

PRODUCT SAFETY DATA SHEET

Manufacturer

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Name of Product Lithium ion rechargeable battery (or, Lithium ion secondary battery)
(Model name) (CGR-, CGP-, CGA-)

Substance Identification

Substance : Lithium ion rechargeable battery
CAS number : Not specified.
UN Class : Even classified as lithium batteries, they are exempted from Dangerous Goods.
UN-Recommendations on the Transport of Dangerous Goods Model Regulations
(ST/SG/AC. 10/1 Rev. 11)
**Lithium ion rechargeable cells are not subject to the UN Regulations if they meet the following provisions.
• The equivalent Lithium content calculated by 0.3 times of the rated capacity in Ampere-hour(Ah) is not more than 1.5g. (1)

**Lithium ion rechargeable batteries are not subject to the UN Regulations if they meet the following provisions.

- The equivalent Lithium content is not more than 8g. (1)

Composition	: Positive electrode; Lithium cobalt oxide	20–35wt%
	Negative electrode; Carbon	5–20wt%
	Electrolyte; Organic electrolyte mainly composed of alkyl carbonate	10–20wt%

Hazardous and Toxicity Class

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. Take a medical treatment. 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. Take a medical treatment.

Fire Fighting Measures

Extinguishing method : Since vapor, generated from burning batteries may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.

Fire extinguishing agent: Dry chemical, alcohol-resistant foam, carbon dioxide and plenty of water are effective.

Measures for electrolyte leakage from the battery

- Take up with absorbent cloth.
- Move the battery away from the fire.

Handling and Storage

- When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box,

or

in a separate plastic bag so that the single batteries are not mixed together. (1)(2)

- Use strong material for packaging boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation. (1)(2)(3)
- Do not let water penetrate into packaging boxes during their storage and transportation.
- The batteries will be stored at room temperature, charged to about 30–50% of capacity.
- Do not store the battery in places of the high temperature exceeding 35 deg. C or under

direct

sunlight or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, water drop or not to store it under frozen condition.

- Batteries are sure to be packed in such a way as to prevent short circuits under conditions normally encountered in transport. (1)(2)(3)
- Please avoid storing the battery in the places where it is exposed to the static electricity so that no damage will not be caused to the protection circuit of the battery pack.

Exposure Control (in case of electrolyte leakage from the battery)

Acceptable concentration: Not specified in ACGIH. (4)

Facilities : Provide appropriate ventilation system such as local ventilator in the storage place.

Protective clothing : Gas mask for organic gases, safety goggle, safety glove.

Physical and Chemical Properties

Appearance : Single cell: Cylindrical or Prismatic cell

Nominal voltage : Single cell: 3.6 volts

Stability and Reactivity

Since batteries utilize a chemical reaction they are actually considered a chemical product. As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

Toxicological Information (in case of electrolyte leakage from the battery)

Acute toxicity : Oral (rat) LD50 >2g/kg (estimated)
Irritation : Irritating to eyes and skin.
Mutagenicity : Not specified.
Chronic toxicity : Not specified.

Ecological Information

- In case of the worn-out battery was disposed in land, the battery case may be corroded, and leak electrolyte. But, we have no ecological information.
 - Heavy metal quantity for cell

Hg	< 0.5ppm	Measurement Analysis: Atomic Absorption Spectrometer
Cd	< 4.0ppm	Measurement Analysis: Atomic Absorption Spectrometer
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Disposal Considerations (Precautions for recycling)

- When the battery is worn out, dispose of it under the ordinance of each local government or the law issued by relating government.
 - Disposal of the worn-out battery may be subjected to Collection and Recycling Regulation.
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Transport Information

- During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to condensation.
- During the transportation do not allow packages to be fallen down or damaged.
- For shipping, batteries are recommended to be in a less than 50% charged state (SOC).
- For air shipment that contain more than 40 new lithium ion rechargeable cells, or more than 20 new lithium ion rechargeable batteries, they are recommended to be subject to the following Federal Register/ Vol.65, No.174/ Thursday, September 7, 2000/ Notices. (2)
 1. Each packages shall be marked indicating that it contains lithium batteries and

special procedures shall be followed in the event that the package is damaged.

2. Each shipment shall be accompanied with a document indicating that packages

contain

Lithium batteries and that special procedures shall be followed in the event that the package is damaged.

3. Same documents shall be provided to air carriers.

4. Packages shall not exceed 30kg.

5. Packages shall be strong boxes, at the Packing Group II performance level.

Regulatory Information

- IATA Dangerous Goods Regulations

- ICAO Technical Instructions for the safe transport of dangerous goods by air

Others

References

(1) UN Recommendations on the Transportation of Dangerous Goods Model Regulations
(ST/SG/AC.10/1/Rev.11)

(2) Federal Register/ Vol. 65, No. 174/Thursday, September 7, 2000/Notices

(3) IATA Dangerous Goods Regulations 42nd Edition Effective 1 January 2001

(4) TLVs and BEIs 1999 ACGIH
