GÜVENLİK BİLGİ FORMU

Madde Adı **AMONYUM Bİ FLÖRÜR**

Material Name: Ammonium Bifluoride (ABF)
CAS Number: 1341-49-7 Issue Date: 03/31/2003

* * * Section 1 - Chemical Product and Company Identification * * *

Material Name: Ammonium Bifluoride (ABF)
Synonyms: Ammonium Hydrogen Fluoride; Ammonium Difluoride; Acid Ammonium Fluoride.
Product Use: For Commercial Use Only
Manufacturer/Importer Information:
Zhejiang sanmei chemical ind.,co,ltd.
Tel: (86) 579-7641888
Fax: (86)579-7646868
NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure,
or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Composition / Information on Ingredients * * *

CAS # 1341-49-7
Ammonium Bifluoride Content (NH4HF2)%: 98.0 min.
Sulfate% 0.5 max.
Insoluble matter in water %: 0.1 max

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview
White, hygroscopic crystals or flakes with a pungent odor. Use methods suitable for surrounding fire. This product is corrosive and causes severe irritation and burning of the eyes, skin and mucous membranes. Harmful or fatal if swallowed, inhaled or absorbed through the skin. Firefighters should use full protective equipment and clothing.
Label Information
DANGER! Causes burns to eyes, skin and mucous membranes, Causes severe respiratory irritation. Harmful or fatal if
swallowed, inhaled or if absorbed through the skin. Avoid breathing dusts or particulates. Avoid contact with eyes, skin or
clothing. Avoid breathing dusts. Wash thoroughly after handling. Keep container closed. Do not store in glass or silicate-based containers. Use with adequate ventilation.
Eyes

This product is severely irritating to or corrosive to the skin causing pain, itching and redness. Ammonium Bifluoride products can cause severe necrosis to tissue, with symptoms such as redness, itching, burns and scarring. Burns may not be immediately visible or painful. This damage to the body's tissues may continue for days, as the fluoride ion reacts with the calcium in the skin and bone. This product may be harmful if it is absorbed through the skin. Effects may be delayed.

Ingestion

Harmful or fatal if swallowed. This product may cause corrosive damage to gastrointestinal tract, symptoms of such over-exposure include, salivation, nausea, vomiting, diarrhea, hypocalcaemia, burning pain, convulsions, shock, muscle spasms, coma, cardiac arrhythmias, cardio and pulmonary arrest, and possibly, death. At high concentrations, there is a risk of hypocalcaemia.

Inhalation

This product is irritating to the upper respiratory tract. Effects may be delayed.

HMIS Ratings: Health: 3* Fire: 0 Reactivity: 1 Personal
Protective Equipment: E: chemical goggles, impervious gloves, dust respirator
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. If there is a difficulty in keeping eyes open during irrigation, administer anesthetic drops. If calcium gluconate 1% solution is available, it should be administered. Seek immediate medical attention, preferably an ophthalmologist.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with alkaline soap if available and water for at least 20 minutes. Apply calcium gluconate gel (2.5%) and massage into affected area (hands must be gloved); continue massage while repeatedly applying gel until 15 minutes after pain has ceased. Seek immediate medical attention.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Never give anything by mouth to a victim who is unconscious or having convulsions. Have
victim rinse mouth thoroughly with water, if conscious. Attempt immediate administration of a fluoride binding substance
with oral exposures. Options include milk (4 to 8 ounces), chewable calcium carbonate tablets or Milk of Magnesia. Avoid
large amounts of liquid, since this may induce vomiting. Contact a physician or poison control center immediately.
National Poison Hotline 1-800-222-1222

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. If breathing has stopped, apply artificial respiration. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically. For eye contamination rinse eye(s) with a calcium gluconate 1% solution in physiological serum (10 ml of calcium gluconate 10% in 90 ml of physiological serum). In case of difficulty of opening lids, administer an analgesic eye wash (oxybuprocaine). For skin contact,

