

# EaglePicher™ Technologies, LLC

## Safety Data Sheet

### 1. Product Identification

1) Product Name: Lithium Thionyl Chloride Battery (Li-SOCl<sub>2</sub>, 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 23<sup>rd</sup> 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, CO<sub>2</sub>, Halon, Dry Powder or Soda Ash Extinguishers.

If the fire is in adjacent area and the fire is not progressed, CO<sub>2</sub> Extinguishers or copious amounts of cold water can be effective extinguishing media to cool down burning Li-SOCl<sub>2</sub> 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 (Na<sub>2</sub>CO<sub>3</sub>), chalk (CaCO<sub>3</sub>) 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 (H<sub>2</sub>) / Lithium oxide (Li<sub>2</sub>O) and Lithium Hydroxide (LiOH)

\*Thermal decomposition over 150°C: Hydrochloric acid (HCl) and Sulfur dioxide (SO<sub>2</sub>)

\*Electrolyte (Lithium tetrachloroaluminate, LiAlCl<sub>4</sub>) with water: Hydrochloric acid (HCl) fumes, Lithium oxide (Li<sub>2</sub>O), Lithium hydroxide (LiOH) and Aluminum hydroxide (Al (OH)<sub>3</sub>)

## 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 58<sup>th</sup> 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 36<sup>th</sup> 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:**

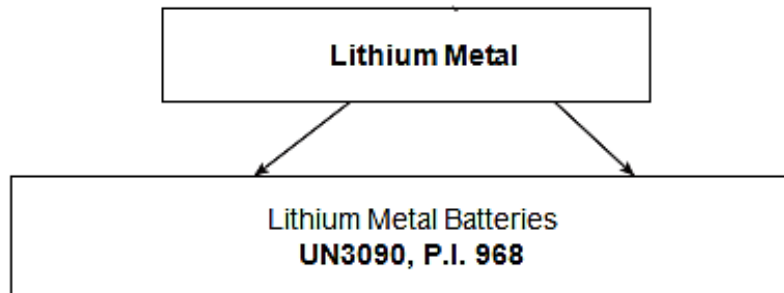
NA

## **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

~ OR ~

## Section II

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

## 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

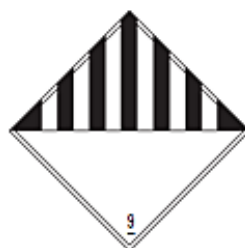
- Shipper's Declaration required in net weight KG.
- Strong rigid outer packaging.
- Lithium Battery Class 9 Hazard label or Class 9 Miscellaneous Dangerous Goods label (See Figure 1 or 2)
- Completed Lithium Battery mark or Lithium Battery label (See Figure 3 or 4)
- Shipper must be on Section I (IA/IB)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

### Limit per package:

Must be CAO = 2.5kg



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