No: MDW-TR-21315

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SAFETY DATA SHEET

1. Product and Company Identification

Product Information

Customer Name	: SHIMANO INC.
Product Category	: Lithium Ion Rechargeable Battery Pack
Model Name	: BT-E8014/LIPY035
Rated Capacity	: 11.6Ah (418Wh)
Average Operating Voltage	: 36.0 V

Company Identification

Manufacturer's Name	: Murata Energy Device Wuxi Co., Ltd.
Address	: No.27, Changjiang Road, Xinwu District, Wuxi, Jiangsu Province , 214028 P.R.C
Information Telephone	: +86-510-8523-9120
E-mail Address	: mdw-qa-comp@murata.com
Date Prepared	: Jan. 01, 2021
Person in charge	: Weiwei Tang

2. Hazard 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 / Information on Ingredients

IMPORTANT NOTE:

The battery pack uses forty US18650NC1 lithium ion rechargeable cell and control circuit on the PWB.

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

The cell contain neither metallic lithium nor lithium alloy.

Cathode	: Lithium Nickel Cobalt Oxides	(active material)
	Polyvinylidene Fluoride	(binder)
	Carbon Black	(conductive material)
Anode	: Graphite	(active material)
	Styrene-butadiene rubber / Carboxymethyl cellulose sodium salt (binder)	
Electrolyte	: Organic Solvent	(non-aqueous liquid)
	Lithium Salt	
Others	: Heavy metals such as Mercury, Cadmium, Lead, and Chromium are not used in the battery.	
Enclosure	: Plastic (PC)	
UN number (Class)	: UN3480 (Class 9)	
UN Packing Group	: Ⅱ	
Watt-hour rating	: 418Wh for battery pack	

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 70°C (-4°F to 158°F), well-ventilated area. Do not expose to high temperature (80°C/176°F). Since short circuit can cause burn hazard or safety vent to open, do not store with metal jewelry, metal covered tables, or metal belt.
Handling	: Do not disassemble, remodel, or solder. Do not short + and - terminals with a metal. Do not open the battery pack.
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 pack.
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	: Follow manufacturer's Instructions. Dispose of used batteries according to instructions. Use only the chargers of the SHIMANO STEPS systems. In the case of different charger, please refer the instructions there of.

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

Appearance	: Lithium ion rechargeable cells are set in a resin case.
Average Operating Voltage	: 36.0 V

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 considerations

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

- When a number of batteries are transported by ship, vehicle and railroad, avoid high temperature and dew condensation.
- Avoid transportation which may cause damage of package.
- Lithium ion batteries, the Watt-hour rating is more than 100Wh, are subject to dangerous goods regulation for the purpose of transportation by the U.S. Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) or the International Maritime Dangerous Goods regulations (IMDG).With regard to air transport, the International Civil Aviation Organization (ICAO) Packing Instruction 965 Section I complies with the Recommendation as is; further, the International Air Transport Association (IATA) adopts ICAO Packing Instruction 965 Section I. In addition, the regulations of the US Department of Transportation for land, sea and air transportation are based on the UN Recommendations.
- IATA (International Air Transport Association): Dangerous Goods Regulation

Packing Instruction 965 (Lithium ion or lithium polymer cells and batteries without electronic equipment)
With effect 1 April 2016: Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. UN 3480, PI 965, Section IA and IB and II will be restricted to carriage on cargo aircraft. All packages must bear the Cargo Aircraft Only label in addition to the other marks and labels required by the Regulations.

The shipment complies with the Packing Instruction 965 Section IA under IATA.
Each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3.
The completed package for the cells or batteries meet the Packing Group II performance standards.

Even classified as lithium batteries packed with equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 966 is applied.
Even classified as lithium batteries installed in equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 967 is applied.

15. Regulatory information

・IMDG Code: International Maritime Dangerous Goods (IMDG) Code 2020 Edition
・ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2021-2022 Edition
・IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 62nd Edition

16. Other Information

The information contained within is provided for your information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, Murata Energy Device Wuxi Co., Ltd. MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON IT.