Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **30:1 Etch**

Synonyms • 30:1 Etchant; Ammonium Fluoride Solution; Etchant; Thirty to One Etch

Product Code • 80109 AL-E

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Etching

1.3 Details of the supplier of the safety data sheet

Manufacturer • Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) • 713-896-2896

Telephone (Technical) • 800-819-1704

1.4 Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC

Manufacturer • +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Acute Toxicity Oral 3 - H301
Acute Toxicity Dermal 3 - H311
Acute Toxicity Inhalation 4 - H332

DSD/DPD • Toxic (T)

R23/24/25

2.2 Label Elements

CLP

DANGER

Hazard statements
- H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H332 - Harmful if inhaled

Precautionary statements

Prevention
- P260 - Do not breathe mist/vapours/spray.
P264 - Wash 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.

Response
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P322 - Specific measures, see supplemental first aid information.
P363 - Wash contaminated clothing before reuse.
P361 - Remove/Take off immediately all contaminated clothing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P330 - Rinse mouth.

Storage/Disposal
- P405 - Store locked up.
P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases
- R23/24/25 - Toxic by inhalation, in contact with skin and if swallowed.

Safety phrases
- S27 - Take off immediately all contaminated clothing.
S36 - Wear suitable protective clothing.
S37 - Wear suitable gloves.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD
- According to European Directive 1999/45/EC this preparation is considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Acute Toxicity Oral 3 - H301
Acute Toxicity Dermal 3 - H311
Skin Irritation 2 - H315
Eye Irritation 2 - H319
Acute Toxicity Inhalation 4 - H332
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements
- Toxic if swallowed - H301
  Toxic in contact with skin - H311
  Causes skin irritation - H315
  Causes serious eye irritation - H319
  Harmful if inhaled - H332
  May cause respiratory irritation - H335

Precautionary statements

Prevention
- Avoid breathing mist/vapours/spray. - P261
  Wash thoroughly after handling. - P264
  Do not eat, drink or smoke when using this product. - P270
  Use only outdoors or in a well-ventilated area. - P271
  Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
  Call a POISON CENTER or doctor/physician if you feel unwell. - P312
  If on skin: Wash with plenty of water .
  Specific treatment, see supplemental first aid information. - P321
  Take off immediately all contaminated clothing and wash it before reuse.
  If skin irritation occurs: Get medical advice/attention. - P332+P313
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
  If eye irritation persists: Get medical advice/attention. - P337+P313
  IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. - P301+P310
  Rinse mouth. - P330

Storage/Disposal
- Store in a well-ventilated place. Keep container tightly closed. - P403+P233
  Store locked up. - P405
  Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

Supplemental information
- 40 percent of this product consists of an ingredient of unknown toxicity.

2.3 Other hazards

OSHA HCS 2012
- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS
- Very Toxic - D1A
  Other Toxic Effects - D2A

2.2 Label elements

WHMIS

- Very Toxic - D1A
  Other Toxic Effects - D2A

2.3 Other hazards

WHMIS
- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition				
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**
Ammonium fluoride	**CAS:**12125-01-8 **EC Number:**235-185-9 **EU Index:**009-006-00-8	30% TO 35%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - T; R23/24/25 **EU CLP:** Annex VI, Table 3.1 - Acute Tox. 3, H301; Acute Tox. 3, H331; Acute Tox. 3, H311 **OSHA HCS 2012:** Eye Irrit. 2; Skin Irrit. 2; STOT SE 3: Resp. Irrit.
Hydrofluoric acid	**CAS:**7664-39-3 **EC Number:**231-634-8 **EU Index:**009-002-00-6 **EINECS:**231-634-8	1% TO 1.3%	Inhalation-Rat LC50 • 1276 ppm	**EU DSD/DPD:** Annex VI, Table 3.2 - T+; R26/27/28 C; R35 **EU CLP:** Annex VI, Table 3.1 - Acute Tox. 2, H330; Acute Tox. 1, H310; Acute Tox. 2, H300; Skin Corr. 1A, H314 **OSHA HCS 2012:** Acute Tox. 2 (inhl); Eye Dam. 1; Skin Corr. 1A

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Skin

- In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Get medical attention immediately.

