

STANDARD OPERATING PROCEDURE

Acids

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Frequently used acids in the lab include sulfuric acid, nitric acid, and hydrochloric acid.

Minimum Personal Protective Equipment Required: Neoprene gloves, eye protection, skin and body protection (long pants, lab coat, and closed toed shoes)

Risks: Concentrated acids are very corrosive and can cause severe eye and skin burns from vapors and direct contact and severe respiratory and digestive tract burns if inhaled; Burns from heat generated when concentrated acids are mixed with water; Explosions if acids react with other chemicals.

SDSs should be reviewed to determine specific hazards associated with a given acid. Refer to the *Working with Chemicals SOP* for information on how to read an SDS and finding more information on chemical hazards.

Special Handling:

- ✓ **Always add acid to water, never the reverse.**
 - If you add water to acid, you form an extremely concentrated solution of acid initially and the solution may boil very violently, splashing concentrated acid.
 - If you add acid to water, the solution that forms is very dilute and the small amount of heat released is not enough to vaporize and spatter it.

Protocol/Procedure:

1. Acids and other corrosives are stored in the corrosives cabinet beneath the fume hood.
2. Use neoprene gloves when handling acids.
3. All work with concentrated acids should occur in a fume hood. Refer to the *Fume Hood SOP* for more information.
4. Place container of acid in the fume hood before opening. Keep bottle at least 6 inches (15 cm) from edge of hood.
5. Keep lid on the acid container when not in use.
6. If preparing an acid bath, pour the acid into a beaker in the hood and then transport the beaker to the tub of water. Otherwise, all solutions containing acid should be prepared in the fume hood.
7. Once finished, place acid container back into the corrosives cabinet.
8. Use baking soda to neutralize any diluted acid that is no longer needed. Once neutralized, it can be poured down the sink.

In Case of Spill:

- ✓ Assess the extent of danger.
- ✓ Small (< 4 L):
 - Alert people in immediate area of spill.
 - Avoid breathing vapors from spill.
 - Confine spill to as small an area as possible.
 - Use baking soda or acid neutralizer from the spill kit (located next to each fume hood) to neutralize the acid.
 - Use absorbent pads to collect up the liquid.
 - Collect contaminated materials and residues and place in container for disposal as hazardous waste.
 - Clean spill area with water.
- ✓ Large (> 4 L):
 - Dial 911 for assistance
 - Close off area of spill
 - Have person available that has knowledge of incident and laboratory to assist emergency personnel