



XenoEnergy Lithium Battery



Revision : 2019-01A

Safety Data Sheet

1. Product Identification

1) Product Name

Lithium Thionyl Chloride Battery (Li-SOCl₂, Non-Rechargeable, 3.6V)

Single Cells or Multi Packs of following models

Small Size Battery

XL-050F, XLP-050F, XL-050H

Medium Size Battery

XL-055F, XLP-055F, XL-060F, XLP-060F, XL-060H, XL-100F

Big Size Battery

XL-140F, XL-145F, XL-200F, XL-205F, XL-1459F, XL-2059F

2) Manufacturer: XenoEnergy Co., Ltd.

70-7, Mooha-ro, Hwaseong-shi, Gyeonggi-do, Korea, 18279

3) Emergency Contact

International: +82-70-8277-6331

70-7, Mooha-ro, Namyang-eup, Hwaseong-shi, Gyeonggi-do, Korea, 18279

2. Hazard Identification

The Lithium Thionyl Chloride Batteries have hermetically sealed structure, so they are not hazardous when they are used in the recommendations of the manufacturer.

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion.

Under normal usage conditions, the electrode materials and liquid electrolyte cannot be leaked to the outside. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the rupture of the battery container.

Electrolyte is toxic and corrosive and causes irritation, skin burn, lung injuries, asthma and other respiratory disorders

3. Composition and Information on Ingredients

Substance	CAS No.	Approximate percent of total weight (%)	Hazard Symbol	R-phrases
Lithium Metal	7439-93-2	3-5	F, C	14/15-34
Thionyl Chloride	7719-09-7	33-45	C	14-34-37
Aluminum Chloride	7446-70-0	2-5		
Lithium Chloride	7447-41-8	1-2		
Carbon	1333-86-4	3-5		

Hazard Symbols: C Corrosive / F Highly flammable

R-Phrases: R 14 Reacts violently with water

R 14/15 Reacts violently with water liberating extremely flammable gases

R 34 Causes burns

R 37 Irritating to respiratory system

4. First Aid Measures

Eye Contact - Immediately flush eye with plenty of water for at least 15 minutes.

Seek medical attention.

Skin Contact - Immediately flush skin with plenty of running water for at least 15 minutes.

Seek medical attention.

Inhalation - Immediately remove to fresh air. If necessary, administer oxygen and seek medical attention.

Ingestion - Immediately wash mouth with plenty of water and drink plenty of water.

Seek medical attention

5. Fire Fighting Measures

Lith-X (Class D extinguishing media) and Dried Sand are effective extinguishing media on fires involving a few lithium batteries. If cells are already catching a fire, do not use Water, CO₂, Halon and Dry Powder or Soda Ash Extinguishers.

If the fire is in adjacent area and the fire is not progressed, CO₂ Extinguishers or copious amounts of cold water can be effective extinguishing media to cool down burning Li-SOCl₂ cells and batteries.

6. Accidental Release Measures

Under abusive conditions, the battery contained materials may leak.

Put the leaked batteries into small container or plastic bag adding the neutralizing agents of Sodium carbonate (Na_2CO_3), chalk (CaCO_3) or lime (CaO) powder.

7. Handling and Storage

Handling – Do not crush, puncture or short circuit. Do not directly heat or solder, over charge the battery or forced discharge. Do not throw into fire.

Storage - Store in a cool (below 30°C) and ventilated area with less temperature and moisture effect. Do not place near heating equipment or direct sunlight for a long time. Keep the batteries in original battery package.

Others - Lithium Thionyl Chloride batteries are not rechargeable batteries and should not be charged. Avoid the deformation of batteries by pressure. Keep the recommended usage conditions and temperatures by the manufacturer.

8. Exposure Controls and Personal Protection

Respiratory Protection - As any fire situation is happened, use self-contained breathing apparatus.

Eye Protection - Safety glasses are recommended.

Protective Gloves - In case of leakage, wear gloves.

Other Protective Clothing: In the event of leakage, wear chemical apron.

9. Physical and Chemical Properties

Melting Point	N/A	Boiling Point	N/A
Vapor Pressure	N/A	Specific Gravity	N/A
Vapor Density	N/A	Physical State	Solid
Solubility in Water	N/A	PH	N/A
Appearance	Geometric Solid Object		
Odor	If leaked, giving off pungent corrosive odor		

10. Stability and Reactivity

Stability - Stable (hermetically sealed type, used in recommended conditions)

Condition to Avoid - Give too much force, drop, crush & disassemble, short-circuit, recharge, fire & heat above 100°C (212°F), incinerate and etc.