Eye

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.

Ingestion

- Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the

patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- LARGE FIRES: Dry chemical, CO2, alcohol-resistant foam or water spray.
  SMALL FIRES: Dry chemical, CO2 or water spray.

Unsuitable Extinguishing Media
- No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Containers may explode when heated.
  This solution can give off a small amount of heat when mixed with water.

Hazardous Combustion Products
- When involved in a fire, this material may decompose and produce irritating vapors, and toxic gases (e.g., fluorine and other fluoride compounds, ammonia compounds).

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
  Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
  Wear positive pressure self-contained breathing apparatus (SCBA).
  SMALL FIRES: Move containers from fire area if you can do it without risk.
  Runoff from fire control may cause pollution.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Do not get water inside container.

6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
  Dike to collect large liquid spills.
  A vapor suppressing foam may be used to reduce vapors.
  Use water spray to reduce vapors or divert vapor cloud drift.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling
- Handle and open container with care. Use only with adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Avoid breathing mist/vapors/spray. Avoid contact with skin, eyes, and clothing. Wash thoroughly with

soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Keep container tightly closed. Store in a cool, dry, well-ventilated place. Keep away from incompatible materials. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**China**	**China Highly Toxic Goods**
Hydrofluoric acid (7664-39-3)	Ceilings	2 ppm Ceiling (as F)	2 ppm Ceiling (as F)	3 ppm Ceiling (as F); 2.6 mg/m3 Ceiling (as F)	2 mg/m3 Ceiling [MAC] (as F)	2 mg/m3 Ceiling
	TWAs	0.5 ppm TWA (as F)	0.5 ppm TWA (as F)	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)						
	Result	**France**	**Germany DFG**	**Germany TRGS**	**Ireland**	**Israel**
Hydrofluoric acid (7664-39-3)	STELs	3 ppm STEL [VLCT] (restrictive limit); 2.5 mg/m3 STEL [VLCT] (restrictive limit)	Not established	Not established	3 ppm STEL (as F); 2.5 mg/m3 STEL (as F)	Not established
	TWAs	1.8 ppm TWA [VME] (restrictive limit); 1.5 mg/m3 TWA [VME] (restrictive limit)	Not established	1 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2); 0.83 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2)	1.8 ppm TWA (as F); 1.5 mg/m3 TWA (as F)	0.5 ppm TWA (as F)
	Ceilings	Not established	2 ppm Peak; 1.66 mg/m3 Peak	Not established	Not established	2 ppm Ceiling (as F)
	MAKs	Not established	1 ppm TWA MAK; 0.83 mg/m3 TWA MAK	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)						
	Result	**Italy**	**NIOSH**	**OSHA**	**OSHA Vacated**	**Portugal**
Hydrofluoric acid (7664-39-3)	Ceilings	Not established	6 ppm Ceiling (15 min); 5 mg/m3 Ceiling (15 min)	Not established	Not established	2 ppm Ceiling [VLE-CM] (as F)
	TWAs	1.8 ppm TWA; 1.5 mg/m3 TWA	3 ppm TWA; 2.5 mg/m3 TWA	3 ppm TWA (as F)	3 ppm TWA (as F)	0.5 ppm TWA [VLE-MP] (as F)

	STELs	3 ppm STEL; 2.5 mg/m3 STEL	Not established	Not established	6 ppm STEL (as F)	Not established

Exposure Limits/Guidelines (Con't.)			
	Result	**Spain**	**Sweden**
Hydrofluoric acid (7664-39-3)	STELs	3 ppm STEL [VLA-EC]; 2.5 mg/m3 STEL [VLA-EC]	Not established
	TWAs	1.8 ppm TWA [VLA-ED] (indicative limit value); 1.5 mg/m3 TWA [VLA-ED] (indicative limit value)	Not established
	Biological Limit Values (BLV)	8 mg/L urine end of shift Fluorides (2,F,I)	Not established
	Ceilings	Not established	2 ppm CLV; 1.7 mg/m3 CLV

Exposure Control Notations

Ireland

•Hydrofluoric acid (7664-39-3): **Skin:** (Potential for cutaneous absorption)

Germany TRGS

•Hydrofluoric acid (7664-39-3): **Skin:** (skin notation)

Germany DFG

•Hydrofluoric acid (7664-39-3): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear chemical splash safety goggles.

