

Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Name: Lithiumeisenphosphat (LiFePO₄) Cell

Model/Type: IMR18650 3.2V 3000mAh 4.8 Wh

Component of:

Ledino 5.5 W LED Emergency Light „Schleswig“

Art.-Nr. 11150066002020

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Section 2 – Composition Information

Chemical Composition	CAS No:	Weight (%)
Lithium Iron Phosphate (LiFePO ₄)	15365-14-7	24-27
Carbon, as Graphite	7440-44-0	10-13
Aluminum metal	7429-90-5	4-6
Copper metal	7440-50-8	7-9
Stainless Steel	N/A	18-20
Electrolyte:		
Ethylene carbonate	96-49-1	12-15
Dimethyl carbonate	616-38-6	
Ethyl methyl carbonate	623-53-0	
Lithium Hexafluorophosphate	21324-40-3	

Section 3 – Physical + Chemical Properties

N/A

Section 4 - First Aid Measures

General: In an event of battery fire or rupture, evacuate personnel from the contaminated area.

Eye contact: Flush with plenty of water for at least 15 minutes (eyelids held open). Seek medical attention immediately.

Inhalation: Leave area immediately. Seek medical attention immediately.

Skin contact: Remove contaminated clothing. Wash the area with soap and plenty of water immediately and for at least 15 minutes. Seek medical attention.

Ingestion: Drink plenty of water and induce vomiting. Seek medical attention immediately

Section 5 – Hazards Identification

5.1 PRIMARY ROUTES OF ENTRY

Skin contact/absorption, Eye contact, Inhalation and Ingestion: NO

5.2 SYMPTOMS OF EXPOSURE (No effect under routine handling and use)

Skin contact/absorption

Eye contact

Inhalation and Ingestion

Section 6 – Emergency Release Information

If exposure to the internal materials from a damaged or ruptured cell, the following actions are recommended:

Skin contact: Washing with water & soap thoroughly, or seek medical attention immediately.

Eye contact: Rinsing eyes with water for 15 minutes, and seek medical attention immediately.

Inhalation : Leave to fresh air immediately and seek medical attention.

Ingestion : Seek medical attention immediately.

Section 7 - Fire Fighting Information

Cell is not flammable but the internal organic material will burn if the cell is incinerated, if cells or battery are involved in a fire or exposed to excessive heat. Cells or battery may flame or leak potentially hazardous organic vapors.

Extinguishing Media: Dry chemicals.

Fire-Fighting Instructions: Use self-contained breathing apparatus and protective clothing to extinguish, and remove cells from the fire fighting area if possible, or call local fire/police department.

Section 8 – Stability + Reactivity

8.1 REACTIVITY: NONE.

8.2 STABILITY: The cell/battery is stable during normal operation. Avoid exposure to heat or open flame, don't puncture, crush or incinerate.

Section 9 - Handling and Storage

- 9.1 Keep the cell in a cool & dry environment, do not immerse the cell in water or seawater, do not use or leave the cell near a heat source such as fire or heater.
- 9.2 Do not make terminal to short circuit by directly connecting the positive (+) and negative (-) with metal objects such as wire, or reverse the position (+) and negative (-) terminals. Because it may cause the battery/cell to flame or emit gases.
Battery/cell charging & recharging should following the recommendation described as below:
- 9.3 To ensure safety, the cells need to be assembled with PTC and protective circuitry to prevent abusive situations occur such as over charge and over discharge or over current. The charger and protective circuitry should be consistent with the requirements listed below:

No	Device	Items	Requirements
1	Charger	Charge termination voltage	3.65±0.025V
2	Protective Circuitry (For reference only)	Overcharge detection voltage	3.90±0.025V
3		Discharge termination voltage	2.50±0.05V
4		Over discharge detection voltage	2.00±0.05V
5		Discharge current protection	≤7.0A
6		Operation Static Current	≤7.0uA

- 9.4 Do not disassemble or puncture or crush or incinerate the battery/cell.

Section 10 - Exposure Controls, Personal Protection

10.1 EXPOSURE CONTROL:

Storing in a dry place and keeping away from a heat source such as fire or heater.

10.2 PERSONAL PROTECTION:

EYE/FACE PROTECTION: Not required during the normal operation.

INHALATION PROTECTION: Not required during the normal operation.

SKIN & BODY PROTECTION: Not required during the normal operation.

Section 11 - Toxicological Information

The materials contained in cell/battery are described in paragraph 2., it does not elicit any toxicological properties during routine handling and use.

Section 12 - Ecological information

The materials contained in cell/battery are described in paragraph 2., this materials have no risk to persons or the surrounding environment under normal conditions.

Section 13 - Disposal Considerations

Waste Treatment: Recycle or dispose of in accordance with government, state & local regulations.

Attention for Waste Treatment: Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling.

Sections 14 -Transport Information

According to Packing Instruction 965-970 of IATA DGR 64rd Edition for transportation, the Special provision 188 of IMDG. The batteries should be securely packed and protected against shortcircuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle should prevent exposure, rain and high temperature. For stopovers, the Vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, Power and fire sources. Under the condition of road transportation, the driver should drive in Accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport. Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "PI965-967 section II of IATA-DGR "or" special provision 188 of IMO-IMDG Code"

DOT:NOT REGULATED

Proper Shipping Name: NON REGULATED

Emergency Response Guide Number: 147

Hazard Class: N/A

ICAO: Not regulated

IATA:

1. Proper Shipping Name: Lithium ion batteries packed with equipment

Hazard Class: N/A

UN Number: Not restricted

Packaging requirement: According to IATA DGR 64rd Edition (Effective 1 January-31December 2023), PACKING INSTRUCTION 966 of section II for transportation.

2. Proper Shipping Name: Lithium ion batteries

Packaging requirement: According to IATA DGR 64rd Edition(Effective 1 January-31December 2023), PACKING IN STRUCTION 965 of section IB for transportation

IMDG/IMO: Not regulated

Proper Shipping Name: NON REGULATED

Hazard Class: N/A

EmsNo.:F-A,S-1

RID: Not regulated

ADR: Not regulated

AND: Not regulate

Section 15 - Regulatory Information

The transport of rechargeable lithium-ion batteries is regulated by various bodies (IATA, IMO, ADR, US-DOT) that follow the United Nations "Recommendation on the Transport of Dangerous Goods, Model regulations, 13th Revised edition-2023-Ref. STSG/AC.10/1 Rev. 13". International Battery, Inc. products are assigned to UN3480 and are restricted by this regulation.

Section 16 - Additional Information

The information contained in this material data sheet has been compiled from sources considered to be dependable and is to the best of the knowledge and belief of International Battery, Inc., accurate and reliable as of the date of compilation. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information obtained herein. This information relates to the specific materials designated and may not be valid for such materials used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his particular use.

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