

Section 1 - Chemical Product and Company Identification

Product Name: H.D.A.B. plus conc (16100)

Aqua Engineers
6955 Oak Ridge Pkwy, Ste 107
Austell, GA 30168
770-944-0077

Emergency Phone: 1-800-535-5053

Product Use: Cleans and brightens unpainted aluminum without damage when used as directed.

Section 2 - Hazards Identification

Form : liquid

Color : clear colourless

Odor : extremely acrid

Hazards not otherwise classified: Causes severe burns which may not be immediately painful or visible. May cause hypocalcemia (depletion of calcium in the body) which may be fatal.

Specialized medical treatment is required for all exposures.

GHS Ratings:

Oral Toxicity	Acute Tox. 2	Oral>5+<=50mg/kg
Dermal Toxicity	Acute Tox. 1	Dermal<=50mg/kg
Inhalation Toxicity	Acute Tox. 3	Gases>500+<=2500ppm, Vapors>2+<=10mg/l, Dusts&mists>0.5+<=1mg/l
Skin corrosive	1A	Destruction of dermal tissue: Exposure < 3 min. Observation < 1 hour, visible necrosis in at least one animal
Eye corrosive	1	Serious eye damage: Irreversible damage 21 days after exposure, Draize score: Corneal opacity >= 3, Iritis > 1.5
Carcinogen	1A	Known Human Carcinogen Based on human evidence

GHS Hazards

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H350	May cause cancer

GHS Precautions

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P262	Do not get in eyes, on skin, or on clothing
P264	Wash hands thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P281	Use personal protective equipment as required
P310	Immediately call a POISON CENTER or doctor/physician if you feel unwell after exposure of this product
P311	Call a POISON CENTER or doctor/physician
P321	Specific treatment (see First Aid below or label)
P322	Specific measures (see the SDS or on this label)
P330	Rinse mouth
P361	Remove/Take off immediately all contaminated clothing
P363	Wash contaminated clothing before reuse
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P301+P330+P331	IF SWALLOWED: Call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting
P302+P350	IF ON SKIN: Gently wash with soap and water
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P308+P313	IF exposed or concerned: Get medical advice/attention
P405	Store locked up
P403+P233	Store in a well ventilated place. Keep container tightly closed
P501	Dispose of contents/container in conformance with State, Local, and Federal regulations.

Signal Word: Danger



Section 3 - Composition, Information on Ingredients

Chemical Name	CAS number	Weight Concentration %
Sulfuric Acid	7664-93-9	10.00% - 20.00%
Hydrofluoric Acid	7664-39-3	5.00% - 10.00%
Nonylphenol, ethoxylated	127087-87-0-9	1.00% - 5.00%

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Section 4 - First Aid Measures

Inhalation : Remove to fresh air. Keep patient warm and at rest. Get competent medical attention immediately. If breathing has stopped, start artificial respiration at once. An authorized person should administer oxygen to a victim who is having difficulty breathing, until the victim is able to breathe easily by himself. Calcium gluconate, 2.5% in normal saline may be given by nebulizer with oxygen. Do not give stimulants unless instructed to do so by a physician. Victim should be examined by a physician and held under observation for at least 24 hours.

Eye contact : Immediately flush the eyes for at least 15 minutes with large amounts of gently flowing water. Hold the eyelids open and away from the eye during irrigation to allow thorough flushing of the eyes. Do not use the benzalkonium chloride (Zephiran) solutions described for skin treatment. If the person is wearing contact lenses, the lenses should be removed, if possible. However, flushing with water should not be interrupted, and the lenses should be removed by a person who is qualified to do so. If sterile 1% calcium gluconate solution is available, water washing may be limited to 5 minutes, after which the 1% calcium gluconate solution should be used to irrigate the eye using a syringe or a continuous irrigation device. Take the victim to a doctor, preferably an eye specialist, as soon as possible. Ice water compresses may be applied to the eyes while transporting the victim to the doctor. If a physician is not immediately available, apply one or two drops of 0.5% tetracaine hydrochloride, 0.5% proparacaine, or other aqueous, topical ophthalmic anesthetic and continue irrigation. Use no other medications unless instructed to do so by a physician.