application of calcium gluconate gel (2.5%) should occur 4 to 6 times per day. If victim suffers second or third degree burns, subcutaneous injection of 10% calcium gluconate at a distance of 7 mm around the affected area. If fingers or toes have been contaminated, dip in a bath of 5% calcium gluconate for 15 to 20 minutes. For severe burns of the digits, slow intrarterial infusion (over a 4 hour period) of 10 ml of a 10% calcium gluconate solution diluted in 40 ml of physiological serum. Phlyctenae and necrotic tissue should be derided (warning: liquid in phlyctenae is corrosive). For ingestion exposure, provide oxygen therapy via intratracheal intubation, if breathing is difficult or victim is not breathing. If throat is constricted due to burns, perform tracheotomy. Careful gastric lavage should be performed after administration of 10 vials of calcium gluconate. Repeat as often as necessary. In case of intense pain, inject an I.M. morphomimectic analgesic drug (e.g. piritramide) prior to transport. Prevention and treatment for shock, pulmonary edema
and esophageal stenosis, as well as hypocalcaemia should occur. Examination by digestive tract endoscopy should be performed in all cases. In case of hypocalcaemia, administer I.V. perfusion of 20 ml of a 10% calcium gluconate solution diluted in 1 liter of physiological serum. Surveillance of hyperfluoremia should occur, with possible treatment with hemodialysis should occur, as well as surveillance of cardiac ECG, and respiratory and renal function.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not flammable Method Used: Not applicable
Upper Flammable Limit (UEL): Not applicable Lower Flammable Limit (LEL): Not applicable
Auto Ignition: Not available Flammability Classification: Not available
Rate of Burning: Not available
General Fire Hazards

This product is not combustible; however, in a fire, this material may decompose and produce corrosive and/or toxic gases (i.e. ammonia, hydrogen fluoride and nitrogen oxides).

Hazardous Combustion Products

Decomposition of this product may yield nitrogen oxides, hydrogen fluoride, and ammonia.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog. Use water to cool fire-exposed containers and to protect personnel. Contact of this product with water produces hydrofluoric acid, which is capable of etching glass, cement and many metals.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus.

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 1 Other:
HMIS Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged dry material with a plastic sheet to prevent dissolving in rain or fire fighting water.

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. This

includes full, chemically-resistant clothing if spill is substantial. All contact with Ammonium Bifluoride must be avoided during clean-up. Shovel the dry material into waste container. Thoroughly wash the area after a spill or leak clean-up.

Evacuation Procedures

Keep upwind of the spilled material. Isolate the spill area to prevent people from entering.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Avoid inhalation of dusts. Emergency first aid kits which include calcium gluconate preparations should be readily available in case of exposure to response personnel during clean-up. Personnel should be trained in the use of these first aid materials.

* * * Section 7 - Handling and Storage * * *

Procedures for Handling

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Recommended Storage Methods

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Do not store this product in glass or silicate-based containers. Store containers away

from acids, alkalis, and metal salts. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Do not store this material in open or unlabeled containers. Do not store this product in any container that can be mistaken for a drink container.

Emergency first aid kits, which include calcium gluconate preparations, should be readily available in storage areas, in case of exposure to personnel during use. Personnel should be trained in the use of these first aid materials.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits.

B: Component Exposure Limits

The exposure limits given are for Fluorides, as F.

ACGIH: 2.5 mg/m3 TWA (as Fluorides)

OSHA: 2.5 mg/m3 TWA (as Fluorides)

NIOSH 2.5 mg/m3 TWA (as Fluorides)

DFG MAKs 2.5 mg/m3 TWA (as Fluorides)

2.5 mg/m3 Peak, 30 minute, average value

Engineering Controls

Use local exhaust ventilation to control airborne dust and fumes. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement to make up for loss.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields (or goggles) and a face shield.

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact. Natural

rubber, nitrile, polyvinyl chloride or neoprene gloves are recommended.

Personal Protective Equipment: Respiratory

Use NIOSH-approved respiratory protection.

General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work area. Have a safety shower or eye-wash fountain available.

*** Section 9 - Physical & Chemical Properties ***

Physical Properties:

Appearance: White crystals or flakes Odor: Pungent odor

Physical State: Solid pH: 2 (5.7 g/l, 20 deg C)

Vapor Pressure: < 0.75 mmHg @ 20 deg C Vapor Density (air = 1): Not determined

Boiling Point: 462 deg F (239 deg C) Freezing/Melting Point: 124-125 deg C (255-257 deg F)

Solubility (H2O): 63 g/L (@ 20 deg C) Specific Gravity: 1.503 @ 25 deg C (H2O = 1)

Softening Point: Not available Particle Size: Not available

Molecular Weight: 57.04 Bulk Density: Not available

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions. Contact with moisture will cause this product to decompose to form hydrofluoric acid.

Chemical Stability: Conditions to Avoid

Avoid dispersion of Ammonium Bifluoride particulates into air, contact with heat, moisture and ignition sources.

Incompatibility

Incompatible with strong acids, strong bases, and oxidizers. Contact with water forms hydrofluoric acid which can corrode glass, cement, and many metals (in the presence of moisture).

Hazardous Decomposition

Thermal Decomposition: Nitrogen oxides, fluorine and ammonia gas.

