



Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: May 25, 2023

1 Identification

- **Product identifier**
- **Trade name:** Lithium Metal Primary Battery
- **Other means of identification:** No other identifiers
- **Recommended use and restriction on use**
- **Recommended use:** Lithium-based battery product.
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
Sterno, LLC
6900 N Dallas Pkwy #870
Plano, TX 75024
Phone: (951) 682-9600
- **Emergency telephone number:**
ChemTel Inc.
(800) 255-3924 (North America)
(801) 1 (813)248-0585 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
The product is not classified as hazardous according to the Globally Harmonized System (GHS).
- **Additional information:**
Note: Leaking cells pose health hazards: see Sections 4 and 11. Intentional abuse of cells or batteries increases the risk of harm or damage to the product, to the user, and to surrounding materials and personnel. Do not attempt to open sealed cells or batteries. Do not intentionally short-circuit cells or batteries. Do not expose these products to temperatures exceeding the maximum manufacturers rating. Do not dispose of cells/batteries in landfills. Please follow all manufacturer guidelines in the use, storage, and disposal of these products. Consult manufacturer in cases of questions involving specific product usage.
Exposure to product contents is highly unlikely during normal usage.
- **Label elements**
- **GHS label elements** Not regulated.
- **Hazard pictograms:** Not regulated.
- **Signal word:** Not regulated.
- **Hazard statements:** Not regulated.
- **Precautionary statements:** Not regulated.
- **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures

· **Components:**

7719-09-7	thionyl dichloride	25-50%
	Acute Tox. 3, H331 Skin Corr. 1A, H314	

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	↓ Acute Tox. 4, H302; STOT SE 3, H335	
14024-11-4	lithium tetrachloroaluminate ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ↓ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	<10%
7439-93-2	Lithium ⚠ Water-react. 1, H260 ⚠ Skin Corr. 1B, H314	<10%

Additional information:

For the wording of the listed Hazard Statements, refer to section 16.

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

4 First-aid measures

Description of first aid measures**General information:**

Information references exposures to battery contents, and not exposures to whole units. Exposures to whole units are unlikely to produce health hazards.

After inhalation:

Unlikely route of exposure.

Supply fresh air; consult doctor in case of complaints.

After skin contact:

Immediately remove any clothing soiled by the product.

Immediately rinse with water.

If skin irritation continues, consult a doctor.

Seek immediate help for blistering or open wounds.

After eye contact:

Immediately remove contact lenses if possible.

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing: Do not induce vomiting; immediately call for medical help.**Most important symptoms and effects, both acute and delayed:**

Strong caustic effect on skin and mucous membranes.

Gastric or intestinal disorders when ingested.

Danger:

Danger of gastric perforation.

Harmful if swallowed.

Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

5 Fire-fighting measures

Extinguishing media**Suitable extinguishing agents:**

Fire-extinguishing powder

Sand

Water in flooding quantities.

For safety reasons unsuitable extinguishing agents: None.**Special hazards arising from the substance or mixture**

During heating or in case of fire poisonous gases are produced.

Advice for firefighters

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- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information:** Cool endangered receptacles with water in flooding quantities.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
If containers are leaking, use respiratory protective device against the effects of fumes/dust/aerosol.
Use personal protective equipment as required.
Ensure adequate ventilation.
- **Environmental precautions** Avoid release to the environment.
- **Methods and material for containment and cleaning up**
Use inert material (clay, sawdust, kaolin) to absorb material and sweep up. Prevent spilled material from entering sewers, drains, bodies of water.
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.
Keep away from open flames or temperatures exceeding manufacturer ratings. DO NOT ATTEMPT TO OPEN SEALED CELLS OR BATTERIES – BATTERY CONTENTS MAY PRESENT SERIOUS SAFETY AND HEALTH HAZARDS. SHORT-CIRCUITING THE TERMINALS OF A DEVICE MAY RESULT IN DAMAGE TO DEVICE AND ANY NEARBY OBJECTS OR PERSONNEL.
- **Information about protection against explosions and fires:**
Prevent impact and friction.
Substance/product is ignitable under certain conditions.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**
Store in a dry, well-ventilated place.
Do not use or store near open flame.
Avoid extreme temperatures; battery may rupture and release contents.
Do not store and transport with incompatible materials.
Store individual batteries or cells only in approved packaging in order to avoid inadvertent short circuits, as this may result in damage to device, nearby objects, personnel, or all of the above.
- **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from water.
Do not store together with acids.