Material to Avoid - Alkali, water, mineral acid

Hazardous Decomposition Products -

* Reaction of lithium metal with water: Hydrogen (H₂) / Lithium oxide (Li₂O) and Lithium hydroxide (LiOH)

* Thermal decomposition over 150°C: Hydrochloric acid (HCl) and Sulfur dioxide (SO₂)

* Electrolyte (Lithium tetrachloroaluminate, LiAlCl₄) with water: Hydrochloric acid (HCl) fumes, Lithium oxide (Li₂O), Lithium hydroxide (LiOH) and Aluminum hydroxide (Al(OH)₃)

11. Toxicological Information

Not Applicable

In the event of rupture or leakage, corrosive fumes from the battery can cause

Inhalation - Burn or irritation of the respiratory system

Eye Contact - Redness, tearing, burns

Skin - Skin irritation and burns

Ingestion - Tissue damage to throat and gastro-respiratory track

Medical conditions generally aggravated by exposure - eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

12. Ecological Information

1) Lithium Thionyl Chloride batteries do not have environmental hazard under normal usage and proper disposal.

2) Lithium Thionyl Chloride batteries do not contain mercury, cadmium or other heavy metals.

13. Disposal

1) Dispose under the regulation in each country.

2) Dispose by incineration or burial at permitted waste treatment and disposal sites

14. Transportation

1) Product Category: Lithium Metal Batteries (with All UN Test Approval)

2) UN ID No. UN3090 or UN3091

UN 3090: LITHIUM METAL BATTERIES

UN 3091: LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT, or
LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT

- Lithium metal cells and batteries are considered as Dangerous Goods with UN3090 and UN3091.

- Depending on their lithium metal contents, some cells or batteries may be regarded as non-dangerous goods without Class 9 nomination.

3) Regulation

A. Air Transportation: IATA 60th Edition 2019, Dangerous Goods Regulations

- All cells and batteries must be tested in accordance with the UN Manual of Tests and Criteria Part III Subsection 38.3 (DGR 3.9.2.6).

Small Size Battery: Lithium Contents Cells $\leq 1g$ / Batteries $\leq 2g$

➔ Packing Instruction 968 Section II

- No Passenger Cargo, Cargo Aircraft Only, No Overpack and Pallet Packing
- Package cells $\leq 1g$ = Net 2.5kg // cells $>0.3 \leq 1g$ = 8cells // batteries $>0.3 \leq 2g$ = 2cells
- Label: Lithium Battery Mark (or existing Lithium Battery Handling Label until Dec. 2018), Cargo Aircraft Only label
- Not more than one package prepared in accordance with this section may be placed into an over pack
- Pallet packing do not allow, only pack
- Use IB if Package exceeds Section II limits and more than 1 package

Medium Size Battery: Lithium Contents Cells $>1g$ / Batteries $\leq 2g$

➔ Packing Instruction 968 Section IB

- No Passenger Cargo, Cargo Aircraft Only
- Package \leq Net 2.5kg
- Label: Lithium Battery Mark (or existing Lithium Battery Handling Label until Dec. 2018), Lithium battery Class 9 label (or existing Class 9 label until Dec. 2018), Cargo Aircraft Only label
- DG Declaration

Big Size Battery: Lithium Contents Cells $>1g$ / Batteries $>2g$

➔ Package instruction 968 Section IA

- No Passenger Cargo, Cargo Aircraft Only
- Package \leq 35kg
- Label – Lithium battery Class 9 Label (or existing Class 9 label until Dec. 2018), Cargo Aircraft Only label
- DG Declaration & Certification

B. Sea Transportation: IMDG – Code 2015

Small & Medium Size Battery: Lithium Contents Cells $\leq 1g$

→ Special Provision 188 (Exception)

- Lithium Metal cells $< 1g$, batteries $< 2g$ – Not subject to Class 9 (Non-DG)
- Packing Group I
- Each cell or battery is of the type proved to meet the requirements of each test of the Manual Tests and Criteria Part III, sub section 38.3. Cells and batteries manufactured.

Big Size Battery: Lithium Contents Cells $> 1g$

→ Class 9 / Packing Group II

C. Road or Rail Transportation: ADR / RID 2015

Small & Medium Size Battery: Lithium Contents Cells $\leq 1g$

→ Special Provision 188 (Exception)

- Lithium Metal cells $< 1g$, batteries $< 2g$ – Not subject to Class 9 (Non-DG)
- Packing Group I
- Each cell or battery is of the type proved to meet the requirements of each test of the Manual Tests and Criteria Part III, sub section 38.3. Cells and batteries manufactured.

