



PURITAN PRODUCTS

Effective Date: 01/01/13
Replaces Revision: 11/17/11

NON-EMERGENCY TELEPHONE
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE
800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: AMMONIUM FLUORIDE 40%

Synonyms: Ammonium Fluoride Solution, Neutral Ammonium Fluoride Solution

Chemical Formula: NH₄F (40% in H₂O)

Recommended Use of the Chemical and Restrictions On Use: Laboratory Reagent

Manufacturer / Supplier: Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225

Emergency Phone Number: 24-Hour Chemtrec Emergency Telephone 800-424-9300

2. Hazard(s) Identification

Classification of the Substance or Mixture:

Acute toxicity, Oral (Category 3)

Acute toxicity, Inhalation (Category 2)

Acute toxicity, Dermal (Category 2)

Risk Phrases:

Symbol: T

R23: Toxic by inhalation.

R24: Toxic in contact with skin.

R25: Toxic if swallowed.

Label Elements:

Trade Name: AMMONIUM FLUORIDE 40%

Signal Word: Danger



Hazard Statements:

H301 + H311: Toxic if swallowed or in contact with skin.

H330: Fatal if inhaled.

Precautionary Statements:

P260: Do not breathe dust / fume / gas / mist / vapors / spray.

P280: Wear protective gloves / protective clothing / eye protection / face protection.

P284: Wear respiratory protection.

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician.

P310: Immediately call a POISON CENTER or doctor / physician.

3. Composition / Information on Ingredients

CAS Number: 12125-01-8

EC Number: 235-185-9

Index Number: 009-006-00-8

Molecular Weight: 37.04 g/mol

Ingredient	CAS No.	EC Number	Percent	Hazardous	Chemical Characterization
Ammonium Fluoride	12125-01-8	009-006-00-8	40%	Yes	Substance
Water	7732-18-5	231-791-2	60%	No	Mixture

4. First-aid Measures

First aid procedures should be pre-planned for fluoride compound emergencies. In all cases, call a Physician immediately.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. CALL A PHYSICIAN IMMEDIATELY.

Ingestion: DO NOT INDUCE VOMITING. Administer milk, chewable calcium carbonate tablets, or milk of magnesia. Never give anything by mouth to an unconscious person. CALL A PHYSICIAN IMMEDIATELY. Give large quantities of water.

Skin Contact: Wipe off any excess material from skin and then immediately flush skin with large amounts of soapy water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Apply bandages soaked in magnesium sulfate. CALL A PHYSICIAN IMMEDIATELY.

Eye Contact: Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. CALL A PHYSICIAN IMMEDIATELY.

Note to Physician: For large exposures, systemic effects (hypocalcemia and hypomagnesia) may occur.

5. Fire-fighting Measures

Fire: Not considered to be a fire hazard. If involved in a fire, can emit toxic fumes and irritating and corrosive gases.

Explosion: May react with metals to form flammable Hydrogen gas.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire. 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 face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Contain and recover liquid when possible. Do not let product enter drains. Neutralize with alkaline material (soda ash, lime,) then absorb with an inert material (e. g., vermiculite, dry sand, earth,) and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities: Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from acids and alkalis. Solution is acid. Can cause glass and metal corrosion. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product.

8. Exposure Controls / Personal Protection

Airborne Exposure Limits:

OSHA Permissible Exposure Limit (PEL): 2.5 mg (F)/m³ (TWA)

ACGIH Threshold Limit Value (TLV): 2.5 mg (F)/m³ (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. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with an acid gas cartridge and particulate filter (NIOSH type N100 filter) 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. If oil particles (e.g. lubricants, cutting fluids, Glycerine, etc.) are present, use a NIOSH type R or P particulate filter. For emergencies or instances where the exposure levels are not known, use a full face piece positive-pressure, air-supplied respirator. **WARNING:** 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.

9. Physical and Chemical Properties

Appearance: Clear, colorless liquid

Odor: Slight characteristic odor

Odor Threshold: Not determined

pH: 6.0 - 7.5 for a 1% solution of ammonium fluoride

% Volatiles by volume @ 21C (70F): No information found

Melting Point: ca. -30C (ca. -22F)

Boiling Point / Boiling Range: ca. 109C (ca. 228F)

Flash Point: Not applicable

Evaporation Rate (BuAc=1): No information found

Flammability: Not applicable

Upper / Lower Flammability or Explosive Limits: Not applicable

Vapor Pressure (mm Hg): Essentially the same as water
Vapor Density (Air=1): Essentially the same as water
Relative Density: 0.804 g/cm³
Solubility: Miscible
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

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions and Conditions to Avoid: 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.

