

**Safety Data Sheet**  
According to Regulation (EC) No 1907/2006, Annex II,  
Amended by COMMISSION REGULATION (EU) 2015/830,  
According to REGULATION (EC) No 1272/2008

**Rechargeable Battery Li-ion pack**

**Section 1 Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier:**

Identification on the label/Trade name: Rechargeable Battery Li-ion pack  
 Additional identification: Model: SS-2230002963 22.2V, 2000mAh 44,4Wh  
 Identification of the product: See section 3  
 Index Number: See section 3  
 REACH registration No.: See section 3

**1.2 Relevant identified uses of the substance or mixture and uses advised against:**

**1.2.1 Identified uses:**

Lithium ion cell, Battery, Electronic applications

**1.2.2 Uses advised against:**

Not available.

**1.3 Details of the supplier of the safety data sheet:**

Supplier(Only representative): /  
 Supplier(Manufacturer): Suzhou EUP Electric Co., Ltd.  
 Address: No.90 Jinshan Road Hexi New District  
 Contact person(E-mail): xushuo@eup.cn  
 Telephone: 0512-68313759  
 Fax: /

**1.4 Emergency telephone Number:**

Only available during office hours (9:00a.m.-17:30p.m. Beijing Time Zone)

Available outside office hours? YES  NO

**Section 2 Hazards Identification**

**2.1 Classification of the substance or mixture:**

Lithium ion cells are not hazardous when used according to the instructions of the manufacturer under normal conditions. The battery and the cell must not be opened or burned. At a use not in accordance with the regulations, hazards may occur by electric shock and chemical substances of the content or combustion products of the cell. The battery may only be opened internally/externally by the manufacturer.

**2.1.1 Classification:**

This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

REGULATION (EC) No 1272/2008	
Hazard classes/Hazard categories	Hazard codes
N/A	N/A

**2.2 Label elements:**

**Hazard Pictograms:** No hazard pictogram is used.

**Signal Word(S):** No signal word is used.

**Hazard Statement:** Not applicable.

**Precautionary statement:** Not applicable.

**2.3 Other hazards:**

Not available.

**Section 3 Composition/information on ingredients**
**Substance/Mixture:**

Article (The chemicals are contained in a sealed encapsulation.)

**Ingredient(s):**

Chemical Name	Registration No.	CAS No.	EC No.	Concentration	Classification
Cobalt oxide	N/A	1307-96-6	215-154-6	<30%	H302 H317 H400 H410
Manganese dioxide	N/A	1313-13-9	215-202-6	<30%	H302 H332
Nickel oxide	N/A	1313-99-1	215-215-7	<30%	H317 H372 H413
Carbon	N/A	7440-44-0	231-153-3	<30%	H319 H335
Electrolyte(*)	N/A	N/A	N/A	<20%	Not classified
Polyvinylidene Fluoride (PVDF)	N/A	24937-79-9	N/A	<10%	Not classified
Aluminum foil	N/A	7429-90-5	231-072-3	2-10%	H228 H261
Copper foil	N/A	7440-50-8	231-159-6	2-10%	Not classified
Aluminium and inert materials	N/A	N/A	N/A	5-10%	Not classified

(\*) Main ingredients: Lithium hexafluorophosphate, organic carbonates  
 Because of the cell structure the dangerous ingredients will not be available if used properly.  
 During charge process a lithium graphite intercalation phase is formed.  
 Mercury content: Hg < 0.1mg/kg  
 Cadmium content: Cd < 1mg/kg  
 Lead content: Pb < 10mg/kg

**Section 4 First aid measures**
**4.1 Description of first aid measures:**

If the battery would get damaged, the content may cause health hazard.

**4.1.1 In case of inhalation:**

The inhalation of materials of a sealed off cell is not a mode of exposure to be expected. Vapours or mists escaping a damaged battery may lead to an irritation of the respiratory system, especially in combination with humidity(water) up to profound respiratory diseases. At the inhalation of the content of an opened cell, remove the contamination source or bring the affected person to the fresh air. Contact the emergency medical services immediately.

**4.1.2 In case of skin contact:**

Skin contact with the battery does not lead to injuries. Skin contact with the contents of an open battery or cell may lead to severe skin injuries, burns by electric shock. In case of skin exposure with the content of the opened cell, remove the contaminated clothes, shoes and leather parts. Rinse immediately with lukewarm, weakly running water for at least 30 minutes. Contact the emergency medical services immediately. In case of electrical contact, separate person, without endangering oneself, by means of non-conductive aids from the voltage-conducting parts. Contact the emergency medical services with reference to an electric shock.

