SAFETY DATA SHEET

1. Identification

Product identifier: Buffered Oxide Etch

Other means of identification
Product No.: 1178, 1188, 1198, 5173, 5175, 5192, 5326, 5329, 5540, 5554, 5569, 5361, 9294, 9354

Recommended restrictions
Recommended use: For Laboratory, Research or Manufacturing Use.
Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name: Avantor Performance Materials, LLC
Address: 100 Matsonford Rd, Suite 200
Radnor, PA 19087
Telephone: Customer Service: 855-282-6867
Contact Person: Product Information Compliance
E-mail: info@avantormaterials.com

Emergency telephone number:
CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Physical Hazards
Corrosive to metal Category 1

Health Hazards
Acute toxicity (Oral) Category 2
Acute toxicity (Dermal) Category 2
Acute toxicity (Inhalation - vapor) Category 2
Skin Corrosion/Irritation Category 1
Serious Eye Damage/Eye Irritation Category 1
Specific Target Organ Toxicity - Single Exposure Category 1
Specific Target Organ Toxicity - Repeated Exposure Category 1

Target Organs
1. Blood, Respiratory system

Unknown toxicity - Health
Acute toxicity, inhalation, vapor 39 %
Acute toxicity, inhalation, dust or mist 39 %
Label Elements

**Hazard Symbol:**

![Hazard Symbols]

**Signal Word:** Danger

**Hazard Statement:**
- May be corrosive to metals.
- Fatal if swallowed.
- Fatal in contact with skin.
- Fatal if inhaled.
- Causes severe skin burns and eye damage.
- Causes damage to organs.
- Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements**

**Prevention:**
Keep only in original packaging. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not get in eyes, on skin, or on clothing. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. [In case of inadequate ventilation] wear respiratory protection.

**Response:**
IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. IF exposed: Call a POISON CENTER or doctor/physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Take off immediately all contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Storage:**
Store in a corrosion-resistant container with a resistant inner liner. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

**Disposal:**
Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC):**
None.

### 3. Composition/information on ingredients

**Mixtures**

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>CAS number</th>
<th>Content in percent (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
<td>12125-01-8</td>
<td>30 - 40%</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>7664-39-3</td>
<td>1 - 10%</td>
</tr>
</tbody>
</table>

*All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.*
4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Inhalation: Move to fresh air. Call a physician or poison control center immediately. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration.

Skin Contact: Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air.

Most important symptoms/effects, acute and delayed

Symptoms: Fatal if swallowed. Fatal in contact with skin. Fatal if inhaled. Causes severe skin and eye burns.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: Fire may produce irritating, corrosive and/or toxic gases.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Product is acidic. Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out. Fight fire from a protected location.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Personal precautions, protective equipment and emergency procedures:
Use personal protective equipment. Keep unauthorized personnel away. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.

Methods and material for containment and cleaning up:
Neutralize spill area and washings with soda ash or lime. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures:
Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions:
Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:
Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling. Avoid inhalation of vapors and spray mists. Do not eat, drink or smoke when using the product. Use caution when adding this material to water. Never add water to acid! Always add acid to water while stirring to prevent release of heat, steam and fumes. See Section 8 of the SDS for Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities:
Do not store in metal containers. Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride - as F</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>REL</td>
<td>2.5 mg/m³</td>
<td>US. NIOSH Pocket Guide to Chemical Hazards (2010)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>2.5 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Ammonium fluoride - Dust.</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Ammonium fluoride - as F</td>
<td>TWA</td>
<td>2.5 mg/m³</td>
<td>US. Tennessee, OELs. Occupational Exposure Limits, Table Z1A (06 2008)</td>
</tr>
<tr>
<td>Ammonium fluoride</td>
<td>AN ESL</td>
<td>Animal 0.71 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>ST ESL</td>
<td>Health 17 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>ST ESL</td>
<td>Vegetation 2.8 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL</td>
<td>Vegetation 0.57 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL</td>
<td>Health 8.1 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td>Substance</td>
<td>Exposure Measure</td>
<td>Concentration</td>
<td>Source</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------</td>
<td>---------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ammonium fluoride - as F</td>
<td>TWA PEL</td>
<td>2.5 mg/m³</td>
<td>US. California Code of Regulations, Title 8, Section 5155, Airborne Contaminants (08 2010)</td>
</tr>
<tr>
<td>Hydrogen fluoride - as F</td>
<td>TWA</td>
<td>0.5 ppm</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>Ceiling</td>
<td>2 ppm</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>SKIN_DES</td>
<td>Can be absorbed through the skin.</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td>Hydrogen fluoride - as F</td>
<td>PEL</td>
<td>2.5 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>3 ppm</td>
<td>US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>TWA</td>
<td>3 ppm</td>
<td>US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Hydrogen fluoride - as F</td>
<td>STEL</td>
<td>6 ppm</td>
<td>US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>3 ppm</td>
<td>US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>AN ESL Animal</td>
<td>0.75 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>ST ESL Vegetation</td>
<td>3 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL Health</td>
<td>8.7 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL Vegetation</td>
<td>0.8 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>ST ESL Health</td>
<td>22 ppb</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>ST ESL Vegetation</td>
<td>3.7 ppb</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL Vegetation</td>
<td>0.73 ppb</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL Animal</td>
<td>0.92 ppb</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>AN ESL Health</td>
<td>11 ppb</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td></td>
<td>ST ESL Health</td>
<td>18 µg/m³</td>
<td>US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)</td>
</tr>
<tr>
<td>Hydrogen fluoride - as F</td>
<td>STEL</td>
<td>1 ppm</td>
<td>US. California Code of Regulations, Title 8, Section 5155, Airborne Contaminants (02 2012)</td>
</tr>
<tr>
<td></td>
<td>TWA PEL</td>
<td>0.4 ppm</td>
<td>US. California Code of Regulations, Title 8, Section 5155, Airborne Contaminants (02 2012)</td>
</tr>
<tr>
<td></td>
<td>SKIN_DES</td>
<td>Can be absorbed through the skin.</td>
<td>US. California Code of Regulations, Title 8, Section 5155, Airborne Contaminants (02 2012)</td>
</tr>
</tbody>
</table>
### Biological Limit Values

