



Caspian Chemistry Co

Section 1. Product and Company Identification

Product Name Lithium Bromide
CAS Number 7550-35-8

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Section 2. Hazards Identification

Classification of the substance or mixture**GHS Classification****Health**

Eye Irritation- Category 2A
Skin Irritation - Category 2
Skin Sensitization Category 1

Environmental: None

Physical: None

GHS Label Elements**Pictograms:**

Signal word: WARNING

Hazard and precautionary statements**Hazard Statements**

H315 Causes skin irritation.
H317 May cause an allergic reaction.
H319 Causes serious eye irritation.

Precautionary Statements**Prevention**

P261 Avoid breathing dust, mists, vapors, sprays
P264 Wash hands thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear suitable protective clothing, gloves and eye/face protection.



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Response

P302+P352 IF ON SKIN: wash with plenty of soap and water.

P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.

P362 + P364 Take off contaminated clothing and wash before reuse.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice.

Disposal

P501 Dispose of contents and container to an approved waste disposal plant.

Section 3. Composition / Information on Ingredients

Common Name	Lithium Bromide
Synonym(s)	Lithium Bromide Brine Solution with Molybdate Inhibitor
CAS Number	7550-35-8

COMPONENT	CAS NUMBER	CONCENTRATION
Lithium Bromide	7550-35-8	6 % ~ 8%
Lithium Molybdate	13568-40-6	< 1%
Water	7732-18-5	Balance

Section 4. First Aid Measures

Victims of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention if necessary. Take copy of label and MSDS to physician or health professional with victim.

Skin Exposure: Immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victims must seek immediate medical attention if adverse effect occurs.

Eye Exposure: Immediately flush victim's eyes with gently running water, holding open eyelids. Have victim "roll" eyes. Minimum flushing is 20 minutes. Victims must seek immediate medical attention if any adverse effect occurs.

Inhalation: If mists or sprays of this solution are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers. Victims must seek immediate medical attention if any adverse effect occurs.

Ingestion: If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING unless directed by medical personnel. If conscious, have victim rinse mouth with water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

Most Important Symptoms/Effects, Acute and Delayed: Irritation of eyes and skin. Repeated skin contact may cause an allergic reaction (skin rash). Ingestion of Lithium Bromide may cause rash, ringing in the ears, nausea, vomiting, diarrhea, difficulty speaking, drowsiness, twitching, visual disturbances, and coma. Prolonged or repeated inhalation or ingestion of inorganic



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bromides (such as Lithium Bromide) can cause rashes, which resemble acne. Soluble molybdenum compounds, such as Lithium Molybdate, are readily absorbed through the gastrointestinal tract. Symptoms of ingestion overexposure may include severe gastrointestinal irritation, diarrhea and damage to the liver, spleen and kidneys. Prolonged or repeated inhalation or ingestion of soluble molybdenum compounds may cause anemia, gout, bone and joint effects and damage to the liver, kidneys and spleen.

Indication of Immediate Medical Treatment and Special Treatment: Immediate medical attention is recommended for ingestion.

Section 5. Firefighting Measures

Fire Extinguishing Media: This product is not flammable. Use fire extinguishing material appropriate for surrounding fires.

Specific Fire and Explosion Hazards: This product presents a moderate contact hazard to firefighters. When involved in a fire, this product may decompose and produce irritating fumes and toxic gases (lithium and molybdenum compounds, hydrogen bromide, and bromine).

Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

Special Firefighting Equipment and Procedures: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. If possible, firefighters should control runoff water to prevent environmental contamination.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area and protect people. The minimum Personal Protective Equipment recommended for response to non-incident releases should be Level C: nitrile gloves, chemical resistant suit and boots, hard-hat, and air-purifying respirator with high-efficiency particulate filter.

Methods and Materials for Containment/Cleanup: Absorb spilled liquid with polypads or other suitable absorbent. Decontaminate the area thoroughly. Place all spill residue in a suitable container and seal. Dispose of in accordance with U.S. Federal, State, and local or Canadian solid waste disposal regulations (see Section 13, Disposal Considerations).

