

General Use SOP for Corrosive Materials

#1	Process or Experiment Description
<p>This standard operating procedure (SOP) is intended to provide general guidance on how to safely work with corrosive materials. This general use SOP only addresses safety issues specific to corrosive hazards of chemicals. In some instances, several general use SOPs may be applicable for a specific chemical (i.e., for perchloric acid, both the general use SOPs for corrosives and unstable reactivities would apply). If you have questions concerning the applicability of any item listed in this procedure contact the Principal Investigator/Laboratory Supervisor of your laboratory or Environmental Health and Safety (650-723-0448).</p>	
#2	Hazardous Chemicals/Class of Hazardous Chemicals
<p>Corrosive materials cause irreversible destruction of living tissue through chemical action at the point of contact. As corrosive chemicals can be liquids, solids, or gases, corrosive effects most commonly affect the skin, eyes, and respiratory tract. Examples of corrosive chemicals include: liquids such as acids and bases, bromine, and hydrogen peroxide; gases such as chlorine and ammonia; and solids such as phosphorous and phenol. For work with Hydrofluoric Acid, see also Laboratory Safety Fact Sheet on Hydrofluoric Acid.</p>	
#3	Control of Hazards- General
<p>Handling processes should be designed to minimize the potential for splash, splatter, or other likely scenarios for accidental contact.</p> <ul style="list-style-type: none"> ▪ Do not pour water into acid. Slowly add the acid to the water and stir. ▪ Never empty carboys or drums of chemicals by means of air pressure. Use a tilting rack, a safety siphon, or a liquid pump. ▪ Use a mechanical aid or a pipette bulb for pipetting. ▪ Open bottles or carboys slowly and carefully and wear protective equipment to guard hands, face, and body from splashes, vapors, gases and fumes. ▪ Wipe drips from containers and bench tops. Be especially careful to wipe up visible residues of sodium hydroxide and potassium hydroxide from all surfaces. Skin contact with dry residue will result in burns. 	
#3a	Engineering/Ventilation Controls
<p>Use a properly functioning lab fume hood when handling strong acids/ bases, or other chemicals that can form mists/ vapors upon contact with air (often referred to as “fuming”). If the process does not permit the handling of such materials in a fume hood, contact Environmental Health and Safety at (650) 723-0448 to review the adequacy of ventilation measures.</p>	
#3b	Personal Protective Equipment
<p>In addition to proper street clothing (<i>long pants (or equivalent) that covers legs and ankles, and close-toed non-perforated shoes that completely cover the feet</i>), wear the following Personal Protective Equipment (PPE) when performing lab operations/tasks involving corrosive materials:</p>	

- Safety glasses (If splash potential exists, use goggles + face shield instead)
- Lab coat – Use chemical-resistant apron, if splash potential exists
- Appropriate chemical-resistant gloves

#4 Special Handling Procedures and Storage Requirements

Ensure secondary containment and segregation of incompatible chemicals per guidance within the SU Compatible Storage Group Classification System. Also, follow any substance-specific storage guidance provided in MSDS documentation. Corrosives should never be stored above eye level. Wherever hydrofluoric acid is used, ensure to have a calcium gluconate kit on-site. See the SU Laboratory Safety Fact Sheet on Hydrofluoric Acid.

#5 Spill and Accident Procedures

Prompt response to chemical spills is critical to protect worker health & safety and to mitigate adverse affects to the environment. For further guidance, refer to "Response to Chemical Spills and Exposures." Laboratory personnel who work with hazardous chemicals are to be provided the opportunity to receive medical attention/consultation when:

- A spill, leak, explosion or other occurrence results in a hazardous exposure (potential overexposure).
- Symptoms or signs of exposure to a hazardous chemical develop.

#6 Waste Disposal

Many corrosive liquids intended for disposal may likely be considered hazardous wastes. For general guidance regarding waste disposal, refer to: <https://ehs.stanford.edu/topic/waste-disposal>

#7 Training Requirements

- General Safety & Emergency Preparedness (EHS-4200)
- Chemical Safety for Laboratories (EHS-1900)
- Laboratory-specific training
- Where hydrofluoric acid is used, training is to include emergency first aid procedures.

#8 Approval Required

Consult with PI regarding need for prior approval. Laboratory personnel shall seek and the PI must provide prior approval of any chemical usage involving the following list of restricted chemicals.

#9 Decontamination Procedures

Personnel: If immediate medical attention is required, call 911 (or 286 from landlines in the School of Medicine). Remove any contaminated clothing, and IMMEDIATELY flush contaminated skin with water for at least 15 minutes following any skin contact. For eye exposures, IMMEDIATELY flush eyes with water for at least 15 minutes.

Consult MSDS for guidance on appropriate first aid. Where medical attention is required, ensure to bring along MSDS(s) of chemical(s) to aid medical staff in proper diagnosis and treatment.

For exposures to hydrofluoric acid, follow [SU HF First Aid Instructions](#).

All incidents involving exposure to hydrofluoric acid, phenol, or other severe skin contact hazards require immediate medical attention. Additionally seek medical attention if pain, numbness, redness, irritation or other health symptoms are apparent. Check the MSDS to see if any delayed effects should be expected.

Area: Decontamination procedures vary depending on the material being handled. The corrosivity of some materials can be neutralized with other reagents. Special neutralizing agents should be on hand to decontaminate areas.

#10	Designated Area
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	For corrosives that are also considered particularly hazardous substances, a designated area shall be established per the other applicable SOP(s).
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