

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER:

TRANSENE COMPANY, INC.

10 ELECTRONICS AVENUE

DANVERS, MA 01923

www.transene.com

Emergency Chemtrec # 1-800-424-9300

Revised: July 2006

MATERIAL NAME: **BUFFER HF, SILOXIDE ETCHANT**

Other Designations: Ammonia Bifluoride Solution

Chemical Family: Inorganic acid mixture

Trade Name: BUFFERED OXIDE ETCHANT

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

	CAS Number	%	toxicity(mg/M3)
Hydrofluoric (HF)	7664-39-3	4-8	3ppm OSHA
Ammonium Fluoride (NH ₄ F)	12125-01-8	30-36	2.5 mg/M3
Distilled water		BALANCE	

SECTION 3. HEALTH HAZARD INFORMATION

Effects of overexposure: Repeated ingestion may cause mottling on teeth and bone damage. Chronic overexposure could lead to fluorosis. Persons with pre-existing skin disorders, eye problems or impaired renal or respiratory functions may be susceptible to the effects of the substance. Hypocalcemia and hypomagnesia can occur from absorption of F⁻/ion into the blood stream.

FIRST AID:

EYE CONTACT: Irritant to naked eye; in case of contact flush eyes well for 15 minutes. Obtain medical attention immediately. After washing affected area, if no physician is available, instill one or two drops of .5% pontocaine solution or an equally effective aqueous topical anesthetic, followed by a second irrigation for 15 minutes. Use no oily eye drops or ointment.

SKIN CONTACT: Irritant to exposed skin. Flush well with water for 15 minutes. Obtain medical attention immediately. Immerse burned area in iced aqueous Hyamine 1622 or .13% iced aqueous Zephiran, if immersion is not practical soak towels in the solution and use as compress on burns (change compress every few minutes). Apply special calcium gluconate (2.5%) paste. Remove effected clothing while flushing skin with water and get medical attention.

INHALATION: If inhaled, remove to fresh air. If not breathing give artificial respiration. Seek medical attention immediately. Keep patient warm, but not hot, and resting flat. Never give an unconscious patient anything by mouth. To discourage coughing, a conscious patient may be given cough syrup.

INGESTION: Do not induce vomiting and contact physician immediately. Encourage patient to drink large quantities of water without delay. Then give milk or two ounces of milk of magnesia.

SECTION 4. FIRST AID MEASURES

Effects of overexposure: Repeated ingestion may cause mottling on teeth and bone damage. Chronic overexposure could lead to fluorosis. Persons with pre-existing skin disorders, eye problems or impaired renal or respiratory functions may be susceptible to the effects of the substance. Hypocalcemia and hypomagnesia can occur from absorption of F⁻/ion into the blood stream.

SECTION 5. FIRE FIGHTING MEASURES

	LOWER	UPPER
Flash point and method / Autoignition temp. deg. C	(Flammability	Limits in air)
Non-Flammable	NA	NA

Extinguishing media: Use water or carbon dioxide on fires in which HF is involved. In cases of fires, the sealed container can be kept cool by spraying with water. Do not apply water to leaking containers.

Special fire fighting procedures: Wear chemically retardant gear and NIOSH approved self-contained breathing apparatus. Keep up wind of fire and avoid getting water in containers, as the acid reacts violently with water causing generation of heat and spattering.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spills & leaks: Ventilate area of spill or leak. Remove ignition sources since hydrogen may be generated by reaction with metals. Do not flush to sewers or waterways. Spray atmosphere with 6M-NH₄OH. Cover the contaminated surface with 50-50 mixture of soda ash and slaked lime. Mix and add water to form slurry if necessary. Scoop up slurry and dispose of properly.

SECTION 7. HANDLING AND STORAGE

Storage and handling information: Store in cool dry place with adequate ventilation separated from other chemicals. Do not store near incompatible products or open flame. Storage facility should be constructed for containment and neutralization of spills. Store

in tightly closed polyethylene bottles. This is a corrosive material, take care in handling leaking containers.

SECTION 8. EXOSURE CONTROL/PERSONAL PROTECTION

Respiratory protection: NIOSH approved organic vapor respirators where adequate ventilation is not present. Wear self-contained breathing apparatus.

Ventilation: Where adequate ventilation is not available use NIOSH approved vapor respirator with dust, fume and mist filters. Local ventilation through fume hoods or laminar flow stations is also preferred.

Protective gloves: Skin contact should be avoided through use of gloves (Neoprene or PVC)

Other protective equipment: Steel tipped shoes/eye wash station /chemical safety shower/chemical retardant clothing.

Eye protection: Safety goggles/ face shield. Do not wear contact lenses.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling point at 1 atm:	218 °F	Specific Gravity, 20/4C:	1.12
Vapor pressure at 15°C, mm Hg:	400	Evap. Rate (BuAc=1):	>1
Vapor Density (Air=1):	1.3	Volatiles %	60-90%
Water Solubility at 20°C:	Complete	Molecular weight:	NA

Appearance and odor: Water-white liquid with acrid odor.