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- **Further information about storage conditions:**
Store in dry conditions.
Protect from humidity and water.
- **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

7719-09-7 thionyl dichloride

REL (USA)	Ceiling limit value: 5 mg/m ³ , 1 ppm
TLV (USA)	Ceiling limit value: 0.2 ppm
EL (Canada)	Ceiling limit value: 1 ppm
EV (Canada)	Ceiling limit value: 5 mg/m ³ , 1 ppm
LMPE (Mexico)	Ceiling limit value: 0.2 ppm

- **Exposure controls**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Do not inhale gases / fumes / aerosols.
- **Engineering controls:** No relevant information available.
- **Breathing equipment:**
Not required under normal conditions of use.
For spills, respiratory protection may be advisable.
- **Protection of hands:**
Not required under normal conditions of use.
Wear protective gloves to handle contents of damaged or leaking units.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
- **Eye protection:** Follow relevant national guidelines concerning the use of protective eyewear.
- **Body protection:**
Protective work clothing
Protection may be required for spills.
- **Limitation and supervision of exposure into the environment**
No relevant information available.
- **Risk management measures** See Section 7 for additional information.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**
 - **Form:** Solid metal container containing liquid and solid contents.
 - **Color:** According to product specification
- **Odor:** Odorless

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· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Melting point/Melting range:	Not determined.
· Boiling point/Boiling range:	Not determined.
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Auto-ignition temperature:	Not determined.
· Decomposition temperature:	Not determined.
· Danger of explosion:	Product does not represent an explosion hazard during normal use. Leaking contents may react with water to produce explosive or flammable gas.
· Explosion limits Lower:	Not determined.
Upper:	Not determined.
· Oxidizing properties:	Not determined.
· Vapor pressure:	Not determined.
· Density:	Not determined.
· Relative density:	Not determined.
· Vapor density:	Not determined.
· Evaporation rate:	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity Dynamic:	Not determined.
Kinematic:	Not determined.
· Other information	No relevant information available.

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
Hazardous reactions generally occur with contents of leaking batteries only.
Strong exothermic reaction with acids.
Toxic fumes may be released if heated above the decomposition point.
Contact with water releases flammable gases.
- **Conditions to avoid** Excessive heat.
- **Incompatible materials** No relevant information available.
- **Hazardous decomposition products**

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Carbon monoxide and carbon dioxide

Contact with decomposition products does not normally occur; information is applicable only to damaged devices.

Flammable gases/vapors

Toxic metal oxide smoke

Chlorine

Chlorine compounds

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

7719-09-7 thionyl dichloride

Inhalative | LC50/4h | 2.7 mg/l (rat)

- **Primary irritant effect:**

- **On the skin:** Strong caustic effect in case of contact with electrolyte only.

- **On the eye:** Strong caustic effect in case of contact with electrolyte only.

- **Sensitization:** No sensitizing effects known.

- **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

- **NTP (National Toxicology Program):**

None of the ingredients are listed.

- **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

- **Probable route(s) of exposure:** None

- **Acute effects (acute toxicity, irritation and corrosivity):** From product as supplied: None.

- **Repeated dose toxicity:** From product as supplied: None.

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

- **Carcinogenicity:** Based on available data, the classification criteria are not met.

- **Reproductive toxicity:** Based on available data, the classification criteria are not met.

- **STOT-single exposure:** Based on available data, the classification criteria are not met.

- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity** The product contains materials that are harmful to the environment.

- **Persistence and degradability** Not easily biodegradable

- **Bioaccumulative potential:** No relevant information available.

- **Mobility in soil:** No relevant information available.

- **Additional ecological information**

- **General notes:** Avoid release to the environment.

- **Other adverse effects** No relevant information available.

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13 Disposal considerations· **Waste treatment methods**· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Contact waste processors for recycling information.

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

· **Uncleaned packagings**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information· **UN-Number**

· DOT, ADR/RID/ADN, IMDG, IATA UN3091

· **UN proper shipping name**

· DOT, IATA Lithium metal batteries contained in equipment
· ADR/RID/ADN, IMDG LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT

· **Transport hazard class(es)**

· DOT, IMDG, IATA



· Class 9
· Label 9

· **ADR/RID/ADN**

· Class 9 (M4)
· Label 9

· **Packing group** This UN-number is not assigned a packing group.

· **Environmental hazards**

· **Marine pollutant:** No

· **Special precautions for user**

Warning: Miscellaneous dangerous substances and articles

· **Danger code (Kemler):** -

· **EMS Number:** F-A,S-I

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· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

For small battery shipping exceptions, see the following:

ADR - Special Provision 188

DOT - 49CFR173.185(c)

IATA - PACKING INSTRUCTION 970, Section II

IMDG - Special Provision 188

15 Regulatory information

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

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

· **Proposition 65 (California)**

Exposure to contents is unlikely. Listings are present to ensure compliance with the Proposition 65 notification requirement.

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

All ingredients listed on DSL or NDSL.

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

OSHA: Occupational Safety & Health Administration

Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

• **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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