

PRODUCT SAFETY DATA SHEET

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Manufacturer

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Name of Product : Lithium Ion Battery
(Model Name) CRA-B4 / CRA-B5 / CRA-B27 / CRA-B27DK

Substance Identification

Substance : Lithium Ion Rechargeable Battery Cell
CAS Number : Not specified
*For details, see the MDS or SDS for Lithium Ion Rechargeable Battery Cell

Hazards Identification

Battery cell : Refer to SDS of Lithium Ion Rechargeable Battery cell from manufacturer
Battery Pack
Hazard : It may cause heat generation or electrolyte leakage if battery terminals contact shorted by any conductive part. Since leaked electrolyte is inflammable, do not bring close to fire. In case of electrolyte leakage, move the battery from fire immediately.
Inhalation : The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract.
Skin contact : The steam of the electrolyte stimulates the skin. The electrolyte skin contact causes a sore and stimulation on the skin.
Eye contact : The steam of the electrolyte stimulates the eyes. The electrolyte eye contact causes a sore and stimulation on the eye. Especially substance that causes strong inflammation on the eyes.
Environmental : Since a battery remains in the environment, do not throw out into the environment.

First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye Contact : Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.
Skin Contact : Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.
Inhalation : Make the victim blow his/her nose, gargle. Seek medical attention if necessary.
Ingestion : Wash out mouth thoroughly. Do not make the victim vomit, unless instructed by medical personnel. Seek medical attention immediately.

Fire Fighting Measures

- Hazard : Corrosive gas may be emitted during fire.
- Fire Extinguishing type : Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.
- Extinguishing Method : When the battery burns with other combustibles simultaneously. Take the fire extinguishing method which corresponds to the combustibles. Extinguish the fire from windward as much as possible.
- Protective Equipment : Refer to "Exposure Control"
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Measures for electrolyte leakage from battery

- Remove spilled materials with protective equipment(protective glasses and gloves). Do not inhale the gas as much as possible. Avoid touching as much as possible.
 - Do not throw out into the environment
 - Put the spilled solids into a container. Wipe off the liquid with a dry cloth.
 - Avoid re-scattering. Do not bring the collected materials close to fire
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Handling and Storage

- Do not connect the positive and negative terminal with electrical wire or chain.
 - Avoid reverse polarity connections when installing the battery to an instrument.
 - Do not wet the battery with water, seawater, drinks or acid; or expose to a strong oxidiser.
 - Do not remove or damage the external shell.
 - Keep away from heat and fire.
 - Do not disassemble or reconstruct the battery; or solder the battery directly.
 - Do not apply mechanical shock or deform the battery.
 - Do not use unauthorised chargers or charging methods. Terminate the charging process if it does not end within the specified time.
 - Do not store the battery with metalware, water, seawater, acid or strong oxidiser.
 - The battery is to be stored at room temperature (detail refer to product specification). Avoid direct sunlight, high temperature and high humidity.
 - Use insulative and adequately strong packaging materials to prevent short circuit. Avoid conductive or fragile packaging materials.
 - Make the charge amount less than or equal to 50% then store at ~20~40 degree C in a dry (humidity:45~85%) place. Since deterioration will be faster in the high temperature range than in the low temperature range so do not keep it in the high temperature range beyond the period that is specified by the seller or owner.
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Exposure Control (Personal protection when electrolyte leakage from the battery)

Control Parameters : ACGIH has not been mention control parameter of electrolyte

Personal protective equipment

- Respiratory protection : Respirator with air cylinder, dust mask
- Hand protection : Protective gloves
- Eye protection : Goggles or protective glasses designed to protect against liquid splashes
- Skin and body protection : Working clothes with long sleeves and long trousers
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Physical and Chemical Properties

- Appearance : Battery Pack enclosed in a polycarbonate casing.
- Nominal Voltage / Wh : Battery Pack 3.7 Volts / 4.9Wh
- Odor : No Odor
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Stability and Reactivity

Since batteries utilise a chemical reaction they are actually considered a chemical product. As such, battery performance will deteriorate over time if stored for a long period of time without being used. In addition, if 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.

Stability	: Stable under normal use
Conditions to avoid	: Crushing or deformation, use and storage at 80 degree C or higher or at high humidity. Usage at a voltage or a current outside the rating and external short circuit.
Materials to avoid	: Conductive materials, water or metal pieces. Oxidizing agent such as bleach.
Hazardous decomposition product	: Irritating or harmful gases are released if a leakage or fire occurs.

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

Organic Electrolyte

Acute Toxicity	: LD ₅₀ , oral - Rat 2,000 mg/kg or more
Irritating nature	: Irritating to eyes and skin

Ecological Information

Persistence / Degradability

- Do not bury or throw out battery pack into the environment.
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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
 - Disposal of the worn out battery may be subjected to Collection and Recycling Regulation
 - When internal materials leaked from battery, dispose as industrial wastes subject to special control.
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Transport Information

- In case of transportation, avoid exposure to high temperature and prevent the formation of any condensation. Take in a cargo of them without falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in damage to the battery pack

UN regulation

- UN Number : 3480 (3481 when the battery is contained in equipment or pack with equipment)
- Proper shipping Name : Lithium ion batteries ("Lithium ion batteries contained in equipment" or "Lithium ion batteries packed with equipment")
- Class : 9
- Packing group : refer to transportation mode

Regulation depends on region and transportation mode

- Worldwide - Air transportation:
ICAO TI/IATA-DGR
 - Worldwide - Ocean transportation:
IMO-IMDG Code
 - Europe - Ground transportation:
ADR
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Regulatory Information

- Wastes Disposal and Public Cleansing Law [Japan]
- Law for Promotion of Effective Utilization of resources [Japan]
- US Department of Transportation 49 Code of Federal Regulations [USA]

*About overlapping regulations, please refer to "Transport Information"

Others Information

- This safety data sheet is offered to an agency who handles this product to handle it safely.
- The agency should utilize this safety data sheet effectively (put it up, educate person in charge) and take proper measures.
- The information contained in this safety data sheet is based on the present states of knowledge and current legislation.
- This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

References

- (1) Dangerous Goods Regulations - 64th Edition Effective 1 January 2023: International Air Transport Association (IATA)
 - (2) IMDG Code - 2022 Edition : International Maritime Organization (IMO)
 - (3) The European Agreement concerning the International Carriage of Dangerous Goods by Road-2021: The United Nations Economic Commission for Europe (UNECE)
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