



Material Safety Data Sheet

Rechargeable Li-ion Battery

Model: 731834

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| Prepared by | Approved by |
| Jie Chen | Fenzhi Shi |



Material Safety Data Sheets (MSDS)

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name: Rechargeable Li-ion Battery
Model: 731834
Nominal Voltage: 3.85V
Rated Capacity: 450mAh / 1.732Wh
Revision Date: 2021-12-21
Expiry date: 2022-12-31

Other means of identification

Synonyms: none

Recommended use of the chemical and restrictions on use

Recommended Use:

Uses advised against:

- a) Do not dismantle, open or shred secondary cells or batteries.
- b) Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight.
- c) Do not short-circuit a cell or a battery. Do not store cells or batteries haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
- d) Do not remove a cell or battery from its original packaging until required for use.
- e) Do not subject cells or batteries to mechanical shock.
- f) In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.
- g) Do not use any charger other than that specifically provided for use with the equipment.
- h) Observe the plus (+) and minus (-) marks on the cell, battery and equipment and ensure correct use.
- i) Do not use any cell or battery which is not designed for use with the equipment.
- j) Do not mix cells of different manufacture, capacity, size or type within a device.
- k) Battery usage by children should be supervised.
- l) Seek medical advice immediately if a cell or a battery has been swallowed.
- m) Always purchase the battery recommended by the device manufacturer for the equipment.
- n) Keep cells and batteries clean and dry.
- o) Wipe the cell or battery terminals with a clean dry cloth if they become dirty.
- p) Secondary cells and batteries need to be charged before use. Always use the correct charger and refer to the manufacturer's instructions or equipment manual for proper charging instructions.
- q) Do not leave a battery on prolonged charge when not in use.
- r) After extended periods of storage, it may be necessary to charge and discharge the cells or batteries several times to obtain maximum performance.
- s) Retain the original product literature for future reference.
- t) Use only the cell or battery in the application for which it was intended.



u) When possible, remove the battery from the equipment when not in use.

v) Dispose of properly.

Details of the Manufacturer of the safety data sheet:

Name: Springpower Technology (Shenzhen) CO., LTD.

Address: 101, No. 2, Chaoshun Industrial Zone, 101 Building 6 and 101 Building 7, No. 221 on Renmin Road, Fumin Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, China

Fax: +86-755-29522241

Postcode: 518110

E-mail address: jchen@highpowertech.com

Emergency telephone number

Company Emergency Phone Number: 86-755- 61862699

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Classification of the substance or mixture

Classification according to GHS

Acute toxicity-oral (Hazard category 4)

Acute toxicity-dermal (Hazard category 4)

Skin corrosion / irritation (Hazard category 1A to 1C)

Skin corrosion / irritation (Hazard category 2)

Eye damage / irritation (Hazard category 1)

Eye damage / irritation (Hazard category 2B)

Substances and mixtures which, in contact with water, emit flammable gases (Hazard category 3)



GHS02



GHS05



GHS07

Signal word: Warning

Hazard statement(s):

H261 In contact with water releases flammable gas

H302 Harmful if swallowed

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

H315 Causes skin irritation

H319 Causes serious eye damage

H320 Causes eye irritation



Precautionary statements:

Prevention:

- P231+P232 Handle under inert gas. Protect from moisture.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:

- P301+P312 If swallowed: Call a poison center/doctor/.../ if you feel unwell.
P302+P352 If on skin: Wash with plenty of water
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a Poison center or doctor/physician if you feel unwell.
P321 Specific treatment (see....on this label)
P330 Rinse mouth.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P370+P378 In case of fire: Use ... to extinguish

Storage:

Store locked up.

