

Corrosives

Corrosive chemicals are chemicals that can cause immediate and sometimes permanent damage to the skin, eyes, respiratory system, and tissues upon contact. Some chemicals are also corrosive to metals. Both acidic (pH < 4) and basic/alkaline (pH > 10) solutions can cause chemical burns. Many oxidizing agents (e.g. hydrogen peroxide, chlorine) and dehydrating agents (e.g. phosphorous pentoxide, calcium oxide) can also be corrosive. This is a quick reference guide only, refer to the Chemical SOP for more detailed information.

What are the Symptoms of Corrosive Exposure?

Exposure to corrosive chemicals can produce a variety of symptoms, depending on the route of exposure. Exposure symptoms include the following:

- **Eyes:** pain, blood shot eyes, tearing, and blurred vision
- **Skin:** redness, pain, inflammation, bleeding, blisters, ulcers, skin discoloration, and burns
- **Respiratory:** burning sensation, coughing, wheezing, laryngitis, shortness of breath, nausea, and vomiting

What are the Classes of Corrosives?

The classes of corrosives and examples of those corrosives encountered at SJSU are the following:

- **Inorganic Acids**
 - Examples: Hydrochloric acid, Hydrofluoric acid, Phosphoric Acid, Sulfuric acid
- **Inorganic Bases**
 - Examples: Ammonium hydroxide, Potassium hydroxide, Sodium hydroxide
- **Organic Acids**
 - Examples: Acetic acid, Formic acid, Trichloroacetic acid
- **Organic Bases**
 - Examples: Hydroxylamine, Tetramethylethylenediamine (TEMED), Triethylamine
- **Oxidizing Acids**
 - Examples: Chromic acid, Nitric acid, Perchloric acid

Safety Precautions for Working with Corrosives

- Work with corrosive chemicals in a well-functioning chemical fume hood, glovebox, or other local source of ventilation.
- Always work within 10 seconds of a fully functional eyewash station and safety shower.
- Keep corrosive chemical containers closed when not in use.
- To prevent splattering, add acid in small quantities to water.
- Never add water to acid.
- When working with corrosives, wear safety goggles, chemically appropriate gloves, lab coats, and long pants. A chemical-resistant apron should also be considered when working with large amounts of concentrated acids.
- Calcium gluconate gel must be kept on hand in case of an emergency when conducting research involving hydrofluoric acid. Before continuing to use hydrofluoric acid in the lab, replace any expired calcium gluconate solutions.
- **NOTE:** Never use hot or concentrated perchloric acid solutions in a regular fume hood, as perchloric acid fumes will form explosive salts in the fume hood ductwork. Contact the Chemical Hygiene Officer for consultation and approval.



References

- SJSU [Chemical Hygiene Plan](#)

Need Help?

- Ask the lab/shop supervisor
- Ask the department/college safety staff
- Ask SJSU Environmental Health & Safety
 - Chemical Hygiene Officer: skye.kelty@sjsu.edu; 408-924-1978
 - Director: ehs@sjsu.edu; 408-924-1969