SAFETY DATA SHEET

COMPANY IDENTITY: Spoke CAE207 SDS DATE: Nov. 24, 2015
PRODUCT IDENTITY: Hydrofluoric/Sulfuric Acid Mixtures

UN1786

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI 2400.5, and to the
format requirements of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY:	Hydrofluoric/Sulfuric Acid Mixture UN1786
PRODUCT USES:	Metallurgy, Glass Industry, Chemical Industry, Fuel Additives, Intermediates
COMPANY IDENTITY:	L&C Enterprises
COMPANY ADDRESS:	2357 Hwy. 53
COMPANY CITY:	Poplarville, MS 39470
COMPANY PHONE:	1-601-795-4147
EMERGENCY PHONES:	INFOTRAC 1-800-525-5053

SECTION 2. HAZARDS IDENTIFICATION

DANGER!!

2.1 HAZARD STATEMENTS: (CAT = Hazard Category)

(H200s) PHYSICAL: Corrosive to Metals (CAT: 1)
H290 MAY BE CORROSIVE TO METALS.
(H300s) HEALTH: Acute Toxicity, Oral (CAT: 1)
H300 FATAL IF SWALLOWED.
(H300s) HEALTH: Aspiration Hazard (CAT: 1)
H304 MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.
(H300s) HEALTH: Acute Toxicity, Dermal (CAT: 1)
H310 FATAL IN CONTACT WITH SKIN.
(H300s) HEALTH: Skin Corrosion/Irritation (CAT: 1A)
H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.
(H300s) HEALTH: Acute Toxicity, Inhalation (CAT: 1)
H330 FATAL IF INHALED.
(H300s) HEALTH: Target Organ Toxicity, Single Exposure (CAT: 3)
H335 MAY CAUSE RESPIRATORY IRRITATION.
(H400s) ENVIRONMENT: Hazardous to Aquatic Environment, Acute (CAT: 3)
H402 HARMFUL TO AQUATIC LIFE.

SECTION 2. HAZARDS IDENTIFICATION (CONTINUED)

2.2 PRECAUTIONARY STATEMENTS:

EXPOSURE PREVENTION: AVOID ALL CONTACT!

P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P262	Do not get in eyes, on skin, or on clothing.
P264	Wash with soap & water 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.
P284	Wear respiratory protection (if not well-ventilated).
P301+310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (OR HAIR): Remove/Take off immediately all Contaminated clothing. Rinse skin with water/shower. Specific Treatment: After 5 minutes of rinsing, apply 2.5% Calcium Gluconate Gel to affected area.
P304+340	IF INHALED: Remove victim to fresh air & keep at rest in a position Comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do - Continue rinsing.
P310	Immediately Call a POISON CENTER or doctor/physician if you feel unwell.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in original corrosive resistant container with a resistant inner liner.
P500	Dispose of contents/container following local/regional/federal regulations.

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Water	7732-18-5	231-791-2	51-85
Hydrogen Fluoride	7664-39-3	231-634-8	15-49
Sulfuric Acid	7664-93-9	231-634-8	90-100

The specific chemical component identities and/or the exact component percentages of this material maybe withheld as trade secrets. This information is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of29 CFR 1910.1200 (I) (1).

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that maybe present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SECTION 4. FIRST AID MEASURES

4.1 MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE & CHRONIC:

IN ALL CASES CONSULT A PHYSICIAN!

See Section 11 for symptoms/effects, acute & chronic.

4.2 GENERAL ADVICE:

First Aid responders should pay attention to self-protection and use the recommended Protective clothing (chemical resistant gloves, splash protection). If potential for Exposure exists, refer to Section 8 for specific personal protective equipment.

(HANDLE PATIENT AND ALL CONTAMINATED CLOTHING WITH HYDROFLUORIC ACID PROOF GLOVES.)

NOTE: The effects of Hydrofluoric Acid, such as the onset of pain, particularly in Dilute solutions, may not be felt for up to 24 hours. It is important that workers have Immediate access to the antidote (Calcium Gluconate) both on and off the worksite in order To apply it as soon as possible. Instructions should be given for the worker not to use the Gel in the eye and the worker to still seek medical attention regardless of how minor the Contact. The calcium combines with the fluoride to form the insoluble calcium fluoride thus Preventing the fluoride from entering the intact skin and causing tissue damage. Hydrofluoric Acid antidote gel (Calcium Gluconate) is available through your local pharmacist.