Disposal

P501: Dispose of contents/container in accordance with local/national regulations

Hazards not otherwise classified (HNOC)

Not Applicable

Other information

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Mixtures

Description:

Product: Consisting of the following components.

| Chemical Composition | | Weight% | CAS No |
|-------------------------|----------|---------|------------|
| Lithium Cobalt Oxide | | 35~38% | 12190-79-3 |
| Graphite powder | | 23~25% | 7782-42-5 |
| Electrolyte | | 12~15% | 21324-40-3 |
| Laminated aluminum film | | 0.5~1% | 7429-90-5 |
| Aluminum foil | | 2~6% | 7429-90-5 |
| Copper foil | | 5~10% | 7440-50-8 |
| Aluminum tab | Aluminum | 2~3% | 7429-90-5 |
| | Tab Tape | 1~3% | 9003-07-0 |
| Nickel tab | Nickel | 2~3% | 7440-02-0 |
| | Tab Tape | 1~3% | 9003-07-0 |



| | | | |
|----------------|---------|-------------|------------|
| Blue tape | PET | 0.01%~1.05% | 25038-59-9 |
| | acrylic | 0.01%~1.05% | 9011-14-7 |
| PVDF | | 0.5~2% | 24937-79-9 |
| Separator film | | 2~5% | 9002-88-4 |

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

4. FIRST-AID MEASURES

First aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Remove contaminated clothing and shoes. Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Inhalation Move to fresh air. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Swallowing Do not induce vomiting. Get medical attention.

Most Important Symptoms/Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

CO₂, dry chemical powder, water spray.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Chemical

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide (CO)

Carbon dioxide

Other irritating and toxic gases.

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No

Sensitivity to Static Discharge No

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. For example: Wear self-contained respiratory protective device.

Wear suitable protective clothing and eye/face protection.

Special hazards arising from the substance or mixture:

Battery may burst and release hazardous decomposition products when exposed to a fire situation.



Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature(>150°C), When damaged or abused(e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with eyes.

Refer to section 8 for personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas.

Environmental precautions

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other Non combustible absorbent material. Pick up and transfer to properly labeled containers.

Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.

Wash thoroughly after handling. Use this material with adequate ventilation.

The product is not explosive.

Conditions for safe storage, including any incompatibilities

If the Lithium-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Lithium-ion Polymer Battery periodically.

3 months: -10°C~+40°C, 45 to 85%RH

And recommended at 0°C~+35°C for long period storage.

The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.

Do not storage Lithium-ion Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

Keep out of reach of children.

Do not expose Lithium-ion Polymer Battery to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

Keep ignition sources away- Do not smoke.

Store in cool, dry and well-ventilated place.

Incompatible Products None known.



8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

| | |
|---|-----------------------|
| Ingredients with limit values that require monitoring at the workplace: | |
| 12190-79-3 Lithium Cobalt Oxide | |
| TLV(USA) | 0.02mg/m ³ |
| MAK (Germany) | 0.1mg/m ³ |

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962(11th Cir., 1992).

Appropriate engineering controls

Engineering Measures Showers

Eyewash stations

Ventilation systems

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/Face Protection:



Tightly sealed goggles

Body protection:Protective work clothing.

Skin protection:



Protective gloves

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.



Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|--|
| Physical State | Form: Solid |
| | Color: Silver |
| | Odour: None |
| | Odor Threshold: None |
| Change in condition: | |
| pH, with indication of the concentration | Not determined. |
| Melting point/freezing point | Not determined. |
| Initial boiling point and Boiling range: | Not determined. |
| Flash Point | Not determined. |
| Evaporation rate | Not determined. |
| Flammability (solid, gas) | Not determined. |
| Upper/lower flammability or explosive limits | Not determined. |
| Vapor Pressure: | Not determined. |
| Vapor Density: | Not determined. |
| relative density: | Not determined. |
| Solubility in Water: | Not determined. |
| Solubility in other solvents | Not determined. |
| n-octanol/water partition coefficient | Not determined. |
| Auto-ignition temperature | Product is not self-igniting. |
| Decomposition temperature | Not determined. |
| Odour threshold | Not determined. |
| Evaporation rate | Not determined. |
| Viscosity | Not determined. |
| Other Information | No further relevant information available. |

10. STABILITY AND REACTIVITY

Reactivity: Stable under recommended storage and handling conditions (see section 7, Handling and storage).

Chemical stability: Stable under normal conditions of use, storage and transport.

