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Material Safety Data Sheet

Prepared 10/2009

1 Identification of substance:

- **Product details:**
- **Product name:** Ammonium Fluoride
- **Information Department:** Health, Safety and Environmental Department
- **Emergency information:**
During normal hours the Health, Safety and Environmental Department.
After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

- **Chemical characterization:**
Description: (CAS#)
ammonium fluoride (CAS# 12125-01-8); 100%
- **Identification number(s):**
- **EINECS Number:** 235-185-9
- **EU Number:** 009-006-00-8

3 Hazards identification

- **Hazard description:** T Toxic
- **Information pertaining to particular dangers for man and environment**
R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- **Classification system**
- **HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)
Health (acute effects) = 2
Flammability = 0
Reactivity = 1

4 First aid measures

- **General information**
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
- **After skin contact**
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

- **After eye contact**
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing**
Do not induce vomiting; immediately call for medical help.
Seek immediate medical advice.

5 Fire fighting measures

- **Suitable extinguishing agents**
Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Protective equipment:**
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

- **Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
- **Measures for environmental protection:**
Do not allow material to be released to the environment without proper governmental permits.
- **Measures for cleaning/collecting:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Additional information:**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Open and handle container with care.
- **Information about protection against explosions and fires:**
No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
No special requirements.
- **Information about storage in one common storage facility:**
Do not store together with acids.
Store away from water/moisture.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Store under lock and key and with access restricted to technical experts or their assistants only.

8 Exposure controls and personal protection

- **Additional information about design of technical systems:**
Properly operating chemical fume hood designed for hazardous chemicals

and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Fluorides (as F)

mg/m³

ACGIH TLV 2.5

Austria MAK 2.5

Belgium TWA 2.5

Finland TWA 2.5

France TWA 2.5

Germany MAK 2.5

Hungary TWA 1; 2-STEL

Netherlands MAC-K 3.5

Norway TWA 0.6

Poland TWA 1; 3-STEL

Sweden NGV 2

Switzerland MAK-W 1.5; 3-KZG-W

United Kingdom TWA 2.5

Russia TWA 2

Denmark TWA 2.5

USA PEL 2.5

- **Additional information:** No data

- **Personal protective equipment**

- **General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

Use suitable respirator when high concentrations are present.

- **Protection of hands:** Impervious gloves

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **General Information**

- **Form:** Crystalline

- **Color:** White

- **Odor:** Ammonia-like

- **Value/Range Unit Method**

- **Change in condition**

- **Melting point/Melting range:** Not determined

- **Boiling point/Boiling range:** Not determined

- **Sublimation temperature / start:** Not determined

- **Flash point:** Not applicable

- **Ignition temperature:** Not determined

- **Decomposition temperature:** Not determined
- **Danger of explosion:**
Product does not present an explosion hazard.
- **Explosion limits:**
- **Lower:** Not determined
- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Density:** at 20 ° C 1.01 g/cm³
- **Solubility in / Miscibility with**
- **Water:** at 20 ° C 820 g/l

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:**
Acids
Water/moisture
- **Dangerous reactions** Attacks materials containing glass and silicate
- **Dangerous products of decomposition:**
Hydrogen fluoride
Nitrogen oxides
Ammonia

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.
- **Additional toxicological information:**
Danger through skin absorption.
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of it's carcinogenicity in humans and/or animals.

12 Ecological information:

- **General notes:**
Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

- **Product:**
- **Recommendation**
Consult state, local or national regulations to ensure proper disposal.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **DOT regulations:**
- **Hazard class:** 6.1
- **Identification number:** UN2505
- **Packing group:** III
- **Hazardous substance:** 100 lbs, 45.4 kg
- **Proper shipping name (technical name):**
Ammonium fluoride

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** 6.1 Toxic substances
- **Item:** 63c
- **Danger code (Kemler):** 60
- **UN-Number:** 2505
- **Description of goods:** Ammonium fluoride

- **Maritime transport IMDG:**
- **IMDG Class:** 6.1
- **Page:** 6065
- **UN Number:** 2505
- **Packaging group:** III
- **EMS Number:** F-A,S-A
- **MFAG:** 750
- **Proper shipping name:** Ammonium fluoride

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** 6.1
- **UN/ID Number:** 2505
- **Packaging group:** III
- **Proper shipping name:** Ammonium fluoride

15 Regulations

- **Product related hazard informations:**
- **Hazard symbols:** T Toxic
- **Risk phrases:**

23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

- **Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

45 In case of accident or if you feel unwell, seek medical advice immediately.

- **National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

- **Information about limitation of use:**

For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.