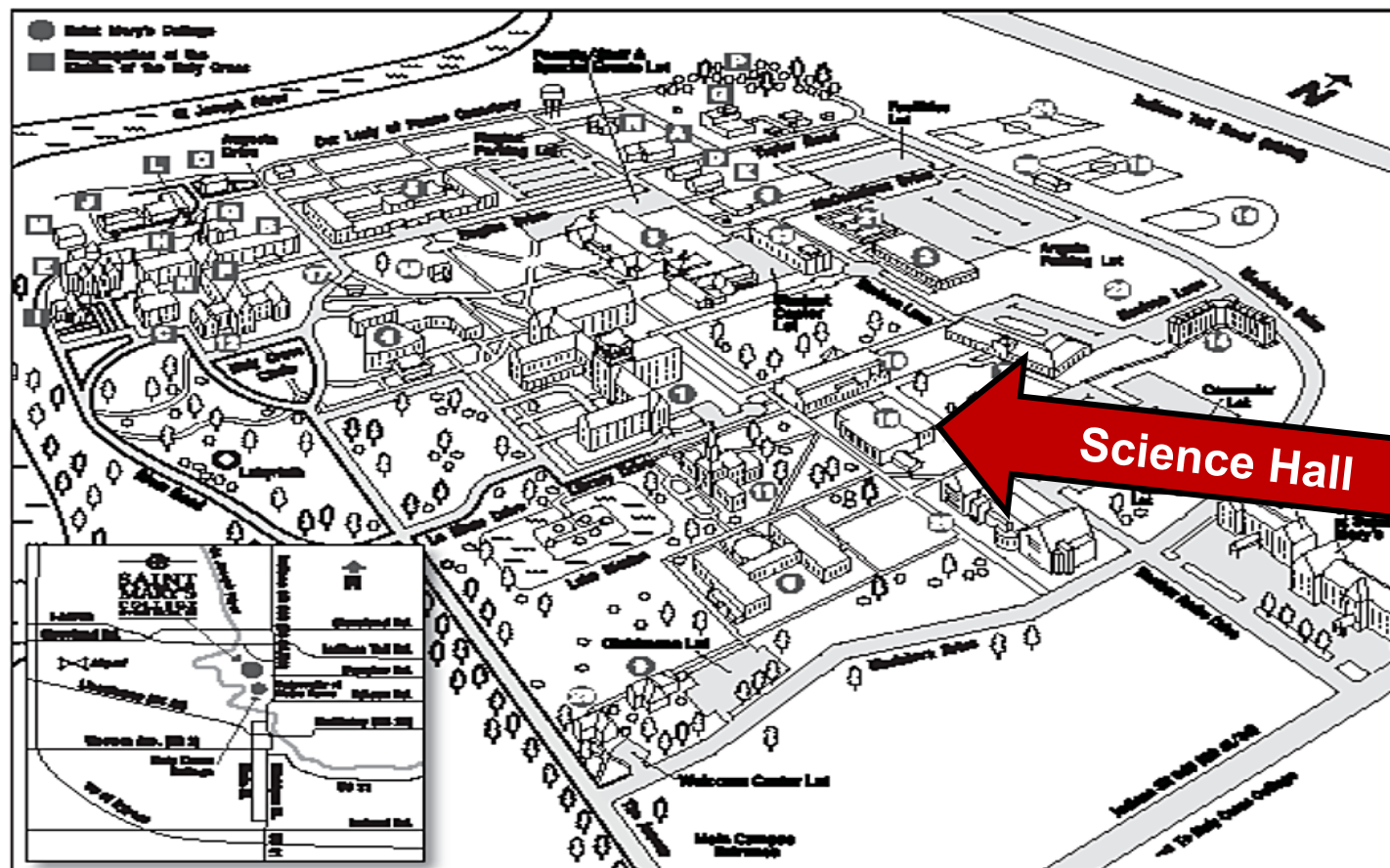
Where Are We Going?

- ▶ **Welcome to Saint Mary's**
- ▶ **The MeCl Regulation**
- ▶ **Science Hall Grinds Through the Process**
- ▶ **Final Thoughts**

Welcome to Saint Mary's College

- ▶ **Founded in 1844 by the Sisters of the Holy Cross**
- ▶ **1650 undergraduate and 100 graduate students**
- ▶ **About 30 science faculty and staff**





Directions to campus: From the 80/90 Toll Road take exit 77 (South Bend/Notre Dame) and turn right (south) onto Indiana SR 933 (US 31/33). The first light at The Inn at Saint Mary's is the north campus entrance (turn right onto Brother Andre Drive/Douglas Road). If you continue straight on SR 933, the next light is the main campus entrance (turn right onto The Avenue).

CONGREGATION LOCATIONS

Andre House	A
Augusta Hall	B
Bertrand Hall	C
Bethany Convent	D
Church of Our Lady of Loretto	E
Center Building	F
Central Utilities Plant	G
Convent	H
Guest House	I

Holy Family Park	J
House of Shalem	K
Lillie O'Grady Center	L
Loretto Convent	M
Loures Hall	N
Mary's Solitude	O
Nature Trail	P
Rosary Hall	Q
St. Bridget's Convent	R

