Lithium Thionyl Chloride Battery

Safety Data Sheet

Date of issue: 18 May 2017 Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form : Article

Trade name : Lithium Thionyl Chloride Battery

1.2. Recommended use and restrictions on use

Recommended uses and restrictions : Energy source

1.3. Supplier

OmniCel Batteries
300 Schell Lane, Suite 301
Phoenixville, PA 19460
T (610) 676-0591
www.omnicel.com

1.4. Emergency telephone number

Emergency number : (610) 676-0591

SECTION 2: Hazard identification

The batteries are exempt articles and not subject to the Hazardous Products Regulation. This Safety Data Sheet is supplied for its users. Under normal use, the battery integrity is maintained and the active components it contains are isolated from the outside.

2.1. Classification of the substance or mixture

Classification (GHS-CA)

This is a high energy density sealed battery containing (Lithium) and (Thionyl Chloride) materials. For this reason, improper handling of the battery could lead to distortion, leakage, overheating, explosion, fire, or generation of irritating/corrosive gases and cause human injury or equipment trouble. Please strictly observe safety instructions.

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

No labelling applicable

2.3. Other hazards not contributing to the classification

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification (GHS-CA)
Lithium	(CAS-No.) 7439-93-2	0 - 100	Water-react. 1, H260 Skin Corr. 1B, H314
Thionyl chloride	(CAS-No.) 7719-09-7	0 - 100	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1A, H314 STOT SE 3, H335
Aluminum chloride	(CAS-No.) 7446-70-0	0 - 100	Skin Corr. 1B, H314
Lithium chloride	(CAS-No.) 7447-41-8	0 - 100	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.

First-aid measures after eye contact : 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/physician.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : Not expected to present a significant inhalation hazard under anticipated conditions of normal use. If a battery ruptures, may be harmful or fatal if inhaled in a confined area.

Symptoms/effects after skin contact : Not expected to present a significant skin hazard under anticipated conditions of normal use. If a battery ruptures, causes severe skin burns.

Symptoms/effects after eye contact : Not expected to present a significant skin hazard under anticipated conditions of normal use. If a battery ruptures, direct contact with the liquid or exposure to vapors or mists may cause tearing, redness, swelling, corneal damage and irreversible eye damage.

Symptoms/effects after ingestion : Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If battery ruptures, swallowing is harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

Note to physician : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : In case of fire where lithium batteries are present, apply a smothering agent such as Lith-X, sand, dry ground dolomite, or soda ash. A smothering agent will extinguish burning lithium batteries.

5.2. Unsuitable extinguishing media

Unsuitable extinguishing media : Do not use water. Do not short circuit, recharge, over discharge (discharge below 0.0 Volts), puncture, crush or expose to temperatures above 150ºC. Cell may leak, vent, or explode.

5.3. Specific hazards arising from the hazardous product

Fire hazard : Battery may rupture due to pressure buildup when exposed to excessive heat and may be result in the release of corrosive materials. Hazardous combustion products. Sulphur oxides. Hydrogen chloride. Corrosive vapours.

Explosion hazard : Battery may burst and release hazardous decomposition products when exposed to fire situation.

Reactivity : Stable under normal conditions of use.

Stable under normal conditions.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.2. Methods and materials for containment and cleaning up

Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not open the battery system. Do not crush or pierce the cells. Do not submit to excessive mechanical stress. Do not mix batteries of different types or mix new and old ones together. Do not expose the unit to water or condensation. Do not directly heat, solder or throw into fire. Such unsuitable use can cause leakage or spout vaporized electrolyte fumes and may cause fire or explosion.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

Additional hazards when processed : Keep away from any possible contact with water, because of violent reaction and possible flash fire.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions	:	Keep only in the original container in a cool, well ventilated place away from : Heat sources. Keep container closed when not in use. Store in a dry place. Protect from moisture. Cells should be stored at room temperature, approx. 21ºC (70ºF)
Incompatible materials	:	None known.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Thionyl chloride (7719-09-7)		
Canada (Quebec)	PLAFOND (mg/m³)	4.9 mg/m³
Canada (Quebec)	PLAFOND (ppm)	1 ppm
Alberta	OEL Ceiling (mg/m³)	4.9 mg/m³
Alberta	OEL Ceiling (ppm)	1 ppm
British Columbia	OEL Ceiling (ppm)	1 ppm
Manitoba	OEL Ceiling (ppm)	0.2 ppm
New Brunswick	OEL Ceiling (mg/m³)	4.9 mg/m³
New Brunswick	OEL Ceiling (ppm)	1 ppm
New Foundland & Labrador	OEL Ceiling (ppm)	0.2 ppm
Nova Scotia	OEL Ceiling (ppm)	0.2 ppm
Nunavut	OEL Ceiling (ppm)	1 ppm
Northwest Territories	OEL Ceiling (ppm)	1 ppm
Ontario	OEL Ceiling (ppm)	0.2 ppm
Prince Edward Island	OEL Ceiling (ppm)	0.2 ppm
Saskatchewan	OEL Ceiling (ppm)	1 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate ventilation. Keep the container hermetically sealed.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Not required for normal conditions of use. If a battery ruptures, impermeable acid resistant gloves.

