



HYDROGEN FLUORIDE (HF)

Agent Information:	Hydrogen fluoride (fluoric acid, hydrofluoride, hydrofluoric acid and fluorine monohydride) is an industrial chemical with the potential to cause mass casualties. Hydrofluoric acid is a serious systemic poison that is highly corrosive. Its severe and sometimes delayed health effects are due to deep tissue penetration by the fluoride ion. The surface area of the burn is not predictive of its effects; a small visible burn may be lethal.
Signs and Symptoms:	Hydrogen fluoride is irritating to the skin, eyes and mucous membranes. It is a corrosive chemical that can cause immediate or delayed onset of deep, penetrating injury. Systemic effects can occur from all routes of exposure and include pulmonary edema, nausea, vomiting, gastric pain, and cardiac arrhythmia. Absorption of fluoride ions can cause hypocalcemia, hypomagnesemia and hyperkalemia, which can result in cardiac arrest.
Route of Exposure:	Inhalation of gas. Dermal contact with hydrofluoric acid can occur.
Protective Measures:	Victims exposed only to hydrogen fluoride vapor do not pose substantial risks of secondary contamination. However, victims whose clothing or skin is contaminated with hydrogen fluoride liquid, solution, or condensed vapor can secondarily contaminate response personnel by direct contact or through off-gassing vapor. PPE includes biochem suit, boots, gloves, and hooded PAPR.
Lab Samples Requested for Evaluation:	No tests available in time to guide acute treatment. Lab tests, specifically serum electrolytes, may confirm exposure.
Prophylaxis:	Appropriate PPE to avoid secondary contamination.
Treatment:	Rapid decontamination is critical due to hydrogen fluoride's rapid skin penetration and the serious toxicity of the fluoride ion. Calcium-containing gels, solutions and medications can be used to neutralize the fluoride ion. The intense pain of hydrogen fluoride burns should not be suppressed with local anesthetics because the degree of pain is an indicator of treatment efficacy. Rapid decontamination is critical. Supportive care measures are required as well.
Reporting:	Report suspect cases immediately to Delaware's Division of Public Health, Epidemiology Branch: 1-888-295-5156 (24/7 coverage).
Contact Information:	Delaware's Division of Public Health: 1-888-295-5156. For additional information, view the Centers for Disease Control and Prevention (CDC) website for Emergency Preparedness and Response at www.bt.cdc.gov .