

## Halogenated Solvents in Laboratories

*Examples: Methylene Chloride, Chloroform, Carbon Tetrachloride and Trichloroethane*

<b>Identification</b>	<b>Description</b>	<p>Halogenated Solvents are commonly used in many laboratories at Temple University (TU) as part of their research and clinical activities. A Halogenated Solvent is an organic compound in which it does have a halogen (fluorine, chlorine, bromine, or iodine) attached to it.</p> <p>Many halogenated solvents are carcinogenic, difficulty to dispose of, and can cost three times more to dispose of as compared to non-halogenated solvents. Making an effort to keep halogenated and non-halogenated solvents separate can reduce disposal costs.</p>
	<b>Classification</b>	Regulated Chemical Waste
	<b>Potential Hazards</b>	<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <ul style="list-style-type: none"> <li>Refer to chemical specific <b>Safety Data Sheet (SDS)</b> for specific hazard information.</li> </ul>
<b>Waste Minimization</b>	<b>Opportunities</b>	<ul style="list-style-type: none"> <li>Hydrocarbon solvents may serve in the place of their halogenated counterparts.</li> <li>Investigate the use of alternative non-halogenated solvents.</li> <li>Keep separate from acidic or alkaline waste streams</li> <li>Minimize unnecessary dilution and limit water concentration as much as possible</li> <li>Keep Halogenated solvents separate from waste that contain heavy metals, pesticides, cyanides or acutely toxic “P-listed” wastes.</li> </ul>
<b>Supplies</b>	The following supplies are available through Environmental Health and Radiation Safety (EHRS). To order these supplies, call (215) 707-2520 or complete the online Chemical waste request form	
	<b>Supply</b>	<b>Description</b>
		Temple University “Hazardous Waste Tag”  The Temple University Hazardous Waste Tag must be affixed on all waste containers used to collect halogenated waste.
	Spent Halogenated Solvent waste <b>must</b> be collected in a closed container. The following containers may be used: <ul style="list-style-type: none"> <li>5-gallon white plastic carboy</li> <li>4-liter white poly bottle</li> </ul>	

<b>SAA Management</b>	<b>Accumulation Limits</b>	A maximum of 25 gallons of Halogenated Solvent waste may be accumulated in a laboratory (Satellite Accumulation Area (SAA)).
	<b>Personal Protective Equipment</b>	 EYE PROTECTION  CHEMICAL GLOVES  LONG PANTS  CLOSED TOED SHOES ARE REQUIRED <b>Note:</b> Always refer to glove manufacturer for chemical specific glove type.
	<b>Collection Procedures</b>	<ul style="list-style-type: none"> <li>• Select an appropriate waste collection container.</li> <li>• All commingling of Halogenated solvent waste must be conducted in an operating chemical fume hood.</li> <li>• Refer to chemical labels or Safety Data Sheets (SDS) for incompatibilities</li> <li>• Keep container closed when not adding waste.</li> <li>• Do Not Overfill - Leave a 1" headspace</li> <li>• Begin to complete the hazardous waste tag as soon as any material is placed in the selected container.</li> </ul>
	<b>Storage</b>	<ul style="list-style-type: none"> <li>• Collection containers must be stored in designated Satellite Accumulation Areas.</li> <li>• Collection container must be properly segregated and stored in secondary containment.</li> <li>• Keep containers tightly closed in a dry, cool, and well-ventilated area.</li> <li>• Store the collection container so that the hazardous waste tag is clearly visible.</li> </ul>
<b>Disposal</b>	<b>Removal</b>	<ul style="list-style-type: none"> <li>• Complete the TU Hazardous Waste Tag. Ensure that the: <ul style="list-style-type: none"> <li>○ Generator information is accurate.</li> <li>○ Applicable Waste Stream is checked - <b>Halogenated Solvents</b></li> <li>○ Applicable Hazards are identified- <b>Flammable, Toxic</b></li> <li>○ All chemical constituents and amounts (%) are included on the tag.</li> </ul> </li> <li>• Make sure that the tag is affixed to the container and the container lid is closed tight.</li> <li>• When the container becomes ¾ full, request a waste collection from EHRS by: <ul style="list-style-type: none"> <li>○ Completing the online <a href="#">chemical waste collection request form</a>.</li> </ul> </li> </ul>
	<b>Special Collection Request</b>	Contact EHRS to arrange for large collections of spent Halogenated Solvents or containers of spent Halogenated Solvents.
<b>Other</b>	<b>Breakage/Leakage</b>	Contain the leak and soak up with inert absorbent material. Place all spill pads, absorbent in a sealed bag and tag it as hazardous waste. Request disposal through EHRS.
	<b>Emergencies</b>	<p><b>In the event of an emergency</b> – Call campus safety at (215) 214-1234. EHRS [(215) 707-2520] should also be notified of the incident.</p> <p><b>Direct contact</b> – Flush contaminated area with copious amounts of water (eyewash or safety shower) and then seek medical attention.</p> <p><b>Spill</b> – Refer to the spill management sheet for general spill cleanup. Contact EHRS for additional assistance or guidance.</p> <p><b>Fire</b> – ABC dry powder fire extinguisher should be adequate.</p>
	<b>Questions</b>	Contact Environmental Health and Radiation Safety (EHRS) at (215) 707-2520