

SAFETY DATA SHEET

LITHIUM BROMIDE

1. Identification of the Substance/Mixture and of the Company/Undertaking:

- 1.1 Product Identifier:** Lithium bromide anhydrous
- 1.1.1 Substances:** Lithium bromide anhydrous
- 1.1.1.1 Alternate names and trade name:** Lectro[®] Lyte 500 Salt
- 1.1.2 Mixture name:** Not applicable
- 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:**
 Component in closed systems for air conditioning applications.
 Formulation and chemical synthesis in industrial manufacturing operations.
 Additive for preparations and articles for industrial and consumer use.
 Do not use for private purposes (household).
- 1.3 Details of the Supplier of the Safety Data Sheet**

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2. Hazards Identification

- 2.1 Classification of the Substance or mixture:**
2.1.1 GHS Classification [EC Regulation No 1272/2008 and US OSHA regulations]
 Acute Toxicity, Category 4
 Eye Irritant, Category 2
 Skin irritant, Category 2
 Skin sensitization, Category 1
- 2.2.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]**
 Xn, R22; Xi, R36/38, R43

2.2 Label Elements:

2.2.3 Hazard Pictograms(s):



2.2.4 Signal Word:

- | | | |
|--|-------------------------------------|--------------------|
| Hazard Statement(s): | Warning | |
| | Harmful if swallowed | H302 |
| | Causes serious eye irritation | H319 |
| | Causes skin irritation | H315 |
| | May cause an allergic skin reaction | H317 |
| Precautionary Statement(s): | | |
| Wear protective gloves/protective clothing/eye protection/face protection. | | P280 |
| IF IN EYES: Rinse cautiously w/ water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | | P305 + P351 + P338 |
| If eye irritation persists: Get medical advice/attention. | | P337 + P313 |
| IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. | | P301 + P312 |
| IF ON SKIN: Wash with plenty of soap and water. | | P302 + P352 |

If skin irritation occurs: Get medical advice/attention. P332 + P313

Additional Precautionary Statements(s):

Avoid breathing dust/fume/gas/mist/vapours/spray. P261
 Wash hands thoroughly after handling. P264
 Do not eat, drink or smoke when using this product. P270
 Contaminated work clothing should not be allowed out of the workplace. P272
 Take off contaminated clothing and wash before reuse P362
 Wash contaminated clothing before reuse. P363
 Dispose of contents/ container to an approved waste disposal plant. P501

2.3 **Other Hazards**
 None.

3. Composition / Information on Ingredients

3.1 Substances

3.1.1 GHS Classification [EC: Regulation No 1272/2008; US: OSHA regulations]

Chemical Name	CAS #	EC No	EC Index No	REACH Reg No	Wt. %	Classification, Hazard Statement Codes	
Lithium bromide	7550-35-8	231-439-8	not avail.	not available	100	Acute Tox. 4 Eye Irrit. 2 Skin Irrit. 2 Skin Sens. 1	H302 H319 H315 H317

3.1.2 EC: Classification according to 67/548/EEC or 1999/45/EC [DSD/DPD]

Chemical Name	CAS #	EC No	Wt. %	Symbols	R-phrases
Lithium bromide	7550-35-8	231-439-8	100	Xn Xi	R22 R36/38 R43

3.2 **Mixtures** Not applicable.

(see Section 16 for R-phrased text)

4. First Aid Measures

4.1 Description of First Aid Measures

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. If any discomfort persists, obtain medical attention.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

4.2 Most Important Symptoms and effects, both acute and delayed

Skin and eye irritation. May cause allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed.

Notes to medical doctor:

This product has low oral, dermal and inhalation toxicity, and is a mild irritant. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. Fire-Fighting Measures

5.1 **Extinguishing media** Dry chemical, CO₂, water spray or regular foam.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products None

General Hazard No known physical hazard, non-combustible.

Properties contributing to

Flammability None

Flashpoint Not applicable

Flammable limits in air Upper: Not available Lower: Not available.

- Auto ignition temperature** Not applicable
Sensitivity to static discharge Not applicable
Sensitivity to static impact Not applicable
- 5.3 **Advice for fire-fighters**
Wear full protective clothing and self-contained breathing apparatus (SCBA) approved for fire fighting. This is necessary to protect against the hazards of heat, products of combustion and oxygen deficiency. Do not breathe smoke, gases or vapors generated.

