

**Standard Operating Procedure for:  
Methylene Chloride Handling and Disposal**

**1. Procedure/Hazardous Material:**

Methylene chloride (also known as dichloromethane) (CH<sub>2</sub>Cl<sub>2</sub>). Chemical Abstracts Service (CAS) 75-09-2

**2. Department:** All laboratories

**3. Revision Date:** February 2009

**4. Special Notifications:**

OSHA Regulation: 29 CFR 1910.1052 <http://www.osha.gov/SLTC/methylenechloride/index.html>

**5. Hazard Description:** Persons exposed to methylene chloride (MC) may be at increased risk of developing cancer, adverse effects on the heart, central nervous system and liver, and skin or eye irritation. Exposure may occur through inhalation, by absorption through the skin, or through contact with the skin. The safe exposure limit (PEL) is 25 ppm over 8 hours and (STEL) 125 ppm in 15 minutes.

**6. Engineering Controls:** Use in a working fume hood.

**7. Personal Protective Equipment:**

Chemical Goggles. Gloves: for incidental exposure, wear nitrile gloves; wear polyvinyl alcohol (PVA) gloves if splashing or immersion is possible. Lab coat.

**8. Storage Requirements:** Protect against physical damage. Because of its corrosive properties, and its high vapor pressure, MC should be stored in a cool, dry, well ventilated area away from direct sunlight, heat source and acute fire hazards.

**9. Handling Precautions/Conditions:**

Use lab practices to keep exposures as low as possible. Do not rely on odor to determine your exposure level. The odor warning when the exposure limit value is exceeded is insufficient. Reacts violently with metals such as aluminum powder and magnesium powder, strong bases and strong oxidants causing fire and explosion hazard. Attacks some forms of plastic rubber and coatings.

**10. Emergency Procedures:**

Clean up all small spills immediately following EH&S Spill Cleanup Guidelines. Contact EH&S for guidance or assistance with larger spills. Emergency eyewash and shower must be available.

**11. Decontamination:** No special requirement. Clean lab benches, etc. at the end of each day and after any spills.

**12. Waste Disposal:**

- The (aqueous) water layer for extraction of a reaction mixture must be disposed of in a waste bottle specifically for halogenated solvents. All aqueous layers from extractions must never be poured down a sink.
- When using rotary evaporators (ROTOVAP) to remove methylene chloride or any other halogenated solvents, you must make sure that the collecting trap is cooled (using ice or dry ice or other cooling means is enough). This prevents halogenated solvents from entering the water supply and also helps prolong the life of your vacuum aspirator.
- Please empty the collecting flask of the ROTOVAP after each concentration.
- Remember to collect all halogenated solvent waste apart from non-halogenated solvent waste by storing it in a separate waste container.
- For proper hazardous chemical waste management guidelines, visit <http://www.stonybrook.edu/ehs/waste>

**13. Laboratory Specific Procedures:** *Add as needed for your laboratory.*

**14. Additional References**

- Read the Material Safety Data Sheet (MSDS) for your product and review NIOSH data:  
<http://www.cdc.gov/niosh/ipcsneng/neng0058.html>

- *Prudent Practices* <http://www.nap.edu/catalog/4911.html> (read it online for free)

Prudent Practices for Safety in Laboratories provides step-by-step planning procedures for handling, storage, and disposal of chemicals. Organized around a recommended workflow protocol for experiments, the book offers prudent practices designed to promote safety and it includes practical information on assessing hazards, managing chemicals, disposing of wastes, and more.