

# BERYLLIUM

BEM

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms	Solid	Silver color	Odorless
Sinks in water.			
<b>Restrict access.</b> <b>AVOID CONTACT WITH SOLID AND DUST.</b> Wear dust respirator and rubber overclothing (including gloves). Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.			
<b>Fire</b>	<b>Combustible.</b> POISONOUS GASES MAY BE PRODUCED IN FIRE. Dust cloud may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Extinguish with dry graphite, soda ash, or other inert powder. DO NOT USE WATER ON FIRE.		
<b>Exposure</b>	<b>CALL FOR MEDICAL AID.</b> <b>DUST</b> POISONOUS IF INHALED OR IF SKIN IS EXPOSED. 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.  <b>SOLID</b> POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. 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.		
<b>Water Pollution</b>	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	2. CHEMICAL DESIGNATIONS
Stop discharge Collection Systems: Dredge	<b>2.1 CG Compatibility Group:</b> Not listed. <b>2.2 Formula:</b> Be <b>2.3 IMO/UN Designation:</b> 6.1/1567 <b>2.4 DOT ID No.:</b> 1567 <b>2.5 CAS Registry No.:</b> 7440-41-7 <b>2.6 NAERG Guide No.:</b> 134 <b>2.7 Standard Industrial Trade Classification:</b> 52229

3. HEALTH HAZARDS
<b>3.1 Personal Protective Equipment:</b> Self contained positive pressure breathing apparatus; clean work clothes daily; gloves; eye protection
<b>3.2 Symptoms Following Exposure:</b> Any dramatic, unexplained weight loss should be considered as possible first indication of beryllium disease. Dust is extremely toxic when inhaled; symptoms include coughing, shortness of breath, and acute or chronic lung disease. There is no record of illness from ingestion of beryllium. Contact with dust causes conjunctival inflammation of eyes and dermatitis.
<b>3.3 Treatment of Exposure:</b> INHALATION: acute disease may require hospitalization with administration of oxygen; chest x-ray should be taken immediately. EYES: flush with water for at least 15 min. SKIN: flush with water; wash with soap and water; all cuts, scratches or other injuries should receive prompt medical attention.
<b>3.4 TLV-TWA:</b> 0.002 mg/m <sup>3</sup> <b>3.5 TLV-STEL:</b> 0.01 mg/m <sup>3</sup> <b>3.6 TLV-Ceiling:</b> Not listed. <b>3.7 Toxicity by Ingestion:</b> Grade 3; oral LD <sub>50</sub> = 100 mg/kg (mouse) <b>3.8 Toxicity by Inhalation:</b> Currently not available. <b>3.9 Chronic Toxicity:</b> Berylliosis of lungs may occur from 3 months to 15 years after exposure. Chronic systemic diseases of the liver, spleen, lymph nodes, bone, kidney, and other organs may also occur. <b>3.10 Vapor (Gas) Irritant Characteristics:</b> Currently not available <b>3.11 Liquid or Solid Characteristics:</b> Currently not available <b>3.12 Odor Threshold:</b> Odorless <b>3.13IDLH Value:</b> 4 mg/m <sup>3</sup> <b>3.14 OSHA PEL-TWA:</b> 0.002 mg/m <sup>3</sup> <b>3.15 OSHA PEL-STEL:</b> 0.025 mg/m <sup>3</sup> 30 minute peak per 8 hour shift. <b>3.16 OSHA PEL-Ceiling:</b> 0.005 mg/m <sup>3</sup> <b>3.17 EPA AEGL:</b> Not listed

