

Hydrofluoric (HF) Acid Exposure

HF Signs & Symptoms

- Irritation/chemical burns (pain may be out of proportion to the apparent skin involvement)
- Chemical conjunctivitis
- Throat burning
- Stridor
- Wheezing
- Dyspnea
- Nausea/vomiting
- Abdominal pain
- Altered mental status
- Seizures
- Dysrhythmias
- Hypotension

Routine HAZMAT¹ & Medical Care including 12 lead EKG (scene safety/PPE/decontamination)

Obtain History of HF Exposure²

- Concentration of product
- Time of exposure
- Route of exposure (skin, ocular, inhalation, ingestion)

Give **Oxygen 15L** via NRB/BVM

If altered mental status present: refer to **Altered Mental Status** Protocol to consider all possible etiologies

To Make Calcium Gluconate Gel:

Mix 10mL of 10% Calcium Gluconate [**not calcium chloride**] into 5oz (150ml) of water soluble jelly (e.g. KY Jelly, Surgilube)

Commercially manufactured gel may also be utilized

Ocular Exposure

Irrigate eyes with **1L NaCl or H₂O** (use Morgan lens, if available)

Inhalation Exposure³

- If bronchospasm present, treat as per **Wheezing/Bronchospasm** protocol
- If available, give 4ml of **nebulized Calcium Gluconate 2.5-5%**
- Anticipate the need for more aggressive airway management & RSI

Skin Exposure

- Copiously **Irrigate with NaCl or H₂O** for a minimum of 15 minutes
- Apply **Calcium Gluconate gel 2.5%** transdermal to affected area⁴

Apply cardiac monitor⁵

Consider transport to a Burn Center based on size and location of injury – see **Burn Center Triage** protocol

¹ Assume that all patients are potentially contaminated and use appropriate PPE. **Responders must wear rubber (neoprene or polyvinyl chloride) gloves when treating HF to avoid hand burns from secondary contamination.**

² Hydrofluoric acid (HF) is primarily used for automotive cleaning products, rust removal, etching glass, or cleaning cement or brick. Injuries due to dilute or low concentration HF solutions may not present until days after the exposure.

³ Given HF's high propensity for evaporation, inhalation injury should be considered in any dermal exposure involving the face or neck or if the patient's clothing is soaked in the product.

⁴ Leave the gel in place for at least 20 minutes then reassess and repeat as needed if pain persist. In smaller burns, Calcium Gluconate gel can be massaged into the skin while flushing with water or saline. If fingers are involved, apply the gel to the hand, squirt additional gel into a surgical glove, and then insert the affected hand into the glove to keep the gel in place.

⁵ Oral or large dermal HF exposure frequently result in significant hypocalcemia and cardiovascular collapse. If cardiac arrest develops, patients should be given IV Calcium Chloride to reverse hypocalcemia.