Safety Data Sheets

Rechargeable Li-ion Battery

Model: 532145

Prepared by	Approved by
Jie Chen	Fenzhi Shi

Safety Data Sheets

Section 1: Product and Company Identification

Product Identifier

Product name: Rechargeable Li-ion Battery

Model: 532145

Nominal Voltage: 3.85V

Rated Capacity: 560mAh（2.156Wh）

Revision Date: 2024-06-20

Expiry date: 2024-12-31

Other means of identification

Synonyms: none

Relevant identified use of Product and uses advised against

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 supplier of the safety data sheet:

Manufacturer's/Supplier Name: Springpower Technology (Shenzhen) CO., LTD.
Address: 101 Building 6 and 101 Building 7, No. 221 on Renmin Road, Fumin Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, China
Telephone number of the manufacturer/supplier: +86-755-61862699
Emergency telephone number: +86-755-61862699
E-mail address: jchen@highpowertech.com

Section 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.

Section 3: Composition / Information on Ingredients

Chemical characterization: Mixtures

Description:

Product: Consisting of the following components.

Chemical Composition	Concentration or concentration range (%)	CAS No.
Lithium Cobalt Oxide	35～38%	12190-79-3
Graphite	23～25%	7782-42-5
PVDF	0.5～2%	24937-79-9
SBR	0.01～0.05%	9003-55-8
Carboxymethylcellulose	0.1～0.3%	9000-11-7
Lithium Hexaflourophosphate	6～10%	21324-40-3
Aluminum	5～10%	7429-90-5
Copper	5～10%	7440-50-8
Nickel	2～3%	7440-02-0
Polypropylene	2～6%	9003-07-0
PET	0.01～1.05%	25038-59-9
Polyethylene	2～5%	9002-88-4
Nylon	2～5%	24937-16-4

Note: CAS number is Chemical Abstract Service Registry Number.
N/A=Not apply.

Section 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.
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

Inform physician. Treat symptomatically.

Section 5: Fire-Fighting Measures

Suitable Extinguishing Media

CO2, dry chemical powder, wet sand, plenty of water (for cooling).
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℃), 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.

Section 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.

Section 7: Handling and Storage

Precautions for safe handling

Keep away from ignition sources， heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Avoid mechanical or electrical abuse. More than a momentary short circuit will generally reduce the battery service life. Avoid reversing battery polarity within the battery assembly. In case of a battery unintentionally be crushed, rubber gloves must be used to handle all battery components. Avoid contact with eyes, skin. Avoid inhalation. No smoking at working site. Materials to Avoid: Strong oxidizing agents，Corrosives.

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℃~+40℃, 45 to 85%RH

And recommended at 0℃~+35℃ 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.

Section 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/m³
MAK（Germany）	0.1mg/m³

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 trough 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.

Section 9: Physical and Chemical Properties

Physical Properties	Physical state: Solid
	Appearance: Silvery and Prismatic
	Color: Silvery
	Odour: Odourless
	Odor Threshold: No information available

Chemical Properties:		
Property	Values	Remarks / Method
pH	No data available	None known
Melting / freezing point	No data available	None known
Boiling point / Boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air Upper flammability limit Lower flammability limit	 No data available No data available	-
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	Insoluble in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	Product is not self-igniting	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive properties	No data available	-
Oxidizing Properties	No data available	-

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

Section 10: Stability and Reactivity

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

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.

Section 11: Toxicological Information

Information on likely routes of exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.
Inhalation	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
Eye Contact	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to eyes. May cause redness, itching, and pain. May cause temporary eye irritation.
Skin Contact	Specific test data for the substance or mixture is not available. Expected to be an irritant based on components. Irritating to skin. Prolonged contact may cause redness and irritation.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000 mg/kg (Rat)	-	-

Information on toxicological effects	Symptoms: Erythema (skin redness). May cause redness and tearing of the eyes. Itching. Rashes. Hives.
Delayed and immediate effects as well as chronic effects from short and long-term exposure	**Sensitization:** May cause sensitization of susceptible persons. May cause sensitization by skin contact. **Mutagenic Effects:** No information available. **Carcinogenicity:** The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (LiCoO2) 12190-79-3	A3	Group 2B	-	X

ACGIH (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans Group 2B - Possibly Carcinogenic to Humans Group 3 - Not Classifiable as to Carcinogenicity in Humans **NTP (National Toxicology Program)** Known - Known Carcinogen **OSHA (Occupational Safety and Health Administration of the US Department of Labor)** X - Present

Reproductive Toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).
Chronic Toxicity	Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.
Target Organ Effects	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS).Kidney. Liver. Lungs. Heart.
Aspiration Hazard	No information available.

Numerical measures of toxicity Product Information

The values which are on the right are calculated based on chapter 3.1 of the GHS document.	ATEmix (oral) ATEmix (dermal) ATEmix (inhalation-dust/mist)

Section 12: Ecological Information

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: 0.112 mg/L (Poecilia reticulata) 96h LC50: 0.3 mg/L (Cyprinus carpio) 96h LC50: 0.8 mg/L (Cyprinus carpio) 96h LC50: 1.25 mg/L (Lepomis macrochirus) 96h LC50: 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L	-	48h EC50: = 0.03 mg/L

		(Pimephales promelas)		

Persistence and Degradability	No information available.
Bioaccumulation	No information available.
Other adverse effects	No information available.

Section 13: Disposal Considerations

Waste treatment methods

Recommendation: Lithium batteries are best disposed of as a non-hazardous waste when fully or mostly discharged. Contact a licensed professional waste disposal service to dispose of large quantities materials.

Other disposal recommendations:

Recommendation: Disposal must be made according to official regulations.

Section 14: Transport Information

This report applies to by sea, by air and by land;

The Rechargeable Li-ion Battery tested according to the requirements of the 7th revised edition of the UN manual of tests and Criteria, Part Ⅲ, subsection 38.3；

Rechargeable Li-ion Battery was protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;

The Rechargeable Li-ion Battery（532145）according to Section II/IA/IB of PACKING INSTRUCTION 965/ 966 /967 of the Dangerous Goods Regulations 65th Edition: International Air Transport Association (IATA) may be transported and applicable U.S.DOT regulations for the safe transport of Rechargeable Li-ion Battery.

More information concerning shipping, testing, marking and packaging can be obtained from label master at http://www.labelmaster.com/.

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.

The package must be handled with care and that a flammability hazard exists if the package is damaged; Each package must be labeled with a Li-ion Battery handling label or in addition to the Class 9 hazard label. With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions (2023-2024 edition).
- The International Air transport Association (IATA) Dangerous Goods Regulations (65th edition).

UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous;

Marine pollutant (Y/N): N;

- The International Maritime Dangerous Goods (IMDG) Code (Amdt. 41-22).

For lithium-ion batteries by sea, provided that packaging is strong and prevent the products from short-circuit. UN number of lithium battery: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries contained

in equipment or Lithium ion batteries packed with equipment;

UN Classification (Transport hazard class): Non dangerous; Marine pollutant (Y/N): N;

Special Provision: International maritime dangerous goods code (IMDG) 188, 230, 310, 348, 957;

- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT) Research and Special Programs Administration (RSPA)

Section 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

Section 16: Other Information

NFPA	Health Hazards 1	Flammability 0	Instability 1	Physical and Chemical Hazards - Personal Protection X
HMIS	Health Hazards 4	Flammability 0	Physical Hazard 1	

Revision Note: No information available

Disclaimer

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.

