No: TMM-TR-A24039

Tohoku Murata Manufacturing Co., Ltd.
1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima, 963-0531 Japan
Phone:+81-24-955-7770 / Fax:+81-24-955-7884 / E-mail: tmm-qa-compliance@murata.com

SAFETY DATA SHEET

1. Product and Company Identification

Product Information

Product Category	: Lithium Ion Rechargeable Battery Cell
Model Name	: US18650VTC5
Nominal Capacity	: 2600 mAh (9.4 Wh)
Rated Capacity	: 2500 mAh (9.0 Wh)
Average Operating Voltage	: 3.6V

Company Identification

Manufacturer's Name	: Tohoku Murata Manufacturing Co., Ltd.
Address	: 1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima, 963-0531 Japan
Information Telephone	: +81-24-955-7770
Emergency Telephone	: +1(703)527-3887 (CHEMTREC)
E-mail Address	: tmm-qa-compliance@murata.com
Date Prepared	: Jan. 01, 2024
Person in charge	: Shun Sato

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 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.

Common chemical name / General name	CAS Number	Concentration/ Concentration range
Lithium Nickel Cobalt Oxides (active material)	113066-89-0	36.8%
Polyvinylidene Fluoride (binder)	24937-79-9	0.9%
Carbon black (conductive material)	1333-86-4	1.8%
Graphite (active material)	7782-42-5	20.2%
Styrene-butadiene rubber	9003-55-8	0.5%
Carboxymethyl cellulose sodium salt (binder)	9004-32-4	0.4%
Ethylene Carbonate (Organic Solvent)	96-49-1	2.5%
Dimethyl Carbonate (Organic Solvent)	616-38-6	7.0%
Lithium hexafluorophosphate (Organic Solvent)	21324-40-3	2.6%
Fluoroethylene Carbonate (Organic)	114435-02-8	1.6%
Aluminum	7429-90-5	3.6%
Copper	7440-50-8	10.1%
Iron	7439-89-6	12.0%

UN number : UN3480
Watt-hour rating : 9.4 Wh / 9.0 Wh (Nominal / Rated)

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 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.
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 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

Appearance : Lithium Ion Rechargeable Cells.
Average Operating Voltage : 3.6 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 are not subject to dangerous goods regulation for the purpose of transportation by the International Maritime Dangerous Goods regulations(IMDG). For Lithium ion batteries, the Watt-hour rating is no more than 20Wh/cell and 100Wh/battery pack can be treated as “non-dangerous goods” by the United Nations Recommendations on the Transport of Dangerous Goods/Special Provision 188, provided that the products are prevented from being short-circuited with each other and are packaged in an appropriate condition which satisfies Packing Group II performance level.
- 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 will be restricted to carriage on cargo aircraft. All packages must bear the Cargo Aircraft Only label and Class9 label in addition to the other marks and labels required by the Regulations.

  Section IB requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh.

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 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 65th 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, Tohoku Murata Manufacturing MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON IT.

For product quotations and sales inquiries, please contact the dedicated form on the Murata Manufacturing website.

Contact to：<https://www.murata.com/en-global/contactform>