

The University of Texas at Dallas Acid Handling Safety Manual



ACID HANDLING SAFETY

I. PURPOSE

The importance of using acids in the laboratories throughout the University should not overshadow the inherent hazards and the possible damaging effects of acids for personnel working with acids. Therefore, this procedure will indicate some of the most predominant hazards and the procedures that should be followed to avoid physical impairment.

II. HAZARDS

The hazards of acid are many. Some of the common hazards are:

- A. Acids, in liquid and vapor states, are highly toxic and irritating to the eyes, skin, and respiratory tract.
- B. Contact of acid with skin causes very painful and medically serious burns.
- C. Liquid contact with the eyes can cause immediate blindness.
- D. Some acids offer a fire and explosion hazard.

III. PROCEDURES

- A. Store strong acids separately and away from volatile organic chemicals. Do not store more than chest high. Close fitting, shatterproof containers shall be available for transporting glass containers of acids.
- B. Wear a face shield, acid resistant chemical gloves, and aprons when working with acids. Emergency flood showers and/or eye wash fountains must be available.
- C. Dilute acids by stirring the concentrated acid slowly into the water. DO NOT POUR WATER INTO ACID.
- D. When using acids, make available suitable neutralizing agents for use in the event of spills. Acids should be neutralized with weak bases, such as sodium carbonate or bicarbonate. Spill kits are available in the chemical storeroom.
- E. Before packaged acid containers or carboys are handled, inspect them for damage. Empty acid containers should be rinsed and disposed of properly (See Waste Disposal Safety Manual).
- F. To transfer acid safely from a carboy, move the liquid by suction from a vacuum pump or aspirator or start a siphon with a rubber bulb or ejector. Compressed air even from a hand pump should not be used. Wear protective equipment - face shields, gloves, aprons, etc., during all transfer operations. Never leave the transfer

operation unattended. In case of malfunction of transfer equipment, prepare an emergency shutdown procedure.

- G. Transport all liter or greater size bottles of acids or bases in a rubber bucket or an acid resistant, shatterproof carrier.
- H. In the event of personal contact with acids, pending medical treatment, wash off the chemical by flooding the burned area with copious amounts of water as quickly as possible. This is the only method for limiting the severity of the burn, and the loss of even a few seconds can be vital. Seek professional medical assistance immediately.

Use perchloric acid only in a perchloric acid rated hood. (Refer to the Incompatible Chemicals Table in the Waste Disposal Safety Manual, Appendix 1 for further information.)