Skin/Body

- Wear appropriate gloves.

Environmental Exposure Controls

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	Appearance/Description	Clear to light-yellow solution with an ammonia-like odor.
Color	Clear to light-yellow.	Odor	Ammonia-like
Odor Threshold	0.042 ppm (Hydrofluoric acid)		
General Properties			
Boiling Point	104 C(219.2 F)	Melting Point	> 10 C(> 50 F)
Decomposition Temperature	Data lacking	pH	4.5 to 6.5 @ 25 C(77 F)
Specific Gravity/Relative Density	1.08 Water=1	Density	9.05 lbs/gal
Water Solubility	Soluble	Viscosity	Data lacking
Explosive Properties	Data lacking	Oxidizing Properties:	Data lacking
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat.

10.5 Incompatible materials

- Contact of this product with most common metals (except aluminum) will produce flammable hydrogen gas. This product is not compatible with bases and can react violently. Hydrofluoric Acid can dissolve glass, ceramics, metals containing silica, natural rubber and leather. Hydrofluoric Acid also reacts with many other materials such as cyanogen fluoride, sodium (with aqueous acid), methanesulfonic acid, acetic anhydride, chlorosulfonic acid, ethylene diamine, ethylene imine, oleum, propylene oxide, vinyl acetate, sodium tetrafluoro silicate, and N-phenyl azo piperdine. Due to the presence of the Hydrofluoric Acid in this product, this solution must be considered incompatible with glass and other silica based compounds.

10.6 Hazardous decomposition products

- Products of thermal decomposition include fluorides, and ammonia compounds.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Hydrofluoric acid (1% TO 1.3%)	7664-39-3	**Acute Toxicity:** Inhalation-Rat LC50 • 1276 ppm 1 Hour(s); *Sense Organs and Special Senses:Eye*:**Lacrimation**; *Behavioral*:**Changes in motor activity (specific assay)**; *Gastrointestinal*:**Changes in structure or function of salivary glands**; Inhalation-Rat LC50 • 1100 mg/m³ 60 Minute(s); **Irritation:** Eye-Human • 50 mg • Severe irritation; Skin-Rat • 50 % 3 Minute(s) • Severe irritation; **Reproductive:** Inhalation-Rat TCLo • 470 µg/m³ 4 Hour(s)(1-22D preg); *Reproductive Effects:Effects on Fertility*:**Pre-implantation mortality**; *Reproductive Effects:Effects on Fertility*:**Post-implantation mortality**

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Acute Toxicity - Dermal 3 - ATEmix(dermal)= 274.22 mg/kg; Acute Toxicity - Inhalation 4 - ATEmix(inhl)=1.34 mg/L; Acute Toxicity - Oral 3 - ATEmix(oral)=167.22 mg/kg **OSHA HCS 2012** • Acute Toxicity - Dermal 3; Acute Toxicity - Inhalation 4; Acute Toxicity - Oral 3
Aspiration Hazard	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Skin Irritation 2
Skin sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-RE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-SE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
Toxicity for Reproduction	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Eye Irritation 2

Potential Health Effects

Inhalation

Acute (Immediate)
- Toxic if inhaled. May cause respiratory irritation.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Toxic in contact with skin. Causes skin irritation.

Chronic (Delayed)
- No data available

Eye

Acute (Immediate)
- Causes serious eye irritation.

Chronic (Delayed)
- No data available

Ingestion

Acute (Immediate)
- Toxic if swallowed.

