## Standard Operating Procedure

# **Corrosives**

## Overview

Corrosives are materials, acids and bases, that cause the destruction of exposed tissues and mucous membranes. Rapid damage can occur to eyes and skin, as well as to the respiratory tract (inhalation) and gastrointestinal tract (ingestion). Strong corrosive solutions have a pH <2.5 (strong acids) or >11 (strong bases) and cause damage via the reaction of hydroxide ions (OH-) or hydronium ions (H3O+) with tissue. *This SOP does not cover oxidizing acids (e.g. Nitric acid, perchloric acid), or corrosives with other highly hazardous properties (e.g. hydrofluoric acid). If using, please see the SOP specific to these materials.*

## Special Handling and Storage Concerns

**Personal Protective Equipment**

* Traditional white lab coat. Chemical-resistant apron when working with large volumes.
* Nitrile or neoprene gloves are adequate for possible incidental exposure. Consult a glove chart if large splashes are possible. *No latex gloves!*
* ANSI Z87.1-compliant safety glasses. Safety goggles or safety goggles plus face shield if a large splash hazard is present.

**Special Storage Requirements**

Acids and bases must be segregated in storage. Store in chemically-resistant secondary containers (e.g. polypropylene tubs). Store below eye level. Segregate from active metals such as sodium, potassium, magnesium ,etc. Use a corrosives storage cabinet if available.

**Engineering Controls**

If your protocol does not permit the handling of these materials in a fume hood, assess the volatility of the material (e.g. hydrochloric acid) and contact EH&S if alternative ventilation options are necessary.

An eye wash/safety shower unit *must* be within a 10 second walk (about 35 feet) from where corrosives are being handled, with only a single intervening door, opening in the direction of travel.

**Special Handling Considerations**

When forming solutions/dilutions, to avoid serious splatter risk ***add the corrosive to water, and never the reverse***.

Acids can react with metals, releasing flammable hydrogen gas.

## Waste Management

Segregate acids of pH <2, bases of pH >12.5, and oxidizing acids.

## First Aid and Emergencies

**Spill**

It is best practice to keep acid and base neutralizers in the laboratory spill kit if corrosives are used (e.g. sodium bicarbonate, citric acid).

**Personnel Exposure**

Standard measures apply. Pay extra attention to flushing affected skin/eyes with water for a full 15 minutes using an eyewash/safety shower unit.

## Laboratory Specific Information

**Prior Approval Required**

[ ]  **NO**

[ ]  **YES (describe):**

**Designated Area**

[ ]  **Entire Laboratory Area**

[ ]  **Other (describe):**

**Experimental Conditions of Use**

**Temperature Range:**

**Pressure Range:**

**Scale Range:**

**Other Relevant Details:**