SECTION 4. FIRST AID MEASURES (CONTINUED)

4.3 EYE

CONTACT: Flush eyes with running water for 5 minutes, while keeping the eyelids wide open. Rinse the eyes with a calcium gluconate 1% solution in physiological serum (10 mL of Calcium Gluconate 10% in 90 mL of physiological serum) for 10 minutes. Continue a Calcium Gluconate drip into eyes then drop wise while transporting.) If 1% Calcium Gluconate is not Available, continue flushing with water. In case of difficulty opening the lids, administer An analgesic eyewash. Do not use oily drops, ointment of Hydrofluoric Acid skin burn Treatments. Consult an ophthalmologist or eye specialist and physician immediately in all Cases. Take to a hospital immediately.

4.4 SKIN CONTACT:

Immediately bring the clothed subject under the shower. Remove contaminated shoes, socks, And clothing, while washing the affected skin with running water for 5 minutes. Double-bag All contaminated clothing for disposal. 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. For additional information on Handling, storage and packaging: See "HFIPI: Recommended Practices for the Hydro end Fluorides Industry. Copies can be purchased through the American Chemistry Council at (703 741-5611.

Apply water longer (15 minutes@ if calcium gluconate is not available. Alternate y, immerse The burned area in a solution of 0.2% iced aqueous Hyamine 1622 (a quaternary ammonium made by Rohm & Haas) or 0.13% iced aqueous Zephiran Chloride (a benzalkonium chloride sold By Sanofi-Synthelabo). If finger/fingernails are touched, even if there is no pain dip Them in a bath of 5% Calcium Gluconate for 15 to 20 minutes. Keep warm with a blanket. Provide clean clothing. Consult a physician immediately in all cases of skin contact no Matter how minor. Take to a hospital immediately.

4.5 INHALATION:

Remove the subject from the contaminated area as soon as possible. Transport subject Lying down, with head higher than body. to a quiet, uncontaminated and well-ventilated Location. Administer oxygen (2.5% calcium gluconate if available, can be oxygen nebulized With trained personnel) or cardiopulmonary resuscitation if necessary and as soon as Possible. If subject is unconscious, give artificial respiration. NOTE: Mouth to mouth Resuscitation is not recommended. Keep warm with a blanket. Consult physician in all cases. Take to a hospital.

4.6 SWALLOWING:

If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. Take to a hospital as soon as possible. If professional advice is not available, give two Glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids To someone who is unconscious, having convulsions, or unable to swallow. Seek immediate Medical attention. Ingestion of HF is a life-threatening emergency.

4.7 RESCUERS: Victims of chemical exposure must be taken for medical attention. Rescuers Should be taken for medical attention, if necessary. Take a copy of label and SDS to Physician or health professional with victim. See 4.1.

4.8 NOTES TO PHYSICIAN:

(HANDLE PATIENT AND ALL CONTAMINATED CLOTHING WITH HF RESISTANT GLOVES.)

Note: For burns of moderate area (greater than 8 squ5re inches on a normal adult), significant inhalation exposure, and ingestion, systemic effects may occur, and a critical care unit should be considered for tie patient to monitor for hypocalcemia, cardiac arrhythmias, hypomagnesemia, and hyperkalemia and possible dialysis. Hypocalcemia may need to be monitored for burns of greater than two square inches and may require systemic administration of calcium gluconate. EKG can be monitored indirectly for effectiveness of treatment for hypocalcemia. Excess calcium can cause heart irregularities.

Inhalation:

Pulmonary resuscitation (oxygen therapy).

If necessary, tracheal intubation and positive pressure ventilation. Treat as soon as possible.
Give a 2.5 to 3% calcium gluconate solution by nebulizer in the first 12 to 24 hours.
Prevention or treatment of pulmonary edema and bacterial secondary infection.
Surveillance of cardiac (EKG), respiratory, renal and hepatic functions.
In case of hypocalcemia, I.V. perfusion of 10 ml of a 10% calcium gluconate solution Diluted in 1 liter of physiological serum.
Surveillance of hyperfluoremia and possible treatment with hemodialysis.
Do not give stimulants. Patient must remain inactive for at least 24 hours.

Eye Contact:

Initiate irrigation with 500 to 1,000 cc of a 1% calcium gluconate solution in normal Saline using local anesthetic. Administration by an ocular irrigator is desirable.
Consult an ophthalmologist. Follow up with 1% calcium gluconate eye drops as required and Ophthalmic steroid solution, as indicated by ophthalmologist. In addition, medical surveillance As specified for inhalation.

