

Name of Supplier: Sunwoda Electronic Co.,Ltd
Manufacturer's Name: Sunwoda Electronic Co.,Ltd
Address: No.2,Yihe Rd.,Shilong Community,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(201901110)".

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

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IATA's dangerous goods regulations.

Table. 1 Model list of application

Battery Part Numbers			Battery Information						
Lenovo ASM Lenovo PN Part Number	Lenovo FRU Part Number	Lenovo model name	MSDS Type #	UN DOT 38.3 Test Certificate	Cell Voltage (V)	Battery Voltage (V)	Watt hour Rating (Wh)	Weight (grams)	Equivalent Lithium Content (grams)
5B10Q62138		L17D2PF1	MSDS_20190 1110	5B10Q621 38_UN38.3	3.84	7.68	30	150	2.28
5B10Q71254		L17D3PB0	MSDS_20190 1110	5B10Q712 54_UN38.3	3.75	11.25	45	213	3.51
5B10Q93736		L17D2PF2	MSDS_20190 1110	5B10Q937 36_UN38.3	3.84	7.68	39	153	2.97
5B10T83737		L18D4PF1	MSDS_20190 1110	5B10T837 37_UN38.3	3.84	15.36	69	285	5.36
5B10U65277		L18D4PF1	MSDS_20190 1110	5B10U652 77_UN38.3	3.84	15.36	69	286.5	5.36
SB10V25235		L19D3PF2	MSDS_20190 1110	SB10V252 35_UN38.3	3.84	11.52	57	225	4.35
5B10U65275		L19D4PD1	MSDS_20190 1110	5B10U652 75_UN38.3	3.84	7.68	60	246	4.56
SB10V27765		L19D3PD3	MSDS_20190 1110	SB10V277 65_UN38.3	3.84	11.52	56	225	4.35

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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 ATL manufactured
 Cell manufacturers: Amperex Technology Limited

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 :

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
Graphite (CAS# 7782-42-5)	5 mg/m ³ TWA	2mg/m ³ TWA	7-25
Lithium cobalt (CAS# 12190-79-3)	0.1 mg/ m ³	0.02mg/ m ³	15-40
Lithium Hexafluorophosphate (CAS# 21324-40-3)	None established	None established	0-5
Acetylene Black (CAS# 1333-86-4)	3.5 mg/ m ³ TWA (as carbon black)	3.5 mg/ m ³ TWA (as carbon black)	0-2
Diethyl Carbonate (CAS# 105-58-8)	None established	None established	0-15

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Dimethyl Carbonate (CAS# 616-38-6)	None established	None established	0-15
Ethyl Methyl Carbonate (CAS# 623-53-0)	None established	None established	0-15

Propylene Carbonate (CAS# 108-32-7)	None established	None established	0-15
Ethylene Carbonate (CAS# 96-49-1)	None established	None established	0-15

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

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battery.

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

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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 *

* 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 2016 Edition
- ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2017-2018 Edition
- IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 60th 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.