












Chlorinated hydrocarbons

Substance	Hazard	Comment
Dichloromethane (Methylene dichloride) <i>liquid</i>	  HEALTH HAZ. IRRITANT	DANGER: suspected of causing cancer; causes skin & serious eye irritation; may cause respiratory irritation, drowsiness or dizziness and damage to organs through prolonged or repeated exposure. It is used in some paint strippers. For a 15-minute exposure, the concentration in the atmosphere should not exceed 1060 mg m ⁻³ .
Trichloromethane (Chloroform) <i>liquid</i>	  TOXIC HEALTH HAZ.	DANGER: harmful if swallowed; causes skin & serious eye irritation; toxic if inhaled; may cause drowsiness or dizziness; suspected of causing cancer and of damaging the unborn child; causes damage to organs through prolonged or repeated exposure. For a 15-minute exposure, the concentration in the atmosphere should not exceed 30 mg m ⁻³ . Used in the past as an anaesthetic.
Tetrachloro-methane (Carbon tetrachloride) <i>liquid</i>	  TOXIC HEALTH HAZ.	DANGER: toxic if swallowed, inhaled or in contact with skin; may cause allergic skin reaction; suspected of causing cancer; causes damage to organs through prolonged or repeated exposure; harmful to aquatic life with long-lasting effects; harms public health & the environment by destroying ozone in the upper atmosphere. For a 15-minute exposure, the concentration in the atmosphere should not exceed 39 mg m ⁻³ . It can no longer be legally bought and existing stocks should not be used in work with open test tubes.
1,1,1-trichloroethane (Methyl chloroform) <i>liquid</i>	 HARMFUL	WARNING: harmful if inhaled; causes skin and serious eye irritation; harms public health & the environment by destroying ozone in the upper atmosphere. For a 15-minute exposure, the concentration in the atmosphere should not exceed 1110 mg m ⁻³ . It can no longer be legally bought; existing stocks should not be used in work with open test tubes.
Tetrachloroethene (Tetrachloro-ethylene) <i>liquid</i>	  HEALTH HAZ. ENVIRON.	WARNING: suspected of causing cancer; toxic to aquatic life with long-lasting effects; may cause skin and serious eye irritation. Used in dry cleaning. For 15-minute exposure, conc. in atmosphere should not exceed 689 mg m ⁻³ .
Trichloroethene (Trichloroethylene) <i>liquid</i>	  HEALTH HAZ. IRRITANT	DANGER: causes skin & serious eye irritation; may cause cancer, drowsiness or dizziness; suspected of causing genetic defects; harmful to aquatic life with long-lasting effects. For a 15-minute exposure, the concentration in the atmosphere should not exceed 820 mg m ⁻³ . It was used in dry cleaning but has been replaced by tetrachloroethene.

Typical control measures to reduce risk

- Use the smallest volume possible and wear suitable eye protection.
- Use a fume cupboard for anything larger than test-tube amounts; ensure good laboratory ventilation.
- When choosing a solvent, pick the safest one with suitable properties - cyclohexane, *Volasils* or *Lotoxane* are safer than chlorinated hydrocarbons and usually work satisfactorily.

Assessing the risks

- **What are the details of the activity to be undertaken? What are the hazards?**
- **What is the chance of something going wrong? How serious would it be if something did go wrong?**
- **How can the risk(s) be controlled for this activity?**
eg, can it be done safely? Does the procedure need to be altered? Should goggles or safety spectacles be worn?

Emergency action

- **In the eye** Flood the eye with gently-running tap water for 10 minutes. Consult a medic.
- **Vapour breathed in** Remove the casualty to fresh air. Consult a medic.
- **Swallowed** Do no more than wash out the mouth with water. Do **not** induce vomiting. Consult a medic.
- **Spilt on the skin or clothing** Remove contaminated clothing. Wash the skin with soap and water. Take contaminated clothing outside for the solvent to evaporate.
- **Spilt on the floor, bench, etc** Open windows if large amounts are spilt. Consider the need to evacuate for large spills. Cover with mineral absorbent (eg, cat litter) and scoop into a bucket. Add washing-up liquid and work into an emulsion. Wash to waste with plenty of water.