

SAFETY DATA SHEET

Applicant's name: JUHEYUAN SCIENCE & TECHNOLOGY CO., LTD

Applicant's Address: No. 3, Tianlong Lane, Qingshui Rd, Longxi Community, Longcheng Street, Longgang District, Shenzhen City, 518116 Guangdong, P. R. China

Name of Sample: Rechargeable Li-ion Polymer Battery

Model: YE405486C

Nominal Voltage: 3.7V

Rated Capacity: 2200mAh, 8.14Wh

Weight: 43.0g

Size (L×W×T) : (88.0×54.7× 4.2)mm

Version number: V1.0

Prepared By: JUHEYUAN SCIENCE & TECHNOLOGY CO., LTD
No. 3, Tianlong Lane, Qingshui Rd, Longxi Community, Longcheng Street, Longgang District, Shenzhen City, 518116 Guangdong, P. R. China

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Written by: Mollie Wu

Approved by: Tomsin

Inspected by: Amy Zeng

Date: 2024. 01. 08

Section 1- IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

(a) Product identifier

Product name: Rechargeable Li-ion Polymer Battery

Model: YE405486C

(b) Other means of identification

Synonyms: None

(c) Recommended use of the chemical and restrictions on use

Recommended use: LITHIUM ION BATTERIES

Restriction on use: No information available.

(d) Details of the supplier of the product

Company name(China) JUHEYUAN SCIENCE & TECHNOLOGY CO., LTD

Address: No. 3, Tianlong Lane, Qingshui Rd, Longxi Community, Longcheng Street, Longgang District, Shenzhen City, 518116 Guangdong, P. R. China

E-mail: eyson@jhypower.com

Telephone: +86-755-84516700

Fax: +86-755-84516750

(e) Emergency phone number

+86-13418477980

Section 2- HAZARDS IDENTIFICATION

(a) 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.

Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Carcinogenicity	Category 2

(b) GHS Label elements, including precautionary statements

Emergency Overview

Signal word: Danger

Hazard Statements

Harmful if swallowed

Causes severe skin burns and eye damage

May cause an allergic skin reaction

Suspected of causing cancer

Causes damage to organs through prolonged or repeated exposure



This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist.

Appearance Silver

Physical State Solid

Odor Odorless

Precautionary Obtain special instructions before use

Statements- Do not handle until all safety precautions have been read and understood

Prevention Use personal protective equipment as required

Wash face, hands and any exposed skin thoroughly after handling

Do not breathe dust/fume/gas/mist/vapors/spray

Do not eat, drink or smoke when using this product

Contaminated work clothing should not be allowed out of the workplace

Wear protective gloves

Precautionary IF EXPOSED OR CONNECTED: Get medical advice/attention. Specific treatment (see supplemental first aid/instruction on this label).

Statements-

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and water before reuse, if skin irritation or rash occurs: get medical advice/attention if feel unwell.

IF INHALATION: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor/physician.

IF SWALLOWED: Rinse mouth, do not induce vomiting, call a poison center or doctor/physician if feel unwell.

Precautionary Store locked up

Dispose of contents/container to an approved waste disposal plant

(c) Hazards not otherwise classified (HNOC)

Not applicable

(d) Unknown Toxicity

35% of the mixture consists of ingredient(s) of unknown toxicity

(e) Other information

Very toxic to aquatic life with long lasting effects;

Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

(f) Interactions with Other Chemicals

No information available.

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight-%	Trade Secret
Lithium Cobalt Oxide (CoLiO ₂)	12190-79-3	10-30	*
Graphite	7782-42-5	10-30	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	10-30	*
Lithium manganese oxide	12057-17-9	7-13	*
Copper	7440-50-8	7-13	*
Aluminum foil	7429-90-5	3-7	*

The exact percentage (concentration) of composition has been withheld as a trade secret.

Section 4- FIRST AID MEASURES

(a) Description of first aid measures

General Advice First aid is upon rupture of sealed battery.

Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Skin contact:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required. May cause an allergic skin reaction. Remove and isolate contaminated clothing and shoes.
Inhalation:	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method, if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Ingestion:	Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Self-protection of the first aider:	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

(b) Most important symptoms/effects, acute and delayed

Most important symptoms and effects: Itching. Coughing and/ or wheezing. Burning sensation.

(c) Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. May cause sensitization of susceptible persons.

Section 5- FIRE FIGHTING MEASURES

(a) Extinguishing media

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: CAUTION: Use of water spray when fighting fire may be inefficient.

(b) Special hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. Product is or contains a sensitizer. May cause sensitization by skin contact.

Hazardous Combustion Products Carbon oxides.

Explosion Data **Sensitivity to Mechanical Impact:** No.

Sensitivity to Static Discharge: No.

(c) Special protective equipment and precautions for fire-fighters

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

Section 6- ACCIDENTAL RELEASE MEASURES**(a) Personal precautions, protective equipment and emergency procedures**

Personal Precautions: Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information: Refer to protective measures listed in Sections 7 and 8.

(b) Environmental Precautions

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so.

(c) Methods and materials for containment and cleaning up

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

Methods for cleaning up Pick up and transfer to properly labeled containers.

