

EaglePicher™ Technologies, LLC

Safety Data Sheet

1. Product Identification

1) Product Name: Lithium Thionyl Chloride Battery (Li-SOCl₂, Non-Rechargeable, 3.6V)

Models: LTC-3PN, LTC-7PN, LTC-7P, LTC-7PMP, LTC-7PMS, LTC-16M, PT-2150, PT-2175, PT-2100, PT-2200, PT-2300, HP-5134, HP-5135.

2) Distributor/Manufacturer Name:

EaglePicher Commercial Power
8230 E 23rd Street.
Joplin, MO 64804
Phone: 800-201-0215 or
417- 624-3167

3) Emergency Telephone No: Chemtrec: 800-424-9300
International: 703-527-3887

2. Hazard Identification

The Lithium Thionyl Chloride Batteries have hermetically sealed structure, use only in accordance with 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 activation of safety valves and/or the rupture of the battery container.

GHS LABELS:



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.

Inhalations- 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

LithX (Class D extinguishing media) and Dried Sand are effective extinguishing media on fires involving a few lithium batteries. If cells are already catching fire, do not use Water, CO₂, Halon, 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 contains materials which may leak.

Put the leaking batteries into small container or plastic bag adding the neutralizing agents of Sodium carbonate (Na₂CO₃), chalk (CaCO₃) 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- use self-contained breathing apparatus.

Eye Protection- safety glasses are recommended.

Protective Gloves- In case of leakage, wear safety gloves.

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

9. Physical Characteristics:

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 leakage occurs, may have strong odor		

10. Stability and Reactivity

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

Conditions to avoid- Too much force, drop, crush and 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

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

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 Considerations

Dispose in accordance with the applicable regulations in country and state. Disposal should be performed by a professional disposal firm knowing Federal, State or Local requirements.

Other: Recalled or defected batteries are forbidden for air transport. All lithium thionyl chloride batteries should be disposed of by a certified hazardous waste disposal facility.

14. Transportation

Proper shipping name: Lithium Metal Batteries

UN 3090

Hazard Class: Class 9 (Misc.)

US Dot, IATA/ICAO and IMDG

IATA: (**DGR 58th Edition**) Shipping of lithium batteries as required in Special Provisions 4.4. All packages prepared in accordance with Packing Instruction 968, Section IA or IB must bear a (**Cargo Aircraft Only**) label, in addition to existing labels (See IATA Section 7), and accompanied by the Lithium Required Safety Information.

(Section II is not accepted per IATA operator variation and must be offered as Section IA or IB)

DOT: Lithium Metal Batteries and cells are subject to shipping requirement exceptions under 49 CFR 173.185 (c)

IMDG 36th Edition SP188, PI903

Lithium batteries are regarded as dangerous goods based on the above stated regulations when delivered via air, sea, road and train.

- A) Each cell or battery is of a type proven to meet the requirements of each test in the UN Manual Of Tests and Criteria, Part III, subsection 38-3
- B) Cells and batteries are separated so as to prevent short circuits and are packaged in strong packages, except when installed in equipment.
- C) The package and shipping documents are marked indicating that it contains lithium Batteries and proper labels attached.

See Lithium content below, followed by flow chart.

Lithium Content per Cell (g)

LTC-3PN Series- 0.16	PT-2150 Series- 0.30
LTC-7PN Series- 0.26	PT-2175 Series- 0.40
LTC-7PMP Series- 0.52	PT-2100 Series- 0.60
LTC-7PMS Series- 0.52	PT-2200 Series- 2.40
LTC-16M Series- 0.48	PT-2300 Series- 5.00
HP-5134 Series- 0.27	

15. Regulatory Information:

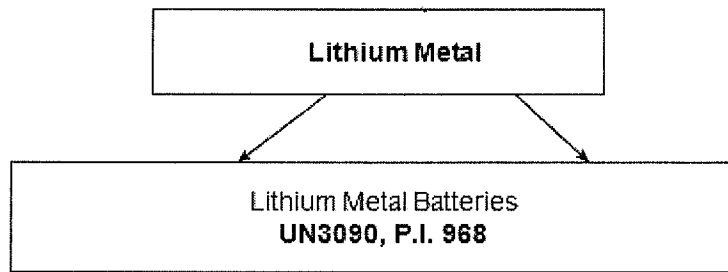
NA

16. Other Information

UPDATED: 01/02/2017

LITHIUM METAL BATTERIES

Effective January 1, 2017



Section IA
 Acceptable to dangerous goods locations where UN3090 is not prohibited.**
 Cells greater than 1g and Batteries greater than 2g

- Shipper's Declaration required in net weight KG.
- UN specification packaging required (PGII standards)
- Lithium Battery Class 9 Hazard label or Class 9 Miscellaneous Dangerous Goods label (See Figure 1 or 2)
- Cargo Aircraft Only (CAO) label required (See Figure 5)
- Shipper must be on Section I (IA/IB) preapproval list

Limit per package:
 Must be on CAO = 35kg

Section IB
 Acceptable to dangerous goods locations where UN3090 is not prohibited.**
 Cells equal to or less than 1g; and Batteries equal to or less than 2g

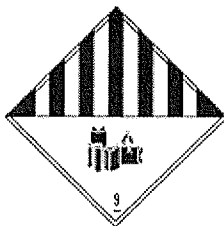
- Shipper's Declaration required in net weight KG.
- Strong rigid outer packaging.
- Lithium Battery Class 9 Hazard label or Class 9 Miscellaneous Dangerous Goods label (See Figure 1 or 2)
- Completed Lithium Battery mark or Lithium Battery label (See Figure 3 or 4)
- Shipper must be on Section I (IA/IB) preapproval list
- IB on Shipper's Declaration
- Cargo Aircraft Only (CAO) label required (See Figure 5)

Limit per package:
 Must be CAO = 2.5kg

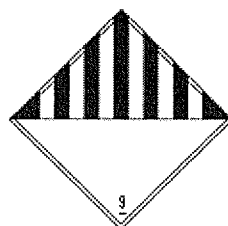
~ or ~

Section II

- Not accepted per IATA operator variation, must be offered as Section IA or IB.



Lithium Battery Class 9 Hazard Label
 Figure 1



Class 9 Miscellaneous Dangerous Goods Hazard Label
 Figure 2



Lithium Battery Mark
 Figure 3

Shipper must add UN number(s). AND

Shipper must complete phone number portion of label.



Lithium Battery Label
 Figure 4

Shipper must complete phone number portion of label. AND

"Lithium ion battery" OR "Lithium metal battery" AND

Mark the UN number(s) on the package adjacent to the label.



Figure 5