

## MATERIAL SAFETY DATA SHEET

Date Updated: 09/17/2003

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Section 1 - Product and Company Information

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Product Name	AMMONIUM FLUORIDE
Product Number	HR2-689
Company	Hampton Research
Street Address	34 Journey
City, State, Zip, Country	Aliso Viejo CA 92656-3317 USA
Technical Phone:	949-425-1321
Fax:	949-425-1611

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Section 2 - Composition/Information on Ingredient

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Substance Name	CAS #	SARA 313
AMMONIUM FLUORIDE	12125-01-8	No
Formula	NH <sub>4</sub> F	
Synonyms	Ammonium fluorure (French), Fluorek amonowy (Polish), Neutral ammonium fluoride	
RTECS Number:	BQ6300000	

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Section 3 - Hazards Identification

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## EMERGENCY OVERVIEW

Toxic.  
Toxic by inhalation, in contact with skin and if swallowed. Causes burns.  
Target organ(s): Bones.

## HMIS RATING

HEALTH: 3\*  
FLAMMABILITY: 0  
REACTIVITY: 1

## NFPA RATING

HEALTH: 3  
FLAMMABILITY: 0  
REACTIVITY: 1

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

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Section 4 - First Aid Measures

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## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

## INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give

artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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### Section 5 - Fire Fighting Measures

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#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Emits toxic fumes under fire conditions.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

#### SPECIAL REQUIREMENTS

Hygroscopic.

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### Section 8 - Exposure Controls / PPE

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#### ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.  
Hand: Compatible chemical-resistant gloves.  
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	2.5 MG(F)/M3
USA	MSHA Standard-air	TWA	2.5 MG(F)/M3
USA	OSHA.	PEL	8H TWA 2.5 MG(F)/M3
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	2.5 MG(F)/M3

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	37.04 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	0.804 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.  
Conditions to Avoid: Hygroscopic.  
Materials to Avoid: Strong oxidizing agents.

## HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen fluoride, Ammonia.

## HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Toxic if absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: Toxic if swallowed.

### TARGET ORGAN(S) OR SYSTEM(S)

Bones.

### SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of fluoride overexposure may include salivation, nausea, vomiting, abdominal pain, fever, and labored breathing. Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia. Prolonged exposure to fluoride dusts, vapors, or mists results in perforation of the nasal septum. Chronic effects include excessive calcification of the bones, ligaments, and tendons. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of fluoride overexposure may include salivation, nausea, vomiting, abdominal pain, fever, and labored breathing. Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia. Prolonged exposure to fluoride dusts, vapors, or mists results in perforation of the nasal septum. Chronic effects include excessive calcification of the bones, ligament

### TOXICITY DATA

Intraperitoneal  
Rat  
31 MG/KG  
LD50

### CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

### ACGIH CARCINOGEN LIST

Rating: A4

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## Section 12 - Ecological Information

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No data available.

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## Section 13 - Disposal Considerations

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APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

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Section 14 - Transport Information

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DOT

Proper Shipping Name: Ammonium fluoride  
UN#: 2505  
Class: 6.1  
Packing Group: Packing Group III  
Hazard Label: Keep away from food  
PIH: Not PIH

IATA

Proper Shipping Name: Ammonium fluoride  
IATA UN Number: 2505  
Hazard Class: 6.1  
Packing Group: III

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Section 15 - Regulatory Information

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EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T  
Indication of Danger: Toxic.  
R: 23/24/25  
Risk Statements: Toxic by inhalation, in contact with skin and if swallowed.  
S: 26 45  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic.  
Risk Statements: Toxic by inhalation, in contact with skin and if swallowed. Causes burns.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
US Statements: Target organ(s): Bones.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No  
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.  
DSL: Yes  
NDSL: No

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Section 16 - Other Information

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DISCLAIMER

For R&D use only. Not for drug, household or other uses.

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