SECTION 10. STABILITY AND REACTIVITY

Stability: Unstable:
Stable: X

Conditions to avoid: Contact with metals liberates hydrogen gas. Attacks glass and reacts with silica to produce silicon tetrafluoride, a hazardous and colorless gas.

Incompatible with: High Temperatures, glass silicon compounds, As₂O₃, P₂O₅, NH₃, CaO, NaOH, H₂SO₄, Ethylene Diamine and reacts with bases to liberate HF on contact with metals and hydrogen gas (H₂). On heating could yield toxic fumes of fluorides.

Hazardous decomposition products: Emits toxic fumes of HF. Reacts with acids to liberate NH₃.

Hazardous polymerization: May occur:

Will not occur: X

Conditions to avoid: Excess heat

SECTION 11. TOXICOLOGICAL INFORMATION

Hydrofluoric acid is highly toxic. See section XVI.

SECTION 12. ECOLOGICAL INFORMATION

No data found for product.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal: Dispose of in accordance with all federal, state, and local regulations. The neutralized slurry can be scraped up for disposal in a RCRA approved waste facility. Porous material will absorb HF (concrete, wood, plastic, etc.) and become a hazard for an indefinite period of time.

SECTION 14. TRANSPORTATION INFORMATION

AMMONIUM HYDROGENDIFLUORIDE SOLUTION
CORROSIVE CLASS 8 UN 2817
TOXIC SUB RISK 6.1

SECTION 15. REGULATORY INFORMATION

SARA Title III Hazard Classes:

Fire Hazard—No

Release of Pressure—No

Acute Health Hazard—Yes

NFPA Codes:

Health: 3

Flammability: 0

Reactivity: 1

SECTION 16. OTHER INFORMATION

HYDROFLUORIC ACID

SKIN:

1. Flush with water for several minutes until marble white appearance, due to acid, is replaced by a natural pinkish color. If color change is not rapid, then proceed with item #3
2. Clothing should be removed as rapidly as possible, even while the victim is in the shower
3. After thorough washing, the burned area should be immersed in a solution of 0.2% iced aqueous Hyamine 1622 or 0.13% iced aqueous Zephiran Chloride, If immersion is not practical, towels should be soaked with one of the above solutions and used as compress for the burned area. Ideally compresses should be changed every 2 minutes.
4. Apply special Calcium Gluconate (2.5%) paste.
5. If burn is severe, send to the hospital.

EYES:

1. Wash the open eyes thoroughly with a large, but gentle stream of water for 15 minutes.
2. Add two or three drops of 0.5% Pontocaine Solution and continue to wash with water until the eye stops sloughing, adding a couple drops pf Pontocaine as needed.
3. Send to see Ophthalmologist - USE NO OILY EYE DROPS OR OINTMENT.

LUNGS:

1. Unconscious Patient
 - a. While giving first aid treatment for inhalation of HF, treat the patient as above for skin burns
 - b. Give artificial respiration until inhalator is ready for use.
 - c. give nothing by mouth.
 - d. Keep patient warm, but not hot.
 - e. Keep patient resting flat
 - f. Send to hospital as soon as treatment of skin is completed.
 - g. Send inhalator along with patient if respiration has not returned to normal.

2. Conscious Patient
 - a. Keep patient resting flat
 - b. Discourage coughing, give cough syrup (in cabinet).
 - c. Keep patient warm, but not hot.
 - d. Send to hospital after first aid treatment.
 - e. Treat any skin burns he/she may tell you about at the same time the above treatment is carried out.

**ADDENDUM TO MATERIAL SAFETY DATA SHEET
REGULATORY STATUS**

THIS ADDENDUM MUST NOT BE DETACHED
FROM THE MSDS ALUMINUM ETCH TYPE D
IDENTIFIES SARA 313 SUBSTANCE(S)
Any copying or redistribution of the MSDS must include acopy of this addendum
(Chem. Key: PHACD)

HAZARD CATEGORIES FOR SARA
Section 311/312 Reporting

<u>Acute</u>	<u>Chronic</u>	<u>Fire</u>	<u>Pressure</u>	<u>Reactive</u>
X	X			

Product or Components Of Products	SARA EHS Sect. 302	SARA Section 313 Chemicals	CERCLA Sec. 103 RCRA
	RQ (lbs)	TPQ (lbs)	Name List Chemical Category RQ (lbs) Sect. 261

BUFFERED OXIDE ETCH
Following percentages correspond
one to one with the product codes

given here.

Ammonium Fluoride (12125-01-8)	No	No	No	No	100	No
Hydrogen Fluoride(7664-39-3)	100	100	Yes	No	No	100

SARA Section 302 EHS RQ: Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ: Threshold Planning Quantity of Extremely Hazardous Substance. An asterisk(*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity + 10,000 LBS.

SARA Section 313 Chemicals: Toxic Substances subject to annual release reporting listed 40 CFR 372.65

CERCLA Sec. 103: Comprehensive Environmental Response, Compensation and Liability Act

(Superfund). Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center (800-424-8802): Listed at 40 CFR 302.4

RCRA: Resource Conservation and Reclamation Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

BUFFERED OXIDE ETCH