



603 – 15<sup>th</sup> Avenue.  
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Tel: (780) 955-5004 Fax: (780) 955-0278  
[www.tigercalcium.com](http://www.tigercalcium.com)

**MATERIAL SAFETY DATA SHEET  
ZINC-CALCIUM BROMIDE SOLUTION**

January 2017

**A. GENERAL INFORMATION**

Trade Name (Common Name or Synonym) – Zinc-Calcium Bromide

**B. COMPOSITION INFORMATION ON INGREDIENTS**

	<u>CAS. Reg. No.</u>	<u>Approx %</u>
Calcium Bromide	7789-41-5	40-45
Zinc Bromide	7699-45-8	13-18
Water		37-47

**C. HAZARDS IDENTIFICATION**

**NFPA Ratings:** (Scale 0-4) Health: 2 Fire: 0 Reactivity: 0

**EMERGENCY OVERVIEW:** **WARNING: Irritant; Marine Pollutant; Explosion potential** with mixtures containing potassium or sodium.

**APPEARANCE AND ODOUR:** Odorless, clear, colorless to amber liquid. May cause irritation to skin, eyes and respiratory system. Avoid breathing mists, contact with eyes, skin and clothing. Harmful if swallowed. Do not ingest. Keep container tightly closed. Wash thoroughly after handling. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.

**EYE:** May cause irritation of eyes with redness and/or pain and superficial injury. Additional effects may include tearing and eye discharge. Effects may be slow to heal.

**SKIN:** May cause irritation of eyes with redness and pain and superficial injury. Additional effects may include tearing, eye discharge, conjunctivitis, and blurred vision.

**INGESTION:** Ingestion may cause burning sensation in mouth and throat, yellowing of the skin and eyes, nausea, vomiting, diarrhea, blood in urine, inability to urinate, low blood pressure, blood disorders, kidney damage, liver damage, convulsions and unconsciousness.

**INHALATION:** Inhalation may cause irritation to mucous membranes and respiratory system. Additional effects may include coughing and shortness of breath.

**SYSTEMATIC (OTHER TARGET ORGAN) EFFECTS:** No relevant information found.



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#### D. FIRST AID

<b>EYES:</b>	Immediately flush eyes thoroughly with large amounts of water for 15-20 minutes. Hold eyelids open during flushing. Get medical attention immediately.
<b>SKIN:</b>	Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent, and large amounts of water. In cases of burns, cover lightly with sterile, dry dressing. Get medical attention immediately.
<b>INGESTION:</b>	Do not attempt to give anything by mouth to an unconscious person. Get medical attention immediately.
<b>INHALATION:</b>	Remove from exposure area to fresh air. Obtain medical attention immediately.
<b>NOTES TO PHYSICIAN:</b>	Treat symptomatically and supportively. If ingested, consider gastric lavage. The decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel only. The following antidote(s) can be considered: Calcium disodium edentate/dextrose, intravenous Calcium disodium edentate/procaine, intramuscular Sodium chloride, oral, intravenous

#### E. FIRE FIGHTING MEASURES:

<b>FLAMMABLE PROPERTIES:</b>	Not Applicable.
<b>FLAMMABILITY LIMITS:</b>	LFL: Not Applicable                      UFL: Not Applicable.
<b>PRODUCTS OF COMBUSTION:</b>	Thermal decomposition products may include toxic and corrosive fumes of bromine and hydrogen bromide. Product may react with some metals (aluminum, zinc, tin, etc.) to release flammable hydrogen gas.
<b>EXTINGUISHING MEDIA:</b>	Dry chemical, CO <sub>2</sub> , water spray or regular foam. Use extinguishing media appropriate for surrounding fire.
<b>FIRE FIGHTING INSTRUCTIONS:</b>	Move container(s) from fire area if you can do so without risk. Apply cooling water to sides of containers that are exposed to flames until well after the fire is out. Extinguish fire using agent suitable for type of surrounding fire and/or chemicals. Avoid breathing vapors. Keep upwind. Dike area to prevent runoff and contamination of water sources.
<b>PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS:</b>	Wear positive pressure self contained breathing apparatus (SCBA) and full protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves).



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## F. ACCIDENTAL RELEASE MEASURES

- PROTECT PEOPLE:** Isolate area. Avoid contact with eye and skin. May be a slipping hazard. Stop leak if it can be done safely. Wash exposed body areas thoroughly after handling. Use appropriate safety equipment.
- PROTECT THE ENVIRONMENT:** Do not touch spilled material. Stop leak if you can do so without risk. For larger spills, dig holding area such as a pond or pit for containment. Dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry. Minimize air borne spreading of vapors. Prevent entry into waterways, sewers, basements or confined areas.
- CLEANUP:** Neutralize with lime, crushed limestone, or sodium bicarbonate to pH 7. For small spills, take up with sand or other non-combustible material. Use cement powder or fly ash to absorb liquid. Place material in covered, clean, dry container for disposal. For **small spills**: contain spill if possible. Absorb with material such as sand, cement powder or fly ash. Collect material in suitable and properly labeled containers. Flush residue with plenty of water.  
For **large spills**: dike and transfer to suitable and properly labeled containers. Absorb with material such as sand. Flush residue with plenty of water.