Section 7. Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes, skin and clothing. Avoid breathing mists. Wash thoroughly after handling Lithium Bromide Solution. Do not eat, drink, or smoke while handling this product. Remove contaminated clothing immediately. Use ventilation and other engineering controls to minimize potential exposure to Lithium Bromide. All employees who handle



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Lithium Bromide should be trained to handle it safely. Ensure containers of Lithium Bromide are properly labeled. Open containers slowly on a stable surface. Read instructions provided with the product prior to use. Empty containers may contain residual material; therefore, empty containers must be handled with care.

Note: When steel equipment containing a film of Lithium Bromide salt is heated red-hot (for example, when cutting the steel with an oxy-acetylene torch), a small amount of elemental bromine gas could be liberated. This gas, which is reddish in color, can be smelled at low concentrations (Odor Threshold = 0.00999 ppm) and has an irritating odor. Bromine can cause eyes to water uncontrollably. All pipelines, process lines, and other equipment that contained Lithium Bromide must be thoroughly decontaminated before maintenance begins.

Storage: Storage area of Lithium Bromide should be clearly identified, well illuminated, clear of obstruction, and accessible only to trained and authorized personnel. Store containers in a cool, dry location, away from direct sunlight, or sources of intense heat. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Keep container tightly closed when not in use. Storage areas should be made of fire resistant materials. Post warning signs in storage and use areas, as appropriate. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged.

Section 8. Exposure Controls / Personal Protection

Exposure Limits in Air

Component	ACGIH-TLVs		OSHA-PELs		OTHER
	TWA	STEL	TWA	STEL	
Lithium Bromide	NE	NE	15 mg/m ³ (Total dust) 5 mg/m ³ (Respirable fraction) as Particulates not otherwise classified	NE	NE
Lithium Molybdate (Exposure limits are for molybdenum, and soluble compounds, as molybdenum)	0.5 mg/m ³ (Respirable Fraction)	NE	5 mg/m ³	NE	NIOSH: IDLH = 1000 mg/m ³
Water	NE	NE	NE	NE	NE

NE = Not Established

The information presented is based only on this product. The Exposure Controls and Personal Protection required will be dependent on the conditions present in the workplace, including the presence of other chemicals. PPE should be based on a Hazard Assessment as required in 29CFR1910.132.



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Ventilation And Engineering Controls: Use with adequate ventilation, to ensure exposure levels are minimized. Mechanical exhaust may be needed.

Respiratory Protection: If ventilation is inadequate, an approved dust respirator may be required. For higher exposures or in potentially oxygen deficient atmospheres, a supplied air respirator may be required. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2, CSA Standard Z94.4-02 and good Industrial Hygiene practice.

Eye protection: Splash goggles or safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133, and appropriate Canadian Standards.

Hand Protection: Wear nitrile gloves for routine industrial use. If necessary, refer to U.S. OSHA 29 CFR 1910.138 and appropriate Standards of Canada.

Body Protection: Use body protection appropriate for task (e.g., Apron or Body suit). If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, wear foot protection, as described in U.S. OSHA 29 CFR 1910.136.

Where there is any possibility that an employee's eyes may be exposed to Lithium Bromide Solution, the employer should provide an eye wash fountain within the immediate work area for emergency use.

Section 9. Physical and Chemical Properties

Appearance: Colorless liquid

Odor: None

Odor Threshold: Not applicable

pH: Not established

Melting/Freezing Point: Not established

Boiling Point: Not established

Flash Point: Not applicable

Evaporation Rate: < 1

Flammability: Not flammable

Flammable Limits: Not applicable

Vapor pressure: Not established

Vapor density: Not established

Specific Gravity: 1.6

Solubility in Water: Complete

Coefficient of Oil/Water Distribution (Partition coefficient): Not available

Auto-ignition Temperature: Not applicable

Decomposition Temperature: Not applicable

Viscosity (20°C): 5.62 mPa*s



Section 10. Stability and Reactivity

Reactivity: Not reactive under normal conditions.

Stability: Stable.

Possibility of Hazardous Reactions: May react with strong acids to generate heat.

Conditions to Avoid: None known.

Incompatible Materials: Lithium Bromide is not compatible with strong acids and strong oxidizers.

