SAFETY DATA SHEET

1. PRODUCT AND MANUFACTURER IDENTIFICATION

Product Name: **STAINLESS STEEL ETCH #12**

Manufacturer Name & Address:
Arcal Chemicals, Inc.
223 West Hampton Avenue
Capitol Heights, MD 20743

General Information:
(Tel) 301-336-9300
(Fax) 301-336-6597

Emergency CHEMTREC:
In case of chemical emergencies
800-424-9300 (within USA)
703-527-3887 (outside of USA)

2. HAZARDS IDENTIFICATION

Emergency Overview: **SIGNAL WORD: DANGER**:
Skin contact, eye contact and inhalation are possible. If product comes into contact with the eyes, serious burns will occur. Contact with skin will cause burns and irritation. Continued contact, as from contaminated clothing, may result in capillary blockage and gangrene. Ingestion will damage oral and gastric membranes. Inhalation of mist will cause nasal irritation; deeper penetration will harm the respiratory system.

Exposure Routes: Eyes, skin, ingestion, inhalation

Eye contact: **H318**: Causes serious eye damage.

Skin Contact: **H311**: Toxic in contact with skin. Contact with skin will cause burns and irritation. Continued contact, as from contaminated clothing, may result in capillary blockage and gangrene.

Ingestion: **H304**: May be fatal if swallowed and enters airways. Ingestion will damage oral and gastric membranes.

Inhalation: **H332**: Harmful if inhaled. Inhalation of mist will cause nasal irritation; deeper penetration will harm the respiratory system.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components	CAS Number	Concentration	ACGIH TWA	OSHA TWA
Ferric chloride	77705-08-0	20-30%	1 mg/m3	1 mg/m3
Ammonium bifluoride	1341-49-7	5-10%	2.5 mg/m3	2.5 mg/m3

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Remove contact lenses, if present. Continue rinsing. Get medical attention immediately.

Skin Contact: As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately flush with lukewarm, gently flowing water for 15-20 minutes. Immediately obtain medical attention. Completely decontaminate clothing, shoes and leather goods before re-use.

Ingestion: Do not give anything by mouth if victim is unconscious or convulsing. Have victim rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs naturally, have victim rinse mouth with water again. **IMMEDIATLEY** transport victim to an emergency care facility.

Inhalation: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation but should only be administered by personnel trained in its use. Obtain medical attention **IMMEDIATELY**.

Notes to physician: Treat symptomatically. HF Antidote Gel from IPS Healthcare is recommended as treatment for injuries from hydrofluoric acid. Immediately apply calcium gluconate gel 2.5% and massage into the affected area using rubber gloves; continue to massage while repeatedly applying gel until 15 minutes after pain is relieved.

5. FIRE-FIGHTING MEASURES

Flash point: None

Special firefighting procedures: Product is about 2/3 water and will not burn. Heating could produce fumes of hydrofluoric acid and hydrochloric acid gas. Use full personal protective equipment. Remove containers to cooler areas if possible. Avoid dispersing this concentrated solution with a heavy water stream while extinguishing other burning material, in order to minimize necessary clean-up.

NFPA Flammable Liquids Classification

Health	Flammability	Reactivity
3	0	0

6. ACCIDENTAL RELEASE MEASURES

USE PERSONAL PROTECTION RECOMMENDED IN SECTION 8

Environmental precautions: For release to land, or storm water runoff, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Notify applicable government authority if release is reportable or could adversely affect the environment. Replace damaged containers immediately.

Clean-up methods: Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth,) and place in a chemical waste container.

7. HANDLING AND STORAGE

Handling: Containers exposed to heat may be under internal pressure. These should be cooled and carefully vented before opening. A face shield/goggles and apron should be worn, as well as chemical-resistant gloves. Ventilation Requirements: Use with proper ventilation.

Storage: Store in a cool dry place where moisture will not collect on containers and where heat from equipment or the sun will not expose the product to temperature extremes.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

SEE SECTION 3 FOR EXPOSURE LIMITS.

Exposure controls: Provide sufficient mechanical ventilation to maintain exposure below guidelines. Contact with skin, eyes and mucous membranes can contribute to the overall exposure. Consider measures to prevent absorption by these routes.

Respiratory protection: A NIOSH-approved respirator may be needed where airborne concentrations exceed exposure limits.

Eye protection: Use full face-shield and chemical safety goggles when there is potential for contact. Approved acid-resistant monogoggles are required.

Skin protection: Splash-proof safety goggles and chemically resistant gloves (without tears, pinholes or other signs of wear) are highly recommended to protect personnel. A waterproof apron is recommended to protect against splashes.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Yellow
Odor:	Acidic
Boiling point/range:	100° C / 212° F
Flash point:	None
Solubility in water:	Complete
Viscosity:	100 cps
Density:	1.22
Bulk density:	10.2 lb/gal
Solids in solution:	30-40%
pH:	<2

10. STABILITY AND REACTIVITY

Conditions to avoid: Keep containers tightly closed and avoid splashes or spills.

Incompatible products: Metals, aluminum, tin, zinc.

Hazardous decomposition products: Hydrogen chloride, hydrogen fluoride, nitrogen oxides, iron oxides.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity: Acute oral/rat: LD50 60-130 mg/kg

Acute inhalation toxicity: Respiratory tract irritant; severe injury is usually avoided by the self-limiting coughing and sneezing symptoms.

Acute dermal toxicity: Irritant, corrosive if contact is prolonged.

12. ECOLOGICAL

Eco toxicity: For fluorides - LC50 - 96 hr: 51 mg/L (fishes, salmo gairdneri) EC50 - 96 hr: 10.5 mg/L (crustaceans, mysidopsis)

13. DISPOSAL CONSIDERATIONS

Recommended method of disposal: Waste product is hazardous. Do not dispose with residential garbage or allow product to reach ground water or sewer. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

14. TRANSPORT INFORMATION

APPLIES TO ALL MODES OF TRANSPORT

Proper shipping name: AMMONIUM HYDROGENDIFLUORIDE SOLUTION
Hazard class or division: 8 (6.1)
Identification number: UN 2817
Packing group: II

15. REGULATORY INFORMATION

TSCA All constituents of this product are included on the TSCA inventory.

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate and are not a product specification. No warranty, either expressed or implied is made. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.