## G. HANDLING AND STORAGE

- HANDLING:** Product shipped/handled hot can cause thermal burns. Selection of specific items such as gloves, boots, apron, or other, will depend on each operation. If hands are cut or scratched, use gloves impervious to this material for brief exposures. Use gloves with insulation for thermal protection, when needed.
- RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. In misty atmospheres, use an approved mist respirator.

“When stored outdoors in cold temperatures, ambient temperature of the product can be very low causing freezing if bare skin contacts the liquid.”

## H. PHYSICAL AND CHEMICAL PROPERTIES

- APPEARANCE/PHYSICAL STATE:** Clear, light yellow to amber liquid
- ODOR:** Odorless
- VAPOR DENSITY:** Same as water.
- BOILING POINT:** 313°F (156°C) for 55% solution ZnBr<sub>2</sub> , 19% CaBr<sub>2</sub>
- SOLUBILITY IN WATER:** Completely miscible
- SPECIFIC GRAVITY:** 1.7-1.9 @ 77°F (25°C)
- pH** 5-6 @10% solution



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## I. STABILITY AND REACTIVITY

<b>CHEMICAL STABILITY:</b>	Stable under normal temperatures and pressures. Can evolve hydrogen bromide and/or bromine when heated. Can evolve bromine gas under oxidizing conditions.
<b>CONDITIONS TO AVOID:</b>	May burn but does not ignite readily. Flammable, poisonous gases may accumulate in tanks and hopper cars. May ignite combustibles (wood, paper, oil, etc.)
<b>INCOMPATIBILITY</b>	Metals. Mixtures containing potassium or sodium produce a strong explosion on impact. Flammable hydrogen may be generated from contact with metals such as zinc or sodium. Avoid contact with sulfuric acid.
<b>HAZARDOUS DECOMPOSITION</b>	Decomposition products may include acrid smoke and fumes of zinc oxides and hydrogen bromide.
<b>HAZARDOUS POLYMERIZATION:</b>	Will not occur.

## J. TOXICOLOGICAL INFORMATION

<b>TOXICITY DATA:</b>	Toxicity data not available for zinc-calcium bromide. Calcium Bromide: LD <sub>50</sub> : 740 mg/kg, mouse, interperitoneal LD <sub>50</sub> : 1580 mg/kg, mouse, subcutaneous See Registry of Toxic Effects of Chemical Substances (RTECS) file for mutagenic and tumorigenic data. Local Effects – Eye, mucous membrane and skin irritant Health Effects – Moderately toxic by ingestion. Slightly toxic by dermal absorption.  Repeated or prolonged dermal exposure to zinc salts may cause dermatitis with erythematous, papular, and granulomatous reactions in susceptible individuals. Repeated or prolonged ingestion of zinc salts may cause digestive and/or renal disorders. Ingestion of large amounts of astringent zinc salts may cause a burning sensation in the mouth and throat, nausea, vomiting, diarrhea, hemolysis, hematuria, kidney damage with anuria, liver damage with jaundice, and possibly hypotension, convulsions, and unconsciousness.
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## ECOLOGICAL INFORMATION

<b>ECOTOXICOLOGY:</b>	Solutions containing zinc bromide are considered <b>Marine Pollutants and Environmentally Hazardous.</b>
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## K. DISPOSAL CONSIDERATIONS

<b>DISPOSAL:</b>	Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Tiger Calcium Services Inc. encourages that disposal methods be utilized in accordance with the above noted. For unused or contaminated product, the preferred options include sending the material to a licensed, permitted, reclaimer or waste water treatment system.
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#### L. TRANSPORTATION REQUIREMENTS

##### US and Canadian Shipments:

**Proper Shipping Name:** Zinc-Calcium Bromide Solution, Environmentally Hazardous Substances liquid, N.O.S., Class 9, UN 3082, PG III (contains Zinc Bromide) Marine Pollutant, RQ

**Hazard Classification:** Class 9, UN3082

**TRANSPORTATION EMERGENCIES:** Call collect **CANUTEC 613-996-6666 (24 hrs.)**

#### M. REGULATORY INFORMATION

**WHMIS:** The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is: D2B – eye and skin irritant.

**Notice:** The data and information presented herein are based upon tests, research and reports, which are considered by us to be reliable and believed to be accurate. The data and information are presented without warranty, guarantee or liability on our part, and are presented to the customer for his own consideration, investigation and verification.