



Calcium Bromide Solution

1. PRODUCT AND COMPANY IDENTIFICATION

TETRA Technologies, Inc. 25025 I-45 North The Woodlands, TX 77380	CHEMTREC (24-Hr Emergency Response):	U.S. Toll Free (800) 424-9300 International +1 703-527-3887
	Poison Control:	(800) 222-1222
	Non-emergency Customer Service:	(281) 367-1983
Synonyms:	Calcium Bromide, Liquid Calcium Bromide, Calcium Dibromide	
Chemical Family:	Inorganic Salt Solution	
MSDS Creation Date:	08 Oct 96	
MSDS Revision Date:	09 Apr 08	

2. HAZARDS IDENTIFICATION

NFPA Ratings: (Scale 0-4)	Health: 1 Fire: 0 Reactivity: 0
EMERGENCY OVERVIEW:	Odorless, clear, light yellow to light amber liquid. May cause irritation to skin, eyes and respiratory system. Do not ingest. Avoid breathing mists, contact with eyes, skin and clothing. May be harmful if swallowed. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.
Potential Health Effects	
Skin Contact:	Single, short exposure not likely to cause significant skin irritation. However, direct contact with solution may cause irritation, possibly severe. Additional effects may include blistering, erythema, exfoliation, ulceration, necrosis, and scarring.
Eye Contact:	May cause irritation of eyes with redness and/or pain and superficial injury. Additional effects may include tearing and eye discharge.
Inhalation:	Inhalation may cause irritation to mucous membranes and respiratory system. Additional effects may include coughing and shortness of breath.
Ingestion:	Ingestion may cause abdominal spasms and nausea. Overdose may cause gastrointestinal tract or cardiovascular irregularities.

3. COMPOSITION, INFORMATION ON INGREDIENTS

CAS Number	Wt. %	Ingredient Name
7789-41-5	45 - 53	Calcium Bromide

4. FIRST AID MEASURES

Skin Contact:	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.
Eye Contact:	Immediately flush eyes thoroughly with large amounts of water for 15-20 minutes. Hold eyelids open during flushing. Get medical attention immediately.
Inhalation:	Remove from exposure area to fresh air. Obtain medical attention immediately.
Ingestion:	Do not attempt to give anything by mouth to an unconscious person. Get medical attention immediately.
Notes to Physician:	Treat symptomatically and supportively. Antidote should be administered by qualified medical personnel. No specific antidote for calcium bromide had been recommended. The following antidote has been recommended for bromide poisoning. However, 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. Bromide Poisoning: Give sodium chloride, 1 gram orally every hour in water or



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as salt tablets; for severe involvement, in which oral medication is impossible, give normal saline, 1 liter every 8 hours intravenously to a maximum of 2 liters daily. Sodium chloride therapy must be continued until the blood bromine level drops below 50 mg/dL. Simultaneous administration of diuretics is also useful (Driesbach, Handbook of Poisoning, 12th Ed.).

5. FIRE FIGHTING MEASURES

Flash Point:	Not applicable
Extinguishing Media:	Dry chemical or CO ₂ , water spray or regular foam. Use agent suitable for surrounding fire and/or chemicals.
Fire Fighting:	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.
Fire and Explosion Hazard:	Negligible fire hazard when exposed to heat or flame.
Products of Combustion:	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.

6. ACCIDENTAL RELEASE MEASURES

Evacuation and Safety:	Wear appropriate protective gear for the situation. See personal protection information in Section 8.
Containment of Spill:	Do not touch spilled material. Stop leak if you can do so without risk. For small spills, cover with dry earth, dry sand or other non-combustible material. Place material in covered, clean, dry container for disposal. For larger spills, 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 and Disposal:	Place material in covered, clean, dry container for disposal.

7. HANDLING AND STORAGE

Handling:	Avoid skin and eye contact and breathing vapors. Wash thoroughly after handling. Launder contaminated clothing before reuse.
Storage:	Observe all federal, state, and local regulations when storing this product. Store in a covered, clean and dry container away from incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	Provide local exhaust ventilation system. Where there is possibility of exposure, eye wash fountain and safety shower should be provided within the immediate work area for emergency use.
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Exposure Limits: None

Personal Protective Equipment (PPE)

Eyes:	Wear safety glasses with side shields or safety goggles/shields.
Hands and Feet:	Wear appropriate chemical protective gloves and boots.
Body:	Wear appropriate protective (impervious) clothing.
Respiratory:	A respirator is not indicated under normal operating conditions. Use of a NIOSH approved respirator should be used based on contamination levels found in the area.



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For Firefighting and Other Immediately Dangerous to Life or Health Conditions: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus (SCBA) operated in pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

Description:	Clear, light yellow to amber liquid
Odor:	Odorless
Boiling Point:	262 °F (128 °C) for 53% solution
Melting Point:	Not Available
Specific Gravity (H ₂ O=1):	1.70 @ 77 °F (25 °C)
Water Solubility:	Completely
Vapor Density (Air=1):	Not Available
Vapor Pressure:	Not Available

10. STABILITY AND REACTIVITY

Stability and Reactivity:	Stable under normal temperatures and pressures. Can evolve hydrogen bromide and/or bromine when heated.
Incompatibilities:	Strong oxidizing agents and strong acids.
Hazardous Decomposition:	Thermal decomposition products may include toxic and corrosive fumes of hydrogen bromide and/or bromine.
Polymerization:	Does not occur under normal temperatures and pressures.
Conditions to Avoid:	May burn but does not ignite readily. Flammable, poisonous gases may accumulate in tanks and hopper cars. May ignite combustibles (wood, paper, oil, etc.)

11. TOXICOLOGICAL INFORMATION

Toxicity Data:	<p>Calcium Bromide: LD₅₀: 740 mg/kg, mouse, interperitoneal LD₅₀: 1580 mg/kg, mouse, subcutaneous See Registry of Toxic Effects of Chemical Substances (RTECS) file for mutagenic and tumorigenic data.</p> <p>Local Effects – Eye, mucous membrane and skin irritant Health Effects – Moderately toxic by ingestion. Slightly toxic by dermal absorption.</p>
Carcinogen Status:	OSHA – No NTP – No IARC – No

12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL INFORMATION

Observe all federal, state, and local regulations when disposing of this substance.

14. DEPARTMENT OF TRANSPORTATION (DOT) TRANSPORT INFORMATION

Shipping Name:	Not regulated
ID Number:	Not applicable



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Hazard Class or Division:	Not applicable
Packing Group:	Not applicable
Labeling Requirements:	Not applicable
Packing Authorizations	
Exceptions:	Not applicable
Non-bulk Packing:	Not applicable
Bulk Packing:	Not applicable
Quantity Limitations	
Passenger Aircraft:	Not applicable
Cargo Aircraft Only:	Not applicable
Vessel Stowage Req.:	Not applicable
Emergency Guide Number:	Not applicable

15. REGULATORY INFORMATION

SARA Title III:	Section 311: Acute Hazard, Reactivity Hazard
TSCA Status:	Yes
CERCLA:	No
EINECS Status:	Yes
OSHA Process Safety:	No
California Proposition 65:	No ingredients found on the list

16. OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

This information relates to the specific product designated and may not be valid for such product used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the users' responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

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Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.