UCI Environmental Health & Safety

Standard Operating Procedure (SOP)

This Standard Operating Procedure (SOP) describes basic chemical safety information for strong corrosive chemicals. Prior to conducting work with strong corrosive chemicals personnel must obtain approval from their Principal Investigator (PI) and/or Supervisor and attend the appropriate laboratory safety training. The PI must complete the Lab-Specific Use Procedures section and provide their personnel with a copy of this SOP and a copy of the SDS from the manufacturer.

Strong Corrosive Chemicals

Date SOP was written:	
Date SOP was approved by PI/lab supervisor:	
Principal Investigator:	
Principal Investigator Signature:	

Type of SOP: ☐ Process ☐Hazardous Chemical [X] Hazardous Class

Purpose

The purpose of this standard operating procedure is to acquaint you with the proper and safe handling, use, storage, and disposal of strong corrosive chemicals.

Properties & Hazards

General Hazards:

Chemicals in this band can cause serious damage or reversible irritation to the eyes and/or skin by chemical action at the site of contact. This band is comprised of one hazard level as follows:

Highly Hazardous

- Causes visible damage, destruction, or irreversible alteration in skin and/or eyes
- pH extremes of ≤ 2 and ≥ 11.5 including acid/alkali reserve capacity

The GHS and Cal/OSHA definition of this band is described in the table below:

GHS Pictogram	UCI Hazard Level	GHS Category	GHS H-Code	Cal/OSHA Definitions
	Highly Hazardous	Serious Eye Damage/Irritation (Cat. 1)	H318	Corrosive
		Skin Corrosion/Irritation (Cat. 1A, 1B, 1C)	H314	Corrosive

Highly hazardous chemicals in this band are considered “particularly hazardous substances” (PHS) by Cal/OSHA.

Personal Protective Equipment (PPE)

Skin and Body Protection:

Long pants (or equivalent) completely covering legs, closed toed shoes, and a traditional lab coat or flame resistant Nomex® lab coat when working with flammables.

Hand Protection:

Nitrile or neoprene gloves are typically adequate for minor splashes. Long cuff, thick chemical resistant gloves (extending over the sleeve of the lab coat) should be worn when working with

strong corrosive chemicals in quantities beyond small scale pipetting. Consult the SDS, and/or the lab specific use section to determine whether the material or process requires alternative hand protection.

Eye Protection:
ANSI Z87.1-compliant safety glasses or safety googles. Chemical splash goggles and a face shield should be worn whenever working with strong corrosives in quantities beyond small scale pipetting.

Administrative Controls

- Never work alone with strong corrosive chemicals.
- Review the Safety Data Sheets (SDSs) for all chemicals used in the experiment. Online SDSs can be accessed at https://www.ehs.uci.edu/sds/index.php.

Engineering Controls

- All work with strong corrosive chemicals shall be performed in containment devices (e.g. fume hoods or similar devices).
    - If a fume hood or other containment device is not feasible contact EHS to review the adequacy of the ventilation and alternative ventilation measures.

Special Storage and Handling Requirements

Storage:
- Strong corrosive chemicals should be stored in corrosive cabinets with proper signage on the containers and the storage cabinet.
- Strong corrosive chemicals must be stored below eye-level in chemically resistant, unbreakable secondary containment.
- Store away from materials that are chemically incompatible including water, metals, flammable liquids, and organic halogens. Consult the SDS for additional storage requirements and compatibility information.
- Acids and bases must be stored separately.
- Inorganic acids and organic acids must be stored separately.
- Keep strong corrosive chemicals away from sources of ignition.

Handling:
- All manipulations of strong corrosive chemicals (open chemical use) should be conducted in a fume hood.
- Always add acid to water (never do the reverse).
- Slowly conduct dilutions or dissolutions (e.g. dissolving strong corrosives in water).
- Do not use metal when working with strong corrosive chemicals (e.g. metal spatulas or metal syringes, etc.), strong corrosives will corrode metals.

Spill, Accident, and First Aid Procedures

Spills:
Refer to the spill response flowchart. Notify others in the area of the spill. Evacuate and prevent access to the location where the spill occurred. Notify your supervisor and EHS at x4-6200 immediately.

Skin or Eye Contact:
Remove contaminated clothing or contact lenses and flush the affected area with water for at least 15 minutes. Obtain medical attention immediately.

Inhalation:
Move to fresh air. Obtain medical attention immediately.

Ingestion:
Obtain medical attention immediately. (The poison control center, (800) 222-1222, is available 24 hours every day).

Waste Disposal Procedure

Disposal:

- Hazardous waste must be transferred to EHS for disposal within 6 months of being generated.
- Hazardous Waste Disposal (https://ehs.uci.edu/enviro/haz-waste/)
    - Text a pick up to hwp@uci.edu, EHS will pick up your waste within 1-3 days
    - Or visit https://ehs.uci.edu/enviro/haz-waste/

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APPENDIX A:
Lab-Specific Use Procedures

The following procedures describe how the subject chemicals are used in this laboratory beyond the practices described above.

Please see the General Information for ***Hazardous Materials Standard Operating Procedure*** for specific instructions on writing lab-specific use produces.

This section must describe lab-specific procedures to address the safe use of all highly hazardous chemicals from this band in use in the laboratory. These procedures may be organized around specific chemicals, specific tasks or the band as a whole.

Documentation of Training

Prior to conducting any work with strong corrosive chemicals, designated personnel must provide training to their laboratory personnel specific to the hazards and procedures involved in working with these substances.

I have read and understand the content of this SOP:

Name	Signature	Date