

### Information Sheet: Hydrofluoric Acid

#### Purpose

The purpose of this information sheet is to guide workers and supervisors in general precautions and emergency management for hydrofluoric acid. This information sheet should be read in conjunction with the [Chemical Safety Management](#) HSW Handbook chapter.

#### Q1 Why does hydrofluoric acid warrant special care?

Hydrofluoric acid (HF) is highly toxic and highly corrosive even in dilute concentrations. It is extremely hazardous by all routes of exposure. HF is highly damaging to skin tissue and bone. It is known to cause fatal work injuries from both skin contact and inhalation of vapour. The main cause of death is from the fluoride in HF entering the bloodstream, trapping calcium and magnesium and quickly damaging the heart, muscles and nervous system.

Skin contact with concentrated solutions of HF can cause severe burns and diluted solutions can also penetrate the skin without an immediate burning sensation, so workers may not be aware they've had contact with the acid. Once HF enters the body, it continues causing damage even after it has been washed off.

Eye contact with HF can quickly cause blindness or permanent eye damage.

#### Q2 What should be in place before starting any experiment with hydrofluoric acid?

- A full risk assessment and safe operating procedure (including first aid and emergency spill procedures), must have been completed and authorised prior to any work commencing, in accordance with the [Hazard Management](#) HSW Handbook chapter.
- Anyone using the chemical must have been instructed and assessed as proficient, in accordance with the Risk Assessment and Safe Operating Procedure (including first aid and emergency spill procedures). (Refer to the [Provision of information, instruction and training HSW Handbook chapter](#) for further information if needed.)
- Calcium gluconate gel and tablets (the antidote) must be readily available and in date i.e. to ensure they will be effective if required.

#### Q3 What general rules should be used when handling hydrofluoric acid?

- Do not work with hydrofluoric acid without well planned and communicated contingency arrangements.
- Do not work with hydrofluoric acid until you are deemed to be proficient at handling hydrofluoric acid by your supervisor. (Refer to the [Provision of information, instruction and training HSW Handbook chapter](#) for further information if needed.)
- Do not use hydrofluoric acid in an open laboratory. Work using hydrofluoric acid must be done in a fume cupboard with fully functional and tested extraction rate, a scrubber and wash down facilities.
- **Always** add hydrofluoric acid to water and **never** water to hydrofluoric acid to avoid a violent reaction.
- Avoid all contact with hydrofluoric acid including inhalation.
- Avoid generating and breathing any mist or vapour.
- Do not eat, drink or keep food, drinks, or utensils in areas where hydrofluoric acid is in use or stored.
- Always wear impervious gloves (Neoprene rubber, nitrile rubber or PVC gloves) when handling hydrofluoric acid.
- Wear a protective apron, sleeve protectors, rubber boots and face shield or goggles whenever there is the possibility of being splashed with hydrofluoric acid and a respirator if there is any chance of inhaling the vapour.
- Ensure that for all locations, where hydrofluoric acid is used and stored, there are fully tested emergency shower and eye wash facilities.
- Do not allow clothing which is wet with an acid fluoride to stay in contact with the skin. Remove previous clothing immediately if contaminated with hydrofluoric acid. Any contaminated clothing is to be bagged and disposed of via the waste disposal system.

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#### Q4 What should you do in the event of an emergency with hydrofluoric acid (HF)?

##### **ALL EXPOSURES ARE AN EMERGENCY**

Regardless of how minor, anyone coming into contact with HF (or suspected to have come into contact) **MUST** go to the nearest hospital (preferably to the burns unit). The SDS must be taken to the hospital with the worker.

##### **Emergency first aid treatment**

First aid treatment must be commenced immediately it is realised or suspected that contact with HF has been made.

- The affected person **MUST obtain medical treatment immediately preferably at a burns unit of a major hospital. Call for ambulance immediately by phoning (0)000.** Advise your exact location and contact details. Ensure someone is delegated to meet the Ambulance Service at the entrance to the building to direct them.
- Administer first aid in accordance with procedures until the ambulance arrives.
- Worksites using HF **must** have in-date tubes of 2.5-3% calcium gluconate gel and calcium carbonate tablets. The location of the gel and tablets must be clearly identified and easily accessible (as close to the work as possible). It is advisable that the Safety Data Sheet (SDS) is printed and located with the calcium gluconate gel/calcium carbonate tablets for reference by the attending medical professional.
- If the person does not go to the hospital by ambulance then they must seek medical attention (preferably the burns unit), even if the injury seems slight (The patient is to take the SDS with them to the burns unit/treating medical provider.)

##### **Skin Contact (Regardless of how minor)**

- Call for ambulance immediately by phoning (0)000.**
- Remove contaminated clothing using PVC gloves.
- Immediately wash the burn area with copious amounts of water and remove any contaminated clothing. Use the sink tap and/or emergency shower (depending on the extent of the contamination).
- Apply calcium gluconate gel on and around the burn and massage it in with gloved fingers (Neoprene/PVC). Continue the gel massage every 15 minutes until medical treatment is available.
- For large or severe burns, and only if the injured person is conscious, give six calcium carbonate tablets in water by mouth.
- Seek medical attention immediately.** (The patient is to take the SDS with them to the treating medical provider.)
- Note that any contaminated clothing is to be disposed of via [Cleaning and Waste Collection Request Form](#).

##### **Eye Contact**

- Call for ambulance immediately by phoning (0)000.**
- Irrigate the eyes with water or isotonic saline solution immediately and copiously for at least 15 minutes;
- Seek medical attention immediately. (The patient is to take the SDS with them to the treating medical provider.)

##### **Inhalation**

- Call for ambulance immediately by phoning (0)000.
- Where there is a risk to rescuers, the rescuers **MUST** wear respiratory protection and immediately transfer the patient to an uncontaminated location.
- Do NOT commence cardiopulmonary resuscitation (CPR) and Do NOT induce vomiting.
- If the injured person is conscious, give six calcium carbonate tablets in water by mouth.
- Seek medical attention immediately. (The patient is to take the SDS with them to the treating medical provider.)

##### **Spills or leaks**

- You must be proficient and feel confident when cleaning-up a hydrofluoric acid spill. If you are not then you **MUST** get assistance from a proficient worker or call in the services of the hazmat division of the fire service. (Refer to the [Provision of information, instruction and training HSW Handbook chapter](#) for further information if needed.)
- Ensure you contact Security office ext 35444 and advise your exact location and nature of emergency. They will assist to direct the Emergency Services.
- Do not enter the contaminated area unless wearing protective clothing and full respiratory protection.
- Move people upwind from the area and cordon it off.
- Inform the chief warden and/or warden network.
- Keep clear of liquid and visible fumes.

#### Q5 Where do you obtain further information on Hydrofluoric Acid?

If you require further information, please contact a member of the local [HSW Team](#).

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