COMMENTS:
(See Section 10, Stability and Reactivity)

6. Accidental Release Measures

- 6.1 **Personal precautions, protective equipment and emergency procedures**
Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.
- 6.2 **Environmental precautions**
Do not wash into drains. Dispose of at qualified waste disposal facility.
- 6.3 **Methods and material for containment and cleaning up**
Sweep up and place in suitable container. Dispose of waste according to local and Federal laws and regulations.
- 6.4 **Reference to other sections**
Before cleanup measures begin, review the entire SDS with particular attention to Section 2, Hazards Identification; and Section 8, Exposure Controls/Personal Protection.
- 6.5 **Additional information**
Not specified.

7. Handling and Storage

- 7.1 **Precautions for safe handling**
Avoid contact with eyes, skin or clothing. Use with adequate ventilation. Wear safety glasses or goggles and rubber gloves. Wash thoroughly after handling.
- 7.2 **Conditions for safe storage, including any incompatibilities**
Keep away from strong acids. Keep container closed.
- 7.3 **Specific end use(s)**
Defined in Exposure scenarios. Industrial and professional use only

8. Exposure Controls / Personal Protection

8.1 Control parameters

Lithium bromide

DNEL

Long-term exposure, systemic, inhalation 3.8 mg/m³
Long-term exposure, systemic, dermal 10.9 mg/kg/day

PNEC

PNEC aqua (freshwater) 21.3 mg/l
PNEC STP 287 mg/l

EXPOSURE LIMITS

Chemical Name	EU		EH40 (UK WEL)		USA (ACGIH)		USA (OSHA)	
	TWA	STEL	TWA	STEL	TWA	STEL/Ceiling	PEL	STEL/Ceiling
Lithium bromide	none		none		None		None	

* No occupational exposure limit value

8.2 Exposure controls

Engineering controls:

Use local exhaust ventilation to keep airborne concentrations below exposure limits.

Personal protective equipment

Eyes and Face:

Safety glasses or goggles

Respiratory:

When engineering controls are not adequate, wear a respirator approved for protection against inorganic dusts.

Protective Clothing: US: NIOSH or MSHA approved
Europe: CEN Class P type
Gloves: Nitrile/Neoprene/PVC/Natural Rubber (permeation breakthrough not detected during 6 hr test)
These glove recommendations should not be used as the absolute basis for glove selection. Actual in-use conditions may vary glove performance from the controlled conditions of laboratory tests. Factors such as concentration and temperature, glove thickness and glove reuse, may affect performance. Other glove requirements, such as length, dexterity, cut, abrasion, puncture and snag resistance, or glove grip need to be considered in making your final selection.
Other: Not specified.

Work Hygienic Practices: Quick-drench eyewash and safety shower.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	White granular solid
Odor:	Odorless
Odor threshold:	Not applicable
pH:	(1% solution) @ 25°C: 9
Melting point:	550°C (1022°F)
Boiling point:	1265°C (2309°F)
Flash point:	Not applicable
Evaporation rate(butyl acetate = 1):	Not applicable
Flammability:	Not flammable
Flammable limits:	Not applicable
Vapor pressure:	No significant vapour pressure
Vapor density (air = 1):	Not applicable
Specific gravity:	3.5 g/cc
Solubility in water:	% by wt. @ 25°C (77°F): 61
Partition coefficient n-octanol/ water:	Not applicable, inorganic substance
Autoignition temperature:	Not applicable
Decomposition temperature:	Not applicable
Viscosity:	Not applicable
Explosive properties:	Not explosive
Oxidizing properties:	Not an oxidizer

9.2 Other information

Self-reactive properties	Does not meet classification criteria.
Pyrophoric properties	Does not meet classification criteria.
Self-heating properties	Does not meet classification criteria.
Water reactive properties	Does not meet classification criteria.
Corrosive to metals	Does not meet classification criteria.
Molecular weight:	86.84

10. Stability and Reactivity

10.1 Reactivity	Reacts with acids to form hydrogen bromide
10.2 Chemical stability	Stable
10.3 Possibility of hazardous reaction	Hazardous polymerization will not occur.
10.4 Conditions to avoid	Contact with acids
10.5 Incompatible materials	Acids
10.6 Hazardous decomposition products	None

