

AMMONIUM SILICOFLUORIDE

ASL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Ammonium fluosilicate	Solid White Odorless
Sinks and mixes slowly with water.	
<p>AVOID CONTACT WITH SOLID AND DUST. KEEP PEOPLE AWAY. Wear dust respirator and rubber overclothing (including gloves). Avoid inhalation. Stop discharge if possible. Isolate and remove discharged material. Notify local health and pollution control agencies.</p>	
Fire	Not flammable. POISONOUS GASES MAY BE PRODUCED IN FIRE. Irritating gases may be produced when heated. Wear goggles and self-contained breathing apparatus.
Exposure	<p>CALL FOR MEDICAL AID. DUST POISONOUS IF INHALED OR IF SKIN IS EXPOSED. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>SOLID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Will burn skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>
Water Pollution	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed
- 2.2 Formula: $(\text{NH}_4)_2\text{SiF}_6$
- 2.3 IMO/UN Designation: 6.1/2854
- 2.4 DOT ID No.: 2854
- 2.5 CAS Registry No.: 16919-19-0
- 2.6 NAERG Guide No.: 151
- 2.7 Standard Industrial Trade Classification: 51481

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: Dust respirator; acid-resistant clothing and hat; rubber gloves; goggles and safety shoes
- 3.2 Symptoms Following Exposure: Inhalation of dust can cause pulmonary irritation and can be fatal in some cases. Ingestion may be fatal. Contact with dust causes irritation of eyes and irritation or ulceration of skin.
- 3.3 Treatment of Exposure: INHALATION: remove patient to fresh air. INGESTION: cause vomiting by giving soapy water or mustard water; have patient drink large quantities of lime water; if necessary, give stimulant such as strong coffee; keep patient warm. EYES: flush with water for 20 min., holding eyelids open. SKIN: wash with soap and water.
- 3.4 TLV-TWA: Not listed.
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 Toxicity by Ingestion: Grade 3; LD_{50} = 100 mg/kg (rat)
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Currently not available
- 3.10 Vapor (Gas) Irritant Characteristics: Currently not available
- 3.11 Liquid or Solid Characteristics: Not pertinent
- 3.12 Odor Threshold: Currently not available
- 3.13 IDLH Value: Not listed.
- 3.14 OSHA PEL-TWA: Not listed.
- 3.15 OSHA PEL-STEL: Not listed.
- 3.16 OSHA PEL-Ceiling: Not listed.
- 3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

- 4.1 Flash Point: Not flammable
- 4.2 Flammable Limits in Air: Not flammable
- 4.3 Fire Extinguishing Agents: Not pertinent
- 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
- 4.5 Special Hazards of Combustion Products: Toxic and irritating hydrogen fluoride, silicon tetrafluoride, and oxides of nitrogen may form in fires.
- 4.6 Behavior in Fire: Currently not available
- 4.7 Auto Ignition Temperature: Not pertinent
- 4.8 Electrical Hazards: Not pertinent
- 4.9 Burning Rate: Not pertinent
- 4.10 Adiabatic Flame Temperature: Not pertinent
- 4.11 Stoichiometric Air to Fuel Ratio: Not pertinent
- 4.12 Flame Temperature: Not pertinent
- 4.13 Combustion Molar Ratio (Reactant to Product): Currently not available
- 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

- 5.1 Reactivity with Water: No reaction
- 5.2 Reactivity with Common Materials: Currently not available
- 5.3 Stability During Transport: Stable
- 5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
- 5.5 Polymerization: Not pertinent
- 5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

- 6.1 Aquatic Toxicity: Currently not available
- 6.2 Waterfowl Toxicity: Currently not available
- 6.3 Biological Oxygen Demand (BOD): Currently not available
- 6.4 Food Chain Concentration Potential: None
- 6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Pure, 99+%; Commercial, 98+%
- 7.2 Storage Temperature: Ambient
- 7.3 Inert Atmosphere: No requirement
- 7.4 Venting: Open
- 7.5 IMO Pollution Category: Currently not available
- 7.6 Ship Type: Currently not available
- 7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 49 CFR Category: Keep Away From Food
- 8.2 49 CFR Class: 6.1
- 8.3 49 CFR Package Group: III
- 8.4 Marine Pollutant: No
- 8.5 NFPA Hazard Classification: Not listed
- 8.6 EPA Reportable Quantity: 1000
- 8.7 EPA Pollution Category: C
- 8.8 RCRA Waste Number: Not listed
- 8.9 EPA FWPCA List: Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm: Solid
- 9.2 Molecular Weight: 178.14
- 9.3 Boiling Point at 1 atm: Not pertinent (decomposes)
- 9.4 Freezing Point: Not pertinent
- 9.5 Critical Temperature: Not pertinent
- 9.6 Critical Pressure: Not pertinent
- 9.7 Specific Gravity: 2.0 at 20°C (solid)
- 9.8 Liquid Surface Tension: Not pertinent
- 9.9 Liquid Water Interfacial Tension: Not pertinent
- 9.10 Vapor (Gas) Specific Gravity: Not pertinent
- 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
- 9.12 Latent Heat of Vaporization: Not pertinent
- 9.13 Heat of Combustion: Not pertinent
- 9.14 Heat of Decomposition: Not pertinent
- 9.15 Heat of Solution: 85 Btu/lb = 47 cal/g = 2.0 X 10⁵ J/kg
- 9.16 Heat of Polymerization: Not pertinent
- 9.17 Heat of Fusion: Currently not available
- 9.18 Limiting Value: Currently not available
- 9.19 Reid Vapor Pressure: Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	12.770		N		N		N
36	13.230		O		O		O
38	13.700		T		T		T
40	14.170		P		P		P
42	14.630		E		E		E
44	15.100		R		R		R
46	15.570		T		T		T
48	16.030		I		I		I
50	16.500		N		N		N
52	16.970		E		E		E
54	17.430		N		N		N
56	17.900		T		T		T
58	18.370		E		E		E
60	18.830		N		N		N
62	19.300		T		T		T
64	19.770						
66	20.230						
68	20.700						
70	21.170						
72	21.630						
74	22.100						
76	22.570						
78	23.030						
80	23.500						
82	23.970						
84	24.430						