Rubbing of the eyes is to be avoided.

Skin contact : Remove the victim from the contaminated area and immediately wash the burned area with plenty of water for a minimum of 15 minutes. Limit washing to 5 minutes if treatment specific for HF exposure is available. Remove all contaminated clothing while washing continuously. After thorough washing for at least 5 minutes, the

burned area should be immersed in a solution of 0.13% iced aqueous Benzalkonium Chloride until pain is relieved. As an alternate first aid treatment, 2.5% calcium gluconate gel may be continuously massaged into the burn area until the pain is relieved. For burns not responsive to topical treatment (as measured by pain being present for longer than 30 minutes) a physician may inject 2.5% - 5% aqueous calcium gluconate beneath, around and in the burned area. Use of local anesthetics is not recommended, as reduction in pain is an indicator of effectiveness of treatment .
Ingestion : Have the victim drink several large glasses of water or milk to dilute the acid. Do not induce vomiting. Do not give emetics or baking soda. Never give anything by mouth to an unconscious person. Give several glasses of milk or several ounces of milk of magnesia, any calcium containing antacid or grind up and administer up to 30 antacid tablets with water. The calcium or magnesium in these compounds may act as an antidote; however this has not been supported in the literature. Get immediate medical attention. Ingestion of HF is a lifethreatening emergency.

Treatment : For large skin area burns (totaling greater than 25 square inches), for ingestion and for significant inhalation exposure, severe systemic effects may occur . Monitor and correct for hypocalcemia, cardiac arrhythmias, hypomagnesemia and hyperkalemia. In some cases hemodialysis may be indicated. For certain burns, especially of the digits, use of intra-arterial calcium gluconate may be indicated. For inhalation exposures, treat as chemical pneumonia. Monitor for hypocalcemia. 2.5% calcium gluconate in normal saline by nebulizer or by intermittent positive pressure breathing with 100% oxygen may decrease pulmonary damage. Bronchodilators may also be administered. A booklet titled "Recommended Medical Treatment for Hydrofluoric Acid Exposure" is available from the Honeywell HF website: <http://www.HFacid.com>.

Section 5 - Fire Fighting Measures

Flash Point: N/A

LEL:

UEL:

Suitable extinguishing media : Water spray, Foam, Carbon dioxide (CO₂), Dry chemical

On dilution or dissolving in water, considerable heating always occurs . Contact with a relatively small quantity of water creates violent reaction generating much heat and spattering of hot acid If use of water is necessary use copious amounts.

Specific hazards during firefighting

: Fire or intense heat may cause violent rupture of packages. Use a water spray to cool fully closed containers. Reacts violently with water. Do not direct water spray at the point of leakage. Contact with metals liberates hydrogen gas. Hydrogen gas is flammable and may form an explosive atmosphere. Diking with silicon materials is to be avoided. May form Silicon tetrafluoride gas

Hazardous Decomposition:

Emits toxic fumes (hydrogen fluoride gas) under fire conditions and Sulfur Oxides

Special protective equipment for firefighters : Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus.No unprotected exposed skin areas.

Section 6 - Accidental Release Measures

Personal precautions : Immediately evacuate personnel to safe areas.

Immediately contact emergency personnel.

Ensure all affected individuals are in a safe environment .

Wear personal protective equipment. Unprotected persons must be kept away.

Keep people away from and upwind of spill/leak.

Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus. Ensure all equipment (including Personal Protective Equipment

(PPE)) is compatible with Hydrofluoric acid (HF). Environmental precautions : Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided.

Do not flush into surface water or sanitary sewer system. Do not allow run-off from fire fighting to enter drains or water courses. If the product contaminates rivers and lakes or drains inform

respective authorities. Methods for cleaning up : Prevent spreading over a wide area (e.g. by containment or oilbarriers). Diking with silicon materials is to be avoided. May form Silicon

tetrafluoride gas. Suppress (knock down) gases/vapours/mists with a water spray (fog) .

