

SAFETY DATA SHEET

Lithium nitrate (LiNO₃)

SECTION 1: IDENTIFICATION

Product identifier: Lithium nitrate

Other identifier: LiNO₃

CAS number: 7790-69-4

Recommended use: Additive in lithium battery electrolytes, laboratory reagent

Restrictions on use: Only for uses supported by the supplier's product specification and applicable regulatory status.

Supplier: Automat Solutions, Inc.

U.S. address: 2100 Williams St, San Leandro, CA 94577, United States.

U.S. telephone: +1 (510) 982-6488.

Email: contact@automatsoln.com.

Emergency telephone: +1 (510) 982-6488.

SECTION 2: HAZARD IDENTIFICATION

GHS classification: Oxidizing solids, Category 3.

GHS classification: Acute toxicity (oral), Category 4.

GHS classification: Eye irritation, Category 2A.

GHS classification: Specific target organ toxicity, single exposure, Category 3 (respiratory irritation).

Signal word: Warning.

Hazard symbols (named): GHS03 — Flame over circle; GHS07 — Exclamation mark.

H272: May intensify fire; oxidizer.

H302: Harmful if swallowed.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220: Keep away from clothing and other combustible materials.

P221: Take any precaution to avoid mixing with combustibles.

P261: Avoid breathing dust, fume, gas, mist, vapors or spray.

P264: Wash hands and exposed skin thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or in a well-ventilated area.

P280: Wear protective gloves, protective clothing, eye protection and face protection.

P301+P312+P330: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

P304+P340+P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

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 or attention.

P370+P378: In case of fire: Use plenty of water. Do not use dry chemical, carbon dioxide or foam.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

P501: Dispose of contents and container through an approved waste disposal facility in accordance with applicable local, state and federal regulations.

Other hazards / hazards not otherwise classified: No additional information available.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Type: Substance.

Chemical name: Lithium nitrate

Synonym / abbreviation: LiNO3

CAS number: 7790-69-4

Molecular formula: LiNO3

Molecular weight: 68.94 g/mol

Composition declaration: 100%.

Hazardous impurities / stabilizers: No additional information available.

SECTION 4: FIRST AID MEASURES

Inhalation: Remove person to fresh air and keep comfortable for breathing. Obtain medical attention if symptoms occur or persist.

Skin contact: Immediately remove contaminated clothing. Rinse affected skin thoroughly with water or shower. Wash with soap and water. Obtain medical attention if irritation or rash occurs. Wash contaminated clothing before reuse.

Eye contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

Ingestion: Rinse mouth. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a POISON CENTER or doctor if you feel unwell; obtain advice after ingestion.

Most important acute and delayed effects: Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation.

Medical attention / treatment: Treat symptomatically. Protect rescuers from exposure.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable / unsuitable extinguishing media: Use large quantities of water to flood a fire involving this oxidizer. Do not use dry chemical, carbon dioxide or foam.

Specific hazards: May intensify fire; supplies oxidizing capacity. Keep away from combustibles.

Hazardous combustion products: Nitrogen oxides, oxygen and lithium oxides.

Firefighter protection: Wear self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance.

Additional precautions: Prevent contaminated firefighting runoff from entering drains and waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Isolate the area. Keep unprotected personnel away. Ensure ventilation; avoid breathing dust, mist or vapor and avoid skin/eye contact. Wear the protection described in Section 8.

Emergency procedures: Evacuate the affected area when exposure cannot be controlled; trained responders only for significant releases.

Environmental precautions: Prevent entry into drains, sewers and waterways. Contain released material.

Containment / cleanup: Collect dry material carefully without generating dust into a compatible, closed, labeled waste container. Do not use methods that disperse dust.

Oxidizer spill precautions: Keep combustibles and reducing agents away. Do not use sawdust or other combustible absorbents.

Waste handling: Dispose of collected material and contaminated packaging according to Section 13.

SECTION 7: HANDLING AND STORAGE

Handling: Use suitable local exhaust ventilation. Avoid contact and inhalation. Wash after handling. Do not eat, drink or smoke in work areas.

Storage: Keep containers tightly closed in a dry, well-ventilated location away from incompatible substances. Protect from moisture.

Security: Store locked up.

Segregation: Store separately from combustible materials, organic materials and reducing agents; oxidizer storage class 5.1B (reference value).

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No substance-specific occupational exposure limit available in the source information. Apply exposure limits and workplace controls required by the applicable jurisdiction.

Engineering controls: Use local exhaust or a suitable fume hood. Provide an eyewash and safety shower near the work area.

Eye / face protection: Chemical safety goggles; use a face shield in addition to goggles when splashing or corrosive exposure is possible.

Hand protection: Wear chemical-resistant gloves selected for the chemical, exposure duration, temperature and task. Confirm permeation/breakthrough performance with the glove manufacturer; select gloves with a breakthrough time appropriate for the task.

Skin / body protection: Wear protective clothing suitable for the task. Prevent contamination of clothing and shoes.

Respiratory protection: Use a properly selected, fit-tested, NIOSH-approved respirator under a respiratory-protection program when engineering controls are insufficient. Cartridge/filter selection must address all relevant gases, vapors and particles. Unknown or immediately dangerous concentrations require appropriate supplied-air protection or SCBA.

Hygiene: Remove contaminated clothing and wash before reuse. Wash hands and exposed skin after handling.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Data basis: Reference values from available supplier and literature information. These values are not batch specifications; estimates and test conditions are identified where available.

Molecular formula: LiNO₃

Molecular weight: 68.94 g/mol

Appearance / physical state: White crystalline solid; hygroscopic / deliquescent

Odor: Odorless

Odor threshold: No data available.

