

BARIUM PEROXIDE

BPO

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Barium binoxide Barium dioxide Barium superoxide	Solid Sinks in water.	Light gray to tan Odorless
<p>Restrict access. Shut off ignition sources and call fire department. AVOID CONTACT WITH SOLID AND DUST. Wear rubber overclothing (including gloves). Notify local health and pollution control agencies. Protect water intakes.</p>		
Fire	Not flammable. May cause fire on contact with combustibles. Containers may explode in fire. Combat fires from safe distance or protected location. Flood discharge area with water. Cool exposed containers with water.	
Exposure	CALL FOR MEDICAL AID. DUST POISONOUS IF INHALED. Irritating to eyes, nose and throat. Move victim to fresh air. If in eyes, hold eyelids open and flush with plenty of water. If breathing is difficult, give oxygen. SOLID POISONOUS IF SWALLOWED. Will burn skin and eyes. 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. DO NOT INDUCE VOMITING.	
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

Stop discharge
Collection Systems: Dredge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: BaO₂
- 2.3 IMO/UN Designation: 5.1/1449
- 2.4 DOT ID No.: 1449
- 2.5 CAS Registry No.: 1304-29-6
- 2.6 NAERG Guide No.: 141
- 2.7 Standard Industrial Trade Classification: 52265

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: U.S.B.M.-approved toxic dust respirator; liquid-proof PVC gloves; chemical safety goggles; full cover clothing.
- 3.2 Symptoms Following Exposure: Inhalation causes irritation of mucous membranes, throat, and nose. Contact with eyes or skin causes severe burns. Ingestion causes excessive salivation, vomiting, colic, diarrhea, convulsive tremors, slow, hard pulse, and elevated blood pressure; hemorrhages may occur in the stomach, intestines, and kidneys; muscular paralysis may follow.
- 3.3 Treatment of Exposure: Get medical attention. Alert doctor to possibility of barium poisoning, particularly if compound was swallowed. INHALATION: remove to fresh air. EYES: flush with water for 15 min. SKIN: flush with water. INGESTION: oral administration of an aqueous 10% solution of magnesium or sodium sulfate; in a severe intoxication, calcium or a magnesium salt may have to be given I.V. with caution; treatment otherwise is supportive and symptomatic.
- 3.4 TLV-TWA: 0.5 mg/m³ as barium
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 Toxicity by Ingestion: Currently not available
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Barium poisoning
- 3.10 Vapor (Gas) Irritancy Characteristics: Currently not available
- 3.11 Liquid or Solid Characteristics: Currently not available
- 3.12 Odor Threshold: Odorless
- 3.13 IDLH Value: 50 mg/m³ as barium.
- 3.14 OSHA PEL-TWA: 0.5 mg/m³ as barium.
- 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 but may cause fire on contact with combustibles.
- 4.2 Flammable Limits in Air: Not pertinent
- 4.3 Fire Extinguishing Agents: Flood with water, dry powder (e.g. graphite, powdered limestone).
- 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: Can increase intensity of fire.
- 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 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

5. CHEMICAL REACTIVITY

- 5.1 Reactivity with Water: Decomposes slowly. The reaction is not hazardous.
- 5.2 Reactivity with Common Materials: Corrodes metal slowly. If mixed with combustible material or finely divided metals, can ignite spontaneously or by friction.
- 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: None
- 6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: (3)
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Technical: 91-92.5% high-purity reagent
- 7.2 Storage Temperature: Ambient
- 7.3 Inert Atmosphere: No requirement
- 7.4 Venting: Pressure-vacuum
- 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: Oxidizer
- 8.2 49 CFR Class: 5.1
- 8.3 49 CFR Package Group: II
- 8.4 Marine Pollutant: No
- 8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue)	1
Flammability (Red)	0
Instability (Yellow)	0
Special (White)	OX
- 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: Solid
- 9.2 Molecular Weight: 169.4
- 9.3 Boiling Point at 1 atm: Decomposes
- 9.4 Freezing Point: 842°F = 450°C = 723°K
- 9.5 Critical Temperature: Not pertinent
- 9.6 Critical Pressure: Not pertinent
- 9.7 Specific Gravity: 4.96 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: -194 Btu/lb = -108 cal/g = -4.52 X 10⁴ J/kg
- 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
	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
32	1.500		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT