SAFETY DATA SHEET

Lithium hexafluorophosphate (LiPF6)

SECTION 1: IDENTIFICATION

Product identifier: Lithium hexafluorophosphate

Other identifier: LiPF6

CAS number: 21324-40-3

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

SECTION 2: HAZARD IDENTIFICATION

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

GHS classification: Skin corrosion, Category 1A.

GHS classification: Serious eye damage, Category 1.

GHS classification: Specific target organ toxicity, repeated exposure, Category 1 (bones, teeth; inhalation).

Signal word: Danger.

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

H301: Toxic if swallowed.

H314: Causes severe skin burns and eye damage.

H372: Causes damage to organs (bones, teeth) through prolonged or repeated exposure if inhaled.

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+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.

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.

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: Releases hydrogen fluoride on contact with moisture.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Type: Substance.

Chemical name: Lithium hexafluorophosphate

Synonym / abbreviation: LiPF6

CAS number: 21324-40-3

Molecular formula: LiPF6

Molecular weight: 151.91 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. Causes severe skin burns and eye damage. Causes serious eye damage. Causes damage to organs (bones, teeth) through prolonged or repeated exposure if inhaled.

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: Use extinguishing media appropriate to the surrounding fire. Water contacting the substance can generate HF; trained responders must assess this reaction. Water spray may be used remotely to cool closed containers and control gases, with runoff containment.

Specific hazards: Thermal decomposition may release hazardous gases. Avoid inhalation of fumes.

Hazardous combustion products: Hydrogen fluoride, phosphorus 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.

Container compatibility: Use supplier-approved compatible packaging; do not store in glass. Protect from all moisture.

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: LiPF6

Molecular weight: 151.91 g/mol

Appearance / physical state: White crystalline powder

Odor: Odorless when dry; decomposition in moist air may produce pungent HF

Odor threshold: No data available.

Melting / freezing point: 200 °C with decomposition

Initial boiling point / boiling range: Not applicable; decomposes

Flammability: Not flammable (reference value)

Lower / upper flammability limits: No data available.

Flash point: Not applicable

Autoignition temperature: No data available.

Decomposition temperature: >175 °C

pH: No data available.

Kinematic viscosity: No data available.

Dynamic viscosity: No data available.

Water solubility: Soluble with hydrolysis; releases hydrogen fluoride

Other solubility: No data available.

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

Vapor pressure: No data available.

Density / relative density: 2.83 g/cm³ at 25 °C (reported OECD 109 result; bulk density not established).

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: Hydrolyzes with moisture and releases hydrogen fluoride.

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

Possibility of hazardous reactions: Hydrolyzes with moisture and releases hydrogen fluoride.

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

Incompatible materials: Water, strong bases and strong oxidizing agents; avoid glass containers.

Hazardous decomposition products: Hydrogen fluoride, phosphorus 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 (rat): 50–300 mg/kg as reported by the source supplier. Dermal and inhalation quantitative data not supplied.

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: Causes damage to organs (bones, teeth) through prolonged or repeated exposure if inhaled.

Aspiration hazard: No data available.

Symptoms / delayed effects: Toxic if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. Causes damage to organs (bones, teeth) through prolonged or repeated exposure if inhaled.

Interactions: No additional information available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Daphnia and algae EC50 >100 mg/L; durations not supplied. No aquatic category assigned from available supplier data.

Persistence / degradability: Biodegradation endpoint not applicable to inorganic salt; reacts/hydrolyzes in water.

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.): UN2923; Corrosive solids, toxic, n.o.s. (lithium hexafluorophosphate); Class 8 (6.1); Packing Group I.

IMDG: UN2923; CORROSIVE SOLID, TOXIC, N.O.S. (lithium hexafluorophosphate); Class 8 (6.1); Packing Group I.

IATA: UN2923; Corrosive solid, toxic, n.o.s. (lithium hexafluorophosphate); Class 8 (6.1); Packing Group I.

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); Skin corrosion; Serious eye damage; Specific target organ toxicity, repeated exposure.

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

SECTION 16: OTHER INFORMATION

Preparation / revision date: 2026-10-22.

Document version: AS-LiPF6-20261022-01.

Revision description: Confirmed Skin Corrosion Category 1A, 2.83 g/cm³ density and UN2923/8(6.1)/I. Supplier address and telephone updated.

Information sources: Existing Automat Solutions SDS and supplier information. Automat lab decision dated 2026-10-21; Sigma-Aldrich 450227, TCI L0146, Fisher 83372 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.