



Hydrofluoric Acid Fact Sheet

Hydrofluoric Acid (HF) is a clear acid that has a water-like consistency. HF is often used in etching processes for silicon wafers and is commonly found in cleanroom laboratories. HF can be found in rust removers and products for glass etching or frosting. While HF is considered a weak acid, it has acute toxicity and immediate response to an exposure it critical. The following information highlights specific dangers and considerations when using HF.

The Danger

When HF exposure occurs, the fluoride ion attacks the calcium in the bones and causes hypocalcemia. It only takes 1% of the body's surface to be exposed to cause systemic toxicity, which can be fatal. The permissible exposure limit is 3ppm for an 8-hour day. If you can smell HF, then the concentration is too high and you must stop work and move to fresh air.



Before Using HF

- Obtain training to be authorized to work with HF.
- Ensure an SOP for HF is available in the lab and you have reviewed it with your principal investigator.
- Ensure the proper PPE is available and in good condition: acid gloves, acid apron or acid resistant lab coat, safety glasses, and a face shield.
- Know where the emergency shower and eye wash are located and that they are in good working condition.
- Check that spill kit materials and the calcium gluconate treatment gel (within expiry) is available.
- Make sure the fume hood is approved for HF use and is functioning properly.
- Know where emergency numbers are posted and a phone is located in case there is a large spill or exposure.

Safe Use

- Always perform work in the fume hood with the appropriate PPE.
- Do not work alone.
- Close containers of HF when not in use.
- Always add acid to water when preparing dilutions.
- Properly label solutions with "HF" and the concentration.

Storage

- HF must be stored in suitable plastic containers (Teflon or Polyethylene).
- HF can dissolve glass and is corrosive to metals.
- HF should be stored in a corrosives area away from metals, bases, sulfides, cyanides, and oxidants.

Exposure

- For all exposures, have a second person call the emergency numbers while immediate actions are being taken.
- Eye – flush in the eyewash for 15 minutes.
- Skin – remove contaminated clothing, wash with copious amounts of water in the emergency shower, and then apply calcium gluconate with a gloved hand.
- Inhalation – move to fresh air.
- Ingestion – do NOT induce vomiting. Give milk to drink, if available.
- Have hard copies of the SDS available to give medical professionals.
- HF exposure symptoms can have a delayed response (especially with dilute solutions), so always seek medical attention.

Spills

- Small spills should be cleaned with a calcium carbonate spill kit.
- For large spills evacuate the room and call the emergency numbers.
- All spills should be reported to EHS.

Emergency Contacts

Dial 911 (campus phone)
704-687-2200 (external phone)