4. FIRE HAZARDS		7. SHIPPING INFORMATION								
<b>4.1 Flash Point:</b> Not pertinent		<b>7.1 Grades of Purity:</b> Grade AA, 99.96+%; Grade A, 99.87+%; Nuclear grade								
<b>4.2 Flammable Limits in Air:</b> Not pertinent		<b>7.2 Storage Temperature:</b> Ambient								
<b>4.3 Fire Extinguishing Agents:</b> Graphite, sand, or any other inert dry powder		<b>7.3 Inert Atmosphere:</b> No requirement								
<b>4.4 Fire Extinguishing Agents Not to Be Used:</b> Water, CO <sub>2</sub> , or halogenated extinguishing agents.		<b>7.4 Venting:</b> Open								
<b>4.5 Special Hazards of Combustion Products:</b> Combustion yields beryllium oxide fume, which is toxic if inhaled.		<b>7.5 IMO Pollution Category:</b> Currently not available								
<b>4.6 Behavior in Fire:</b> Powder may form explosive mixture with air.		<b>7.6 Ship Type:</b> Currently not available								
<b>4.7 Auto Ignition Temperature:</b> Not pertinent		<b>7.7 Barge Hull Type:</b> Currently not available								
<b>4.8 Electrical Hazards:</b> Not pertinent										
<b>4.9 Burning Rate:</b> Not pertinent										
<b>4.10 Adiabatic Flame Temperature:</b> Currently not available										
<b>4.11 Stoichiometric Air to Fuel Ratio:</b> 2.4 (calc.)		<b>8. HAZARD CLASSIFICATIONS</b>								
<b>4.12 Flame Temperature:</b> Currently not available		<b>8.1 49 CFR Category:</b> Poison								
<b>4.13 Combustion Molar Ratio (Reactant to Product):</b> 1.0 (calc.)		<b>8.2 49 CFR Class:</b> 6.1								
<b>4.14 Minimum Oxygen Concentration for Combustion (MOCC):</b> Not listed		<b>8.3 49 CFR Package Group:</b> II								
		<b>8.4 Marine Pollutant:</b> No								
		<b>8.5 NFPA Hazard Classification:</b>								
		<table> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue)</td> <td>4</td> </tr> <tr> <td>Flammability (Red)</td> <td>1</td> </tr> <tr> <td>Instability (Yellow)</td> <td>0</td> </tr> </tbody> </table>	Category	Classification	Health Hazard (Blue)	4	Flammability (Red)	1	Instability (Yellow)	0
Category	Classification									
Health Hazard (Blue)	4									
Flammability (Red)	1									
Instability (Yellow)	0									
		<b>8.6 EPA Reportable Quantity:</b> 10 pounds								
		<b>8.7 EPA Pollution Category:</b> A								
		<b>8.8 RCRA Waste Number:</b> P015								
		<b>8.9 EPA FWPCA List:</b> Not listed								
5. CHEMICAL REACTIVITY		9. PHYSICAL & CHEMICAL PROPERTIES								
<b>5.1 Reactivity with Water:</b> No reaction		<b>9.1 Physical State at 15° C and 1 atm:</b> Solid								
<b>5.2 Reactivity with Common Materials:</b> Reacts with acids and alkalis to form hydrogen gas.		<b>9.2 Molecular Weight:</b> 9.01								
<b>5.3 Stability During Transport:</b> Stable		<b>9.3 Boiling Point at 1 atm:</b> Not pertinent								
<b>5.4 Neutralizing Agents for Acids and Caustics:</b> Not pertinent		<b>9.4 Freezing Point:</b> Not pertinent								
<b>5.5 Polymerization:</b> Not pertinent		<b>9.5 Critical Temperature:</b> Not pertinent								
<b>5.6 Inhibitor of Polymerization:</b> Not pertinent		<b>9.6 Critical Pressure:</b> Not pertinent								
6. WATER POLLUTION		<b>9.7 Specific Gravity:</b> 1.85 at 20°C (solid)								
<b>6.1 Aquatic Toxicity:</b> Currently not available		<b>9.8 Liquid Surface Tension:</b> Not pertinent								
<b>6.2 Waterfowl Toxicity:</b> Currently not available		<b>9.9 Liquid Water Interfacial Tension:</b> Not pertinent								
<b>6.3 Biological Oxygen Demand (BOD):</b> Currently not available		<b>9.10 Vapor (Gas) Specific Gravity:</b> Not pertinent								
<b>6.4 Food Chain Concentration Potential:</b> Currently not available		<b>9.11 Ratio of Specific Heats of Vapor (Gas):</b> Not pertinent								
<b>6.5 GESAMP Hazard Profile:</b>		<b>9.12 Latent Heat of Vaporization:</b> Not pertinent								
Biaccumulation: 0 Damage to living resources: 2 Human Oral hazard: 2 Human Contact hazard: II Reduction of amenities: XXX		<b>9.13 Heat of Combustion:</b> -28,000 Btu/lb = -15,560 cal/g = -652 X 10 <sup>3</sup> J/kg								
		<b>9.14 Heat of Decomposition:</b> Not pertinent								
		<b>9.15 Heat of Solution:</b> Not pertinent								
		<b>9.16 Heat of Polymerization:</b> Not pertinent								
		<b>9.17 Heat of Fusion:</b> 260.0 cal/g								
		<b>9.18 Limiting Value:</b> Currently not available								
		<b>9.19 Reid Vapor Pressure:</b> 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
INSOLUBLE			NOT PERTINENT		NOT PERTINENT		NOT PERTINENT