

Identity :**Lithium-Ion Battery**

(closed cylinder)

**Material Safety
Data Sheet**

Complies with the OSHA Hazard

Communication Standard :

29 CFR 1910 1200

| | |
|---|------------------------------|
| Makita U.S.A., Inc. 14930-C Northam Street La Mirada, CA 90638 | Prepared By : Stan Rodrigues |
| | Date Revised: 9/3/2010 |
| Emergency Telephone Number : CHEMTREC: 800-424-9300 | |
| Telephone Number for Information : MAKITA: 510-657-9881 | |

HAZARDOUS COMPONENTS:

The battery pack should not be opened or burned since the ingredients contained within the cells could be harmful under some circumstances if exposed or misused. The cells contain neither metallic lithium nor lithium alloy.

| | Chemical Name |
|---------------------|--|
| Cathode: | Lithium Nickel Cobalt Oxides Lithium Manganese Oxides (active material) Polyvinylidene Fluoride (binder) Graphite (conductive material) |
| Anode: | Graphite (active material) Polyvinylidene Fluoride (binder) |
| Electrolyte: | Organic Solvent (non-aqueous liquid), Lithium Salt |
| Others: | Heavy metals such as Mercury, Cadmium, Lead, and Chromium are not used in the cells. |
| Enclosure: | Plastic (PC) |

TRANSPORTATION INFORMATION:

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 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). For Lithium ion batteries, the Watt-hour rating is no more than 20Wh/cell and 100Wh/battery pack and the equivalent Lithium content is no more than 1.5 grams/cell and no more than 8.0 grams/battery pack. The watt hour ratings and equivalent Lithium content in the battery means they 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.

The shipment complies with the Packing Instruction 965 Part 1 under IATA and so the cargo can be exempted from Dangerous Goods Regulations

Each cell or 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

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 contents so as to allow battery to battery (or cell to cell) contact;
- release of contents.

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. |

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 |

FIRE FIGHTING MEASURES:

| |
|---|
| Use specified extinguishers (gas, foam, powder) and extinguishing system under 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 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. |

ACCIDENTAL RELEASE MEASURES:

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

PRECAUTIONS FOR SAFE HANDLING AND USE:

| | |
|---------------------|--|
| Storage: | Store within the recommended limit of -30°C to 45°C (-22°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 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. 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. |
| Caution: | Do not incinerate. Do not disassemble. Do not expose to high temperatures (60°C / 140°F) Do not impact, pierce or crush battery. Use specified charger only. Dispose of properly |

CONTROL MEASURE:

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

STABILITY AND REACTIVITY DATA:

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

TOXICOLOGICAL INFORMATION:

Acute toxicity: No information as a battery

Local effects: No information as a battery