Chronic (Delayed)
- No data available

Key to abbreviations
LC = Lethal Concentration
TC = Toxic Concentration

Section 12 - Ecological Information

12.1 Toxicity
- Material data lacking.

12.2 Persistence and degradability
- Material data lacking.

12.3 Bioaccumulative potential
- Material data lacking.

12.4 Mobility in Soil
- Material data lacking.

12.5 Results of PBT and vPvB assessment
- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects
- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods
Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN2505	Ammonium fluoride solution	6.1	III	NDA
TDG	UN2505	AMMONIUM FLUORIDE SOLUTION	6.1	III	NDA
IMO/IMDG	UN2505	AMMONIUM FLUORIDE SOLUTION	6.1	III	NDA
IATA/ICAO	UN2505	Ammonium fluoride solution	6.1	III	NDA

14.6 Special precautions for user
- None known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Acute

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Ammonium fluoride	12125-01-8	Yes	Yes	Yes
Hydrofluoric acid	7664-39-3	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Ammonium fluoride	12125-01-8	Yes	No	Yes	Yes	No
Hydrofluoric acid	7664-39-3	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Ammonium fluoride	12125-01-8	Yes
Hydrofluoric acid	7664-39-3	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Ammonium fluoride	12125-01-8	D1B, D2A
• Hydrofluoric acid	7664-39-3	D1A, D2A, E; D1B, D2A, E (40%, 50%, 70%, listed under Hydrofluoric acid)

Canada - WHMIS - Ingredient Disclosure List

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	1 %

Environment

Canada - CEPA - Priority Substances List

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Ammonium fluoride	12125-01-8	Not Listed

• Hydrofluoric acid	7664-39-3	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

China - Dangerous Goods List

• Ammonium fluoride	12125-01-8	
• Hydrofluoric acid	7664-39-3	(anhydrous or solution, with >60% Hydrofluoric acid; solution, with not >60% Hydrofluoric acid)

China - Export Control List - Part I Chemicals

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Ammonium fluoride	12125-01-8	T; R23/24/25
• Hydrofluoric acid	7664-39-3	T+; R26/27/28 C; R35

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Ammonium fluoride	12125-01-8	T R:23/24/25 S:(1/2)-26-45
• Hydrofluoric acid	7664-39-3	T+ C R:26/27/28-35 S:(1/2)-7/9-26-36/37/39-45

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Ammonium fluoride	12125-01-8	S:(1/2)-26-45
• Hydrofluoric acid	7664-39-3	S:(1/2)-7/9-26-36/37/39-45

Germany

Environment

Germany - TA Luft - Types and Classes

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

• Ammonium fluoride	12125-01-8	ID Number 291, hazard class 1 - low hazard to waters
• Hydrofluoric acid	7664-39-3	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	ID Number 254, hazard class 2 - hazard to waters

Other

Germany - Specifically Regulated Chemicals in TRGS

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	1000 lb TQ; 1000 lb TQ (anhydrous)

U.S. - OSHA - Specifically Regulated Chemicals

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Ammonium fluoride	12125-01-8	100 lb final RQ; 45.4 kg final RQ
• Hydrofluoric acid	7664-39-3	100 lb final RQ; 45.4 kg final RQ

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	100 lb EPCRA RQ

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	100 lb TPQ

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	1.0 % de minimis concentration

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - EPA - Designated Generic Categories - Aqueous Ammonia

• Ammonium fluoride	12125-01-8	NH3 Equiv. Wt. % = 45.98
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	waste number U134

U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	waste number U134 (Corrosive waste, Toxic waste)

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Ammonium fluoride	12125-01-8
• Hydrofluoric acid	7664-39-3

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Ammonium fluoride	12125-01-8	Not Listed
• Hydrofluoric acid	7664-39-3	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H300 - Fatal if swallowed
  H310 - Fatal in contact with skin
  H314 - Causes severe skin burns and eye damage.
  H330 - Fatal if inhaled
  H331 - Toxic if inhaled

  R26/27/28 - Very toxic by inhalation, in contact with skin and if swallowed.
  R35 - Causes severe burns.

Last Revision Date

- 16/October/2014

Preparation Date

- 16/October/2014

Disclaimer/Statement of Liability

- To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

Key to abbreviations

NDA = No data available