Contact with Moisture: Hydrofluoric acid.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

General Product Information

Harmful or fatal if swallowed. Product is corrosive and can cause burns to contaminated eyes, skin and any other contaminated tissue. Effects may be delayed. Ammonium Bifluoride a respiratory tract irritant, and inhalation may cause nose irritation, sore throat, coughing, and chest tightness and possibly, ulceration and perforation of the nasal septum. Ingestion can result in severe gastric distress with possible vomiting, bloody diarrhea, hypocalcaemia, CNS depression, shock, muscle spasms and death. Products containing Ammonium Bifluoride can be absorbed through intact skin in lethal amounts. Chronic: Long-term skin overexposure to this product may lead to mottled tooth enamel and osteosclerosis (an increased density in the bones and calcification ligaments due to accumulation of fluoride). Chronic ingestion of this product may result in fluorosis (an excess of fluoride in the body) with skeletal abnormalities, anemia and kidney damage.

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

The components of this product are found on the following lists:

Fluorides, as F: ACGIH TLV-A4 Not Classifiable as a Human Carcinogen.

IARC-3 Unclassifiable as to Carcinogenicity in Humans

Epidemiology

No information available.

Neurotoxicity

Central Nervous System depression, seizures, muscle spasms, and paralysis may occur after ingestion of this product.

Mutagenicity

Some fluorides have shown mutagenic effects at very high concentrations in vitro.

Teratogenicity

No information available for this product, but large prenatal exposures to fluoride ions, have been shown to cause mottling of baby teeth.

* * * Section 11 - Toxicological Information, continued * * *

Other Toxicological Information

Persons that suffer from diabetes insipidus or some forms of renal impairment have increased risk form the effects of this product.

The following Biological Exposure Indices are currently available for Fluorides:

Chemical Determinant Sampling Time BEI

Fluorides (fluorides in urine) Prior to Shift 3 mg/g creatinine

End of Shift 10 mg/g Creatinine

* * * Section 12 - Ecological Information * * *

Ecotoxicity

Ammonia compounds are biodegradable and will not accumulate in the food chain

Environmental Fate

No potential for food chain accumulation.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

Wastes of this product must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. Liquid or aqueous solutions of this product may require an EPA waste code D002.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations. Material can be converted to a less hazardous material by weak reducing agents followed by neutralization.

* * * Section 14 – Transportation Information * * *

US DOT Information

Shipping Name: Ammonium hydrogendifluoride, solid RQ

Hazard Class: 8
UN/NA #: UN 1727
Packing Group: II
Required Label(s): (Corrosive)
Additional Shipping Information

For packaging less than 100 pounds, this material no longer meets the RQ assigned; therefore the "RQ" designation should be deleted.

International Transportation Information

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

I.M.O. Classification: Ammonium Hydrogendifluoride, Solid, 8, UN 1727, PG II, EmS No. 8-06, MFAG Table No. 750,
(IMDG Code page 8112).

* * * Section 15 – Regulatory Information * * *

US Federal Regulations

A: General Product Information

Components: Ammonium Bifluoride (CAS # 1341-49-7) and Ammonium Fluoride (CAS # 12125-01-8) are listed on the U.S. EPA TSCA Inventory.

B: Component Information

This product contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

* * * Section 15 – Regulatory Information, continued* * *

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Ammonium Bifluoride. The default Federal
MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR
370.20. Ammonium Fluoride (12125-01-8):
CERCLA: Final RQ = 100 pounds (45.4 kg)
SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Ammonium Fluoride. The default Federal
MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR
370.20. C: Sara 311/312 Tier II Hazard Ratings:
Component / CAS # / Fire Hazard, Reactivity Hazard, Pressure Hazard, Immediate Health Hazard, Chronic Health Hazard
Ammonium Bifluoride / 1341-49-7 / No Yes No Yes Yes
Ammonium Fluoride / 12125-01-8 / No Yes No Yes Yes

State Regulations

A: General Product Information

California Proposition 65 - Ammonium Bifluoride is not on the California Proposition 65 chemical lists.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substance lists:

Component / CAS # / CA FL MA MN NJ PA

Ammonium Bifluoride / 1341-49-7 / No No No No Yes Yes

Ammonium Fluoride / 12125-01-8 / No Yes Yes No Yes Yes

Other Regulations

A: General Product Information

No other information available.

B: Component information

None of this product's components are listed on the Canadian Controlled Product Ingredient Disclosure List.

* * * Section 16 – Other Information * * *

Other Information

Reasonable care has been taken in preparation of this information, but His Glassworks, Inc. makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. His Glassworks, Inc makes no representations and

assumes no liability for any direct, incidental, or consequential damages resulting from this product's use.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American conference of Governmental

Industrial Hygienists; IARC = International agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health Administration

Contact Person: John G. Huang; phone (510) 758-1388/fax (510)758-9388

End Of MSDS