ZINC SILICOFLUORIDE

ZSL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Solid	White	Odorless
Zinc fluosilicate Zinc hexafluorosilicate Zinc silicofluoride hexahydrate	Sinks and mixes with water.		

Keep people away. Avoid contact with solid and dust.
Notify local health and pollution control agencies.
Protect water intakes.

Fire	Not flammable. Irritating gases may be produced when heated.
Exposure	CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. 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. SOLID POISONOUS IF SWALLOWED. Irritating to skin and eyes. If swallowed will cause nausea, vomiting or loss of consciousness. 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.
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: $ZnSiF_6 6H_2O$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: 2855
2.5 CAS Registry No.: 16871-71-9
2.6 NAERG Guide No.: 151
2.7 Standard Industrial Trade Classification: 52310

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Dust respirator; chemical goggles or face shield; protective gloves
3.2 Symptoms Following Exposure: Inhalation of dust irritates nose and throat; excessive inhalation may cause severe pulmonary inflammation. Ingestion causes nausea, cramps, vomiting, shock, convulsions, cyanosis, and other symptoms of fluoride poisoning. Contact with eyes or skin causes irritation; skin ulcers may develop.
3.3 Treatment of Exposure: INHALATION: move 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. EYES: flush with water; call physician as necessary. 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: Oral LD_{Lo} = 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: 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: Toxic and irritating hydrogen fluoride and silicon tetrafluoride are formed 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: Currently not available
4.11 Stoichometric 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

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: Not flammable
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): None
6.4 Food Chain Concentration Potential: Zinc is accumulated by some organisms but is not considered to be bioconcentrative
6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: Technical, 98-99%
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: 5000 pounds
8.7 EPA Pollution Category: D
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: 315.5
9.3 Boiling Point at 1 atm: (decomposes) 122–158°F = 50–70°C = 323–343°K
9.4 Freezing Point: Not pertinent
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 2.10 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: Currently not available
9.16 Heat of Polymerization: Currently not available
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
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

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
35	51.343		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT
40	51.775						
45	52.208						
50	52.640						
55	53.073						
60	53.505						
65	53.938						
70	54.371						
75	54.803						
80	55.236						
85	55.668						
90	56.101						