COLLEGE LOCATIONS

Admission Office	1
Administrative Offices	1
Alumnae Relations Office	1
Angela Athletic Facility	2
Bookstore	3
Box Office	4
Campus Ministry	5
Career Crossings Office	20
Carroll Auditorium	6
Center for Academic Innovation	20
Center for Spirituality	20
Center for Women's Intercultural Leadership	20
Central Receiving	8
Clubhouse	9
Convenience Store	3
Cyber Cafe	3
Cashwa-Leighton Library	10
Dalloway's Coffee House	9
Development Office	1
Document Center	8
Early Childhood Development Center	7
Facilities Building	8
Financial Aid	1
Haggar College Center	11
Hammes Gallery	4
Havican Hall	7
Holy Cross Hall (residence)	12
Human Resources	8
Information Technology	11
Jacrosse Field	18
Le Mans Hall (residence)	1
Library	10
Little Theatre/Art Gallery	4
Madeleva Hall	6
Mail Services	8
McCandless Hall (residence)	13
Marketing Communications	11
Moreau Center for the Arts	4
Multicultural Services and Student Programs	3
Noble Family Dining Hall	3
O'Laughlin Auditorium	4
Office for Civic and Social Engagement	3
Office of Special Events	4
Opus Hall (student apartments)	14
Post Office	12
Parcell Athletic Fields Building	25
Purchasing	8
President's Office	1
Regina Hall (residence)	5
Registrar	1
Riedinger Alumnae House	15
Science Hall	16
Security Headquarters	17
Shaheen Bookstore	3
Sister Marie Rosaire Gallery	4
Soccer Field	24
Softball Diamond	19
Spes Unica Hall	20
Student Center/Noble Family Dining Hall	3
Tennis Courts	21
Vander Venet Theatre	3
Volleyball Courts	22
Welcome Center	23


SAINT MARY'S COLLEGE
 NOTRE DAME, INDIANA
saintmarys.edu

The MeCI Regulation

- ▶ **What It Says**
- ▶ **How It Affects Academia**
- ▶ **Compliance Timeline**

2024 MeCl Regulation Under TSCA

- ▶ EPA issues Methylene Chloride: Regulation under Section 6(a) of the Toxic Substances Control Act (TSCA)
- ▶ Published 05/08/2024; went into effect 07/08/2024
- ▶ 40 CFR Part 751 (Subpart B)
- ▶ 13 conditions of use, including laboratory use

Final Rule Published 05/08/2024

- ▶ Methylene chloride (MeCl) as a whole chemical substance presents an **unreasonable risk of injury to health under its conditions of use**
- ▶ Ban on consumer and most commercial paint and coating removal (2019)
- ▶ EPA (TSCA) places restrictions on MeCl; **certain uses permitted** under the provisions of a Workplace Chemical Protection Program (OSHA)

Comparison of Occupational Exposure Limits for MeCl

Agency	8-Hour Timed Weighted Average (TWA)	15-Minute Short Term Exposure Limit (STEL)
OSHA	25 ppm	125 ppm
EPA	2 ppm	16 ppm
Odor Threshold	25 – 150 ppm	---

2024 MeCl Regulation Under TSCA

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



What is methylene chloride?

Methylene chloride – also called dichloromethane or DCM – is a colorless liquid and a volatile chemical with a sweet odor. The solvent is used in a variety of consumer and commercial applications, including adhesives and sealants, automotive products, and paint and coating removers.

In April 2024, EPA issued a [final rule](#) regulating methylene chloride under the Toxic Substances Control Act (TSCA) to protect human health from health risks such as neurotoxicity effects and cancer from inhalation or dermal exposures.

Who is subject to the methylene chloride regulation?

Anyone who manufactures (including imports), processes, distributes in commerce, uses, or disposes of methylene chloride or products containing methylene chloride may be impacted by EPA's regulation of the chemical. The table below is a summary of key points; full details are in the [final rule](#).

What is the methylene chloride regulation¹ under TSCA?

Workplace Chemical Protection Program

A workplace chemical protection program (WCPP) is required in order to continue 13 conditions of use of methylene chloride. These uses include:

- Domestic manufacturing
- Import
- Processing as a reactant
- Processing in incorporation into formulation, mixture, or reaction product
- Processing in repackaging
- Processing in recycling
- Use as a laboratory chemical
- Use in paint and coating removers for safety critical, corrosion-sensitive components of aircraft and spacecraft
- Use as a bonding agent for solvent welding
- Industrial and commercial use as a processing aid
- Use for plastic and rubber products manufacturing
- Use as a solvent that becomes part of a formulation or mixture where the formulation or mixture will be used inside a manufacturing process and the solvent (methylene chloride) will be reclaimed
- Disposal

The WCPP requires that owners and operators of facilities using methylene chloride take appropriate measures to meet new inhalation exposure limits (including 2 ppm as an 8-hour time weighted average) and develop and implement an exposure control plan, among other requirements.

Prohibitions for Consumer Uses

Distributing methylene chloride for consumer use is prohibited after **May 5, 2025**.

Prohibitions for Commercial Uses²

Most commercial uses are prohibited after **April 28, 2026**.

Commercial Furniture Refinishing

Methylene chloride may be used for only very specific furniture refinishing until **May 8, 2029**, with workplace protections. After this date, this use is prohibited.

Recordkeeping and Downstream Notification

Manufacturers, processors, and distributors are required to update Safety Data Sheets to spread awareness throughout the supply chain. Relevant SDS must be updated by **October 7, 2024** for manufacturers and **December 4, 2024** for processors and distributors.

¹ Details of these requirements are in 40 CFR Part 751, subpart B, available at <https://www.ecfr.gov/current/title-40/part-751/subpart-B>.

² There is a TSCA section 6(g) exemption for the emergency use of methylene chloride for NASA in furtherance of their mission. Only NASA and its contractors are exempted for a narrow set of conditions of use.

