No: QA-TR-91677

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SAFETY DATA SHEET

1. Product and Company Identification

Product Information

Company Name : OLYMPUS Corporation
Product Category : Lithium Ion Polymer Rechargeable Battery Pack
Model Name : BLS-50 / LIP2201OPPCA
Rated Capacity : 1175 mAh (8.5 Wh)
Average Operating Voltage : 7.2 V

Company Identification

Supplier's Name : Tohoku Murata Manufacturing Co., Ltd.
Supplier's Address : 1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima, 963-0531 Japan
Information Telephone : +81-24-955-7770
Date Prepared : Jul. 25, 2019
Signature of Paper :

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 two US523350N lithium ion polymer rechargeable cell and control circuit on the PWB.
The cells are connected in 1 parallel string of 2 cells in series.
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 contains neither metallic lithium nor lithium alloy.

Common chemical name / General name	CAS number	Concentration / Concentration range
Lithium Cobalt Oxides (active material)	12190-79-3	6%
Lithium Nickel Oxides(active material)	12031-65-1	29%
Polyvinyldiene Fluoride(binder)	24937-79-9	2%
Carbon(active material)	7440-44-0	20%
Phosphate(1-), hexafluoro-, lithium	21324-40-3	2%
Ethylene carbonate	96-49-1	5%
Propylene carbonate	108-32-7	5%
Aluminum	7429-90-5	11%
Copper	7440-50-8	14%
Polyethylene	9002-88-4	6%

Enclosure : Plastic (PC)
UN number : UN3480
Watt-hour rating : 8.5 Wh 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 -10°C to 30°C (14°F to 86°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.
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 -10°C to 60°C (14°F to 140°F) temperature.
Disposal	: Dispose in accordance with applicable federal, state and local regulations.
Caution	: Do not incinerate, disassemble, expose to high temperature (140° F/60° C), Short circuit, replace with incorrect battery; may explode or release toxic materials. Dispose of batteries according to instructions.

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 polymer rechargeable cells are set in a resin case.
Average Operating Voltage	: 7.2 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 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.

Section II 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 packed in quantities that within the allowance permitted in Section II, Table 965-II.

TABLE 965-II

Contents	Lithium ion cells and/or batteries with a Watt-hour rating of 2.7Wh or less	Lithium ion cells with a Watt-hour rating of more than 2.7Wh but not more than 20Wh	Lithium ion batteries with a Watt-hour rating of more than 2.7Wh but not more than 100Wh
Maximum number of cells/ batteries per package	No limit	8 cells	2 Batteries
Maximum net quantity per package	2.5 kg	N/A	N/A

Lithium ion cells and batteries meeting the requirements in this section are not subject to other additional requirements of these Regulations except for:

- 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;
- cells and batteries must be manufactured under a quality management program;
- for batteries, The Watt-hour rating must be marked on the outside of the battery case;
- Each package must be capable of withstanding a 1.2m drop test in any orientation without:
  - -damage to cells or batteries contained therein;
  - -shifting of the contents so as to allow battery to battery (or cell to cell) contact;
  - -release of contents.
- Each package must be marked with the lithium battery mark and the cargo aircraft only Label.
- A shipper is not permitted to offer for transport more than one package prepared according to Section II in any single consignment.

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 packed in quantities that exceed the allowance permitted in Section II, Table 965-II.
Quantities of lithium ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II must be assigned to Class 9 and are subject to all of the applicable provisions of Regulation.

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 2018 Edition
- ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2019-2020 Edition
- IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 60th 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.