Thermal decomposition/conditions to be avoided: No decomposition if used according to



specifications.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to avoid: Strong heating, fire, Incompatible materials.

Incompatible materials: Strong oxidizing agents. Strong acids. Base metals.

Hazardous Decomposition Products: Carbon oxides, Other irritating and toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: No data available.

LD/LC50 values relevant for classification:

Not available.

Skin corrosion/irritation: No irritant effect.

Serious eye damage/irritation: Cause serious eye irritation.

Respiratory or skin sensitization: No sensitizing effects known.

Specific target organ system toxicity: No information available.

CMR effects(carcinogenicity, mutagenicity and toxicity for reproduction): No information available.

12. Ecological Information

Toxicity:

Acquatic toxicity:

No further relevant information available.

Persistence and degradability: No further relevant information available.

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Results of PBT and vPvB assessment

PBT: Not applicable. •

vPvB: Not applicable.

Other adverse effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation: Must not be disposed together with household garbage.

Do not allow product to reach sewage system

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

Land transport

ADR/RID class: Not regulated.

UN-Number: UN3481 or UN3480

Maritime transport

IMDG Class: Class 9.



UN Number: UN3481 or UN3480

Marine pollutant: No

Air transport

ICAO/IATA Class: Class 9

UN/ID Number:

- UN3480, Lithium ion batteries, PI965.
- UN3481, Lithium ion batteries packed with equipment, PI966.
- UN3481, Lithium ion batteries contained in equipment, PI967.

Environmental hazards: Not applicable.

Special precautions for user: Not applicable.

Transport/Additional information: Not restricted goods according to the above specifications.

The Lithium-ion Battery had been tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

The Rechargeable Li-ion Battery (731834) according to Section IA/IB of PACKING INSTRUCTION 965/ 966 /967 of the 2022 IATA Dangerous Goods regulations 63rd Edition may be transported and applicable U.S.DOT regulations for the safe transport of Li-ion Battery.

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.

The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

Meets requirements of DOT Special Provision 188 to be transported as non-dangerous goods

Meets the requirements of 49CFR173.185 to be transported as non-dangerous goods for road, rail, air, and vessel;

The package must be handled with care and that a flammability hazard exists if the package is damaged;

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation:

Authorisations: No information available.

Restrictions on use: No information available.

Regulatory information

| CAS No. | USA TSCA | EU EINECS | Japan ENCS | Korea ECL | China IECSC | Canada DSL |
|------------|------------|------------|------------|-----------|-------------|------------|
| 12190-79-3 | Listed | Listed | Listed | Listed | Listed | Listed |
| 7782-42-5 | Listed | Listed | Not listed | Listed | Listed | Listed |
| 21324-40-3 | Not listed | Listed | Listed | Listed | Listed | Not listed |
| 9002-88-4 | Listed | Listed | Listed | Listed | Listed | Listed |
| 7440-50-8 | Not listed | Listed | Listed | Listed | Listed | Not listed |
| 7440-02-0 | Not listed | Listed | Listed | Listed | Listed | Not listed |
| 24937-79-9 | Listed | Not listed | Listed | Listed | Listed | Listed |
| 9003-07-0 | Listed | Listed | Listed | Listed | Listed | Listed |
| 7429-90-5 | Listed | Listed | Not listed | Listed | Listed | Listed |
| 7440-21-3 | Listed | Listed | Listed | Listed | Listed | Not listed |



| | | | | | | |
|------------|--------|--------|------------|------------|--------|------------|
| 38891-59-7 | Listed | Listed | Listed | Listed | Listed | Listed |
| 7440-57-5 | Listed | Listed | Listed | Not listed | Listed | Listed |
| 7440-31-5 | Listed | Listed | Not listed | Listed | Listed | Not listed |
| 25038-59-9 | Listed | Listed | Listed | Listed | Listed | Listed |
| 9011-14-7 | Listed | Listed | Listed | Listed | Listed | Listed |

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases:

R20/22: Harmful by inhalation and if swallowed.

R36: Irritating to eyes.

H302: Harmful if swallowed.

H332: Harmful if inhaled.