



Principal Investigator:

Date Approved:

This document covers basic chemical safety information for acutely toxic chlorinated solvents. The use of any acutely toxic chemical is subject to pre-approval by the Toxic Substance Committee. DO NOT USE ACUTELY TOXIC CHLORINATED SOLVENTS UNTIL YOU HAVE OBTAINED THE NECESSARY APPROVAL.

Acutely Toxic Chlorinated Solvents

Refer to the University of Arkansas Chemical Hygiene Plan for a description of chemicals that will be considered as a Particularly Hazardous Substance (PHS).

Chemicals that meet the definition of a PHS acutely toxic chlorinated solvent must be used only in a designated area where limited access, special procedures, knowledge, and work skills are required. A designated area can be the entire laboratory, a specific laboratory workbench, or a laboratory hood. Designated areas must be clearly marked with signs that identify the chemical hazard and include an appropriate warning; for example: WARNING! ACUTELY TOXIC CHLORINATED SOLVENT WORK AREA

Chlorinated solvents are liquids containing chlorine atoms and are often volatile and carcinogenic. The chlorinated solvents covered by this SOP are also acutely toxic by inhalation. Like other halogenated solvents, they have the ability to penetrate disposable latex and nitrile gloves. This is particularly noteworthy in the case of 2-chloroethyl ether and 2-chloroacrylonitrile, which are acutely toxic by dermal exposure.



Exposure, Signs and Symptoms and Chemical Properties

Review the appropriate sections of the chemical specific Safety Data Sheet (SDS) for information on ways to detect exposure, appropriate exposure limits, signs and symptoms of exposures and chemical properties. If data is lacking in any area, refer to the following sites for additional information:

<https://pubchem.ncbi.nlm.nih.gov/>

<https://druginfo.nlm.nih.gov/drugportal/>

<https://toxnet.nlm.nih.gov/index.html>

<http://web.doh.state.nj.us/rtkhsfs/indexfs.aspx>

Always use the smallest amount of chemical that is consistent with the requirements of the work performed. Understand the chemical properties and what are the likely routes of exposure based on those properties and the procedures to be performed. Use containment devices (e.g., fume hood, glove box) when substance can volatilize, when the substance is manipulated, whenever aerosols or particulates may be produced, or when an action may result in an uncontrolled release.

Contact Environmental Health and Safety (EHS) if there are any questions (479-575-5448).

Personal Protective Equipment (PPE) & Personnel Monitoring



Lab Coat

Chemical/Flame resistant



Gloves

Two pairs of nitrile or neoprene gloves, when the glove is chemically exposed, the outer glove must be removed and replaced immediately. Alternatively, butyl rubber gloves may be used.



Eye Protection

ANSI Z87.1-compliant safety glasses or safety goggles if a splash hazard is present

Labeling & Storage

Store away from other materials that are chemically incompatible. Each container's label must include a skull-and-crossbones pictogram, the word "Danger", and identify the material as both acutely toxic and carcinogenic. Containers of these materials must be stored in leak-proof secondary containment within a Designated Area. The secondary container's label must include an appropriate pictogram and identify the material as both acutely toxic and carcinogenic. Also, if not plainly visible (e.g. through a cabinet window), labeling must be applied to storage locations where these are stored to avoid an inadvertent encounter.

Engineering Controls, Equipment & Materials

Fume Hood

Use a fume hood (or equivalent) to keep exposure to materials as low as possible. If your protocol does not permit the handling of such materials in a fume hood, contact EH&S (479-575-5448) to perform an exposure assessment to determine whether alternative engineering controls or additional respiratory protection is required.

Housekeeping

Spills

Notify others in the area of the spill, including your supervisor. Evacuate the location where the spill occurred. Call 911 and report any exposure to EHS (479-575-5448). Remain on-site (at a safe distance) to provide detailed information to first responders.

Decontamination

After each use (or day), wipe down the immediate work area and equipment to prevent accumulation of chemical residue. Decontaminate workspace with appropriate materials (refer to the SDS). When finished wash hands and arms with soap and water and properly dispose of all wastes. Contaminated items (e.g., solid and liquid materials and PPE) should be discarded as hazardous waste.

Waste

Refer to the UA Chemical Hygiene Plan for details and contact EHS (479-575-5448) for specific disposal instructions.

