CADMIUM FLUOROBORATE

CFB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Cadmium fluoborate
Cadmium fluoborate solution

Liquid Colorless Odorless

Sinks and mixes with water.

KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR.
Wear goggles and self-contained breathing apparatus.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Not flammable.
POISONOUS GASES MAY BE PRODUCED IN FIRE.
Wear goggles and self-contained breathing apparatus.

Exposure

CALL FOR MEDICAL AID.

VAPOR
POISONOUS IF INHALED.
If inhaled will cause coughing or difficult breathing.
If in eyes, hold eyelids open and flushwith plenty of water.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to 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.

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: $Cd(BF_4)_2$-H_2O
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: 2570
2.5 CAS Registry No.: 14486-19-2
2.6 NAERG Guide No.: 154
2.7 Standard Industrial Trade Classification: 52310

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Rubber gloves and apron; safety glasses and face shield
3.2 Symptoms Following Exposure: Ingestion produces severe toxic symptoms; both kidney and liver injuries may occur; may be fatal. Contact with eyes or skin causes irritation.
3.3 Treatment of Exposure: INHALATION: remove patient to fresh air; seek medical attention. INGESTION: call a physician at once; if victim is conscious, induce vomiting by giving a tablespoon of salt in a glass of warm water and repeat until vomit is clear; give milk or whites of eggs beaten with water; keep patient warm and quiet. EYES: flush with plenty of water and get medical attention. SKIN: flush with plenty of water.
3.4 TLV-TWA: 0.01 mg Cd/m^3 inhalable; 0.002 mg Cd/m^3 respirable fraction.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 3; LD_{50} = 250 mg/kg (rat)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Delayed liver, kidney, and lung damage has followed respiratory exposure to cadmium salts in industry.
3.10 Vapor (Gas) Irritant Characteristics: Currently not available
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: Odorless
3.13 IDLH Value: 9 mg/m^3 as Cd
3.14 OSHA PEL-TWA: 0.005 mg/m^3 as Cd
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 hydrogen fluoride and cadmium oxide fumes 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: 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: 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: Concentrated by shellfish
6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: Commercial, 50% solution in water
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: Yes
8.5 NFPA Hazard Classification: Not listed
8.6 EPA Reportable Quantity: Not listed.
8.7 EPA Pollution Category: Not listed.
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 286 (solute)
9.3 Boiling Point at 1 atm: Not pertinent
9.4 Freezing Point: Not pertinent
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.60 at 20°C (liquid)
9.8 Liquid Surface Tension: Currently not available
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: Not pertinent
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
51	99.879		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT
52	99.879						
53	99.879						
54	99.879						
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75	99.879						
76	99.879						

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
	MISCIBLE		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT