SAFETY DATA SHEET

Lithium bis(fluorosulfonyl)imide (LiFSI)

SECTION 1: IDENTIFICATION

Product identifier: Lithium bis(fluorosulfonyl)imide

Other identifier: LiFSI

CAS number: 171611-11-3

Recommended use: Electrolyte salt for lithium-ion and lithium metal batteries

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 (24 hours/day, 7 days/week).

SECTION 2: HAZARD IDENTIFICATION

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

GHS classification: Skin corrosion, Category 1B.

GHS classification: Serious eye damage, Category 1.

GHS classification: Germ cell mutagenicity, Category 2.

Signal word: Danger.

Hazard symbols (named): GHS05 — Corrosion; GHS07 — Exclamation mark; GHS08 — Health hazard.

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H341: Suspected of causing genetic defects.

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe 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.

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.

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P304+P340+P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

P308+P313: IF exposed or concerned: Get medical advice or attention.

P363: Wash contaminated clothing before reuse.

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: Supplier-reported potential for dust/air explosions; product explosibility data not supplied. Avoid dust clouds, deposits and ignition sources.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Type: Substance.

Chemical name: Lithium bis(fluorosulfonyl)imide

Synonym / abbreviation: LiFSI

CAS number: 171611-11-3

Molecular formula: F2LiNO4S2

Molecular weight: 187.07 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. Immediately call a POISON CENTER or doctor.

Skin contact: Immediately remove contaminated clothing. Rinse affected skin thoroughly with water or shower. Immediately call a POISON CENTER or doctor.

Eye contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately obtain medical attention, preferably from an ophthalmologist.

Ingestion: Rinse mouth. Do not induce vomiting. Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER or doctor.

Most important acute and delayed effects: Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. Suspected of causing genetic defects.

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

SECTION 5: FIRE-FIGHTING MEASURES

Suitable / unsuitable extinguishing media: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide, as appropriate to the surrounding fire. Do not direct a solid water jet at spilled liquid.

Specific hazards: Thermal decomposition may release hazardous gases. Avoid inhalation of fumes. Supplier-reported dust-explosion potential: avoid suspended dust and ignition sources; test data not supplied.

Hazardous combustion products: Hydrogen fluoride, sulfur oxides, nitrogen oxides and lithium compounds.

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.

Dust control: Avoid clouds and deposits of dust and remove ignition sources safely. Use collection equipment appropriate for the assessed dust hazard.

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.

Atmosphere / sensitivity: Store under dry inert gas where compatible with the supplier’s packaging and instructions; material is moisture-sensitive or hygroscopic as described in this SDS.

Temperature: 2–8 °C (reference value). Use storage equipment appropriate to the material’s hazards.

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: F2LiNO4S2

Molecular weight: 187.07 g/mol

Appearance / physical state: White powder or crystals; hygroscopic

Odor: No data available.

Odor threshold: No data available.

Melting / freezing point: 124–144 °C (supplier range; decomposition reported).

Initial boiling point / boiling range: Not applicable; decomposes

Flammability: Not classified as flammable.

Lower / upper flammability limits: No data available.

Flash point: Not applicable

Autoignition temperature: No data available.

Decomposition temperature: No data available.

pH: No data available.

Kinematic viscosity: No data available.

Dynamic viscosity: No data available.

Water solubility: Approximately 587 g/L at 20 °C

Other solubility: Soluble in polar organic solvents

Partition coefficient (n-octanol/water): No data available.

Vapor pressure: Approximately 0.27 hPa at 20 °C (reported value)

Density / relative density: No data available.

Relative vapor density: No data available.

Evaporation rate: No data available.

Particle characteristics: No data available (solid).

Refractive index: No data available.

Oxidizing properties: No data available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No additional data available; follow incompatibility and handling information.

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

Possibility of hazardous reactions: No additional data available; follow incompatibility and handling information.

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

Incompatible materials: Water, strong bases and strong oxidizing agents.

Hazardous decomposition products: Hydrogen fluoride, sulfur oxides, nitrogen oxides and lithium compounds.

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 range: 300–2,000 mg/kg; dermal LD50 range: 2,000–5,000 mg/kg. Species and exposure details not available.

Skin corrosion / irritation: Causes severe skin burns and eye damage.

Serious eye damage / irritation: Causes serious eye damage.

Respiratory / skin sensitization: No sensitization data available.

Germ cell mutagenicity: Suspected of causing genetic defects (Category 2; supplier classification).

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

Reproductive toxicity: No data available.

STOT, single exposure: Not classified; no additional data available.

STOT, repeated exposure: No data available.

Aspiration hazard: No data available.

Symptoms / delayed effects: Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. Suspected of causing genetic defects.

Interactions: No additional information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Fish LC50 >74.75 mg/L; Daphnia EC50 >100 mg/L; durations not supplied. No aquatic classification adopted on available evidence.

Persistence / degradability: Biodegradation endpoint not applicable to this 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.

Thermal treatment: Any authorized incineration requires controls suitable for fluorinated decomposition products, including HF.

SECTION 14: TRANSPORT INFORMATION

DOT (U.S.): UN1759; Corrosive solids, n.o.s. (lithium bis(fluorosulfonyl)imide); Class 8; Packing Group II.

IMDG: UN1759; CORROSIVE SOLID, N.O.S. (lithium bis(fluorosulfonyl)imide); Class 8; Packing Group II.

IATA: UN1759; Corrosive solid, n.o.s. (lithium bis(fluorosulfonyl)imide); Class 8; Packing Group II.

Transport hazard labels: 8.

ERG guide: 154 (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: Acute toxicity (oral); Skin corrosion; Serious eye damage; Germ cell mutagenicity.

Additional federal and state regulatory information: No additional verified information available.

TSCA significant new use rule: Supplier reports applicability of 40 CFR 721.10734 to this product. Significant new uses are subject to the rule’s notification requirements.

TSCA Section 12(b): Supplier reports export-notification requirements; apply the current EPA rule when exporting this product.

SECTION 16: OTHER INFORMATION

Preparation / revision date: 2026-10-22.

Document version: AS-LiFSI-20261022-01.

Revision description: Removed single-source density value; retained corrosion, mutagenicity and UN1759/8/II classification; added supplier-reported TSCA SNUR information. Supplier address and telephone updated.

Information sources: Existing Automat Solutions SDS and supplier information. Automat lab decision dated 2026-10-21; Sigma-Aldrich 935832, TCI L0281, SynQuest M016-2-00 and source comparison.

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.