Energy Technologies Area

SAFETY ALERT

November 15, 2022

Safe Use of Hydrofluoric Acid

Hazards: Highly Toxic and Corrosive Chemical

Hydrofluoric acid (HF) has a number of physical, chemical, and toxicological properties that make it especially hazardous to handle. Hydrofluoric acid is a clear, colorless, and highly corrosive liquid. HF shares the corrosive properties common to mineral acids, but possesses the unique ability to cause deep tissue damage and systemic toxicity including cardiac arrest due to hypocalcemia. Symptoms from exposure to dilute solutions can be delayed for a number of hours even though tissue damage may be occurring.

Prevention of exposure or injury must be the primary goal when working with HF. Corrosive chemical requirements can be found in the "Chemical Hygiene and Safety Plan": PUB-3000 Chapter 45 Work Process L

Prior to using HF, there must be an approved Work Activity that includes the "Hydrofluoric Acid" hazard/controls. All personnel handling HF must be assigned to this Work Activity. A specific training course EHS0386 "HF First Aid Awareness" is also required.

The following precautions must be followed when using hydrofluoric acid containing chemicals:

1. Limit the container size. Consider purchasing a smaller 100 ml size container.
2. Never use glass containers to store or handle hydrofluoric acid.
3. All secondary containers must be clearly identified for contents and hazard.
4. Always work with hydrofluoric acid inside a fume hood.
5. Do not work alone or after normal business hours when handling hydrofluoric acid.
6. Always wear closed toe shoes, pants, and a lab coat when working with acids. In addition, a chemical resistant apron and face shield must be worn.
7. Nitrile and latex gloves normally provided in the lab area are not appropriate gloves for handling hydrofluoric acid. Instead, use compatible gloves such as butyl rubber, neoprene rubber, or silver shield. These should cover the hands, wrist, and forearm.
8. Hydrofluoric acid cannot be cleaned up with normal acid spill kits. Do not use silica-containing cleanup agents. Use hydrofluoric acid spill kits such as "HF Acid Eater" or "HF Spill Tamer.
9. All work areas where hydrofluoric acid is used must have at least one HF exposure kit. These consist of calcium gluconate gel and instructions on use.

10. Any suspected skin contact with hydrofluoric acid must be treated by flushing with water for a 5-minute period. Liberally apply calcium gluconate gel to the affected areas (not the eyes) as per the instructions, and report to Health Services X6266 **immediately** even if you feel fine. After hours, call X911 for assistance.
11. Conduct periodic cleanouts of unwanted containers and samples containing HF.

If you have questions regarding use of hydrofluoric acid in your lab area, contact your supervisor or the ETA Safety Manager, Ron Scholtz, at X8137.