SECTION 4. FIRST AID MEASURES (CONTINUED)

Skin Contact:

Prevention or treatment for shock. Apply and massage calcium gluconate gel (2.5%) until pain Subsides or 20 minutes have elapsed for 4-6 times a day
If the exposed surface is larger than 2 inch by 2 inch, administer (in 1,000 cc of Hartman or Saline solution) 20 cc of 10% calcium gluconate at a slow rate (60_70 drops/minute).
For second and third degree burns, or if the pain does not subside within 20 minutes, or Burns with concentrated HF (greater than 50%), consider sub cutaneous microinjections Of 2.5% calcium gluconate at a distance of 5 mm around the affected area using a small Gauge needle (#30 stainless). Do not use more than 0.5 ml per cm2 of affected skin Surface. Severe digital burns: slow intra-arterial infusion (over a 4_hour period) of 10 ml Of a 10% calcium gluconate solution diluted in 40 ml of physiological serum. For HF contact On nails, consider splitting the nail and application of calcium gluconate on the nail bed. Blisters and necrotic tissue should be debrided (Warning: The liquid contained in the Blister is corrosive). Do not use local anesthetics. Resolution of pain is a means to Determine effective medical treatment. In addition, medical surveillance as specified in "Inhalation" section.

Ingestion:

Oxygen therapy via intra tracheal intubation. If necessary, tracheotomy. Careful gastric Lavage after administration of 10 vials of calcium gluconate (to be repeated as frequently As needed). In case of intense pain, inject an I.M. morph mimetic analgesic drug (piritramide) Before taking to hospital. Prevention or treatment of shock and pulmonary edema.
Digestive endoscopy in all cases. Treatment of gastrointestinal tract burns and resulting Effects. Surveillance and treatment of hypocalcemia. In case of hypocalcemia, I.V. perfusion Of 20 ml of a 10% calcium gluconate solution diluted in 1 liter of physiological serum.
Surveillance of hyperfluoremia and possible treatment with hemodialysis.

SECTIONS. FIRE FIGHTING MEASURES

5.1 FIRE & EXPLOSION PREVENTIVE MEASURES:

Nonflammable. Isolate from bases. May produce dangerous fumes if involved in a fire. Formation of dangerous gas in contact with water or humid air.
Formation of flammable gas (Hydrogen) on contact with certain metals.
Eliminate all non-essential personnel. Intervention only by capable personnel who are trained and aware of the hazards of the product. In all cases wear self-contained breathing apparatus. When intervention in close proximity wear full protective Acid-resistant suit. Protect intervention team with water spray when approaching fire. After intervention, proceed to clean the equipment used in intervention (remove clothing carefully, double-bag contaminated clothing and dispose ofproperly and shower thoroughly). Cool containers exposed to fire. Depending on wind direction, warn people of danger of inhalation, close doors and windows and get ventilation stopped. Approach from upwind. Absorb gas/vapors with water spray. After the fire, proceed rapidly to clean the surfaces exposed to the fumes in order to limit the damage to the equipment. As for any fire, ventilate and clean the rooms before reentry.

5.2 SUITABLE (& UNSUITABLE) EXTINGUISHING MEDIA:

Use extinguishing media appropriate for surrounding fire. Water spray, foam, carbon Dioxide, 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.

5.3 SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS FOR FIRE FIGHTERS:

Fire or intense heat may cause violent rupture of packages. Cool fully-closed containers with water spray. Diking with silicon materials is to be avoided, may form
Silicon tetrafluoride gas. Reacts violently with water. Do not direct water spray at the point of leakage? Contact with metals liberates hydrogen gas, which is flammable and may form an explosive atmosphere. Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus. No unprotected exposed skin areas.

5.4 SPECIFIC HAZARDS OF CHEMICAL & HAZARDOUS COMBUSTION PRODUCTS:

Reacts with most metals producing hydrogen which is extremely flammable & may explode. Keep containers tightly closed. Isolate from oxidizers, alkalis, heat, & open flame. Applying to hot surfaces requires special precautions. Closed containers may explode if exposed to extreme heat. See Section 10.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:
EVACUATE DANGER AREA! Consult an expert! Keep unprotected personnel away.
Use complete chemical protective suit with self-contained breathing apparatus.
Uncontrolled releases should be responded to by trained personnel using pre-planned
Procedures. No action to be taken involving personal risk without suitable training.
Keep unnecessary and unprotected personnel from entering spill area; keep upwind.
Do not touch or walk through material. Avoid breathing vapor or mist.
Provide adequate ventilation. HF-compatible personal protective equipment should
Be used. ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in
Immediate area).