Hazardous Decomposition Products: Thermal decomposition of this product can produce hydrogen bromide, bromine and lithium and molybdenum compounds.

Section 11. Toxicological Information

Symptoms of Overexposure by Route of Exposure: The most serious health consequences reported for lithium compounds, such as Lithium Bromide, are adverse effects on the central nervous system from overexposures via ingestion. In terms of anticipated occupational situations for employees, the main health effect from overexposure would be irritation of contaminated skin and eyes and skin sensitization.

Inhalation: Inhalation of mist may irritate the mouth, nose, and other tissues of the respiratory system. Inhalation of relatively large doses of Lithium Bromide may produce symptoms similar to those described for other lithium compounds (e.g., ringing in the ears, nausea, vomiting, diarrhea, drowsiness, twitching, and blurred vision). Prolonged or repeated inhalation of inorganic bromides (such as Lithium Bromide) can cause rashes, which resemble acne.

Contact with Skin or Eyes: Skin overexposure can cause itching, pain, and reddening. Prolonged or repeated skin exposures can cause dermatitis. Repeated skin contact may result in an allergic skin reaction. Lithium Bromide causes eye irritation; Symptoms of such overexposure would be pain and reddening of the eyes. Prolonged eye contact may damage the eyes.

Skin Absorption: Severe skin absorption exposure may cause symptoms similar to those described in "Ingestion".

Ingestion: Ingestion is not anticipated to be a significant route of occupational exposure. Acute or chronic ingestion of Lithium Bromide may cause rash, ringing in the ears, nausea, vomiting, diarrhea, difficulty speaking, drowsiness, twitching, visual disturbances, and coma. Ingestion of relatively large quantities of Lithium Bromide can cause kidney damage. Lithium Bromide may also irritate or burn the mouth, throat, esophagus, and other tissues of the gastrointestinal tract. Soluble molybdenum compounds, such as Lithium Molybdate, are readily absorbed through the gastrointestinal tract. Symptoms of ingestion overexposure may include severe gastrointestinal irritation, diarrhea and damage to the liver, spleen and kidneys.

Chronic: Prolonged or repeated skin exposures can cause dermatitis. Long-term inhalation or ingestion overexposure may produce symptoms similar to those described for other lithium compounds (e.g., rash, ringing in the ears, nausea, vomiting, diarrhea, difficulty speaking, drowsiness, twitching, visual disturbances, kidney damage, thyroid effects and coma). Prolonged or repeated inhalation or ingestion of inorganic bromides (such as Lithium Bromide) can cause rashes, which resemble acne. Prolonged or repeated inhalation or ingestion of soluble molybdenum compounds may cause anemia, gout, bone and joint effects and damage to the liver, kidneys and spleen.



Target Organs

Acute: Eyes, skin, mucous membranes.

Chronic: Skin, central nervous system, thyroid, kidney, liver, blood, spleen.

Medical Conditions Aggravated by Exposure: Pre-existing respiratory, skin, blood, liver, central nervous system, and kidney conditions can be aggravated by overexposure to this product. Persons with significant cardiovascular or renal disease, sodium and water imbalance, and pre-existing hypothyroidism may also be at increased risk. Alertness may be impaired.

Toxicity Data: The following toxicology data are currently available for components of this product.

Lithium Bromide

LD50 (Oral-Rat): 1800 mg/kg

LD50 (Oral-Mouse): 1840 mg/kg

Lithium Molybdate

No data available

Carcinogenicity Status: Components of this product are listed by agencies tracking the carcinogenic potential of chemical compounds as follows:

LITHIUM MOLYBDATE (as a Molybdate Soluble Compounds): ACGIH TLV-A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans. Substances that are carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at sites(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans, except under uncommon or unlikely routes of exposure. Worker exposure to an A3 carcinogen should be controlled to levels as low as reasonably achievable below the TLV.).

The remaining components of this product are not listed as a carcinogen or suspected carcinogen by IARC, NTP, OSHA, or ACGIH.

Irritancy of Product: This product can moderately to severely irritate the skin and eyes.

Sensitization to the Product: Lithium Bromide may cause skin sensitization.