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride (Fluoride: Sampling time: Prior to shift.)</td>
<td>2 mg/l (Urine)</td>
<td>ACGIH BEI (03 2013)</td>
</tr>
<tr>
<td>Ammonium fluoride (Fluoride: Sampling time: End of shift.)</td>
<td>3 mg/l (Urine)</td>
<td>ACGIH BEI (03 2013)</td>
</tr>
<tr>
<td>Hydrogen fluoride (Fluoride: Sampling time: Prior to shift.)</td>
<td>2 mg/l (Urine)</td>
<td>ACGIH BEI (03 2013)</td>
</tr>
<tr>
<td>Hydrogen fluoride (Fluoride: Sampling time: End of shift.)</td>
<td>3 mg/l (Urine)</td>
<td>ACGIH BEI (03 2013)</td>
</tr>
</tbody>
</table>

### Appropriate Engineering Controls

No data available.

### Individual protection measures, such as personal protective equipment

#### General information:
Good general ventilation (typically 10 air changes per hour) 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. An eye wash and safety shower must be available in the immediate work area.

#### Eye/face protection:
Wear safety glasses with side shields (or goggles) and a face shield.

#### Skin Protection

**Hand Protection:** Chemical resistant gloves

**Other:** Wear suitable protective clothing.

#### Respiratory Protection:
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Chemical respirator with acid gas cartridge.

#### Hygiene measures:
Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

### 9. Physical and chemical properties

**Appearance**

- **Physical state:** Liquid
- **Form:** Liquid
- **Color:** Colorless
- **Odor:** No data available.
- **Odor threshold:** No data available.
- **pH:** No data available.
- **Melting point/freezing point:** 18 °C
- **Initial boiling point and boiling range:** No data available.
- **Flash Point:** Not applicable
- **Evaporation rate:** As water
- **Flammability (solid, gas):** No data available.
- **Upper/lower limit on flammability or explosive limits**
**Flammability limit - upper (%):** No data available.
**Flammability limit - lower (%):** No data available.
**Explosive limit - upper (%):** No data available.
**Explosive limit - lower (%):** No data available.

**Vapor pressure:** No data available.
**Vapor density:** No data available.
**Density:** 1.1 g/ml (20 °C)
**Relative density:** 1.1 (20 °C)

**Solubility(ies):**
- **Solubility in water:** Miscible with water.
- **Solubility (other):** No data available.

**Partition coefficient (n-octanol/water):** No data available.

**Auto-ignition temperature:** No data available.
**Decomposition temperature:** No data available.
**Viscosity:** No data available.

**Density:** 1.1 g/ml (20 °C)

**Solubility:**
- **Solubility in water:** Miscible with water.
- **Solubility (other):** No data available.

**Partition coefficient (n-octanol/water):** No data available.

**Auto-ignition temperature:** No data available.

**Decomposition temperature:** No data available.

**Viscosity:** No data available.

## 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity:</th>
<th>No dangerous reaction known under conditions of normal use.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability:</td>
<td>Material is stable under normal conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions:</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>Heat. Water, moisture.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products:</td>
<td>Hydrogen fluoride. Nitrogen Oxides</td>
</tr>
</tbody>
</table>

## 11. Toxicological information

**Information on likely routes of exposure**

- **Inhalation:** Fatal if inhaled. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.
- **Skin Contact:** Fatal in contact with skin. Causes severe skin burns.
- **Eye contact:** Causes serious eye damage.
- **Ingestion:** Fatal if swallowed. May cause burns of the gastrointestinal tract if swallowed.

**Information on toxicological effects**

**Acute toxicity (list all possible routes of exposure)**

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD 50 (Rat): 45.45 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD 50 (Rabbit) 51.73 mg/kg</td>
</tr>
</tbody>
</table>
Inhalation
Product: LC 50 (Rat, 4 h) 0.385 mg/l

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: Causes severe skin burns.

Serious Eye Damage/Eye Irritation
Product: Causes serious eye damage.

Respiratory or Skin Sensitization
Product: Not a skin sensitizer.