6.2 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES:
The proper personal protective equipment for incidental releases (such as: 1 Liter of the
Product released in a well-ventilated area), use impermeable gloves, they should be Level
B: **chemical resistant gloves, suit and boots hard-hat, and Self-Contained Breathing**
Apparatus specific for HF, goggles, face shield, and appropriate body protection.
In the event of a large release, use impermeable gloves, specific for HF, chemically resistant
Suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator maybe
Required where engineering controls are not adequate or conditions for potential exposure
Exist. When respirators are required, select NIOSH/MSHA approved based on actual or
Potential airborne concentrations in accordance with latest OSHA and/or ANSI
Recommendations.

6.3 ENVIRONMENTAL PRECAUTIONS:
Stop spill at source 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.

6.4 METHODS AND MATERIAL FOR CONTAINMENT & CLEAN-UP:
Prevent spreading over a wide area (e.g. by containment or oil barriers.) Diking with silicon materials is to be avoided. May form silicon tetrafluoride gas. Suppress (knock down) gases/vapors/mists with a water spray (fog). Do not direct water spray at the point of leakage? Use water spray cautiously and in large quantities. Neutralization generates heat. Do not pick up with the help of sawdust or other combustible substances. Neutralize acidity with an appropriate alkaline material. Place all residue in suitable containers. Dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

6.5 NOTIFICATION PROCEDURES
In the event of a spill or accidental release, notify relevant authorities in accordance
With all applicable regulations. US regulations require reporting release of this
Material to the environment which exceed the applicable reporting quantity.
The National Response Center can be reached at (800) 424-8802.

SECTION **7. HANDLING AND STORAGE**

7.1 PRECAUTIONS FOR SAFE HANDLING:
Protect from moisture. Large amount ofheat is generated on contact with water.
Product will attack glass, concrete, and certain metals.
Isolate from oxidizers, alkalis, heat, & open flame. *Use* only with adequate ventilation.
Avoid breathing of vapor or spray mist. Do not get in eyes, on skin or clothing.
Consult Safety Equipment Supplier for HF-compatible PPE. Wear goggles,
Face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.
Avoid free fall of liquid. Ground containers when transferring. Do not flame cut?
Braze, or weld. Continue all label precautions! NEVER pour water into this substance.
When dissolving or diluting, always add it slowly to the water.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Keep in fireproof surroundings, away from strong oxidants, food & feedstuffs.
Keep cool and dry. Keep locked up or in an area accessible only to qualified or
Authorized persons. Keep inside a well-ventilated room. Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage. Reacts with most metals producing hydrogen which is extremely flammable & may explode. Wear full face shield, gloves & full protective clothing when opening or handling. When empty, drain containers completely, replace bungs securely.

SECTION **7. HANDLING AND STORAGE (CONTINUED)**

7.3 NONBULK: CONTAINERS:

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

7.4 BULK CONTAINERS:

All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

7.5 TANK CAR SHIPMENTS:

Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:

Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all reinstates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE IN3URY OR DEATH.**

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EXPOSURE LIMITS:

MATERIAL	**CAS#**	**EINECS# TWA (OSHA)**	**TWA (ACGIH)**
Hydrogen Fluoride	7664-39-3	231-634-8 3 ppm	0.5 ppm

MATERIAL	**CAS#**	**EINECS# CEILING STEL (OSHA/ACGIH)**	**HAP**
Hydrogen Fluoride	7664-39-3	231-634-8 5 ppm 6 ppm (15 min)	Yes

MATERIAL	**CAS#**	**EINECS# CEILING STEL (OSHA/ACGIH)**	**HAP**
Sulfuric Acid	7664-39-3	231-634-8 5 ppm 6 ppm (15 min)	Yes

Each component showing 'Yes' under "HAP" is an EPA Hazardous Air Pollutant.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION CONT.

