

Name of Supplier: SunwodaElectronic Co.,Ltd  
Manufacturer's Name: SunwodaElectronic Co.,Ltd  
Address: No.2,Yihe Rd.,Shilong Cummunity,Shiyan Street,Baoan District,Shenzhen,China  
Tel: 0755-29516888 Fax: 0755-29517078

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## **Explanatory sheet about safety of product for transportation**

### **(Safety Data Sheet for transportation)**

#### **1. Basic item**

**Product name:** Rechargeable Li-Polymer Battery pack

**UN number:** 3480

**Product code:** Refer to Table 1.

**model name:** Refer to Table 1.

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#### **2. Product information**

Basic composition of the product This product is a battery which consists of such main component as core battery pack assembled with some Lithium ion cells. And it consists of any combination of plastic casing, tube casing, protection circuit boards, safety devices and interface terminals

#### **3. Safety Information**

Sunwoda certifies the battery has passed and satisfied the UN Manual of Tests and Criteria Part III, sub-section 38.3 testing in Sunwoda shipping. - Sunwoda manufactured the battery under the quality management program required in UN Model regulations 2.9.4(e)..

##### **3-1 : Battery pack**

1. The Watt-hour rating of the battery is not more than 100Wh.

The Watt-hour rating of the component Lithium ion cells is not more than 20Wh.

Refer to Appendix "MSDS(202401004)".

2. Packages of the battery satisfy the following conditions when Sunwoda ships.

(1) The package has passed the drop test from the height of 1.2m.

(2) The package net weight is not more than 10kg.

(3) The package is marked and labeled according to requirement of Packing Instruction 965 Section IB stated in ICAO's and IATA's dangerous goods regulations.

3. The battery is not defective for safety reasons, not damaged. It is not collected battery for recycling or disposal.

4. The battery is not subject to the fully regulated requirements for Dangerous Goods in ocean and ground transportation.

5. The battery should be transported by Cargo aircraft as UN3480, Class 9 Dangerous Goods, and state of charge not exceeding 30%, according to Packing Instruction 965 Section IB stated in ICAO's and IATA's dangerous goods regulations.

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**Table. 1 Model list of application**

ASSM PN	FRU PN	Battery Model	WH Rating	Weight (g)	Li Content (g)	Cell Voltage (VDC)	Battery Voltage	Battery Supplier	SDS File	UN38.3 File
SB11M43391	5B11M43390	L23D3PF0	47	191.28	3.7404	3.77	11.31	SWD	MSDS_202401004	SB11M43391_UN38.3
SB11N45297	5B11N45315	L23D3PF0	47	191.28	3.7404	3.77	11.31	SWD	MSDS_202401004	SB11N45297_UN38.3
SB11H56319	5B11H56418	L23D4P71	52.5	228.5	4.07	3.87	15.48	SWD	MSDS_202401004	SB11H56319_UN38.3
SB11H56303	5B11H56402	L23D3P74	75	284.4	5.814	3.87	11.61	SWD	MSDS_202401004	SB11H56303_UN38.3
SB11H56299	5B11H56398	L23D3P72	57	230.3	4.536	3.77	11.31	SWD	MSDS_202401004	SB11H56299_UN38.3
SB11M51932	5B11M51930	L23D4PK3	76	306.3	6.048	3.77	15.08	SWD	MSDS_202401004	SB11M51932_UN38.3
SB11M74073	5B11M74074	L23D3PE1	57	240	4.536	3.77	11.31	SWD	MSDS_202401004	SB11M74073_UN38.3
SB11M75266	5B11M75267	L23D3PG2	57	226.58	4.536	3.77	11.31	SWD	MSDS_202401004	SB11M75266_UN38.3
SB11M51943	5B11M51946	L23D3PK1	57	238.29	4.536	3.77	11.31	SWD	MSDS_202401004	SB11M51943_UN38.3
SB11M63875	5B11M63871	L23D4PF1	84	286	6.462	3.9	15.6	SWD	MSDS_202401004	SB11M63875_UN38.3
SB11M51935	5B11M51939	L23D4PK2	76	309	6.048	3.77	15.08	SWD	MSDS_202401004	SB11M51935_UN38.3
SB11Q01999	5B11Q02036	L24D4PK1	80	332.4	8.48	3.77	15.08	SWD	MSDS_202401004	SB11Q01999_UN38.3
SB11Q01977	5B11Q02032	L24D3PK2	60	246.08	6.36	3.77	11.31	SWD	MSDS_202401004	SB11Q01977_UN38.3
SB11Q02058	5B11Q02013	L24D3PK3	50	209.61	3.98	3.77	11.31	SWD	MSDS_202401004	SB11Q02058_UN38.3
SB11Q40026	5B11Q40027	L24D3PF2	50	209.61	3.98	3.77	11.31	SWD	MSDS_202401004	SB11Q40026_UN38.3
SB11Q30688	5B11Q30689	L24D4PC0	80	323.39	6.246	3.88	15.52	SWD	MSDS_202401004	SB11Q30688_UN38.3
SB11Q01983	5B11Q01970	L24D4PK4	53.7	192.1	4.21	3.9	15.6	SWD	MSDS_202401004	SB11Q01983_UN38.3
SB11Q26807	5B11Q26812	L24D4PK6	53.7	192.1	4.21	3.9	15.6	SWD	MSDS_202401004	SB11Q26807_UN38.3
SB11Q02030	5B11Q01997	L24D4PK5	70	256.01	7.68	3.87	15.48	SWD	MSDS_202401004	SB11Q02030_UN38.3