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



Compliance Timelines* for the Workplace Chemical Protection Program

Initial Monitoring	Exposure Limits and Dermal Protections	Exposure Control Plan	Other Monitoring
Complete initial monitoring. Demarcate regulated area within 3 months of initial monitoring data. Provide respiratory protection within 3 months of initial monitoring data but no later than 15 months after final rule. <u>Existing Facilities</u> Before May 5, 2025 (360 days after final rule publication). <u>New Facilities</u> Within 30 days of initiating use.	Ensure methylene chloride inhalation exposures do not exceed the ECEL (2 ppm as an 8-hr TWA) and EPA STEL (16 ppm as a 15-min TWA) for all potentially exposed persons. Provide respiratory and/or dermal protection if applicable. <u>Existing Facilities</u> Before August 1, 2025 (450 days after final rule publication). <u>New Facilities</u> Within 90 days of initial exposure monitoring.	Develop and implement an exposure control plan. Notify potentially exposed persons of completion of exposure control plan within 30 days of its completion. Provide requested records by a potentially exposed person within 15 days of request. <u>Existing Facilities</u> Before October 30, 2025 (540 days after final rule publication). <u>New Facilities</u> Update as necessary, but at least every five years.	<u>Periodic Monitoring</u> Conduct at a minimum every 5 years, but could occur as frequently as every 3 months, dependent upon initial monitoring results. <u>As Needed Monitoring</u> Conduct additional monitoring after any change that may introduce additional sources of methylene chloride exposure or result in a change in exposure levels.

* Longer timeframes for Federal agencies and contractors acting for or on behalf of those agencies. See final rule for details.

For More Information

- For information or questions on the regulation of methylene chloride under TSCA, as well as the methylene chloride compliance guide, visit www.epa.gov/assessing-and-managing-chemicals-under-tscA/risk-management-methylene-chloride or contact MethyleneChlorideTSCA@epa.gov.
- For general questions and document requests about TSCA requirements, contact the TSCA Hotline at 1-800-471-7127 or tscA-hotline@epa.gov.
- For general information or questions on environmental regulations and compliance for small business owners, visit <https://www.epa.gov/resources-small-businesses/asbestos-and-small-business-ombudsman> or contact asbo@epa.gov.

How It Affects Academia

- ▶ Use of MeCl as a laboratory chemical applies to academic institutions; **regardless of scale or volume**
- ▶ Use is regulated by the Workplace Chemical Protection Program (WCPP)
- ▶ Protections apply to “potentially exposed persons” and **includes students and visitors to the lab**
- ▶ Failure to comply is a violation of section 15 of TSCA

Compliance Timeline (existing facilities)

Requirement	Original Deadline	Proposed Extension
Initial exposure monitoring	May 5, 2025	November 6, 2026
Regulated area & ECEL implementation	August 1, 2025	February 8, 2027
Exposure control plan completed	October 30, 2025	May 10, 2027

How Did We Get Started?

- ▶ **Webinars**
- ▶ **Identifying Users**
- ▶ **Seeking Out Resources**

Taking Advantage of Webinars

- ▶ **May 2024 - EPA rule** goes into effect
- ▶ **“Laboratory Safety Protocols for Methylene Chloride”**
(Lab Safety Institute; 09/18/2024 - Engineering Controls & PPE)
- ▶ **“Use This, Not That”**
(American Chemical Society; 09/27/2024 - Substitution)
- ▶ **“Assessing and Updating Institutional Safety Protocols for Methylene Chloride Compliance”**
(Lab Safety Institute; 10/10/2024 - Administrative Controls)

Hierarchy of Controls

Most
effective



Least
effective

Elimination

Physically remove
the hazard

Substitution

Replace
the hazard

**Engineering
Controls**

Isolate people from
the hazard

**Administrative
Controls**

Change the way
people work

PPE

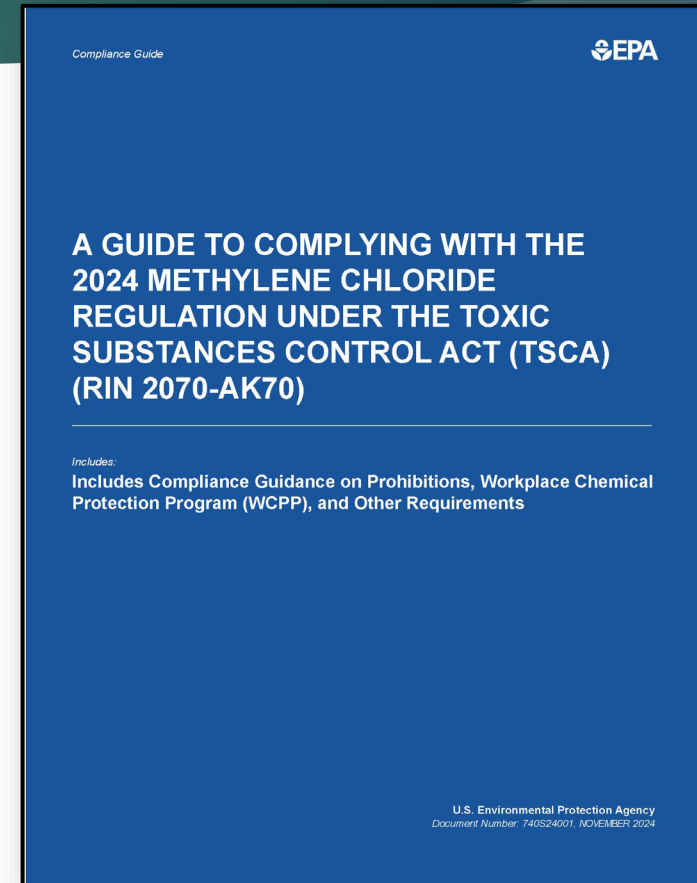
Protect the worker with
Personal Protective Equipment