Carcinogenicity
Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity
Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure
Product: Blood. Cardiovascular system Respiratory system

Specific Target Organ Toxicity - Repeated Exposure
Product: Endocrine system Bones Teeth.

Target Organs
Specific Target Organ Toxicity - Single Exposure: Blood, Respiratory system

Aspiration Hazard
Product: Not classified

Other effects:
None known.
12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: Expected to be readily biodegradable.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)
Product: No data available.

Specified substance(s):
Ammonium fluoride Log Kow: -4.37

Mobility in soil: The product is water soluble and may spread in water systems.

Other adverse effects: The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.
### 14. Transport information

**DOT**
- UN Number: UN 2922
- UN Proper Shipping Name: Corrosive liquids, toxic, n.o.s. (Hydrofluoric acid, Ammonium Fluoride)
- Transport Hazard Class(es):
  - Class: 8
  - Label(s): 8, 6.1
- Packing Group: II
- Marine Pollutant: No
- Special precautions for user: Not determined.

**IMDG**
- UN Number: UN 2922
- UN Proper Shipping Name: CORROSIVE LIQUID, TOXIC, N.O.S. (HYDROFLUORIC ACID, AMMONIUM FLUORIDE)
- Transport Hazard Class(es):
  - Class: 8
  - Label(s): 8, 6.1
  - EmS No.: F-A, S-B
- Packing Group: II
- Marine Pollutant: No
- Special precautions for user: Not determined.

**IATA**
- UN Number: UN 2922
- Proper Shipping Name: Corrosive liquid, toxic, n.o.s. (Hydrofluoric acid, Ammonium Fluoride)
- Transport Hazard Class(es):
  - Class: 8
  - Label(s): 8, 6.1
- Packing Group: II
- Marine Pollutant: No
- Special precautions for user: Not determined.

### 15. Regulatory information

**US Federal Regulations**
- TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
  - None present or none present in regulated quantities.
- US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
  - None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
<td>100 lbs.</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>100 lbs.</td>
</tr>
</tbody>
</table>

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

- Hazard categories
  - Corrosive to metal
  - Acute toxicity (any route of exposure)
  - Skin Corrosion or Irritation
  - Serious eye damage or eye irritation
  - Specific target organ toxicity (single or repeated exposure)
SARA 302 Extremely Hazardous Substance

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reportable quantity</th>
<th>Threshold Planning Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen fluoride</td>
<td>100 lbs.</td>
<td>100 lbs.</td>
</tr>
</tbody>
</table>

SARA 304 Emergency Release Notification

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
<td>100 lbs.</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>100 lbs.</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Chemical

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Threshold Planning Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen fluoride</td>
<td>100 lbs.</td>
</tr>
<tr>
<td>Ammonium fluoride</td>
<td>10000 lbs.</td>
</tr>
</tbody>
</table>

SARA 313 (TRI Reporting)

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reporting threshold for</th>
<th>Reporting threshold for manufacturer and processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
<td>10000 lbs.</td>
<td>25000 lbs.</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>10000 lbs.</td>
<td>25000 lbs.</td>
</tr>
</tbody>
</table>

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen fluoride</td>
<td>1000 lbs.</td>
</tr>
</tbody>
</table>

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
<td>Reportable quantity: 100 lbs.</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
<td>Reportable quantity: 100 lbs.</td>
</tr>
</tbody>
</table>

US State Regulations

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

<table>
<thead>
<tr>
<th>Chemical Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
</tr>
</tbody>
</table>

US. Massachusetts RTK - Substance List

<table>
<thead>
<tr>
<th>Chemical Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
</tr>
</tbody>
</table>

US. Pennsylvania RTK - Hazardous Substances

<table>
<thead>
<tr>
<th>Chemical Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
</tr>
</tbody>
</table>

US. Rhode Island RTK

<table>
<thead>
<tr>
<th>Chemical Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium fluoride</td>
</tr>
<tr>
<td>Hydrogen fluoride</td>
</tr>
</tbody>
</table>

International regulations
Montreal protocol
Not applicable

Stockholm convention
Not applicable

Rotterdam convention
Not applicable

Kyoto protocol
Not applicable

Inventory Status:
Australia AICS: On or in compliance with the inventory
Canada DSL Inventory List: On or in compliance with the inventory
EINECS, ELINCS or NLP: On or in compliance with the inventory
Japan (ENCS) List: On or in compliance with the inventory
China Inv. Existing Chemical Substances: On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI): On or in compliance with the inventory
Philippines PICCS: On or in compliance with the inventory
US TSCA Inventory: On or in compliance with the inventory
New Zealand Inventory of Chemicals: On or in compliance with the inventory
Japan ISHL Listing: Not in compliance with the inventory.
Mexico INSQ: On or in compliance with the inventory
Taiwan Chemical Substance Inventory: On or in compliance with the inventory

16. Other information, including date of preparation or last revision

NFPA Hazard ID

Flammability
Health
Reactivity
Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 01-09-2019

Revision Information: Not relevant.

Version #: 1.3

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer’s SDSs and other sources, as appropriate.

Further Information: No data available.
Disclaimer:

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