8.2 APPROPRIATE ENGINEERING CONTROLS:

RESPIRATORY EXPOSURE CONTROLS

Airborne concentrations should be kept to lowest levels possible. If vapor, dust or mist is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air-supplied respirator authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations, after determining the airborne concentration of the contaminant. Air supplied respirators should always *be* worn when airborne concentration of the contaminant or oxygen content is unknown. Maintain airborne contaminant concentrations below exposure limits. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For particulates, a particulate respirator (NIOSH Type N95 or better filters) may be worn. If oil particles (such as: lubricants, cutting fluids, glycerin, and so on) are present, use a NIOSH Type R or P filter. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS

Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxiliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

LOCAL EXHAUST: Necessary **MECHANICAL (GENERAL): Necessary**
SPECIAL: None **OTHER: None**
Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH As PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION:

Safety eyewear complying with an approved standard should be used when a risk Assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, chemical splash goggles should be worn. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:

Use gloves chemically resistant to HF. Glove must be inspected prior to use.

BODY PROTECTION:

Use body protection appropriate for task. Use chemical-resistant protective Clothing made from HF-resistant materials.

WORK & HYGIENIC PRACTICES:

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 vapors or spray mist. Do not get in eyes, on skin, or On clothing. Wash hands, forearms and face thoroughly after handling chemical products, Before eating smoking and using toilet facilities and at the end of the working Period. Provide readily accessible eye wash stations & safety showers. Remove clothing that becomes contaminated immediately. Destroy contaminated leather articles. Launder or destroy contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	Stinging
ODOR THRESHOLD:	Not Available
pH (Neutrality):	< 1
MELTING POINT/FREEZING POINT:	-36.1 (49%)
BOILING RANGE:	106 C / C / 223-(49%)
FLASH POINT (TEST METHOD):	3 F3 F Not
EVAPORATION RATE (n-Butyl Acetate=1):	Applicable 0.408
FLAMMABILITY CLASSIFICATION:	Nonflammable Not
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
VAPOR PRESSURE (mm of Hg)@20 C	101 hPa @ 50 C/122 F 23 (30.7 mbar),
VAPOR DENSITY (air=1):	0.702
GRAVITY @ 6$^{8}/_{6}$8 F / 20/20 C:	
DENSITY:	9.663 49% 1.158 (49%)
SPECIFIC GRAVITY (Water=1):	1.045 1.170 (49%)
POUNDS/GALLON:	1.051 15%,
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Available
TOTAL VOC'S (TVOC)*:	0.0 Vol% /0.0 g/L / 0.000 lb.

SECTION 10. STABILITY & REACTIVITY

10.1 REACTIVITY & CHEMICAL STABILITY:
Stable under normal conditions. Reacts with most metals producing hydrogen Which is extremely flammable & may explode.

10.2 POSSIBILITY OF HAZARDOUS REACTIONS & CONDITIONS TO AVOID:
Isolate from extreme heat, & open flame. Keep away from incompatible materials.

10.3 INCOMPATIBLE MATERIALS:
Glass and silicate-containing materials are attacked. HF contact with glass, concrete and other silicon-bearing materials will yield silicon tetrafluoride gas.
HF contact with carbonates, sulfides and cyanides yield toxic gases such as carbon dioxide, hydrogen sulfide and hydrogen cyanide. Contact with alkalis 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.

10.4 HAZARDOUS DECOMPOSITION PRODUCTS:
No hazardous decomposition products are known.

10.5 HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.1.1 SKIN CONTACT:
Severe burns to skin, defatting, dermatitis. HF is absorbed through the skin and attacks Calcium in bones. Onset of pain maybe delayed.

11.1.2 EYE CONTACT:
Severe burns to eyes, redness, tearing, and blurred vision.

11.1.3 INHALATION:
Inhalation of vapors may cause ulcers of the upper respiratory tract. Severe respiratory Tract irritation may occur. Vapor harmful or fatal. Symptoms maybe delayed.

11.1.4 SWALLOWING:
Harmful or fatal if swallowed.
The symptoms of chemical pneumonitis may not show up for a few days.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
Pre-existing disorders of any target organs mentioned in this document can be aggravated by over-exposure by routes of entry to components ofthis product. Persons with these disorders should avoid use of this product.

11.3 CHRONIC HAZARDS

11.3.1 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:

This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

11.3.2 TARGET ORGANS: May cause damage to target organs, based on animal data.

11.3.3 IRRITANCY: Irritating to contaminated tissue.

11.3.4 SENSITIZATION: No component is known as a sensitizer.

11.3.5 MUTAGENICITY: No known reports of mutagenic effects in humans.

11.3.6 EMBRYOTOXICITY: No known reports of embryo toxic effects in humans.

11.3.7 TERATOGENICITY: No known reports of teratogenic effects in humans.

11.3.8 REPRODUCTIVE TOXICITY: No known reports of reproductive effects in humans.

A MUTAGEN is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate across generational lines. An EMBRYOTOXIN is a chemical which causes damage to a developing embryo (such as: within the first 8 weeks of pregnancy in humans), but the damage does not propagate across Generational lines. A TERATOGEN is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A REPRODUCTIVE TOXIN is any substance which interferes in any way with the reproductive process.