Fall Semester 2024

- ▶ **Surveyed Science Hall** faculty and staff regarding MeCl usage
- ▶ **Eliminate** using MeCl in organic chemistry lab
- ▶ Allow MeCl use for **research and advanced work** with students

Seeking Out Resources

- ▶ **EHS Staff at University of Notre Dame**
- ▶ **EPA Guide to MeCl Compliance (Nov. 2024)**
- ▶ **Hazardous Waste Forum**



Tackling MeCI Compliance

- ▶ **Departmental Considerations**
- ▶ **Plan of Attack**
- ▶ **Setting Things in Motion**

Departmental Considerations

- ▶ Consider **eliminating** MeCl use in the lab or **substituting** a different solvent
- ▶ Consider **processes and/or tasks involved** in handling MeCl and how to minimize exposures
- ▶ **Identify where to allow** MeCl use (which labs and fume hoods)

Plan of Attack

- ▶ Have **fume hoods evaluated and certified** that they work as designed
- ▶ Identify **who should be monitored** (select individuals likely to have the highest exposure)
- ▶ Identify **which tasks will be evaluated** (to assess the 8-hour TWA and 15-minute STEL)

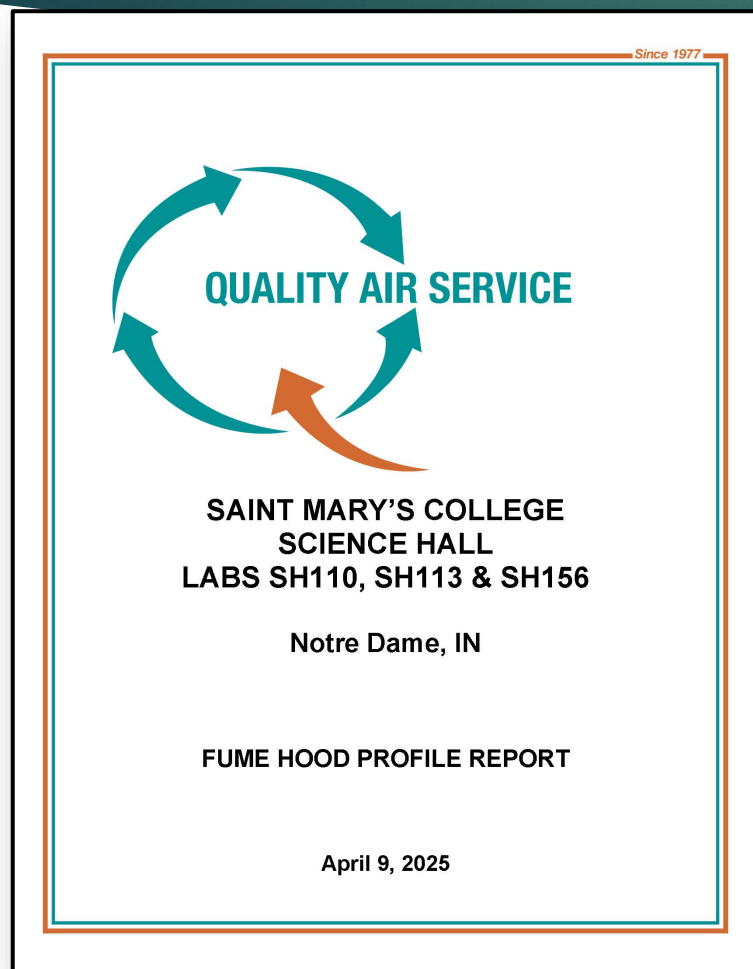
Setting Things in Motion

- ▶ Reached out to **three consultants** to conduct employee exposure testing
- ▶ Reached out for **fume hood certification**
- ▶ Purchased **Silver Shield** gloves
- ▶ **Relocated** MeCl to secure storage
- ▶ **Waited** for administrative approval

The Process and the Results

- ▶ **Fume Hood Certification**
- ▶ **Exposure Monitoring**
- ▶ **Notifying Employees**

Quality Air Service - April 9, 2025



- ▶ **Tested four fume hoods**
 - ▶ Two hoods in a research lab
 - ▶ One hood in advanced lab (faculty and student use)
 - ▶ Walk-in hood with solvent purification unit
 - ▶ Declined to test glove box

Quality Air Service - April 9, 2025

 QUALITY AIR SERVICE 6781 Quality Way PO Box 2947 Kalamazoo, MI 49003-2947 PH (269) 327-5055 FX (269) 327-6241		FUME HOOD PROFILE REPORT	
WORK ORDER: FS016288		ROOM: SH110	
PROJECT: Fume Hood Testing & Certification		HOOD MFG: Labconco	
CUSTOMER: St. Mary's College		HOOD CONFIG: VSS 110	
BUILDING: Science Hall		HOOD NUMBER: FEV 106A E	

90	95	94	98	96	18.75 in.
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62 inches				
AREA FT ²	8.07	AVG. FACE VELOCITY	95	
		DESIGN FACE VELOCITY	80-120	

88	94	97	84	102	101	97	89	4 in.
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62 inches				
AREA FT ²	1.72	AVG. FACE VELOCITY	94	
		DESIGN FACE VELOCITY	80-120	