Melting / freezing point: 253–264 °C

Initial boiling point / boiling range: Not applicable; decomposes

Flammability: Non-combustible oxidizing solid; may intensify fire

Lower / upper flammability limits: No data available.

Flash point: Not applicable; non-combustible

Autoignition temperature: No data available.

Decomposition temperature: Approximately 450–600 °C; releases nitrogen oxides and oxygen

pH: 7–9 (50 g/L, 20 °C)

Kinematic viscosity: No data available.

Dynamic viscosity: No data available.

Water solubility: 522 g/L at 20 °C

Other solubility: No data available.

Partition coefficient (n-octanol/water): Not applicable; inorganic salt

Vapor pressure: No data available.

Density / relative density: 2.38 g/cm³ at 20 °C

Relative vapor density: No data available.

Evaporation rate: No data available.

Particle characteristics: No data available (solid).

Refractive index: No data available.

Oxidizing properties: Oxidizing solid, Category 3

Bulk density: Approximately 910 kg/m³ (reported bulk value)

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Oxidizing solid; contact with combustibles or reducing agents can cause vigorous reaction.

Chemical stability: Stable under recommended dry storage conditions; protect from stated sensitivities.

Possibility of hazardous reactions: Oxidizing solid; contact with combustibles or reducing agents can cause vigorous reaction.

Conditions to avoid: Excess heat, incompatible materials and moisture where sensitive.

Incompatible materials: Strong reducing agents, organic materials and combustible substances.

Hazardous decomposition products: Nitrogen oxides, oxygen and lithium oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Data basis: Available supplier toxicological information; missing study conditions are stated where applicable. No-data entries do not establish absence of hazard.

Likely routes of exposure: Inhalation, skin contact, eye contact and ingestion.

Acute toxicity / numerical measures: Oral LD50 (rat): 1,426 mg/kg; dermal LD50 >2,000 mg/kg; inhalation LC50 >5.93 mg/L. Dermal/inhalation species and inhalation duration not available.

Skin corrosion / irritation: No data available.

Serious eye damage / irritation: Causes serious eye irritation.

Respiratory / skin sensitization: No sensitization data available.

Germ cell mutagenicity: No data available.

Carcinogenicity: No data available. IARC, NTP and OSHA carcinogen-list information: No data available.

Reproductive toxicity: No data available.

STOT, single exposure: May cause respiratory irritation (Category 3).

STOT, repeated exposure: No data available.

Aspiration hazard: No data available.

Symptoms / delayed effects: Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation.

Interactions: No additional information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Fish LC50 158 mg/L; Daphnia EC50 249 mg/L; durations not available.

Persistence / degradability: Biodegradation endpoint not applicable to inorganic salt.

Bioaccumulative potential: No bioaccumulation study data available; partition coefficient, if available, is listed in Section 9.

Mobility in soil: No data available.

Other adverse effects: No additional data available. Prevent release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment: Collect waste and contaminated absorbents in compatible, closed, labeled containers. Use a licensed waste contractor and comply with applicable local, state and federal requirements.

Environmental precautions: Do not discharge to drains, soil or waterways. Do not mix with incompatible wastes.

Contaminated packaging: Handle residues and uncleaned packaging with the same precautions as the product. Dispose of packaging through an appropriate waste facility.

SECTION 14: TRANSPORT INFORMATION

DOT (U.S.): UN2722; Lithium nitrate; Class 5.1; Packing Group III.

IMDG: UN2722; LITHIUM NITRATE; Class 5.1; Packing Group III.

IATA: UN2722; Lithium nitrate; Class 5.1; Packing Group III.

Transport hazard labels: 5.1.

ERG guide: 140 (reported value).

IMDG EmS: F-A, S-Q (reported value).

Environmental hazards / IMDG marine pollutant: No, as reported by the source supplier.

Transport in bulk under IMO instruments: Not assessed; these entries address packaged product.

Special precautions: Keep containers closed, secure and protected from damage and incompatible materials. Apply handling/storage precautions in Sections 7 and 10.

Air shipment details: Apply the current packing instructions, quantity limits and carrier restrictions for the actual shipment.

SECTION 15: REGULATORY INFORMATION

TSCA inventory information: No verified inventory-status data available.

SARA 311/312 hazard categories: Oxidizing solids; Acute toxicity (oral); Eye irritation; Specific target organ toxicity, single exposure.

SARA 313 / TRI: Water-dissociable nitrate compounds are covered by category N511 when in aqueous solution. Evaluate reporting obligations for the actual form, activities and quantities (U.S. EPA).

SECTION 16: OTHER INFORMATION

Preparation / revision date: 2026-10-19.

Document version: AS-LiNO3-20261019-01.

Revision description: Updated oxidizer precautions and water-only firefighting instructions; completed physical, toxicological and transport information. Supplier address and telephone updated.

Information sources: Existing Automat Solutions SDS and the supplied chemical comparison, with supplemental supplier information. Sigma-Aldrich 227986; Millipore 1.12230 and Thermo Scientific AA1098503 as summarized in the source comparison; New Jersey Department of Health fact sheet 1130.

Data limitations: Supplier and literature values are reference information and are not measurements on an Automat production lot. Missing test conditions and unavailable data are stated in the relevant sections.

Abbreviations: GHS, Globally Harmonized System; LD50, median lethal dose; LC50, median lethal concentration; ATE, acute toxicity estimate; STOT, specific target organ toxicity; DOT, U.S. Department of Transportation; IMDG, International Maritime Dangerous Goods; IATA, International Air Transport Association.

Disclaimer: This information describes safety precautions for the identified material. It is not a certificate of analysis or a guarantee of product properties. The information may not apply when the material is combined with other substances or used in processes not described here.