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M.S.D.S. / Specification

AMMONIUM FLUORIDE

1. Product Identification

Synonyms: Neutral ammonium fluoride
CAS No.: 12125-01-8
Molecular Weight: 37.04
Chemical Formula: NH4F

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ammonium Fluoride	12125-01-8	100%	Yes

3. Hazards Identification

Potential Health Effects : If inhaled or swallowed, this compound can cause fluoride poisoning. Early symptoms include nausea, vomiting, diarrhea, and weakness. Later effects include central nervous system effects, cardiovascular effects and death.

Chronic Exposure: Chronic exposure may cause mottling of teeth and bone damage (osteosclerosis) and fluorosis. Symptoms of fluorisis include brittle bones,weight loss, anemia, calcified ligaments, general ill health and joint stiffness.
Aggravation of Pre-existing Conditions: Populations that appear to be at increased risk from the effects of fluoride are individuals that suffer from diabetes insipidus or some forms of renal impairment.

4. First Aid Measures

First aid procedures should be pre-planned for fluoride compound emergencies.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. CALL A PHYSICIAN IMMEDIATELY.

Ingestion: Administer milk, chewable calcium carbonate tablets or milk of magnesia. Never give anything by mouth to an unconscious person. CALL A PHYSICIAN IMMEDIATELY.

5. Fire Fighting Measures

Fire: Not considered to be a fire hazard.
Explosion: Not considered to be an explosion hazard. Reacts with chlorine trifluoride to form explosive reaction product.
Fire Extinguishing Media: Dry chemical, foam or carbon dioxide. Water spray may be used to extinguish surrounding fire and cool exposed containers. Water spray will also reduce fume and irritant gases.
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures
Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

7. Handling and Storage
Keep in a tightly closed container. Store in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and alkalis. 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.

8. Exposure Controls/Personal Protection

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.

9. Physical and Chemical Properties & Specification

Assay.	98.5%
Formula.	NH4F
M.W.	37.04
Appearance:	Colorless crystals.
Odor:	Odorless.
Solubility:	100 g/l00 ml water @ 0C (32F)
Specific Gravity:	1.01
pH: Aqueous solution is an acid	
% Volatiles by volume @ 21C (70F):	0

Melting Point: Sublimes upon heating.

10. Stability and 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.
Hazardous Polymerization: Will not occur.
Incompatibilities: Potassium chlorate, sodium nitrite, chlorine trifluoride, and calcium (+2) solution. Reacts with acids to liberate hydrogen fluoride and bases to liberate ammonia. Corrodes glass.
Conditions to Avoid: Heat, moisture, incompatibles.

11. Toxicological Information

Ingredient	Known	Anticipated	IARC	Category
Ammonium Fluoride	(12125-01-8)	No	No	None

12. Ecological Information
Environmental Toxicity: This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/l.

13. Disposal Considerations
Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, 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. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information
Proper Shipping Name: AMMONIUM FLUORIDE
Hazard Class: 6.1
UN/NA: UN2505
Packing Group: III

15. Regulatory Information

Ingredient	CERCLA	261.33	8(d)
Ammonium Fluoride (12125-01-8)	100	No	No

16. Other Information
DANGER! MAY BE 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 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 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 re-use. Apply bandages soaked in magnesium sulfate. In case of eye contact, immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting upper and lower eyelids occasionally.

Product Use:
Laboratory Reagent.