Report by: Butch Van Orman	Date: 04/09/2025
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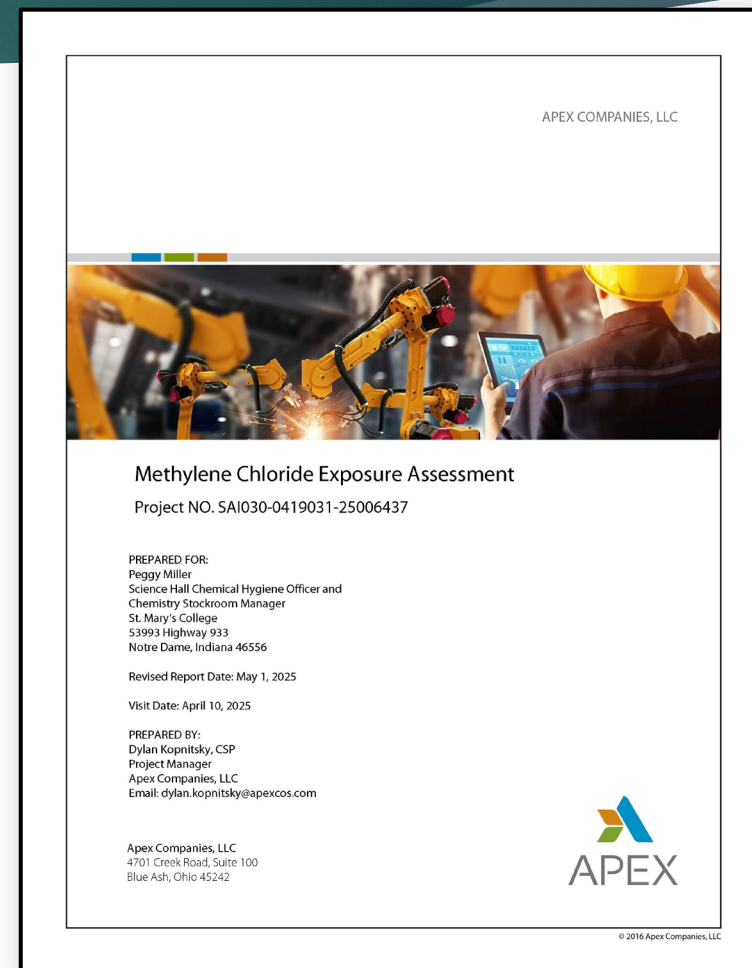
Notes:
Fume hood fitted with Phoenix controls system.

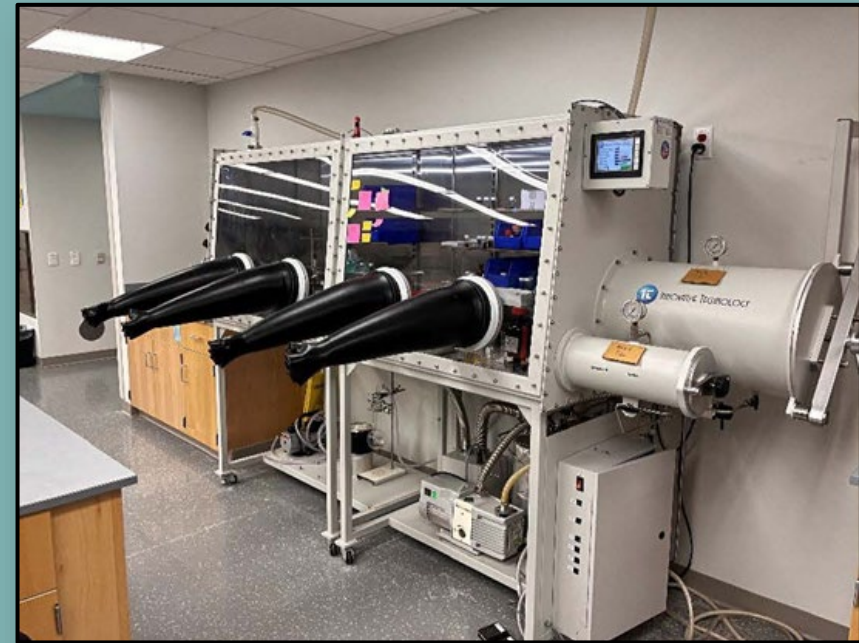
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- ▶ **SH110 - Advanced Lab: Passed.**
- ▶ **SH156 - Research Lab (two hoods):**
Results with sash at 6" height were below normal range, while monitoring device read sufficient air flow. Both passed at 18" sash height.
- ▶ **SH113 – Walk-In Hood: Passed.**
Fume hood not fitted with any controls or monitor.

Apex Companies – April 10, 2025

- ▶ **Three employees monitored**
- ▶ **Personal breathing zone (PBZ) sampling**
- ▶ **Measured full-shift (Existing Chemical Exposure Limit; ECEL) and short-term exposures (STEL)**
- ▶ **Results determine how frequently periodic monitoring must occur**





Sample Description	Duration (minutes)	TWA (ppm)	Exceed TWA, AL or STEL?
USEPA ECEL (8-hr TWA)			2 ppm
USEPA STEL (15-minute TWA)			16 ppm
USEPA ECEL AL			1 ppm
Jennifer STEL	15	<0.79	No
Peggy STEL	15	<0.79	No
Michael STEL	15	<0.79	No
Jennifer TWA	247	<0.048	No
Peggy TWA	252	<0.047	No
Michael TWA	215	<0.055	No
Glove Box/FH Area	137	<0.12	No

Apex Recommendations

Peggy Miller – Task performed without respiratory protection inside of an additional certified Chemical Fume Hood located in Laboratory SH156, tested by an independent contractor retained by St. Mary's College, Quality Air Service on April 9, 2025.

