



Dichloromethane (DCM) New Safety and Regulatory Requirements

Synonyms: Methylene Chloride, Methylene Bichloride



DCM Uses

- DCM is widely used in research due to its unique properties: moderate polarity, high volatility, low reactivity.
- Replacing DCM is challenging, as no single green solvent matches its properties, while DCM itself can be used in chromatography, extractions, degreasing, and general cleaning.



Status in the Technion

75% reduction in DCM consumption (2020–2025)
Currently 38 labs use DCM, 7 labs account for 80% of usage



Main Safety Concerns

- Risks: cancer, liver/blood toxicity, skin/eye irritation
- Exposure routes: inhalation, skin
- Up to 100% of DCM used in commercial applications may be released into the environment
- In research labs: no evidence of hazardous exposure (controlled use)



Regulatory Requirements

- In July 2024, the EPA's Final Rule regulating DCM went into effect > full compliance deadline: May 2029.
- The regulation applies to all potentially exposed employees, including students and researchers.
- The regulation limits usage levels x7-10 times than OSHA's previous values.
- The use of DCM in research will continue, but under stricter WCCP (= Workplace Chemical Protection Program) compliance.



Lab Safety Rules

- Use only inside a chemical fume hood
- Store in a ventilated cabinet, in separate containers
- Use dedicated gloves
- Written SOPs for all uses
- Spill: evacuate immediately, wait ≥ 3 hours before handling spill. Respirator filters inside spill kit fit handling DCM spill by then.

SUMMARY

- ✓ EPA regulation tightened due to industrial / consumer risks
- ✓ Best to seek alternative solvents
- ✓ In research – controlled use, waste collection → minimal risk
- ✓ Essential to continue safe practices and minimize usage