

## Technical Notice

### EC safety data sheet

#### 1. Identification

- 1.1** Product Name: Inorganic Lithium Battery  
Voltage: 3.6 Volts  
Chemistry System: Lithium thionyl chloride  
Anode: Lithium metal  
Cathode: Liquid, thionyl chloride
- 1.2** Company: Sonnenschein Lithium GmbH  
Industriestr. 22  
D-63654 Büdingen
- Telephone: +49(0)6042/954-0, Fax-190
- 1.3** Emergency Telephone Number: +49(0)6042/954-599

#### 2. Composition/Information on Ingredients

Substance	CAS No.	Approximate percent of total weight	Hazard symbol	R-phrases
Lithium Metal	7439-93-2	2 - 6	F, C	14/15-34
Thionyl Chloride	7719-09-7	18 - 47	C	14-34-37
Aluminium Chloride	7446-70-0	2 - 5		
Lithium Chloride	7447-41-8	1 - 2		
Carbon	7440-44-0	2 - 5		
Steel, Nickel plated	----	35 - 73		
Glass	----	0 - 2		
PVC	9002-86-2	0 - 1		
PMMA	9011-14-7	0 - 1		
PTFE	9002-84-0	0 - 1		

- 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

**Important Note:** The material in this section may only represent a hazard if the integrity of the battery is compromised, or if the battery is physically or electrically abused.

### 3. **Hazards Identification**

**Warning:** Fire, explosion, and severe, burn hazard. Do not recharge, disassemble, heat above 100 °C (series SL-500: 145 °C), incinerate, or expose contents to water.

#### **Protection from charging:**

Whenever lithium batteries are not the single power source in a circuit the following measures recommended by Underwriters Laboratories are relevant. The cells should not be connected in series with an electrical power source that would increase the forward current through the cells.

The circuit for these cells shall include one of the following:

A. Two suitable diodes or the equivalent in series with the cells to prevent any reverse (charging) current. The second diode is used to provide protection in the event that one should fail. Quality control, or equivalent procedures, shall be established by the device manufacturer to ensure the diode polarity is correct for each unit,

*or*

B. A blocking diode or the equivalent to prevent any reverse (charging) current and a resistor to limit current in case of a diode failure. The resistor should be sized to limit the reverse charging) current to the maximums given in the data sheets.

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### 4. **First Aid Measures**

#### A. Electrolyte Contact

- Skin Immediately flush with plenty of water for at least 15 minutes. If symptoms are present after flushing, get medical attention.
- Eyes Immediately flush with plenty of water for at least 15 minutes and get medical attention.
- Respiratory system: With large quantities and irritation of the respiratory tract medical surveillance for 48 hours.  
Immediately inhale Cortisone Spray, e.g. Pulmicort.

#### B. Lithium Metal Contact

- Skin Remove particles of lithium from skin as rapidly as possible. Immediately flush with plenty of water for at least 15 minutes and get medical attention.
- Eyes Immediately flush with plenty of water for at least 15 minutes and get immediate medical attention.

## 5. **Fire - fighting measures**

### A. **Extinguishing Media**

- Copious amounts of cold water is an effective extinguishing medium for lithium batteries.
- Do not use warm water or hot water.
- Lith-X (Class D extinguishing media) is effective on fires involving only a few lithium batteries.
- Do not use CO<sub>2</sub> or Halon type extinguishers.
- Dry chemical type extinguishers have limited extinguishing potential

### B. **Fire Fighting Procedures**

- Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire.
- Full protective clothing is necessary.
- During water application caution is advised as burning pieces of lithium may be ejected from the fire.

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## 6. **Accidental release measures**

When the battery housing is damaged, small amounts of electrolyte may leak. Seal battery air tight in a plastic bag, adding some chalk (CaCO<sub>3</sub>) or lime (CaO) powder or Vermiculite. Electrolyte traces may be wiped off dryly using household paper. Rinse with water afterwards.

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## 7. **Handling and Storage**

- Do not allow terminals to short-circuit.
- Storage preferably in a cool (below 21 °C), dry area that is subject to little temperature change.
- Do not place near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in reduced battery service life.

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## 8. **Exposure controls / personal protection**

Not applicable

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## 9. **Physical and chemical properties**

Not applicable

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## 10. Stability and reactivity

May rupture violently when heated above 145 °C or when charged.

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## 11. Toxicological information

Not applicable

Refer to information under item 2.

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## 12. Ecological information

The batteries do not contain mercury, cadmium or other heavy metals.

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## 13. Disposal Considerations

- Dispose by incineration or burial at permitted waste treatment and/or disposal sites.
  - Batteries do not contain hazardous materials according to EC directives 91/157/EEC and 93/86/EEC.
  - For large quantities a disposal service is offered upon request.
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## 14. Transport information

Class 9

UN 3090: LITHIUM BATTERIES

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

Packing group: II

Special provisions and packing instructions:

ADR, RID: 188, 230, 310, 636, P903, P903a

IATA: A45, A88, A99, P903, P912, P918

IMDG-Code: 188, 230, 310, P903

EmS: F-A, S-I

Storage and segregation: Category A

For more information see [www.sonnenschein-lithium.de](http://www.sonnenschein-lithium.de) > site map > Transport Regulations

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## 15. Regulatory information

Not applicable

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## 16. Other information

- Sonnenschein Lithium Batteries are registered by Underwriters Laboratories, Northbrook, U.S.A. under file MH 12827.
  - Further information is given in
    - Sonnenschein Lithium Product Data Catalogue
    - Sonnenschein Lithium Technical Brochure.
  - For lithium batteries in general, Safety standard IEC 60086-4 applies. It contains detailed recommendations for manufacturers of equipment and users.
  - Visit our web site under [www.sonnenschein-lithium.de](http://www.sonnenschein-lithium.de).
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