



# Hydrofluoric Acid; Wheel Cleaner / Water Spot Remover Safety Information

**ALL HYDROFLUORIC ACID  
EXPOSURES  
SHOULD BE CONSIDERED A  
MEDICAL EMERGENCY.**



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## Hydrofluoric Acid Information

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Hydrofluoric Acid (HF) is one of the strongest and most corrosive acids known. **Hydrofluoric Acid penetrates the skin, destroys underlying tissues and attacks the bone. Solutions as weak as 1% will still rapidly permeate the skin and severely damage underlying tissues.**

Some wheel acids & water spot removers state they contain “Ammonium Hydrogen Fluoride” or “Ammonium Bi-Fluoride”. These materials, through a complicated chemical reaction, essentially become Hydrofluoric Acid when mixed with water or liquid cleaning solutions.

Serious symptoms may take several hours to develop. The pain resulting from exposure may take 8—24 hours to show.

Therefore, special safety precautions are necessary when using this chemical. Anyone using HF should implement the following safety measures. Most importantly, do not assume that dilute solutions do not require special precautions!



1. Read the Material Safety Data Sheet (MSDS) for the product or reagent that contains Hydrofluoric Acid. Be sure it is the MSDS for the specific formula you are using.
2. Be sure that you are using personal protective equipment that has been shown to effectively protect against Hydrofluoric Acid exposure. Always double check your personal protective equipment before each use of HF. A pinhole in a glove or leaky container can cause an accident you really want to avoid at all costs. HF burns penetrate deeply into skin and muscle tissue and can't be treated by simply flushing the area with water.
3. Before using Hydrofluoric Acid, be sure you have a clear idea of what you will do in the event of a skin exposure, eye exposure, etc. involving Hydrofluoric Acid. **First aid and medical treatment for HF exposure is very specific and critical.** The special nature of the reaction of the fluoride ion with calcium in human tissue requires immediate, often heroic measures to save digits, limbs and even lives.

## 1st Aid for Eye Contact

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1. Immediately (within seconds) proceed to the nearest eyewash station
2. Thoroughly wash eyes with water for at least 5 minutes while holding eyelids open.
3. DO NOT apply Calcium Gluconate gel to the eyes
4. While washing eyes, have a co-worker call 911 for emergency medical assistance.

## 1st Aid for Accidental Ingestion

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1. Dilute the acid by drinking large quantities of milk (preferable) or water.
2. Have a co-worker call 911 for emergency medical assistance.
3. DO NOT induce vomiting.

## **1st Aid for Skin Contact**

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1. Immediately (within seconds) proceed to the nearest emergency eyewash / shower and wash the exposed area for at least 5 minutes.
2. While washing the exposed area, have a co-worker call 911 for emergency medical assistance.
3. Removed all contaminated clothing while in the shower.
4. Massage Calcuim Gluconate gel into the exposed area of the skin. If Calcium Gluconate gel is not available (although it should be), wash the exposed skin for at least 15 minutes or until emergency medical assistance arrives.
5. Re-apply the Calcium Gluconate gel every 15 minutes, or until emergency medical assistance arrives.

## **1st Aid for Inhalation**

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1. Move the injured employee to fresh air.
2. Call 911 for emergency medical assistance.

## **Accidents/Exposures**

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In the case of skin contact first aid must be started within seconds. **If you get HF on your skin, immediately remove any contaminated clothing and wash the area with water for 15 min. Apply generous amounts of calcium gluconate gel to the area.** Gently massage the gel into the contaminated areas while using gloves. White specks appearing around the burned region indicate the gel is working. Gently apply the gel for 15 minutes and reapply when the pain flares up.

**Always seek medical attention after exposure to HF**

If larger amounts of HF are spilled, or if HF is spilled in a difficult area to wash, remove clothing and proceed immediately to the nearest safety shower. After showering apply the calcium gluconate gel.

**It is important to realize that calcium gluconate gel WILL NOT adequately neutralize the affect of HF on tissue by itself. Rinsing with water prior to application of the gel is critical.**

In case of eye contact, rinse the eyes with large amounts of water for a minimum of 5 min. and seek medical attention. **Do not apply calcium gluconate gel to the eyes. If HF is ingested, contact medical help. Do not induce vomiting.** If conscious, have the injured person ingest a glass of milk or milk of magnesia. If vomiting occurs naturally, help the person so they do not breathe in the vomit. If HF vapor is inhaled, move the person to fresh air and seek medical attention at once.

## **What Do You Need To Do?**

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1. If you use a wheel acid which may expose employees to airborne **HYDROFLUORIC ACID**, also known as (HF) or (hydrogen fluoride). You are required to perform “Personal Exposure Monitoring” to determine if or what level of respiratory protection is required.
2. If you use an HF containing wheel acid—post a sign that states, **“DANGER- Hydrofluoric Acid in Use”** in that department.
3. Certify that employees using HF are trained, provided the proper PPE, and have 1st Aid readily available
4. Limit the use of HF and lock the material up when not in use.

## What Protective Equipment is Required?

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Hydrofluoric Acid should never be handled by anyone who has not been trained to use it. Goggles are absolutely necessary, and should be the type that fully surround the eyes and not just protect against a splash from the front. A protective face-shield is also required. Gloves are also essential. Nitrile gloves will provide some resistance to the acid, but thicker gloves made from PVC or Neoprene should be used if they do not impede handling or general dexterity. Finally, an antidote gel for Hydrofluoric Acid should be available within easy reach of the handling area. There are a few suitable gels, but Calcium Gluconate is readily available.

When using wheel acids that contain Hydrofluoric Acid the following protective wear is required:

- ⇒ **Face shield,**
- ⇒ **Goggles,**
- ⇒ **Nitrile gloves,**
- ⇒ **Apron,**
- ⇒ **Boots, and**
- ⇒ **Rubber sleeves.**



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## Hydrofluoric Acid Exposure Emergency Procedures

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All exposure to or contact with HF should receive immediate 1st Aid and medical evaluation—even if the injury appears minor or no pain is felt.

HF can produce delayed effects and serious tissue damage without pain .

In the event of an HF exposure, immediately begin 1st Aid procedures ddescribed on the following page to avoid permanent damage.

Once 1st Aid has started get medical assistance by dialing 9-1-1.