Big Size Battery: Lithium Contents Cells $> 1g$

→ Class 9 / Packing Group II

15. Regulatory Information

N/A

16. Other Information

For further information, please contact to XenoEnergy Co., Ltd.

NSN:013018776

BATTERY, NONRECHARGEABLE

REFERENCE NUMBER:RP001
REFERENCE NUMBER:RA001
REFERENCE NUMBER:RQ002
REFERENCE NUMBER:RQ011

PRODUCT NAME: LITHIUM THIONYL CHLORIDE BATTERY

REFERENCE NUMBER:ZDISO
REFERENCE NUMBER:ZD080
REFERENCE NUMBER:ZD025
REFERENCE NUMBER:ZD072
REFERENCE NUMBER:A0003

TRANSPORTATION:
UN NUMBER: UN3090 / UN3091
SHIPPING NAME: LITHIUM BATTERIES
HAZARD CLASSIFICATION: CLASS 9

SHELF LIFE: TYPE 1, 60 MONTHS

REFERENCE NUMBER:RS023

MSDS/PSDS REQUIRED PER FED-STD-313
MIL-STD-129P(4) IS REQUIRED
MIL-STD-130N(1) IS REQUIRED

REFERENCE NUMBER:A0003

CRITICAL APPLICATION ITEM

SAFT FEDERAL SYSTEMS, INC. DBA 4J947 P/N TL2100/S
DEVON COMPANY DBA XENO USA 3F0L8 P/N XL-060F
SAFT AMERICA INC DBA LITHIUM 7X634 P/N LITHLS14500BA
SAFT AMERICA INC DBA LITHIUM 7X634 P/N LS14500BA

PREP FOR DELIVERY

LINE ITEM 00021 TYPE OF COVERAGE: DLA DIRECT, CONUS

PKGING DATA - MIL-STD-2073-1D, 15 DEC 1999
QUP:001 PRES MTHD:HM CLNG/DRY:Z PRESV MAT:ZZ
WRAP MAT:ZZ CUSH/DUNN MAT:ZZ CUSH/DUNN THKNES:Z
UNIT CONT:ZZ OPI:M
INTRMDTE CONT:ZZ INTRMDTE CONT QTY:ZZZ

PACK CODE:U

MARKING SHALL BE IN ACCORDANCE WITH MIL-STD-129.

SPECIAL MARKING CODE:32 -32 Type I, shelf life

PALLETIZATION SHALL BE IN ACCORDANCE WITH MD00100452 REV B DATED JULY 01, 2008

REFERENCE NUMBER:CQSLS

REFERENCE NUMBER:PKHAZ

The transportation of Lithium-ion (and any other rechargeable lithium chemistries) packs with up to 8 grams of equivalent lithium content, as described in this document, is not regulated by the U.S. Department of Transportation or the major international regulatory bodies. Equivalent lithium content for lithium ion and lithium polymer cells and batteries in grams on a per cell basis is calculated as 0.3 times the rated capacity in ampere-hours. The equivalent lithium content for a battery or battery pack is the rated capacity in ampere-hours for a single cell multiplied by 0.3 and then multiplied by the number of cells in the battery.

Transportation:

Land Transport (ADR/RID) # The product fulfills the requirements of Special Provision 188 of ADR/RID and is therefore, keeping within the prescribed quantity limits, excepted from the application of the Dangerous Goods regulations. Sea Transport (IMDG) - The product fulfills the requirements of Special Provision 188 of IMDG-Code and is therefore, keeping within the prescribed quantity limits, excepted from the application of the Dangerous Goods regulations. Air Transport (IATA) - The product fulfills the requirements of Special Provision A45 of IATA-DGR and is therefore, keeping within the prescribed quantity limits, excepted from the application of the Dangerous Goods regulations. "Per U.S. DOT:

If battery meets nonspillable criteria listed in 49 CFR § 173.159(f) and 173.159a(d)(1).

Nonspillable batteries are excepted from 49 CFR Subchapter C requirements<(,<)>

provided that the following criteria are met:

1. The batteries must be securely packed in strong outer packagings and meet

the requirements of 49 CFR § 173.159a.

2. The batteries' terminals must be protected against short circuit.

3. Each battery and their outer packaging must be plainly and durably marked

""NONSPILLABLE"" or ""NONSPILLABLE BATTERY"".

The exception from 49 CFR, Subchapter C means shipping papers need not show proper shipping name, hazard class, UN number, and packing group and hazardous labels are not required when transporting a nonspillable

battery."

REFERENCE NUMBER:IP025