Incompatible Materials: Reaction with strong acids to produce hazardous HF gas or Hydrofluoric Acid, with strong bases to yield Ammonia. Avoid strong oxidizing agents. Corrodes glass and metals.

Hazardous Decomposition Products: Hazardous decomposition products formed under fire conditions - Nitrogen oxides (NO_x), Hydrogen Fluoride, Ammonia.

11. Toxicological Information

Emergency Overview: 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.

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.

Inhalation: May cause irritation and burns to the respiratory tract, symptoms may include coughing, sore throat, and labored breathing. May be absorbed through inhalation of dust; symptoms may parallel those from ingestion exposure. Irritation and burning effects may not appear immediately.

Ingestion: May cause salivation, nausea, vomiting, diarrhea, and abdominal pain, followed by symptoms of weakness, tremors, shallow respiration, carpopedal spasm, convulsions, and coma. May cause brain and kidney damage. Affects heart and circulatory system.

Skin Contact: Solution is acidic and can cause severe burns, especially in sensitive areas of the skin. Effects may not appear immediately. May be absorbed through the skin with possible systemic effects.

Eye Contact: May cause irritation and serious eye damage.

Chronic Exposure: Chronic exposure may cause mottling of teeth and bone damage (osteosclerosis) and fluorosis. Symptoms of fluorosis 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.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) No data available.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Ammonium Fluoride (12125-01-8)	No	No	None
Water (7732-18-5)	No	No	None

Acute Toxicity:

No LD50 / LC50 information found relating to normal routes of occupational exposure.

12. Ecological Information

Ecotoxicity: This material is not expected to be toxic to aquatic life.

The LC50/96-hour values for fish are over 100 mg/l.

Persistence and Degradability: Expected to be readily biodegradable.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other adverse effects: US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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

UN Number: UN2505

UN Proper Shipping Name: AMMONIUM FLUORIDE

Packing Group: III



DOT

IMDG

IATA

Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)

Transport Hazard Class(es): 6.1

Maritime Transport IMDG/GGVSea

Packing Group: III

Transport Hazard Class(es): 6.1

Marine Pollutant: No

Air Transport ICAO-TI and IATA-DGR

Packing Group: III

Transport Hazard Class(es): 6.1

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Special Precautions for User: Warning: Toxic Substances

15. Regulatory Information

US federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Ammonium Fluoride (1341-49-7)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
Ammonium Fluoride (1341-49-7)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

Federal, State & International Regulations - Part 1

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List Chemical	Catg.
Ammonium Fluoride (1341-49-7)	No	No	No	No
Water (7732-18-5)	No	No	No	No

Federal, State & International Regulations - Part 2

Ingredient	RCRA		TSCA	
	CERCLA	261.33	8(d)	
Ammonium Fluoride (1341-49-7)	100	No	No	
Water (7732-18-5)	No	No	No	

Chemical Weapons Convention: No		TSCA 12(b): No		CDTA: No	
SARA 311/312:	Acute: Yes	Chronic: Yes	Fire: No	Pressure: No	
Reactivity: No		Pure / Liquid			

Australian Hazchem Code: 2X

Poison Schedule: None allocated

16. Other Information

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO PURITAN PRODUCTS AT THIS TIME. WHILE BELIEVED TO BE ACCURATE, PURITAN PRODUCTS DOES NOT CLAIM IT TO BE ALL INCLUSIVE. IT IS PROVIDED INDEPENDENT OF ANY SALE OF THE PRODUCT, FOR THE PURPOSE OF HAZARD COMMUNICATION, AND AS A GUIDE FOR THE APPROPRIATE PRECAUTIONARY HANDLING OF THE PRODUCT BY PROPERLY TRAINED INDIVIDUALS. IT IS NOT INTENDED TO PROVIDE PRODUCT PERFORMANCE OR APPLICABILITY INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, THE UNDERLYING PRODUCT DATA, OR THE INFORMATION CONTAINED HEREIN.

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