

10.7 Handling Procedures for Corrosive Materials

Corrosive materials cause destruction of tissue through chemical action at the point of contact. As corrosive chemicals can be liquids, solids, or gases, corrosive effects can 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 phosphorus and phenol.

Before handling corrosive materials:

- Users must be specifically trained in the use of each chemical.
- Users must be trained in the use and location on emergency equipment.
- Workers must consult the valid Material Safety Data Sheet (MSDS) for the material(s) being used; a valid MSDS is provided by the supplier of the material and has been issued within the past three years.

While handling corrosive or any incompatible materials:

- A properly functioning fumehood must be used.
- Personal protective equipment (PPE) including chemical splash goggles, splash shield, gloves and protective clothing must be worn as specified in the PPE section of the MSDS.
- Additional protective clothing (i.e., apron, oversleeves) is appropriate where chemical contact with body and/or skin is possible.
- Do not pour water into acid. Slowly add the acid to the water and stir.
- Do not allow residue to build up, wipe drips from containers and bench surfaces especially. Skin contact with dry residue will result in burns

Storage of corrosive materials:

- Store all chemicals according to their compatibility group ([Appendix 3](#)).
- Special storage may be required, consult the MSDS
- Secondary containment is recommended.
- If not in specific acid or base cabinets, store all corrosive materials on the shelves closest to the floor level.

Waste procedures:

All chemical waste must be collected and disposed of according to the [Hazardous Materials Management Handbook](#). In preparation for pickup:

- Laboratories must supply and designate labelled containers for the proper segregation of waste material
- Waste collection must be included in all written laboratory procedures.

10.8 Handling Procedures for Hydrofluoric Acid

Hydrofluoric Acid (HF) is one of the strongest and most corrosive acids found in the laboratory. Therefore, special safety precautions are necessary when using this chemical. Anyone using HF must implement the following safety measures. These precautions apply to both concentrated and dilute solutions. HF burns penetrate deeply into skin and muscle tissue and can't be treated by simply flushing the area with water.

- Prior to using HF for the first time, all users must be trained in its use.
- Read the Material Safety Data Sheet (MSDS) for the product or reagent that contains Hydrofluoric Acid.
- Personal protective equipment (PPE) must be used and it must provide effective protection against HF exposure. Always check protective gloves for holes and degradation.
- Before using HF, be sure that you know the first aid measures that need to be taken in the event of exposure (see below). **First aid and medical treatment for HF exposure is very specific and critical.**
- As it reacts with glass, waste HF must be collected in a Teflon container.

Hydrofluoric Acid First Aid

BEFORE beginning work with Hydrofluoric Acid ensure:

HF Antidote Gel (calcium gluconate) is available in the laboratory and you have read the instructions for use.

- Hydrofluoric acid is corrosive and can cause severe burns.
- Contact with skin may not cause pain immediately.
- Appearance of symptoms can be delayed for up to 24 hours.

First aid must be started immediately following **any** exposure to hydrofluoric acid (HF). Medical attention must be sought in all cases, regardless of the amount or concentration involved.

Skin Exposure:

- Immediately remove contaminated clothing and flush skin with water for at least 15 minutes using a safety shower.
- Apply **calcium gluconate gel** to affected area.
- Massage and reapply gel for at least 15 minutes after pain subsides **while seeking medical attention.**
- Nitrile gloves should be worn to prevent secondary burns.

Eye Contact:

- Flush with water for at least 15 minutes using an eyewash.
- Seek medical attention immediately.
- **Do not** apply calcium gluconate gel to eyes

Inhalation

- Remove to fresh air.
- Seek medical attention immediately.

Ingestion

- Seek medical attention immediately.
- **Do not** induce vomiting.
- Drink water or milk.