



鸿伟能源有限公司

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SAFETY DATA SHEET

Section 1. Identification

1.1 Product: Lithium ion battery

Product Category: Lithium Ion Batteries

1.2 Manufacturer:

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Section 2. Hazards Identification

Classification of Products:

Under normal use, the battery cells present no physical danger of ignition or explosion and chemical danger of hazardous materials leakage. Battery cells are designed to vent gas to prevent explosion, if exposed to a fire, added mechanical shocks, electrically abused or physically damaged. This leaked gas could contain material classified as hazardous.

GHS Label elements, including precautionary statements:

Hazard statements:

Heating may cause a fire
Toxic if contact with skin
Causes severe skin burns and eye damage
Harmful if swallowed
Harmful if inhaled



Signal word: Warning

Primary Route(s) of Exposure

These chemicals are contained in a sealed stainless steel enclosure or a sealed aluminum foil pocket. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

Potential Health Hazards:

Skin Contact: The steam or liquid of the cell electrolyte can have adverse reactions to the skin. If cell electrolyte contacts skin it can cause severe irritation or chemical burns.

Eye Contact: The steam or liquid of the cell electrolyte can have adverse reactions to the eyes. If cell electrolyte contacts the eyes it can cause severe irritation or chemical burns.

Inhalation: The steam or liquid of the cell electrolyte can have adverse reactions if inhaled. If cell electrolyte is inhaled it may cause severe respiratory irritation.

Ingestion: Swallowing or ingesting the contents of an open cell can cause serious chemical burns to the mouth, esophagus and gastrointestinal tract.

Medical Conditions Aggravated by Exposure: Not Available

Interactions with Other Chemicals: Immersion in high conductivity liquids may cause corrosion and breaching of the cell or battery enclosure. If vented cell electrolyte contacts water it will generate detrimental hydrogen fluoride.

Environmental Effects: Not Available

Prevention:

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Do not breathe dust/fume/gas/mist/vapors/spray
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Pressurized container: Do not pierce or burn, even after use
- Do not spray on an open flame or other ignition source

Precautionary Statements - Response

- IF ON SKIN: Gently wash with plenty of soap and water
- IF SWALLOWED: Rise mouth, DO NOT induce vomiting
- IF IN EYES: Rinse cautiously with water for several minutes, Remove contact lenses, if present and easy to do. Continue rinsing.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Disposal:

Dispose of contents/container in accordance with local/national regulations.

Section 3. Composition/Information on Ingredients

Ingredient	Content (percent of total weight)	CAS Index No.
Lithium Cobalt Oxide (CoLiO ₂)	30-35%	12190-79-3
Graphite	15-20%	7782-42-5
Difluoroethylene polymer	2-5%	24937-79-9
Acetylene	0.5-3%	1333-86-4
Aluminum	20-25%	7429-90-5
Copper	8-15%	7440-50-8
Electrolyte(Phosphate(1-), hexafluoro-, lithium)	10-15%	21324-40-3
Nickel	1-3%	7440-02-0

Section 4. First Aid Measures

Eye

Flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Get medical advice if you fell unwell.

Skin

Remove contaminated clothes and rinse skin with plenty of water or shower. Get medical advice if you fell unwell.

Inhalation

Remove from exposure and move to fresh air immediately. Get medical advice if you fell unwell.

Ingestion

Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician

Section 5.Fire-Fighting Measures

Extinguishing Media:

Suitable Extinguishing Media: Water, Fire Extinguishing Powder, Nitrogen Gas, Carbon Dioxide, or Foam.

Unsuitable Extinguishing Media: Oxidizing agents, reducing agents, acids or alkalis.

Explosion Data: Closed containers may explode when exposed to temperatures above 120°C (248°F).

Hazchem Code: 4W (Australia, New Zealand and Malaysia)

Sensitivity to Mechanical Impact: Extreme mechanical abuse could cause venting of the cells.

Sensitivity to Static Discharge: If electrolyte is exposed to electrostatic discharge it could ignite.

TDG/DOT ERG Code:147

Special Hazards Arising from the Chemical:

If a cell vents and exposes lithium hexafluorophosphate mixed with water vapor, this could create a poisonous gas of hydrogen-fluoride gas. Degradation of the cell by heat may produce hazardous fumes of lithium, cobalt-manganese, hydrofluoric acid, hydrogen and oxides of carbon, aluminum, lithium, copper and cobalt.

Specific Method for Fire Fighting:

When battery cells combust they tend to ignite other cells in the adjacent area. Prevent this by flooding the area with Carbon Dioxide, Foam, Nitrogen Gas or Fire Extinguishing Powder. Although use of water will extinguish flame it may create hydrogen-fluoride gas.

Special Protective Equipment for Fire Fighters:

Respiratory Protection: Self-contained Breathing Apparatus

Hand Protection: Protective Gloves

Eye Protection: Full Face Breathing Apparatus or Goggles

Body Protection: Protective Uniform

Section 6.Accidental Release Measures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges. Do not breathe vapor or mist.

Other Information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Flood with water to complete polymerization and scrape off floor.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7.Handling And Storage

Precautions for Safe Handling:

Avoid shorting the battery. Do not immerse in water. Do not disassemble or deform the battery. Do not expose to, or dispose of the battery in fire. Avoid excessive physical shock or vibration. Keep out of the reach of children.

Battery must be charged in an approved charger. Never use a modified or damaged charger. Use for specified product applications only. Store in a cool, dry and well-ventilated area. Never use a battery that has suffered abuse. Refer to data sheet for safe operating instructions.