Collected waste DCM from tasks performed were moved from the original hood to the waste hood. Once in the waste hood the DCM was transferred into capped waste collection containers for disposal. The waste was not moved from the hood to the collection area on the day of sampling.

Two (2) sampling badges (Assay Technology AT525 TraceAir® II Fast Sampling Rate Sampler) were placed onto each worker, one was removed following 15 minutes of exposure during the task assessed to have the highest exposure risk and compared to the USEPA short term exposure limit, and the second was worn for the duration of the time working with Methylene Chloride, and compared to the US EPA ECEL and ECEL AL.

Samples were immediately submitted under chain of custody to Assay Technologies (AT Labs) in Boardman, Ohio for solvent extraction with 9% carbon disulfide and 3% benzyl alcohol and subsequent analysis by gas chromatography and flame ionization detector. AT Labs is an American Industrial Hygiene Association (AIHA) accredited laboratory. Laboratory accreditation is included in **Appendix B**.

Detailed results of sampling and analysis are provided in **Appendix A** in Table 1. Laboratory Results are included in **Appendix B**.

Recommendations

IH-01 (Apr 25) Notify employees of their right to access monitoring results in accordance with OSHA regulation 29 CFR 1910.1020, Access to Employee Exposure and Medical Records.

IH-02 (Apr 25) Additional monitoring should be conducted following any significant changes in equipment, duration of use, or exposure control strategies.

IH-03 (Apr 25) Demarcate areas in which Methylene Chloride is to be used within 3 months of this initial sampling event with signage in the labs or on the lab entry doors to ensure compliance with TSCA hazard communication requirements.

IH-04 (Apr 25) Review lab personal protective equipment (PPE). Gloves made of polyethylene vinyl alcohol and ethylene vinyl alcohol (PVA/EVA), often with silver shield, are resistant to methylene chloride. However, many other types of gloves are not recommended for use with methylene chloride including latex, nitrile, neoprene, polyethylene, and butyl rubber. These other glove types should only be used as secondary outer gloves to avoid rips as needed.

IH-05 (Apr 25) As the initial exposure monitoring concentrations are below the ECEL action level and at or below the EPA STEL (concentration < 1 ppm, 8-hr TWA; AND concentration ≤ 16 ppm, 15-min TWA), ECEL and EPA STEL periodic monitoring schedules should follow the guidance for future monitoring of at least once every 5 years, barring significant changes in use (see IH-02).

IH-06 (Apr 25) EPA is requiring the retention of compliance records for five (5) years. Additional requirements of the EPA WCP are as follows:

- Exposure control plan – this may be an addendum to an existing Chemical Hygiene Plan.
- Regulated areas and authorized personnel (See IH-03 above).
- Facility exposure monitoring records.
- Notifications of exposure monitoring results.
- PPE and respiratory protection used and program implementation, if necessary, with changing use.

- ▶ **Notify** employees of results
- ▶ **Demarcate areas** for MeCl use
- ▶ **Review PPE** for lab personnel
- ▶ **Follow guidance for future monitoring**
- ▶ **Retain records for 5 years**
- ▶ **Write Exposure Control Plan (ECP)**

Notification Letters Sent

- ▶ Notified within **15 working days** of receipt of results
- ▶ **Quantity, location & manner** of MeCl use at time of monitoring
- ▶ **Clearly state** exposure limits and results

St. Mary's College
Notre Dame, Indiana
May 1, 2025

Employee: Michael Drummond
Department: Chemistry
Position: Assistant Professor Chemistry

RE: Notification of Industrial Hygiene Survey Results

Dear Michael,

On April 10, 2025, your exposure to methylene chloride was monitored. Monitoring was performed for laboratory use, performed with the use of engineering controls in lab (i.e., Class II, Type B2 chemical fume hoods and an Innovative Technology Model 94000 glovebox) in quantities not exceeding 1 L in use from 4 L stock bottles.

Your participation in our sampling program is greatly appreciated. The results are listed below:

Chemical/Physical Agent	Sample Date	Sample Time	EPA Limit	Result
Methylene Chloride	04/10/25	15-minute EPA STEL	EPA STEL = 16 ppm	< 0.79
		247-minute ECCEL AL	EPA ECCEL = 2 ppm EPA AL = 1 ppm	< 0.055 ppm

Employee exposures to methylene chloride were evaluated and results compared to the applicable The EPA's Workplace Chemical Protection Program (WCPP) EPA existing chemical exposure limit (ECEL), EPA ECCEL, Action Level (AL), and the EPA short term exposure limit (EPA STEL). All resulting data indicate levels measured below the occupational exposure limits. If you have any questions regarding monitoring, or the hazards of the chemicals or physical agents with which you work, please contact your Chemical Hygiene Officer.

Thank you,
Peggy Miller
Stockroom Manager and Chemical Hygiene Officer

May 6, 2025

Associate Signature _____ Date _____

Implementing a Program

- ▶ **Workplace Chemical Protection Program**
- ▶ **Establish Regulated Areas**
- ▶ **Exposure Control Plan**

Workplace Chemical Protection Program (WCPP)

- ▶ **Exposure limits**
- ▶ **Initial and periodic exposure monitoring**
- ▶ **Regulated area**
- ▶ **Exposure control plan**
- ▶ **Respiratory protection and PPE**
- ▶ **Training**
- ▶ **Recordkeeping**
- ▶ **Downstream notification**