Section 7- HANDLING AND STORAGE**(a) Precautions for safe handling**

Handling: Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

(b) Conditions for safe storage, including any incompatibilities

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Incompatible Products: Acids. Bases. Oxidizing agent.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION**(a) Control parameters****Exposure Guidelines**

Exposure Guidelines	ACGIH TLV	OSHA PEL	NIOSH IDLH
Lithium Cobalt Oxide (CoLiO ₂) 12190-79-3	TWA: 0.02 mg/m ³	-	-

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Graphite 7782-42-5	TWA: 1 mg/m ³ respirable fraction all forms except graphite fibers	TWA: 15 mg/m ³ total dust synthetic TWA: 5 mg/m ³ respirable fraction Synthetic (vacated) TWA: 2.5 mg/m ³ respirable dust natural (vacated) TWA: 10 mg/m ³ total dust synthetic (vacated) TWA: 5 mg/m ³ respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ respirable dust
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m ³ F	TWA: 2.5 mg/m ³ F TWA: 2.5 mg/m ³ dust (vacated) TWA: 2.5 mg/m ³	
Lithium manganese oxide 12057-17-9	TWA: 0.2 mg/m ³ Mn	(vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn
Copper 7440-50-8	TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume
Aluminum foil 7429-90-5	TWA: 1 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ AL Aluminum	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15 for national exposure control parameters

(b) Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

(c) Individual protection measures, such as personal protective equipment.

Eye/Face Protection: None required for consumer use. If there is a Hazard of contact: Tight sealing safety goggles. Face protection shield.

Skin and Body Protection: None required for consumer use. If there is a Hazard of contact: Wear protective gloves and protective clothing.

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. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use. No information available.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

(a) Physical State

Physical state:	Solid	Odor:	Odorless
Appearance:	Silver prismatic solid	Odor Threshold:	No information available
Color:	Silver		

(b) Chemical Properties

Property	Values	Remarks/ Method
pH	No data available	None known
Melting point/freezing point	No data available	None known
Initial Boiling Point And 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
Upper/Lower Flammability Or Explosive Limits	No data available	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Relative Density	No data available	None known
Solubility(ies)	Insoluble in water	None known
Partition Coefficient: N-Octanol/Water	No data available	None known
Auto-Ignition Temperature	No data available	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	

(c) 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

(a) Reactivity	No data available.
(b) Chemical stability	Stable under recommended storage conditions.
(c) Possibility of hazardous reactions	None under normal processing.
(d) Hazardous polymerization	Hazardous polymerization does not occur.
(e) Conditions to avoid	None known based on information supplied.
(f) Hazardous decomposition products	Carbon oxides.

Section 11 - TOXICOLOGICAL INFORMATION**(a) Information on the 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. Corrosive. (based on components). Causes burns. May be absorbed through the skin in harmful amounts. Harmful in contact with skin.
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. May be harmful if swallowed.

Component Information

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

(b) Information on toxicological effects

Symptoms	Erythema (skin redness). May cause redness and tearing of the eyes. Itching. Rashes. Hives.
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(c) 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.
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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 (CoLiO ₂) 12190-79-3	A3	Group 2B		X

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

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.

(d) Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral):	2,784.00 mg/kg
ATEmix (dermal):	1,671.00 mg/kg (ATE)

Section 12 - ECOLOGICAL INFORMATION

(a) 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		48h EC50: = 0.03 mg/L

		mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)		
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- (b) **Persistence and Degradability** No information available.
- (c) **Bioaccumulation** No information available
- (d) **Other adverse effects** No information available.

Section 13 - DISPOSAL CONSIDERATIONS

(a) Waste treatment methods

Disposal methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging: Disposal should be in accordance with applicable regional, national and local laws and regulations.

California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO ₂) 12190-79-3	Toxic
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder

Section 14 - Transport Information

- (a) **UN number** 3480 & 3481
Lithium ion batteries (limited to a maximum of 30% SoC)
- (b) **Proper shipping name** Lithium ion batteries packed with equipment (including lithium ion polymer batteries) or;
Lithium ion batteries contained in equipments (including lithium ion polymer batteries).
- (c) **Label(s) / Placard Required:** Miscellaneous
Lithium batt
- (d) **Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises**

ICAO / IATA:	Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions (PI) 965 Section II/Section IB, PI 966 Section II and PI 967 Section II appropriate of IATA DGR 62 nd (2021 Edition) for transportation.
IMDG CODE:	The batteries are not restricted to IMDG Code 2018 Edition (Amdt 39-18) according to special provision 188
DOT:	Other requirements for the US Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.
ADR/ADN:	The batteries are not subject to the provisions of United Nations Economic Commission for Europe (UNECE) ADR/ADN if they meet the requirements of special provision 188 of Chapter 3.3. Applicable as from 1 January 2019.

In addition, to be permitted in transport each lithium cell and battery types must have passed the applicable tests set out in Subsection 38.3 of the UN Manual of Tests and Criteria.

Section 15 - REGULATORY INFORMATION

(a) International Inventories

TSCA: Complies.

DSL: All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

(b) US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Lithium Cobalt Oxide (CoLiO ₂)	12190-79-3	10-30	0.1
Lithium manganese oxide	12057-17-9	7-13	1.0
Copper	7440-50-8	7-13	1.0
Aluminum foil	7429-90-5	3-7	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable	CWA - Toxic	CWA - Priority	CWA - Hazardous

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	Quantities	Pollutants	Pollutants	Substances
Copper 7440-50-8		X	X	

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

(c) US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Lithium Cobalt Oxide (CoLiO ₂) 12190-79-3	X		X	X	X
Graphite 7782-42-5	X	X	X		
Lithium manganese oxide 12057-17-9			X	X	X
Copper 7440-50-8	X	X	X	X	X
Aluminum foil 7429-90-5		X		X	

(d) International Regulations

Mexico

National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Graphite 7782-42-5		Mexico: TWA= 2 mg/m ³
Copper 7440-50-8		Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³
Aluminum foil 7429-90-5		Mexico: TWA 10 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

Canada

WHMIS Hazard Class

Non-controlled

Section 16 - Additional Information

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

Revision Note: No information available

Sample photo:

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.

*******End of Safety Data Sheet*******