



Company Name: _____ Job Site Location: _____

Date: _____ Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

Topic 754: Hydrofluoric Acid (Part B)

Introduction: Hydrofluoric acid tends to be handled as a concentration stock solution which is then diluted on-site to solutions ranging down to 0.5 percent. The handling of the concentrated acid in conjunction with the widespread use of hydrofluoric acid in industry contributes to the hazard potential. The chance of harmful exposure is enhanced beyond a direct pH effect due to the ability of the fluoride ion to penetrate tissue. In severe cases, this can lead to damage to underlying muscles, ligaments, and bones.

- Warning signs must be posted in areas where the PEL for hydrogen fluoride gas in air is exceeded or where acid solution concentrations in excess of 0.006 percent by weight are used in a manner in which skin or eye contact can occur.
- Container labels must include hydrofluoric acid in the contents listed when the concentration exceeds 0.006 percent with appropriate warning statements.
- Respirators are necessary when the PEL for HF as gas, fume, or mist is exceeded. Eye protection may be incorporated into the respirator design.
- It is recommended that when working with a concentrated hydrofluoric solutions that a respirator be added to the personal protective equipment in use from Table A, even when the PEL is not exceeded. This is to guard against inhalation of mist from splashes to the upper extremities. NIOSH recommends for air concentrations greater than 100x relative to the PEL that either a self-contained breathing apparatus or a continuous flow air-supplied suit with auxiliary positive pressure SCUBA be utilized.
- Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed. NIOSH recommends ventilating the area of a spill or leak to disperse gas.
- In the case of a gas leak, stop the flow of gas if possible. If the leak is from a cylinder and cannot be stopped, remove the cylinder to a safe place in open air and allow it to empty.
- A major manufacturer recommends containment of spills and cautiously diluting with large excess of water. Neutralize carefully with soda ash or lime; however, proceed slowly since this reaction can be violent.

First Aid and Medical Considerations

- Employers must ensure the ready availability of medical services for the treatment of injured employees. In reference to open surface tanks, OSHA requires readily available first aid facilities specific to the hazards of the operations conducted.
- First aid for skin or eye contact with hydrofluoric acid must include immediate washing of the affected area with water for at least 15 minutes. The use of water is critical but may not stop all destructive action due to the acid. Transport to a treatment facility.
- Application of a calcium gluconate gel or magnesium oxide paste to skin burns and sterile 1 percent calcium gluconate in saline drops for eye burns will limit tissue damage. This treatment should be applied by first aid personnel thoroughly trained in their use preferably while enroute to a medical treatment facility.
- First aid should not replace medical treatment which is necessary for these burns. In the case of inhalation exposure or appearance of burns on nose or mouth, transport the injured to a treatment facility immediately. If the treatment facility is not nearby and acid is concentrated, victim can breathe 100 percent oxygen by mask at the worksite with a nebulized mist of 2.5 percent calcium gluconate. If acid is ingested and person is conscious give large quantities of water immediately. Do not attempt to make person vomit. Transport to a treatment facility.
- In all cases speed in application of first aid and transport to a treatment facility is important. These procedures need to be incorporated into an emergency medical plan. In order to assure rapid provision of medical care the employer should contact a treatment facility and develop an emergency treatment agreement with them as well as keep necessary first aid supplies on site.
- The first aid procedures listed above are considered good practice; however, individual doctors may wish to substitute a procedure which is at least equivalent.

Conclusion: Always wear your personal protective equipment when necessary to minimize the hazards associated with hydrofluoric acid.

Work Site Review

Work-Site Hazards and Safety Suggestions: _____

Personnel Safety Violations: _____

Material Safety Data Sheets Reviewed: _____ (Name of Chemical)

Employee Signatures:

(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)

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Foreman/Supervisor's Signature: _____

These guidelines do not supercede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.