

Section 1: Identification

MANUFACTURER: PACE Technologies
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Tucson, AZ 85713

INFORMATION PHONE: 520-882-6598

EMERGENCY PHONE: CHEMTREC 800-424-9300 (US) Day or night
Customer No. 16568

TRADE NAME: Cable / TA Etch

CHEMICAL FAMILY: Hydrofluoric Acid

HMIS RATING: HEALTH: 4 FLAMMABILITY: 0 REACTIVITY: 0

HAZARD RATING:

LEAST: 0 SLIGHT: 1 MODERATE: 2 HIGH: 3 EXTREME: 4

Section 2: Hazard(s) Identification

| | |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GHS Classification in accordance with 29 CFR 1910 (OSHA HCS) | Acute toxicity, Oral (Category 2), H300 Acute toxicity, Inhalation (Category 2), H330 Acute toxicity, Dermal (Category 1), H310 Skin corrosion (Category 1A), H314 Serious eye damage (Category 1), H318 |
| PICTOGRAM(s): |  |
| SIGNAL WORD: | Danger |
| HAZARD STATEMENTS: | Hazard Statement(s): H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. |
| PRECAUTIONARY STATEMENTS: | Precautionary Statement(s): Preventions: P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P262 Do not get in eyes, on skin, or on clothing. P264 Wash skin thoroughly after handling. |

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| | <p>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 P284 Wear respiratory protection.</p> <p>Response: P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth. P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician. P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. P362 Take off contaminated clothing and wash before reuse.</p> <p>Storage: P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.</p> <p>Disposal: P501- Dispose of contents/container to Federal, State and Local Regulations.</p> |
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Section 3: Composition/Information on Ingredients

HAZARD INGREDIENTS

| CHEMICAL | CAS NUMBER | % PRESENT | Hazardous |
|-------------------|------------|-----------|-----------|
| Hydrogen Fluoride | 7664-39-3 | 20-35% | Yes |
| Water | 7732-18-5 | 65-80% | No |

Section 4: First-Aid Measures

Description of first aid measures

4.1 General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Hydrofluoric (HF) acid burns require immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin exposures can be treated with a 2.5% calcium gluconate gel repeated until burning ceases. More serious skin exposures may require subcutaneous calcium gluconate except for digital areas unless the physician is experienced in this technique, due to the potential for tissue injury from increased pressure. Absorption can readily occur through the subungual areas and should be considered when undergoing decontamination. Prevention of absorption of the fluoride

ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored for, since they can occur after exposure. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed No data available

5. FIREFIGHTING

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Hydrogen fluoride

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Normal measures for preventive fire protection. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8: Exposure Controls/ Personal Protection

Airborne Exposure Limits:

Hydrogen fluoride:

-OSHA Permissible Exposure Limit (PEL):

3 ppm (TWA) as F.

ACGIH Threshold Limit Value (TLV):

0.5 ppm (TWA) as F; 2 ppm (STEL) Ceiling as F

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a full facepiece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Since the IDLH is low (30 ppm), the above cartridge system is not specifically approved for HF. (3M Respirator Selection Guide)

Skin Protection:

Wear protective clothing, including boots or safety shoes with polyvinyl chloride (PVC) or neoprene. Use chemical goggles and/or a full face shield. Wear coveralls with long sleeves, gauntlets and gloves of PVC or neoprene. A high degree of protection is obtained with an air-inflated suit with mask and safety belt. Use protection suitable for conditions.

Eye Protection:

Use chemical safety goggles and/or full face shield where splashing is possible. Maintain eye wash fountain and quick drench facilities in work area.

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Emergency phone number (CHEMTREC 800-424-9300)

Section 9: Physical and Chemical Properties

Appearance:

Colorless, fuming liquid.

Odor:

Acrid odor. Do not breathe fumes.

Solubility:

Infinitely soluble.

Specific Gravity:

1.15 -1.18

pH:

No information found.