Establish Regulated Areas

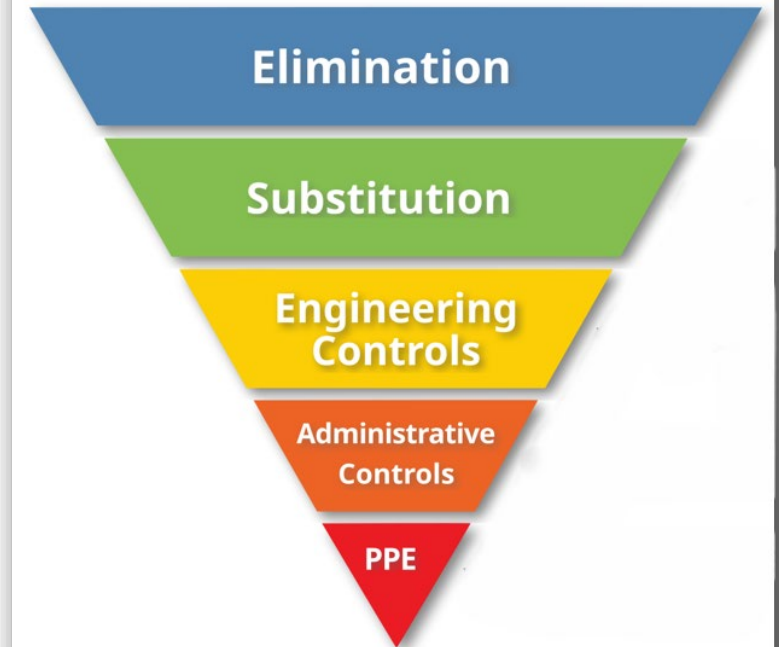
- ▶ **Establish and alert potential exposed persons** to boundaries of the area
- ▶ **Minimize** number of authorized persons exposed to MeCl
- ▶ **Restrict access** by those lacking training, PPE, or who are otherwise unauthorized



Exposure Control Plan (ECP)

- ▶ ECP is part of Workplace Chemical Protection Program (WCPP)
- ▶ **Use the hierarchy of controls** and explain the rationale
- ▶ Description of regulated area, authorized persons, updating ECP

Hierarchy of Controls



Lab Safety Institute (ECP - Template)



The Laboratory Safety Institute

An International Center for Health, Safety, and the Environment

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METHYLENE CHLORIDE EXPOSURE CONTROL PLAN (Proposed Template)

The [Facility Name] is committed to providing a safe and healthful work environment for our entire staff. In pursuit of this endeavor, the following exposure control plan (ECP) is provided to eliminate or minimize occupational exposure to methylene chloride (dichloromethane, DCM, CH₂Cl₂) in accordance with OSHA standard 29 CFR 1910.1052 "Methylene chloride" and the EPA's ruling for "Methylene Chloride; Regulation Under the Toxic Substances Control Act (TSCA)" published in the Federal Register on May 8, 2024, that became effective on July 8, 2024.

The ECP is a key document to assist our institution in implementing and ensuring compliance with the standard, thereby protecting our personnel. This ECP includes:

- Implementation of various methods of exposure control, including:
 - Elimination of DCM use
 - Substitution with less hazardous alternatives
 - Engineering controls
 - Administrative controls
 - Personal protective equipment (PPE)
- Communication of hazards to employees and training
- Determination of employee exposure
- Recordkeeping

The methods of implementation of these plan elements are discussed in the subsequent following ECP.

PURPOSE, SCOPE AND APPLICABILITY

The purpose of this ECP is to document the actions taken to mitigate exposure to methylene chloride. This includes controlling methylene chloride exposure to a concentration that is below the EPA Existing Chemical Exposure Limit (ECEL) of 2 parts per million (ppm) as an eight-hour time-weighted average (8-hr. TWA) and below the EPA Short Term Exposure Limit (EPA STEL) of 16 ppm averaged over 15-minutes.

This ECP covers all laboratories and work areas where methylene chloride is handled and is applicable to all employees, students and visitors with the potential to be exposed (i.e., potentially exposed persons) to methylene chloride.

PROGRAM ADMINISTRATION

- [Name of responsible authority or department, henceforth identified as the Chemical Hygiene Officer] is (are) responsible for the implementation of the ECP.

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- [The Chemical Hygiene Officer] will maintain, review, and update the ECP at least annually, and whenever necessary to address changes such as new or modified tasks and procedures. The [Chemical Hygiene Officer] can be contacted at location/phone number: [list location/number].

- Personnel who are determined to have potential exposure to methylene chloride (i.e., potentially exposed persons) must comply with the procedures and work practices outlined in this ECP.

- [Name of responsible person or department, e.g., work area supervisor] will maintain and provide all necessary personal protective equipment (PPE), engineering controls (e.g., chemical fume hoods, local exhaust ventilation, etc.), and chemical waste labels as required by the standard. [Name of responsible person or department] will ensure that adequate supplies of the aforementioned equipment are available in the appropriate sizes and that exposure controls are utilized in accordance with this ECP.

- [The Chemical Hygiene Officer] will be responsible for training, documentation of training, and making the written ECP available to employees and inspecting regulatory agencies. [The Chemical Hygiene Officer] Can be contacted at: [list location/number].