Eye protection:

Not required for normal conditions of use. If a battery ruptures, chemical goggles or face shield

Skin and body protection:

Not required for normal conditions of use. If a battery ruptures, chemical resistant apron.

Respiratory protection:

Not required for normal conditions of use. If a battery ruptures, NIOSH/MSHA approved air purifying respirator should be used if operating conditions produce airborne concentrations that exceed exposure limits for any individual components. If conditions immediately dangerous to life or health exist, use NIOSH/MSHA self-contained breathing apparatus (SCBA).

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Hermetically sealed battery.
Colour	:	No data available
Odour	:	Not applicable
Odour threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available

Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	In contact with water releases flammable gases which may ignite spontaneously
Vapour pressure	:	Thionyl Chloride: 92mm 20ºC
Vapour pressure at 50 °C	:	No data available
Relative vapour density at 20 °C	:	Thionyl Chloride: 4.1
Relative density	:	No data available
Density	:	Thionyl Chloride: 1.63
Solubility	:	Water: Thionyl Chloride: Decomposes violently on contact with water
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	:	Stable under normal conditions of use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerization will not occur. In contact with water releases flammable gases which may ignite spontaneously.
Conditions to avoid	:	Heat sources. Extremely high or low temperatures. Protect from humidity.
Incompatible materials	:	None known under normal conditions of use.
Hazardous decomposition products	:	Sulfur oxides. Hydrogen chloride. Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Likely routes of exposure	:	Ingestion. Inhalation. Skin and eyes contact.
Symptoms/effects after inhalation	:	Not expected to present a significant inhalation hazard under anticipated conditions of normal use. If a battery ruptures, may be harmful or fatal if inhaled in a confined area.
Symptoms/effects after skin contact	:	Not expected to present a significant skin hazard under anticipated conditions of normal use. If a battery ruptures, causes severe skin burns.
Symptoms/effects after eye contact	:	Not expected to present a significant skin hazard under anticipated conditions of normal use. If a battery ruptures, direct contact with the liquid or exposure to vapors or mists may cause tearing, redness, swelling, corneal damage and irreversible eye damage. Causes serious eye damage.
Symptoms/effects after ingestion	:	Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If battery ruptures, swallowing can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.2. Persistence and degradability

Lithium Thionyl Chloride Battery	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Lithium Thionyl Chloride Battery	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

GWPmix comment : No known effects from this product.

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container to comply with applicable local, national and international regulation.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

Transportation of Dangerous Goods

UN-No. (TDG) : UN3090

TDG Primary Hazard Classes : 9 - Class 9 - Miscellaneous Products, Substances or Organisms

Transport document description : UN3090 LITHIUM BATTERIES, 9

Proper Shipping Name (Transportation of Dangerous Goods) : LITHIUM BATTERIES

Hazard labels (TDG) : 9 - Miscellaneous dangerous substances and articles

Explosive Limit and Limited Quantity Index : 0

Excepted quantities (TDG) : E0

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 5 kg

14.2. Transport information/DOT

Department of Transport

DOT NA no. : UN3090

UN-No.(DOT) : 3090

Packing group (DOT) : II - Medium Danger

Transport document description : UN3090 Lithium battery, 9, II

Proper Shipping Name (DOT) : Lithium battery

Contains Statement Field Selection (DOT) :

Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

Division (DOT) : 9

Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)

Dangerous for the environment : No

DOT Packaging Exceptions (49 CFR 173.xxx) : 185

DOT Packaging Non Bulk (49 CFR 173.xxx)	:	185
DOT Packaging Bulk (49 CFR 173.xxx)	:	None
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	See A100
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	35 kg
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Emergency Response Guide (ERG) Number	:	138
Other information	:	No supplementary information available.

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	:	3090
Proper Shipping Name (IMDG)	:	LITHIUM METAL BATTERIES
Transport document description (IMDG)	:	UN 3090 LITHIUM METAL BATTERIES, 9
Class (IMDG)	:	9 - Miscellaneous dangerous substances and articles

IATA

UN-No. (IATA)	:	3090
Proper Shipping Name (IATA)	:	Lithium metal batteries
Transport document description (IATA)	:	UN 3090 Lithium metal batteries, 9
Class (IATA)	:	9 - Miscellaneous Dangerous Goods

SECTION 15: Regulatory information

15.1. National regulations

Lithium (7439-93-2)
Listed on the Canadian DSL (Domestic Substances List)

Thionyl chloride (7719-09-7)
Listed on the Canadian DSL (Domestic Substances List)

Aluminum chloride (7446-70-0)
Listed on the Canadian DSL (Domestic Substances List)

Lithium chloride (7447-41-8)
Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Lithium (7439-93-2)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)

Thionyl chloride (7719-09-7)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Japanese Poisonous and Deleterious Substances Control Law
Listed on INSQ (Mexican National Inventory of Chemical Substances)

Aluminum chloride (7446-70-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Lithium chloride (7447-41-8)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

SECTION 16: Other information

Date of issue : 18 May 2017

Other information : None.

SDS Canada (GHS)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product