

Principal Investigator: \_\_\_\_\_

Date Approved: \_\_\_\_\_

**This Chemical Safety Protocol (CSP) covers basic chemical safety information for hydrofluoric acid and supplements the laboratory Chemical Hygiene Plan as appropriate. Additional lab-specific safety operating procedures for hydrofluoric acid may also be required. The use of any hydrofluoric acid is subject to pre-approval by the Principal Investigator (PI) and/or the designated Laboratory Responsible Safety Person. DO NOT USE HYDROFLUORIC ACID UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL AND TRAINING.**

## Hydrofluoric Acid (HF)

Hydrofluoric acid is a mineral acid which is highly toxic due to the fluoride ion. HF is a lipid-soluble molecule that penetrates tissue more rapidly than typical mineral acids. As a result, poisoning can occur readily through exposure of skin, eyes, when inhaled or swallowed. Symptoms of exposure to HF may not be immediately evident since HF interferes with nerve function. HF is also a calcium seeker; it dissolves the calcium in the bone. Accidental exposures can go unnoticed, delaying treatment and increasing the extent and seriousness of the injury.



### Personal Protective Equipment & Personnel Monitoring

**Lab Coat**

Traditional lab coat (or NRF cleanroom gown) **AND** natural rubber apron over the top

**Gloves**

Arm-length natural rubber or heavy duty nitrile gloves over inner Butyl Viton gloves or disposable nitrile gloves  
Note: Avoid skin contact when removing gloves

**Eye Protection****Face Shield**

ANSI Z87.1-compliant safety goggles **AND** face shield.

### Labeling & Storage

HF easily dissolves glass; therefore HF must be always be stored in its original container and placed in Nalgene/polypropylene secondary containment. HF solutions must be stored in plastic bottles and placed in Nalgene/polypropylene secondary containment. Do not store above eye level. Do not store with oxides, organic chemicals, bases or metals. Labels identifying the material as Acute Toxicant must appear on the bottles and secondary containers. Also, if not plainly visible (e.g. through a cabinet window), labelling must be applied to storage locations (e.g. cabinet doors & secondary containment) where these are stored, to avoid an inadvertent encounter.

### Engineering Controls, Equipment & Materials

#### Fume Hood

Use a fume hood to mitigate exposure to HF. If your protocol does not permit the handling of such materials in a fume hood, contact the Office of Environment, Health, Safety, and Sustainability (EHSS) to determine whether additional respiratory protection is warranted.

## Housekeeping

### Releases

Immediately notify others in the area of the release and evacuate the location where the release occurred. Notify your PI/Responsible Safety Person and call Vanderbilt University Public Safety (VUPS) at 615-421-1911 (mobile) or use the Vandysafe app on your smart phone. Report any exposure through Risk and Insurance Management's Origami portal and mark that it occurred in research when prompted. Both VUPS and the Origami system will notify EHS of the incident. Remain on-site at a safe distance to provide detailed information to first responders.

### Waste

Refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

## First Aid & Emergencies

All labs working with or storing HF must include in their first-aid kit a **Calcium gluconate gel** and **Calgonate** eyewash solution.

### Skin Contact

Immediately (within seconds) flush affected area for at least 15 minutes. Remove all contaminated clothing. Wearing compatible gloves, massage calcium gluconate gel into the affected area. Re-apply every 15 minutes until medical help arrives.

### Eye Contact

Immediately apply the entire 120 mL Calgonate eyewash solution. **Note:** Do not open the Calgonate eyewash solution container seal unless it needs to be used.

### Inhalation

Move person into fresh air. Get medical attention immediately.

### Ingestion

Get medical attention immediately.

Name	Signature	Date