11.4 MAMMALIAN TOXICITY INFORMATION

LD100 (Oral):	80 mg/kg (2% solution) Guinea Pig
LC50 / 1 hour:	1066 ppm (Rat)
SKIN IRRITATION:	Corrosive (Rabbit) (Method OECD)

SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:
This product maybe harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects ofthis product's components on test animals.

12.3 EFFECT OF MATERIAL 0 N AQUATIC LIFE:

ACUTE:
FISH:
LC50 / 96 hours: 51 mg/L (Salmo Gairdner) (Fluorides) 107.5 mg/L
LC50 / 96 hours: (Oncorhynchus mykiss
CRUSTACEANS:
EC50 / 48 hours: 97 mg/L (Daphniamagna) (FreshWater) 10.5 mg/L (Mysidopsis
EC50 / 96 hours: bahia) (Salt Water)
ALGAE:
ECO / 96 hours: 43 mg/L (Scenedesmus)

CHRONIC:
FISH:
LC50 / 21 days: 3.7 mg/L (Salmo gardneri)
CRUSTACEANS:
NOEC / 21 days: 3.7 mg/L (Daphnia magna)

12.4 MOBILITY IN SOIL
This material is a mobile liquid.

12.5 DEGRADABILITY
This product is partially biodegradable.

12.6 ACCUMULATION
This product does not accumulate or biomagnify in the environment

SECTION 13. DISPOSAL CONSIDERATIONS

THE GENERATION OF WASTE SHOULD BE AVOIDED OR MINIMIZED WHEREVER POSSIBLE.

Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. DO NOT **PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE USED CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE IN) URY OR DEATH.** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Processing, use or contamination may change the waste disposal requirements. Do not
Dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations.
Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal.
ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES.

SECTION 14. TRANSPORT INFORMATION

MARINE POLLUTANT: No
DOT/TDG SHIP NAME: UN1786, Hydrofluoric/Sulfuric Mixture 8, (6.1), PG-II

DRUM LABEL: (CORROSIVE), (TOXIC)

IATA / ICAO: UN1786, Hydrofluoric/Sulfuric 8 (6.1), PG-II
IMO / IMDG: UN1786, Hydrofluoric/Sulfuric 8 (6.1), PG-II
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 157

SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION:

SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health

Extremely Hazardous Substance (EHS): YES (hydrogen fluoride)

All components of this product are on the TSCA list.

SARA Title III Section 313 Supplier Notification

This product contains the indicated <*> toxic chemicals subject to the Reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be Included in all MSDSs that are copied and distributed for this material.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT% (REG.SECTION)	RQ (LBS)
*Hydrofluoric Acid	7664-39-3	231-634-8	15-49 (302, 311, 312, 313, RCRA)	100
*Sulfuric Acid	7664-39-3	231-634-8	15-49 (302.311.312.313.RCRA)	100

Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively. Failure to report may result in substantial civil and criminal penalties. State & local regulations maybe more restrictive than federal regulations.

15.2 STATE REGULATIONS:

CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):

This product contains no chemicals known to the State of California

To cause cancer or reproductive toxicity.

15.3 INTERNATIONAL REGULATIONS

The identified components of this product are listed on the chemical inventories of the following countries: Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS), Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC), Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) D1A: Very Toxic Material Causing Immediate and Serious Toxic Effects. D2A: Very Toxic Material Causing Other Toxic Effects.

E: Corrosive Material.

This product was classified using the hazard criteria of the Controlled Products Regulations (CPR). This Document contains all information required by the CPR.

SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS:

HEALTH (NFPA): 3 HEALTH (HMIS): 3 FLAMMABILITY: 0, PHYSICAL HAZARD: 2

(Personal Protection Rating to be supplied by user based on use conditions.) This information is intended solely for the use of individuals

Trained in the NFPA & HMIS hazard rating systems.

16.2 EMPLOYEE TRAINING

See Section 2 for Risk & Safety Statements. Employees should be made aware Of all hazards of this material (as stated in this SDS) before handling it.

16.3 SDS DATE: 03/07/2015

NOTICE

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency.

Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks oftheir handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.