% Volatiles by volume @ 21C (70F):

100 (as water and acid)

Boiling Point:

ca. 100C (ca. 212F)

Melting Point:

< -36C (< -33F)

Vapor Density (Air=1):

Essentially the same as water.

Evaporation Rate (BuAc=1):

Essentially the same as water.

Section 10: Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions colorless gas.

10.3 Possibility of hazardous reactions No data available**10.4 Conditions to avoid** No data available**10.5 Incompatible materials** No data available**10.6 Hazardous decomposition products** Other decomposition products - No data available

Section 11: Toxicological Information

Hydrofluoric acid: Inhalation rat LC50: 1276 ppm/1H; Investigated as a mutagen, reproductive effector.

| -----\Cancer Lists\----- | | | |
|-------------------------------|----------------------|-------------|---------------|
| Ingredient | ---NTP Carcinogen--- | | |
| | Known | Anticipated | IARC Category |
| Hydrogen Fluoride (7664-39-3) | No | No | None |
| Water (7732-18-5) | No | No | None |

Section 12: Ecological Information

12.1 Toxicity No data available

12.2 Persistence and degradability No data available

12.3 Bioaccumulative potential No data available

12.4 Mobility in soil No data available

12.5 Results of PBT and vPvB assessment PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects No data available

Section 13: Disposal Considerations

13.1 Waste treatment methods Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging Dispose of as unused product.

Section 14: Transportation Information

Domestic (Land, D.O.T.)

Proper Shipping Name: HYDROFLUORIC ACID

UN1790

Hazard Class: 8 (6.1)

Packing Group: II

IATA

Proper Shipping Name: HYDROFLUORIC ACID

UN1790

Hazard Class: 8 (6.1)

Packing Group: II

IMDG

Proper Shipping Name: HYDROFLUORIC ACID

UN1790

Hazard Class: 8 (6.1)

Packing Group: II

Section 15: Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|-----------------------------------------------------------------|------------|--------|--------------------|----------------|
| Ingredient | TSCA | EC | Japan | Australia |
| Hydrogen Fluoride (7664-39-3) | Yes | Yes | Yes | Yes |
| Water (7732-18-5) | Yes | Yes | Yes | Yes |
| -----\Chemical Inventory Status - Part 2\----- | | | | |
| Ingredient | Korea | DSL | NDSL | Phil. |
| Hydrogen Fluoride (7664-39-3) | Yes | Yes | No | Yes |
| Water (7732-18-5) | Yes | Yes | No | Yes |
| -----\Federal, State & International Regulations - Part 1\----- | | | | |
| | -SARA 302- | | -----SARA 313----- | |
| Ingredient | RQ | TPQ | List | Chemical Catg. |
| Hydrogen Fluoride (7664-39-3) | 100 | 100 | Yes | No |
| Water (7732-18-5) | No | No | No | No |
| -----\Federal, State & International Regulations - Part 2\----- | | | | |
| | -RCRA- | | -----TSCA----- | |
| Ingredient | CERCLA | 261.33 | 8 (d) | |
| Hydrogen Fluoride (7664-39-3) | 100 | U134 | No | |
| Water (7732-18-5) | No | No | No | |

Chemical Weapons Convention: Yes TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: Yes (Mixture / Liquid)

Australian Hazchem Code: 2R

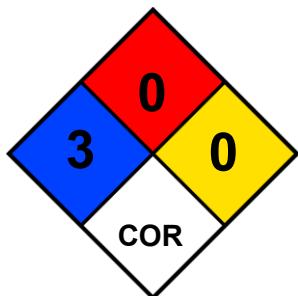
Poison Schedule: S7, S6

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16: Other Information

16.1 NFPA 704



Top, Flammability: 0 – Minimal Hazard

Left, Health Hazard: 3 – Severe Hazard

Right, Reactivity: 0 – Minimal Hazard

Bottom, Special Notice: COR – Corrosive

Product Use:

Laboratory Reagent.

Disclaimer:

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DATE REVISED: 7/16/2025 DZ