Do not direct water spray at the point of leakage. Use water spray cautiously and in large quantities. With acids neutralization takes place under development of heat. Do not pick up with the help of saw-dust or other combustible substances. Neutralize acidity with an appropriate alkaline material.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent. Dispose contaminated material as waste according disposal information.
Ensure adequate ventilation. Clean up affected area. Dispose of the material collected according to regulations.

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Section 7 - Handling & Storage

Handling : Wear personal protective equipment. Exhaust ventilation at the object is necessary.
Ensure all equipment (including Personal Protective Equipment (PPE)) is compatible with Hydrofluoric acid (HF).
Perform filling operations only at stations with exhaust ventilation facilities. Specialized medical treatment is required for all exposures. Plan first aid action before beginning work with this product. When diluting, add acids to water, never the other way around.
Do not swallow. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing.
Advice on protection against fire and explosion: No special precautions required.

Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons. Prevent unauthorized access. Protect from physical damage. Store away from incompatible substances.

Section 8 - Exposure Controls/Personal Protection

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Sulfuric Acid 7664-93-9	TWA 1 mg/m ³ USA. OSHA TABLE Z-1 Limits for Air Contaminants - 1910.1000	TWA 0.2 mg/m ³ USA. ACGIH Threshold Limit Values (TLV)	Not Established
Hydrofluoric Acid 7664-39-3	OSHA Hydrogen fluoride (as F) PEL 3ppm STEL 6 ppm (15min) TWA 3 ppm	ACGIH® Hydrogen fluoride (as F) TWA 0.5 ppm -TLV TWA 0.38 mg/m ³ - TLV TWA 2 ppm □ ceiling 1.5 mg/m ³ □ ceiling Can be absorbed through the skin TWA □ PEL 3 ppm	NIOSH REL: 2.5 mg/m ³ (3 ppm) NIOSH Ceiling Limit Value 5 mg/m ³ (6 ppm)
Nonylphenol, ethoxylated 127087-87-0-9	Not Established	Not Established	Not Established

Respiratory protection:

Use with local exhaust ventilation. Apply technical measures to comply with the occupational exposure limits .

Hygiene measures : When using, do not eat, drink or smoke. Provide adequate ventilation. Keep working clothes separately. Contaminated work clothing should not be allowed out of the workplace.

Do not swallow. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing.

This material has an established AIHA ERPG exposure limit. The current list of ERPG exposure limits can be found at http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/2011erpgweelhandbook_table-only.pdf.

Eye protection : Wear as appropriate Goggles or face shield, giving complete protection to eyes

Hand protection : Protective gloves Gloves must be inspected prior to use. Replace when worn.

Skin and body protection : Wear suitable protective equipment complete suit protecting against chemicals

Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment .

Use NIOSH approved respiratory protection. Have available emergency self-contained breathing apparatus or full-face airline respirator when using this chemical.

Section 9 - Physical & Chemical Properties

Boiling Range 107 to 290 °C Color Lt. Straw	Appearance Sl. Hazy Liquid Specific Gravity 1.11
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Section 10 - Stability & Reactivity

STABLE

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerisation does not occur.

Incompatible materials to avoid : Glass and silicate-containing materials are attacked. HF contact with glass, concrete and other silicon bearing materials will yield silicon tetrafluoride gas. Pressure buildup from this process has been known to rupture glass containers. . HF contact with carbonates, sulfides and cyanides yield toxic gases such as carbon dioxide, hydrogen sulfide and hydrogen cyanide. Contact with alkalies and some oxides cause strong violent exothermic reactions. Contact with metals will yield hydrogen gas, a fire and explosive reactive hazard. On dilution or dissolving in water, considerable heating always occurs. When diluting, add acids to water, never the other way around.

None Known

Glass, quartzes/silicate ceramics metals alkali metals

Substance is incompatible with over 35 specific chemicals. Please refer to the NFPA Fire Protection Guide for specifics.

Materials to avoid

Bases, Halides, Organic materials, Carbides, Chlorates, fulminates, Nitrates, picrates, Cyanides, Reacts violently with:

cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(III) oxide,

Powdered

metals

None Known

Hazardous decomposition products: Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Hydrogen fluoride (HF)

Additional information:

Hydrogen may form upon contact with metals (danger of explosion!).

