

SODIUM BIFLUORIDE

SBF

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Sodium difluoride Sodium hydrogen difluoride Sodium hydrogen fluoride		Solid Crystalline powder Colorless to white
		Sinks and mixes with water.
Keep people away. Notify local health and pollution control agencies. Protect water intakes.		
Fire	Not flammable.	
Exposure	CALL FOR MEDICAL AID. DUST OR SOLID Irritating to eyes, nose, and throat. If swallowed, will cause nausea, vomiting, abdominal pain, and diarrhea. Move to fresh air. 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.	
Water Pollution	Dangerous to aquatic life in high concentrations. 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: NaF·HF 2.3 IMO/UN Designation: Not listed 2.4 DOT ID No.: 2439 2.5 CAS Registry No.: 1333-83-1 2.6 NAERG Guide No.: 154 2.7 Standard Industrial Trade Classification: 52310
3. HEALTH HAZARDS	
3.1 Personal Protective Equipment: Rubber gloves, safety glasses, self-contained breathing apparatus.	
3.2 Symptoms Following Exposure: INHALATION OF DUST: Irritating and possibly corrosive to mucous membranes. EYES: Irritating. INGESTION: Salty or soapy taste, salivation, nausea, burning or crampy abdominal pain, vomiting, diarrhea, muscle weakness, tremors. Rare: transient epileptiform convulsions, followed by CNS depression. Shock.	
3.3 Treatment of Exposure: Call a doctor. INGESTION: Gastric lavage with lime water or a 1% solution of calcium chloride. Aluminum hydroxide gel should be exceptionally effective for binding fluoride. EYES: Wash with running water or weak boric acid solution followed by water. 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 = 50 to 500 mg/kg.	
3.8 Toxicity by Inhalation: Currently not available.	
3.9 Chronic Toxicity: Chronic exposure results in fluorosis. Symptoms are weight loss, brittleness of bones, anemia, weakness, stiffness of joints, and discoloration of teeth when exposure occurs during tooth development.	
3.10 Vapor (Gas) Irritant Characteristics: Not pertinent	
3.11 Liquid or Solid Characteristics: Currently not available	
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:** Not pertinent
- 4.6 **Behavior in Fire:** Not pertinent
- 4.7 **Auto Ignition Temperature:** Not flammable
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Not flammable
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent.
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Not pertinent.
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
- 7.2 **Storage Temperature:** Currently not available
- 7.3 **Inert Atmosphere:** Currently not available
- 7.4 **Venting:** Currently not available
- 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:** Corrosive material
- 8.2 **49 CFR Class:** 8
- 8.3 **49 CFR Package Group:** II
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**
- | | |
|---------------------------|----------------|
| Category | Classification |
| Health Hazard (Blue)..... | 3 |
| Flammability (Red)..... | 0 |
| Instability (Yellow)..... | 1 |
- 8.6 **EPA Reportable Quantity:** 100 pounds
- 8.7 **EPA Pollution Category:** B
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Yes

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Reacts with water liberating heat and forming a corrosive solution. The reaction is not hazardous.
- 5.2 **Reactivity with Common Materials:** Aqueous solution corrodes glass, concrete, and certain metals, especially those containing silica such as cast iron. Will attack natural rubber, leather, and many organic materials. May generate hydrogen gas on contact with some metals.
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Dilution action will slowly neutralize the acid while the presence of calcium will precipitate excess fluoride. Apply powdered limestone, slaked lime, soda ash, or sodium bicarbonate.
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
- 9.2 **Molecular Weight:** 61.99
- 9.3 **Boiling Point at 1 atm:** Decomposes
- 9.4 **Freezing Point:** Decomposes in melting
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 2.08 at room temperature
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 2.14 (calculated)
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- 9.12 **Latent Heat of Vaporization:** Currently not available
- 9.13 **Heat of Combustion:** Not flammable
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Absorbs heat at 25°C
156.8 Btu/lb = 87.1 cal/g = 3.64 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

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
The fish, *Tinca Vulgaris*, killed by 100 mg/l.
- 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

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
32	3.700		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