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# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

Product Identification:

Lithium-Ion Rechargeable Battery Pack

Cell Type: All Polymer models LWN manufactured

Cell manufacturers: Zhejiang Liwinon Energy Technology Co., Ltd.

## 2. Hazards Identification

Class Name: Not applicable for regulated class

Hazard: It may cause heat generation or electrolyte leakage if battery terminals contact with other metals. Electrolyte is flammable.

In case of electrolyte leakage, move the battery from fire immediately.

Toxicity: Vapor generated from burning batteries, may make eyes, skin and throat irritate.

## 3. Composition / Identification on Ingredients

IMPORTANT NOTE:

The battery should not be opened or burned since the following ingredients contained within the battery that could be harmful under some circumstance if exposed or misused.

The cell contains neither metallic lithium nor lithium alloy.

Composition:

3-1. Cases: Plastic Not

dangerous 3-2. Printed Circuit Board Assembly Not

dangerous 3-3. Lithium Ion Cell:

化学名称 Common Chemical Name	化学式 Chemical Formula	CAS 号 CAS No.	EC 号 EC No.	重量含量 Wt %
铝箔 Aluminum Foil	Al	7429-90-5	231-072-3	3.57
钴酸锂 Lithium Cobalt Oxide	LiCoO <sub>2</sub>	12190-79-3	235-362-0	45.56
聚偏二氟乙烯 Polyvinylidene Fluoride(PVDF)	(CH <sub>2</sub> -CF <sub>2</sub> ) <sub>n</sub>	24937-79-9	607-458-6	0.61
丁苯橡胶 Styrene Butadiene Rubber(SBR)	(C <sub>8</sub> H <sub>8</sub> C <sub>4</sub> H <sub>6</sub> ) <sub>x</sub>	9003-55-8	618-370-2	0.30
铜箔 Copper Foil	Cu	7440-50-8	231-159-6	8.02
石墨 Graphite	C	7782-42-5	231-955-3	24.73
六氟磷酸锂 Lithium Hexafluorophosphate	LiPF <sub>6</sub>	21324-40-3	244-334-7	1.51

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其他 Other	-	-	-	15.70
铅 Lead	Pb	7439-92-1	231-100-4	Not Detected
镉 Cadmium	Cd	7440-43-9	231-152-8	Not Detected
汞 Mercury	Hg	7439-97-6	231-106-7	Not Detected

#### 4. First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact: Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing, and call a doctor. If appropriate procedures are not taken, this may cause an eye irritation.

Skin contact: Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.

Inhalation: Remove to fresh air immediately, and call a doctor.

#### 5. Fire Fighting Measures

- Use specified extinguishers (gas, foam, powder) and extinguishing system under the Fire Defense Law.
- Since corrosive gas may be produced at the time of fire extinguishing, use an air inhalator when danger is predicted.
- Use a large amount of water as a supportive measure in order to get cooling effect if needed. (Indoor/outdoor fire hydrant)
- Carry away flammable materials immediately in case of fire.
- Move batteries to a safer place immediately in case of fire.