11. Toxicological Information

11.1 Information on toxicological effects

(a) acute toxicity	Lithium bromide: Oral LD ₅₀ > 500 mg/kg (rat) Read across data indicates acute oral category 4 classification
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- Lithium bromide solution, uninhibited, (52 - 54% LiBr aqueous solution):
LC₅₀ > 15.57 mg/L/4 hr. (rat) (male/female)
Lithium bromide Dermal LD₅₀ >2000 mg/kg (rat)
- (b) skin corrosion/irritation Classified as skin irritant, category 2, based on lithium bromide.
 - (c) serious eye damage/irritation Classified as eye irritant, category 2, based on lithium bromide
 - (d) respiratory/skin sensitisation Classified as a skin sensitizer, category 1, based on lithium bromide.
 - (e) germ cell mutagenicity Classified as not mutagenic based on lithium bromide.
 - (f) carcinogenicity Classified as not carcinogenic based on lithium bromide.
 - (g) reproductive toxicity Classified as not a reproductive toxin based on lithium bromide.
 - (h) STOT-single exposure Classified as not causing organ damage based on lithium bromide.
 - (i) STOT-repeated exposure Classified as not causing organ damage on repeat exposure based on lithium bromide.
 - (j) aspiration hazard Lithium bromide, a solid, does not present an aspiration hazard.

Lithium bromide has been extensively tested for REACH registration

Acute Effects From Overexposure:

No data available for the formulation.
No envisaged effects other than acute effects from local irritation

Chronic Effects From Overexposure:

No data available for product.

Carcinogenicity Listings

EH40: Not listed.
IARC: Not listed.
NTP: Not listed.
OSHA: Not considered a carcinogen under OSHA.
ACGIH: Not listed.

12. Ecological Information

- 12.1 **Toxicity:** No classification
Lithium bromide Daphnia magna: 48 hr. EC₅₀ = 364 mg/L
Rainbow trout: 96 hr. LC₅₀ = 438 mg/L
Menidia beryllina: 96 hr. LC₅₀ > 976
- 12.2 **Persistence and degradability**
Inorganic salt.
- 12.3 **Bioaccumulative potential**
Inorganic. Lithium salts are not bioaccumulative
- 12.4 **Mobility in soil**
Not expected to be mobile..
- 12.5 **Results of PBT and vPvB assessment**
Inorganic
- 12.6 **Other adverse effects**
None

13. Disposal Considerations

- 13.1 **Waste treatment methods**
Use a qualified industrial waste disposal facility. Dispose of waste according to local and Federal laws and regulations.

14. Transport Information

- 14.1 **UN Number** None
- 14.2 **UN proper shipping name (IMDG, ICAO, ADR, DOT)** None
- 14.3 **Transport hazard class(es) (IMDG, ICAO, ADR, DOT)** Based on available data, the classification criteria are not met.
- 14.4 **Packing group (IMDG, ICAO, ADR, DOT)** None
- 14.5 **Environmental hazards** Based on available data, the classification criteria are not met.

- 14.6 Special precautions for user None
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code None

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EUROPEAN UNION:

German Wassergefährdungsklasse (water hazard class)
Lithium bromide 1

UNITED STATES:

Section 311 Hazard Category (40 CFR 370): Immediate (acute) health hazard,

Section 313 Reportable Ingredients (40 CFR 372): This product does not contain a toxic chemical subject to the reporting requirements of Section 313 of Emergency Planning and Community Right-To-Know Act of 1986.

Section 302 Extremely Hazardous Substances (40 CFR 355): Not listed

CERCLA Hazardous Substance (40 CFR 302.4): Not listed

TSCA Sec 12b Export Notification: This product is not subject to TSCA 12 (b) Export Notification Requirements.

NFPA Rating: Health: 1 Flammability: 0 Reactivity: 0 Special: None

INTERNATIONAL INVENTORY STATUS:

<u>Inventory/Country</u>	<u>Product Status</u>
EINECS (EU)	Listed
TSCA (US)	Listed
ECL (Korea)	Listed
DSL (Canada)	Listed

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been completed for this material

16. Other Information

European Union:

R Phrases:

Irritating to eyes and skin	R36/38
Harmful if swallowed	R22
May cause sensitisation by skin contact	R43
Harmful if swallowed	H302
Causes skin irritation	H315
May cause an allergic skin reaction	H317
Causes serious eye irritation..	H319

List of Abbreviations used in this SDS:

PBT	Persistent, Bioaccumulative and Toxic
vPvB	very Persistent, very Bioaccumulative
PEC	Predicted environmental concentration
PNEC	Predicted no effect concentration
DNEL	Derived no effect level

Specific uses identified for Exposure Scenarios

[to be added. Lithium bromide solution is as follows]

- ES1 Manufacture of fine chemicals and pharmaceutical synthesis
- ES2 Industrial use of substances in closed systems- Absorption Chillers
- ES3 Professional use of substances in closed systems- Absorption Chillers

REVISION SUMMARY: Revision # 1. Sections 2, 3, 11 and 15 revised. Toxicity data revised. Exposure scenarios added. Regular review completed.

This SDS has been prepared to meet U. S. OSHA Hazard Communication Standard requirements.
type 1b

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