

COBALT BROMIDE (OUS)

COB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Cobalt (II) bromide Cobalt dibromide Cobaltous bromide	Solid crystals Reddish violet Slight
Sinks and mixes with water.	
<p>Keep people away. Avoid contact with solid and dust. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Not flammable. POISONOUS FUMES ARE PRODUCED WHEN HEATED TO DECOMPOSITION.
Exposure	CALL FOR MEDICAL AID. SOLID Irritating to skin and eyes. Harmful if swallowed. Flush affected area 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 induce vomiting.
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW 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
Collection Systems: Dredge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: CoBr₂
- 2.3 IMO/UN Designation: Not listed
- 2.4 DOT ID No.: Not listed
- 2.5 CAS Registry No.: 7789-43-7
- 2.6 NAERG Guide No.: 171
- 2.7 Standard Industrial Trade Classification: 52329

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Prevent contact, use rubber gloves, protective clothing, barrier creams, chemical dust mask, and safety goggles.
- 3.2 **Symptoms Following Exposure:** INHALATION: Bromine rash (resembling acne) may occur especially on face. EYES: Irritation. SKIN: May produce dermatitis. INGESTION: Depression, emaciation, gastroenteric distress, constipation, skin rash. In severe cases psychoses and mental deterioration.
- 3.3 **Treatment of Exposure:** Call a doctor. INHALATION: Move to fresh air. EYES: Wash with water then irrigate with 0.9% saline for at least 15 minutes. SKIN: Wash with water. INGESTION: Induce vomiting by use of salt water. Caffeine and sodium benzoate may be of value for respiratory failure. Call physician.
- 3.4 **TLV-TWA:** 0.02 mg/m³ as Co
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 0.5 to 5 g/kg.
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Inorganic bromides can cause depression, emaciation, and in severe cases, psychoses and mental deterioration. An acne-like rash often occurs.
- 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:** 20 mg/m³ as cobalt
- 3.14 **OSHA PEL-TWA:** 0.1 mg/m³ as cobalt
- 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:** When heated to decomposition can give off highly toxic fumes of Br.
- 4.6 **Behavior in Fire:** Currently not available
- 4.7 **Auto Ignition Temperature:** Not flammable
- 4.8 **Electrical Hazards:** Not pertinent
- 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

5. CHEMICAL REACTIVITY

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

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** 10 mg/l of cobalt ion is lethal concentration for sticklebacks.
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** Currently not available
- 6.4 **Food Chain Concentration Potential:** Microorganisms concentrate Co in water up to 1,000 to 1,500 times.
- 6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
- 7.2 **Storage Temperature:** Cool
- 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:** Not listed
- 8.2 **49 CFR Class:** Not pertinent
- 8.3 **49 CFR Package Group:** Not listed.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** 1000 pounds
- 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:** 218.77
- 9.3 **Boiling Point at 1 atm:** Loses 4 H₂O at 100°C and all H₂O at 130°C
- 9.4 **Freezing Point:** Anhydrous: 1252.4°F = 678°C = 951.2°K Hexahydrate: 117.5°F = 47.5°C = 320.7°K
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 4.909 at 25°C 2.46 at room temperature (hexahydrate)
- 9.8 **Liquid Surface Tension:** Currently not available
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 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 pertinent
- 9.14 **Heat of Decomposition:** Currently not available
- 9.15 **Heat of Solution:** For anhydrous CoBr₂ (exothermic) -151 Btu/lb = -84.1 cal/g = -3.5 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
	C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E

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
40	99.238		N O T		N O T		C U R R E N T L Y
50	108.410		P E R T I N E N T		P E R T I N E N T		N O T
60	117.582						A V A I L A B L E
70	126.754						
80	135.926						
90	145.098						
100	154.271						
110	163.442						
120	172.615						
130	181.787						
140	190.959						
150	200.132						
160	209.303						
170	218.476						
180	227.648						
190	236.820						
200	245.992						
210	255.165						