



TULSTAR PRODUCTS, INC.

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MATERIAL SAFETY DATA SHEET

General Information

Company's Information: **TULSTAR PRODUCTS, INC.**
5510 S. Lewis Ave.
Tulsa, OK 74105
Phone Number: (918) 749-9060
Fax Number: (918) 747-1444
Email Address: tulstar@tulstar.com
Emergency Phone Number: CHEMTREC 800-424-9300 (24 hours)

Product Identification

Product Name: Ammonium Bi-fluoride
Synonyms: Ammonium Hydrogen Fluoride
CAS Number: 1341-49-7
Chemical Formula: NH_4FHF
Percent: 98.5%
Molecular Weight: 57.04
Hazardous: Yes

Hazards Identification

Route of Entry: Inhalation, ingestion, skin & eyes
Effects of Exposure: Inhalation- Dust may cause irritation of respiratory system.
Ingestion- Causes irritation of stomach and mouth, vomiting, abdominal pain, convulsions, collapse, acute toxic nephritis.
Contact- Dust irritates eyes and causes burns or rashes on skin. High concentration of fluorine in urine has been reported following skin contact.

First Aid Measures

Inhalation: Remove the victim to fresh air area. Support respiration.
Ingestion: Perform gastric lavage with lime water or 1% calcium chloride solution.
Eyes: Irrigate with plenty of water for 15 minutes.
Skin: Remove the contaminated clothes under shower of water and treat the affected skin for burns. For any type of exposure, seek medical attention immediately.

Fire Fighting Measures

Fire: Not considered to be a fire hazard.
Explosion: Contact with water and metal at the same time may evolve flammable hydrogen gas.
Extinguishing Media: Dry chemical, foam or carbon dioxide. Do not use water.
Special Information: In the event of a fire, wear protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode.

Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment. Sweep and collect without making dust. Wash the area with water and soap. Seal all waste in vapor tight plastic bags for eventual disposal.

Handling & Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and alkalis. Do not store in metal containers, as contact with moisture and metal at the same time may release flammable hydrogen gas. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Exposure Controls/Personal Protection

Airborne Exposure Limits:	OSHA Permissible Exposure Limit (PEL)- 2.5 mg (F)/m ³ (TWA) ACGIH Threshold Limit Value (TLV)- 2.5 mg (F)/m ³ (TWA)
Ventilation System:	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Respirators:	If the exposure limit is exceeded, a half-face dist/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. Caution ~ Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection:	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection:	Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Physical & Chemical Properties

Appearance:	White Crystals
Odor:	Odorless
Solubility:	41.5g/100g Water @ 25°C
Specific Gravity:	1.51
pH:	3.5 (5% solution)
Boiling Point:	240°C
Melting Point:	124.6°C
Vapor Density:	Not information found (Air = 1)
Vapor Pressure:	No information found (mm Hg)

Stability & Reactivity

Stability:	Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:	Emits toxic fumes of hydrogen fluoride, nitric oxides, and ammonia when heated to decomposition. Upon contact with moisture and metal, this material may release hydrogen gas.
Hazardous Polymerization:	Will not occur.
Incompatibilities:	Reacts with acids to liberate hydrogen fluoride and base to liberate ammonia. When combined with moisture, will corrode glass, cement and most metals.
Conditions to Avoid:	No information found.

Ecological Information

Environmental Fate:	This material is not expected to significantly bio accumulate. When released into water, this material may biodegrade to a moderate extent.
Environmental Toxicity:	This material is not expected to be toxic to aquatic life. The LC ₅₀ /96-hour values for fish are over 100 mg/l.

Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. This material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. Dispose of container and unused contents in accordance with appropriate authority requirements.

Transportation Information

Domestic (Land, D.O.T.)

Proper Shipping Name: Ammonium Bifluoride, Solid
Hazard Class: 8
UN/NA: UN 1727
Packing Group: II
Product Size: 40 kg

International (Water, I.M.O.)

Proper Shipping Name: Ammonium Bifluoride, Solid
Hazard Class: 8
UN/NA: UN 1727
Packing Group: II
Product Size: 40 kg

International (Air, I.C.A.O.)

Proper Shipping Name: Ammonium Bifluoride, Solid
Hazard Class: 8
UN/NA: UN 1727
Packing Group: II
Product Size: 40 kg

Other Information

NFPA Ratings: Health- 3
Flammability- 0
Reactivity- 0

Label Hazard Warning: Danger! Maybe fatal if swallowed or inhaled. Affects respiratory system, heart, skeleton, circulatory system, central nervous system, and kidneys. Causes irritation and burns to skin, eyes, and respiratory tract. Irritation and burn effects may be delayed. Harmful if absorbed through skin.

Label Precautions: Do not breathe dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

Label First Aid: In all cases, call a physician immediately. First Aid procedures should be pre-planned for fluoride compound emergencies. If swallowed, administer milk, chewable calcium carbonate tablets or milk of magnesia. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give artificial respiration. In case of skin contact, wipe off any excess material then immediately flush skin with large amounts of soapy water. Remove contaminated clothing and shoes. Wash clothing before reuse. Apply bandages soaked in magnesium sulphate. In case of eye contact, immediately flush eyes with gentle but large stream of water of at least 15 minutes, lifting upper and lower eyelids occasionally.