EMPLOYEE EXPOSURE DETERMINATION

The following is a list of job classifications in which individuals at this institution may have the potential for exposure to methylene chloride. Included is a list of tasks and procedures, or groups of closely related tasks and procedures, in which exposure may occur for these individuals:

JOB TITLE / DEPARTMENT / LOCATION / TASK/PROCEDURE

(Example: Environmental Specialist / Campus Safety / Administration Building, Room 123 / Hazardous Chemical Waste Collection)
(Example: Research Assistant / Clinical Pharmacy / Pharmacy Building, Room 475 / Organic Synthesis)

METHODS OF CONTROL

The hierarchy of controls will be utilized to identify possible controls to limit the potential for methylene chloride at concentrations believed by the US EPA to present an unacceptable risk of injury to health. This includes the following:

- Elimination: Laboratories will eliminate the use of methylene chloride whenever it is feasible to do so.
- Substitution: Laboratories will substitute the use of less hazardous alternatives to methylene chloride whenever feasible to do so. Laboratories will periodically (e.g., annually) evaluate opportunities to substitute less hazardous alternatives through a literature review, discussion with appropriate subject matter experts, or means.

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Regulated areas will be demarcated with sign that states, "Danger: Regulated Area. Methylene chloride, authorized personnel only. Respiratory protection and protective clothing required." Eating, drinking, and the application of cosmetics is prohibited in regulated areas. Access to regulated areas will be restricted only to individuals that have been trained and authorized to enter. Training content will include the information identified in the Training section of this document as well as instructions on the proper use, maintenance and limitations of PPE. Individuals entering regulated areas will participate in a medical surveillance program by completing the methylene chloride medical surveillance questionnaire at least annually and submitting it for review to the health care provided identified by the institution.

HYGIENE FACILITIES

Areas where methylene chloride is handled will be equipped with a handwashing sink stocked with soap and paper towels. Work areas where a quantity of methylene chloride is handled that may constitute a splash risk that may soak through a lab coat resulting in dermal contact will also be equipped with an emergency shower. Emergency eyewash and shower facilities will be maintained in accordance with the institutional procedure for emergency eyewash stations.

EMERGENCY RESPONSE

Exposure: Individuals able to smell methylene chloride may be exposed above the ECEL or EPA STEL. Individuals will secure work materials, move to a location with fresh air, and report the incident to their work area supervisor. The supervisor will contact [the Chemical Hygiene Officer] to investigate and respond to the incident. Individuals exposed to methylene chloride through dermal contact will remove the source of the exposure (e.g., lab coat) and wash the affected area with soap and water for 15 minutes. Individuals will respond to a splash to the eyes or by using an emergency eyewash station and flushing their eyes for 15 minutes.

Spill: Individuals will respond to a methylene chloride spill by notifying colleagues of the incident. Spills within a chemical fume hood may be contained by closing the fume hood sash and moving away from the hood until the methylene chloride has evaporated. Individuals will respond to spills outside of the chemical fume hood by notifying colleagues of the incident, securing materials, and leaving the work area until the methylene chloride has evaporated and room ventilation has reduced the vapor concentration to a concentration that is no longer noticeable. Spills outside of the chemical fume hood will be reported immediately to the work area supervisor and [the Chemical Hygiene Officer or spill response team].

Leak: If a methylene chloride container leak has been observed or detected individuals will immediately leave the area, take action to restrict access to the area by other individuals and notify the [the Chemical Hygiene Officer or spill response team].

TRAINING

Training will be provided to potentially exposed persons prior to or at the time of initial assignment to a job involving potential exposure to methylene chloride. The training will be presented in a

5

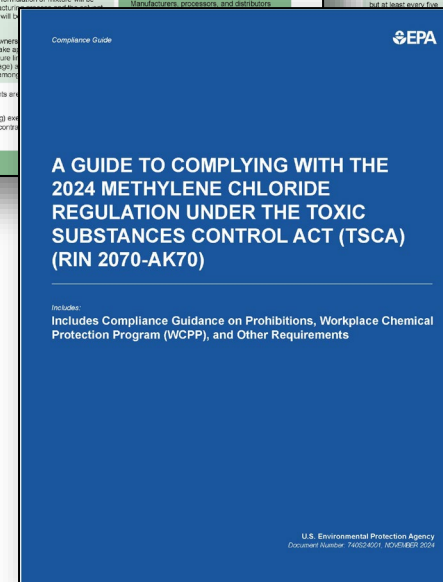
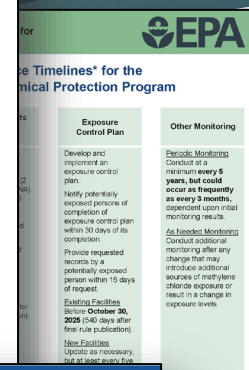
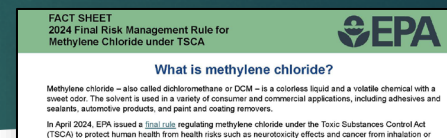
Final Thoughts

- ▶ **Run the Numbers**
- ▶ **Resources**
- ▶ **Questions**

Vendor	Description	Cost
Apex Companies	Exposure monitoring (3 people)	\$4,695
Lab Safety Institute Webinars (2)	1) Lab Safety Protocols for MeCl 2) Assessing & Updating Protocols	\$210 \$199
Quality Air Services	Fume hood certification (4 hoods)	\$1,659
Sigma-Aldrich	Silver Shield gloves (S, M, L)	\$372
U-Line	Labeling tape (four rolls to label floor)	\$108
Total Expenses		\$7,243

Resources

- ▶ **EPA Fact Sheet:** https://www.epa.gov/system/files/documents/2024-07/mecl-fact-sheet_0.pdf
- ▶ **EPA Guide:** <https://www.epa.gov/system/files/documents/2024-07/mecl-compliance-guide.pdf>
- ▶ **Green Chemistry Teaching and Learning Community:** <https://gctlc.org/methylene-chloride-dcm-replacements>



Making It Easier, Better & Safer



“I don’t do what you do (teach). But what I do makes what you do easier, better and safer.”

Go Do
Science
Safely!