Conditions for Safe Storage:

Store battery in a cool (25°C+/-5°C), Dry (<85% Humidity) well ventilated area. Keep battery in packaging material to prevent exposure to elements and conductive material.

Do not store battery near heat, high humidity, open flame, sunlight, water, seawater, strong acids, strong oxidizers, strong reducing agents, strong alkalis or metal wire.

Section 8. Exposure Controls / Personal Protection

Under routine operation none of these safety procedures or equipment are required. Take the following safety measures only if the internal cells are comprised and leak or vent.

Exposure Control Measures:

Exposure Limit Values- ACGIH does not mention electrolyte as a controlled method. Not applicable.
Biological Monitoring- Not Applicable.
Control Banding- Not Applicable.
Recommended Monitoring Procedures- Follow standard monitoring procedures.
Derived no-effect level- Not Applicable.
Derived minimal effect level- Not Applicable.
Predicted no-effect concentrations- Not Applicable.

Personal Protective Equipment:

Engineering Controls- Special ventilation is only required if cell venting occurs.
Eye and Face Protection- Wear chemical resistant safety goggles or face shield.
Hand Protection- Wear chemical resistant gloves.
Skin Protection- Wear long sleeved clothing. Solid clothing should be washed with detergent.
Respiratory Protection- Wear an approved half face inorganic vapor, gas, acid and particulate respirator.
Thermal Protection- Not Applicable.
Hygiene Measures- Do not eat, drink or smoke in work areas.
Environmental Exposure Controls- Do not release into the environment.

Section 9 . Physical And Chemical Properties

Physical state: Solid article
Freezing point: N/A
Boiling point: N/A
Density: N/A
Vapor pressure: N/A
Vapor density: N/A
Flash point: N/A
Evaporation rate: N/A

Section.10 Stability and Reactivity

Stability: Stable during normal operating conditions.

Conditions to Avoid: Keep away from open flames, hot surfaces, and sources of ignition. Do not puncture, crush, or incinerate.

Incompatible materials: Incompatible with water, moisture, strong oxidizing agents, reducing agents, acids and bases.

Hazardous Decomposition Products: None, under normal operating conditions. Carbon dioxide and hydrogen fluoride gas may be generated during combustion of battery.

Section 11. Toxicological Information

Information on Toxicological Effects:

The battery no toxicological effects under normal use. Within recommended conditions the electrode materials and liquid electrolytes do not react when the battery remains sealed. Exposure to these hazardous components is only possible if the battery leaks or vents. The following toxicology data is in respect to a person coming into contact with exposed electrolyte of the battery.

Acute Toxicity:

Swallowed- The electrolyte contained within the battery is a corrosive material. Ingestion of this electrolyte would be harmful. Swallowing may result in nausea, vomiting, diarrhea, abdominal pain and chemical burns in the gastrointestinal tract. During normal usage ingestion of a battery is physically impossible.

Skin Corrosion or Irritation:

The electrolyte contained within the battery is a corrosive liquid. If this corrosive liquid make contact to your skin they could cause irritation or even severe chemical burns. A battery presents no danger to a person's hand or skin.

Serious Eye Damage or Irritation:

The electrolyte contained within the battery is a corrosive liquid. If this electrolytes makes contact with the eye it could cause irritation or even irreversible damage to the eye. A battery presents no danger to eyes.

Respiratory or Skin Sensitization:

It presented no evidence that the electrolyte contained within the battery cause no respiratory or skin sensitizers.

Section 12. Ecological Information

Ecotoxicity

The batteries when properly used or disposed of do not present environmental hazard. The batteries do not contain mercury, cadmium or lead.

Do not let internal components enter marine environment. Avoid release to waterways, wastewater or groundwater.

Section 13. Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Waste treatment methods

Do not incinerate. Waste disposal must be in accordance with any and all applicable regulations. Disposal of lithium rechargeable batteries should be performed by permitted, professional disposal firms knowledgeable in federal, state or local requirements. Lithium batteries should be discharged to 0.00mAh prior to disposal.

Section 14. Transport Information

UN Number: 3480 or 3481

UN Testing: UN Manual of Tests and Criteria, Part III subsection 38.3 ST/SG/AC.10/C/3/2010 5th Edition: All battery assemblies noted in Section 1.1 have been tested to meet the referenced standard.

UN Proper Shipping Name: 3480-Lithium Ion Batteries. 3481-Lithium Ion Batteries Contained in Equipment or Lithium Ion Batteries Packed with Equipment

Transport Hazard Classes:

Class: 9

Subsidiary Risk: None

Labels: Lithium Handling Label, Class 9 Lithium Label, Cargo Aircraft Only Label

Hazard No. (ADR): 9

Tunnel Restriction Code: E

Packing Group: II/IB

Environmental Hazards: None

Special Precautions for User: Read Safety Data Sheet and Specification Data sheet before use. Australia, New Zealand and Singapore follow Hazchem Code: 4W. TDG/DOT ERG Code: 147. ICAO/IATA ERG Code: 9F.

Transport in bulk IBC Code: No applicable code.

Section 15. Regulatory Information

The transportation of the lithium batteries is regulated by the United Nations "Model Regulations on Transport of Dangerous Goods".

Exceptions from shipping requirements for lithium cells and batteries are provided in 49 CFR 173.185.

Shipping of lithium batteries in aircrafts are regulated by the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) requirements. See special provision A88.

Shipping of lithium batteries by vessel are regulated by the International Maritime Dangerous Goods (IMDG).

Section 16. Other Information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

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