SAFETY DATA SHEET

Lithium bis(trifluoromethanesulfonyl)imide (LiTFSI)

SECTION 1: IDENTIFICATION

Product identifier: Lithium bis(trifluoromethanesulfonyl)imide

Other identifier: LiTFSI

CAS number: 90076-65-6

Recommended use: Electrolyte component in lithium-ion 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.

SECTION 2: HAZARD IDENTIFICATION

GHS classification: Acute toxicity (oral), Category 3.

GHS classification: Acute toxicity (dermal), Category 3.

GHS classification: Skin corrosion, Category 1B.

GHS classification: Serious eye damage, Category 1.

GHS classification: Specific target organ toxicity, repeated exposure, Category 2 (nervous system; oral).

GHS classification: Hazardous to the aquatic environment, chronic, Category 3 (supplemental).

Signal word: Danger.

Hazard symbols (named): GHS05 — Corrosion; GHS06 — Skull and crossbones; GHS08 — Health hazard.

H301: Toxic if swallowed.

H311: Toxic in contact with skin.

H314: Causes severe skin burns and eye damage.

H373: May cause damage to organs (nervous system) through prolonged or repeated exposure if swallowed.

H412: Harmful to aquatic life with long lasting effects.

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.

P273: Avoid release to the environment.

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

P301+P310+P330: IF SWALLOWED: Immediately call a POISON CENTER or doctor. 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.

P302+P352+P310: IF ON SKIN: Wash with plenty of water. 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.

P314: Get medical advice or attention if you feel unwell.

P361+P364: Take off immediately all contaminated clothing and wash it 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: No additional information available.

Environmental classification is supplemental to OSHA workplace hazard classification.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Type: Substance.

Chemical name: Lithium bis(trifluoromethanesulfonyl)imide

Synonym / abbreviation: LiTFSI

CAS number: 90076-65-6

Molecular formula: C2F6LiNO4S2

Molecular weight: 287.09 g/mol

Composition declaration: 98–100%.

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: Toxic if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. May cause damage to organs (nervous system) through prolonged or repeated exposure if swallowed.

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

Fluoride / HF medical note: Burns and systemic effects may be delayed. Urgent specialist assessment for fluoride toxicity, including hypocalcemia, is needed when HF exposure is suspected. Qualified medical personnel should follow an established HF treatment protocol; do not delay water irrigation or medical referral.

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.

Hazardous combustion products: Hydrogen fluoride, carbon oxides, nitrogen oxides, sulfur 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.

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.

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: C2F6LiNO4S2

Molecular weight: 287.09 g/mol

Appearance / physical state: White crystalline powder; hygroscopic

Odor: Odorless

Odor threshold: No data available.

Melting / freezing point: 234–238 °C

Initial boiling point / boiling range: Not applicable; decomposition behavior not fully specified

Flammability: Not classified as flammable.

Lower / upper flammability limits: No data available.

Flash point: Not applicable

Autoignition temperature: >420 °C

Decomposition temperature: No data available.

pH: 7.0–9.5 (10 g/L)

Kinematic viscosity: No data available.

Dynamic viscosity: No data available.

Water solubility: Approximately 1,000 g/L at 20 °C

Other solubility: No data available.

Partition coefficient (n-octanol/water): log Pow −1.19

Vapor pressure: <0.000001 hPa at 25 °C (reported value)

Density / relative density: Approximately 2.15 g/cm³ at 20 °C (reported OECD 109 result)

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: Strong bases and strong oxidizing agents.

Hazardous decomposition products: Hydrogen fluoride, carbon oxides, nitrogen oxides, sulfur 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: 210 mg/kg; dermal LD50: 400 mg/kg. Species and study details not available. Inhalation data 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: 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: Not classified; no additional data available.

STOT, repeated exposure: May cause damage to organs (nervous system) through prolonged or repeated exposure if swallowed.

Aspiration hazard: No data available.

Symptoms / delayed effects: Toxic if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. May cause damage to organs (nervous system) through prolonged or repeated exposure if swallowed.

Interactions: No additional information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Harmful to aquatic life with long lasting effects (Category 3). Quantitative LC50/EC50 values not available.

Persistence / degradability: Not readily biodegradable: 9% in 28 days, as reported by the source supplier.

Bioaccumulative potential: BCF <4, reported by the source supplier.

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.): UN2923; Corrosive solids, toxic, n.o.s. (lithium bis(trifluoromethanesulfonyl)imide); Class 8 (6.1); Packing Group II.

IMDG: UN2923; CORROSIVE SOLID, TOXIC, N.O.S. (lithium bis(trifluoromethanesulfonyl)imide); Class 8 (6.1); Packing Group II.

IATA: UN2923; Corrosive solid, toxic, n.o.s. (lithium bis(trifluoromethanesulfonyl)imide); Class 8 (6.1); Packing Group II.

Transport hazard labels: 8 + 6.1.

ERG guide: 154 (reported value).

IMDG EmS: F-A, S-B (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); Acute toxicity (dermal); Skin corrosion; Serious eye damage; Specific target organ toxicity, repeated exposure.

SARA 313 / TRI: Lithium bis[(trifluoromethyl)sulfonyl] azanide, CAS 90076-65-6, is listed for reporting beginning with reporting year 2024 (U.S. EPA). Applicable facility reporting requirements depend on activities and quantities.

SECTION 16: OTHER INFORMATION

Preparation / revision date: 2026-10-19.

Document version: AS-LiTFSI-20261019-01.

Revision description: Updated oral and dermal toxicity, corrosivity, repeated-exposure hazard, density, solubility, UN2923 transport classification and TRI information. Supplier address and telephone updated.

Information sources: Existing Automat Solutions SDS and the supplied chemical comparison, with supplemental supplier information. Sigma-Aldrich 544094; Sigma-Aldrich 919977 and TCI B2542 SDS information as summarized in the source comparison; U.S. EPA TRI reporting information.

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.