#### 6. Accidental Release Measures

- Wipe off with dry cloth
- Keep away from fire
- Wear safety goggles, safety gloves as needed

#### 7. Precautions for Safe Handling and Use

Storage: Store within the recommended limit of -20°C to 45°C ( -4°F to 113°F), well -ventilated area. Do not expose to high temperature (60°C/140°F). Since short circuit can cause burn hazard or gas release, do not store with metal jewelry, metal covered tables, or metal belt. The lithium ion battery should be between 25% and 75% of full charge when stored for a long period of time. Store in a cool, dry, well ventilated area. And temperature above 100 Celsius degree can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames.

Handling: Do not disassemble, remodel, or solder. Do not short + and - terminals with a metal. Do not open the battery.

Charging: Charge within the limits of 0°C to 45°C (32°F to 113° F) temperature. Charge with specified charger designed for this battery.

Discharging: Discharge within the limits of -20°C to 60°C ( -4 °F to 140°F) temperature. Disposal : Dispose in accordance with

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applicable federal, state and local regulations. Caution: Fire, Explosion, and Severe Burn Hazard. Do not Crush, Disassemble, Heat Above 100°C/212°F, or Incinerate.

### 8. Exposure Controls / Personal Protection (In case electrolyte is leaked from battery)

Acceptable concentration: Not specified in ACGIH. Facilities: Provide appropriate ventilation such as local ventilation system in the storage. Protective clothing: Gas mask for organic gases, safety goggle, safety glove.

### 9. Physical and Chemical Properties

State	Solid
Odor	N/A
PH	N/A
Vapor pressure	N/A
Vapor density	N/A
Boiling point	N/A
Solubility in water	Insoluble
Specific gravity	N/A
Density	N/A

### 10. Stability and Reactivity

External short-circuit, deformation by crush, high temperature (over 100°C) exposure of a battery cause generation of heat and ignition.

### 11. Toxicological Information

Acute toxicity: No information as a battery. Local effects: No information as a battery.

### 12. Ecological Information

When exhausted battery is buried in the ground, corrosion may be caused on the outer case of battery and electrolyte may be oozed. There is no information on environmental influence.

### 13. Disposal Consideration

When battery is disposed, isolate positive (+) and negative (-) terminals of the battery to avoid those terminals from touching each other. Batteries may be short-circuited when piled up or mixed with the other batteries in disorder. Dispose in accordance with applicable federal, state and local regulations

### 14. Transport Information

In the case of transportation, avoid exposure to high temperature and prevent the formation of any condensation. Take in a cargo of them without falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to Section 7-HANDLING AND STORAGE also.

#### UN regulation

UN number: 3480 (3481 when the battery is contained in equipment or packed with equipment) Proper shipping name: Lithium ion batteries ("lithium ion batteries contained in equipment" or "lithium ion batteries packed with equipment") Class: 9 \*

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\* Although this product meets the criteria of “dangerous goods” and are classified as “lithium ion batteries”, depending on the battery’s total capacity in the packaging, etc., they may not be subject to the fully regulated provisions.

### **Regulation depends on region and transportation mode**

Worldwide - Air transportation:

ICAO/IATA-DGR [packing instruction 965 section IB or II] (When shipping batteries “packed with” or “contained in” equipment, use packing instruction 966 or 967 as appropriate.)

Worldwide - Ocean transportation:

IMO-IMDG Code [special provision 188]

Europe - Ground transportation: ADR [special provision 188]

*\*Instructions or provisions in the box brackets are conditions to make the battery cell exempted from full regulation.*

### **15. Regulatory Information**

- IMDG Code: International Maritime Dangerous Goods (IMDG) Code 2022 Edition
- ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2023-2024 Edition
- IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 65<sup>th</sup> Edition

### **16. Other Information**

The application of the regulations can vary according to the aviation company, SWD, therefore, highly recommends that you consult with the aviation company prior to transporting battery or cell. This information has been compiled from sources considered to be reliable and to the best of our knowledge, accurate and reliable. However, SWD does not accept liability for any loss or damage that may occur, direct or indirect, from using this information.