DO NOT store dry product where exposed to moist conditions .

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization will not occur.

Section 11 - Toxicological Information

Mixture Toxicity

Oral Toxicity LD50: 11mg/kg

Dermal Toxicity LD50: 11mg/kg
Inhalation Toxicity LC50: 6mg/L

Component Toxicity

7664-39-3 Hydrofluoric Acid
Oral LD50: 1 ppm (Rat) Dermal LD50: 1 ppm (Rabbit) Inhalation LC50: 1 mg/L (Rat)

127087-87-0-9 Nonylphenol, ethoxylated
Oral LD50: 3,314 mg/kg (Rat) Dermal LD50: 3,050 mg/kg (Rabbit)

Acute oral toxicity : Note: no data available

Acute inhalation toxicity : LC50: 2240 ppm Exposure time: 1 h Species: rat, male

Acute dermal toxicity : Note: no data available

Skin irritation : Species: rabbit Classification: Corrosive

Eye irritation : Note: no data available

Sensitisation : Note: no data available

Further information : Note: Causes severe burns which may not be immediately painful or visible. The potential delay in clinical signs or symptoms for dilute solutions is given below.

HF Concentration (Delay in Symptoms)

>50% (Immediately Apparent)

20%-50% (1-8 hours)

0%-20% (Up to 24 hours) Symptoms might include pain, redness of the skin and possible tissue destruction. Hydrofluoric Acid will penetrate skin and attack underlying tissues. May cause hypocalcemia (depletion of calcium in the body) which may be fatal. Chronic exposure to fluoride has been reported to result in tooth mottling in children, bone fluorosis, and sometimes osteosclerosis in adults and children.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

<u>CAS Number</u>	<u>Description</u>	<u>% Weight</u>	<u>Carcinogen Rating</u>
7664-93-9	Sulfuric Acid	0% - 20%	May cause cancer

Section 12 - Ecological Information

Ecotoxicity effects

Toxicity to fish : 60 mg/l Species: Freshwater fish Note: Lethal

Toxicity to daphnia and other aquatic invertebrates

Hydrofluoric acid : EC50: 270 mg/l Exposure time: 48 h Species: Daphnia Test substance: Sodium fluoride

Toxicity to algae : Note: no data available

Toxicity to bacteria : Note: no data available

Elimination information (persistence and degradability) Biodegradability : Note: not applicable

Further information on ecology

Additional ecological information: Do not flush into surface water or sanitary sewer system.

Component Ecotoxicity

Hydrofluoric Acid Harmful for aquatic organisms.
Nevertheless, hazard for the aquatic environment is limited due to product properties:
low chronic toxicity.
Product fate is highly dependent on environmental conditions: pH, temperature, oxidoreductive potential, mineral and organic content of the medium,...

Section 13 - Disposal Considerations

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

Section 14 - Transportation Information

Agency DOT	Proper Shipping Name Corrosive Liquid, Toxic, n.o.s. (Hydrofluoric Acid, Sulfuric Acid)	UN Number UN2922	Packing Group PGII	Hazard Class 8(6.1)
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Section 15 - Regulatory Information

<u>Country</u>	<u>Regulation</u>	<u>All Components Listed</u>
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Section 16 - Other Information

Hazardous Material Information System (HMIS)

HEALTH	<input type="text" value="3"/>
FLAMMABILITY	<input type="text" value="0"/>
PHYSICAL HAZARD	<input type="text" value="2"/>
PERSONAL PROTECTION	<input type="text" value="D"/>

HMIS & NFPA Hazard Rating

Legend

* = Chronic Health Hazard

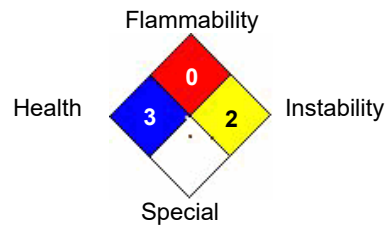
0 = INSIGNIFICANT

1 = SLIGHT

2 = MODERATE

3 = HIGH

National Fire Protection Association (NFPA)



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Reviewer Revision

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