Reproductive Toxicity Information: Listed below is information concerning the effects of this product on the human reproductive system. Lithium Bromide and Lithium carbonate have led to reproductive effects in laboratory experiments; Reproductive effects were also observed with humans, as well as effects on the infants through breast feeding. The validity of animal test and its significance for humans cannot be concluded with certainty.

Mutagenicity: This product is not reported to produce mutagenic effects in humans.

Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.

Teratogenicity: This product is not reported to produce teratogenic effects in humans.

Reproductive Toxicity: This product is not reported to produce adverse reproductive effects in humans.



ACGIH Biological Exposure Indices (BEIs): Currently there are no ACGIH Biological Exposure Indices (BEIs) associated with Lithium Bromide.

Section 12. Ecological Information

All work practices must be aimed at eliminating environmental contamination.

Environmental Stability: This product is stable in the environment.

Effect of Material on Plants or Animals: The effects on exposed animals would be primarily irritation of contaminated tissue. The main effect on plants would be the increase in salinity of contaminated soils if large volumes of Lithium Bromide Solution are released.

Effect of Chemical on Aquatic Life: Releases of large quantities of this product can be detrimental to an aquatic environment, by altering the salinity of a body of water.

Acute Aquatic Toxicity: The following aquatic toxicity data are available for Lithium Bromide:

Lithium Bromide: EC50 daphnia 364 mg/L/48 hr.

Lithium Ion: Growth inhibition LC50 pimephales promelas 1.4 mg/L/96 hr; NOEC 0.2 mg/L/96 hr. (OECD 210).

Degradability: The methods for determining biodegradability are not applicable to inorganic substances.

Log Bioconcentration Factor (BCF): No data available.

Log Octanol/Water Partition Coefficient: No data available.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

This material is not hazardous as defined by 49 CFR 172.101 by the U.S. Department of transportation.

North American Emergency Response Guide Number (2012): Not Applicable

Marine Pollutant: No component of this product is designated as a Marine Pollutant by the DOT (per 49 CFR 172.101, Appendix B).

Transport Canada Transportation of Dangerous Goods Regulations: This material is not considered as dangerous goods, per regulations of Transport Canada.



Section 15. Regulatory Information

U.S. SARA Reporting Requirements: The components are not subject to the reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act and Sections 302 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

CERCLA Section 103 (40 CFR 302.4) Listed CERCLA Hazardous Substance: No
SARA Section 302 (40 CFR 355.30) Extremely Hazardous Substance: No
SARA Section 304 (40 CFR 355.40) RQ-CERCLA or SARA 302: No
SARA Section 313 (40 CFR 372.65): Toxic Chemical Release Inventory (TRI/Form R):
No

U.S. SARA Section 311/312 Hazard Categories: Acute Health, Chronic Health
U.S. SARA Threshold Planning Quantity: There are no specific Threshold Planning Quantities for this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.
U.S. CERCLA Reportable Quantity (RQ): Not applicable.
U.S. TSCA Inventory Status: The components of this product are listed on the TSCA Inventory.
U.S. TSCA 12(b) Export Notification: TSCA 12(b) Notification is not required, per 40 CFR 707, for this product.
Other U.S. Federal Regulations: Not applicable.

U.S. State Regulatory Information: The components of this product are covered under specific State regulations, as denoted below:

Massachusetts - Substance List: No.

Michigan - Critical Materials Register: Lithium Compounds.

New Jersey - Right to Know Hazardous Substance List: No.

Pennsylvania - Hazardous Substance List: No.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): The components of this product are not on the California Proposition 65 lists.

Canadian Regulations

Canadian DSL/NDSL Inventory Status: Lithium Bromide is on the DSL Inventory. Lithium Molybdate is listed on the NDSL.

Canadian WHMIS Symbols: Class D2B Other Toxic Effects-Chronic Toxicity, Skin Irritation, Eye Irritation, Skin Sensitization.

This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

HMIS Rating

Health: 2

Flammability: 0

Reactivity: 0



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NFPA Rating

Health: 2

Flammability: 0

Reactivity: 0

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

REVISION DATE: 4/4/2025