**4.1.3 In case of eyes contact:**

A contact between battery and cell and eyes does not lead to injuries. Eye contact with the contents of the open cell may lead to severe eye injuries. In case of eye contact with the contents of the opened cell, rinse the contaminated eye(s) immediately with lukewarm, weakly running water jet for at least 30 minutes. Contact the emergency medical services immediately.

#### 4.1.4 In case of ingestion:

Swallowing of materials of a sealed off cell is not a mode of exposure to be expected. Swallowing of the contents of an open cell may lead to profound chemical burns of the mouth, of the esophagus and the gastrointestinal system. If the contents of an opened cell have been swallowed, DO NOT supply anything over the mouth if the affected person becomes unconscious easily; is unconscious or has cramps. Rinse the mouth thoroughly with water. DO NOT INDUCE VOMITING. Contact the emergency medical services immediately.

#### 4.2 Most important symptoms and effects, both acute and delayed:

The product is not classified as harmful to human health effect. In case of exposure to the battery content, hazards may occur and first aid measures in section 4.1 shall be taken.

#### 4.3 Indication of any immediate medical attention and special treatment needed:

Symptomatic treatment.

### Section 5 Firefighting measures

#### 5.1 Extinguishing media:

**Suitable extinguishing media:**

Use water or carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media:**

Not available.

#### 5.2 Special hazards arising from the substance or mixture

If heated above 120°C, cell(s) can explode. During fire of electric, harmful smoke arises. In general the decomposition products of electrolyte (after thermal event) consists of CO<sub>2</sub>, CO, H<sub>2</sub> and HC (hydrocarbons) as main products.

#### 5.3 Advice for firefighters:

Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear for firefighting if necessary.

### Section 6 Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures:

##### 6.1.1 For non-emergency personnel:

Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas.

##### 6.1.2 For emergency responders:

Until completion of the cleaning work, the access to the affected area must be closed. Do not contact trapped materials. Wear appropriate protective equipment according to the specifications in section 8.

#### 6.2 Environmental Precautions:

Avoid disposing into drainage/sewer system or directly into the aquatic environment.

#### 6.3 Methods and material for Containment and Cleaning up:

The release of the substance must be stopped, if this is safely possible. Leakage must be contained with dry sand, soil or chemicals binding agents. Clean the affected area immediately.

#### 6.4 Reference to other sections:

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

### Section 7 Handling and storage

#### 7.1 Precautions for safe handling:

##### 7.1.1 Protective measures:

Do not open, dismantle, squash or burn the cell. Do not expose battery to extreme heat or fire.

##### 7.1.2 Advice on general occupational hygiene:

Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

#### 7.2 Conditions for safe storage, including any incompatibilities:

Store in a cool and dry place. Increased temperatures may reduce the service life of the battery. Keep out of reach of children.

#### 7.3 Specific end use(s):

Not available.

### Section 8 Exposure Controls/Personal Protection

#### 8.1 Control parameters:

##### 8.1.1 Occupational exposure limits:

Not relevant.

##### 8.1.2 Additional exposure limits under the conditions of use:

Not available.

##### 8.1.3 DNEL/DMEL and PNEC-Values:

Not available.

## 8.2 Exposure controls:

<b>8.2.1 Appropriate engineering controls:</b>	Use adequate ventilation to keep airborne concentrations low.
<b>8.2.2 Individual protection measures, such as personal protective equipment:</b>	
<b>Eye/face protection:</b>	Not required under normal conditions. At handling of an open leaky cell wear protective goggles.
<b>Hand protection:</b>	Not required under normal conditions. In case of handling of an open or leaky cell, wear gloves made of neoprene or natural rubber.
<b>Body protection:</b>	Not required under normal conditions. Steel toed shoes recommended for large container handling.
<b>Respiratory protection:</b>	Not required under normal conditions.
<b>Thermal hazards:</b>	Not required under normal conditions.
<b>8.2.3 Environmental exposure controls:</b>	Avoid discharge into the environment. Dispose of rinse water in accordance with local and national regulations

## Section 9 Physical and chemical properties

### 9.1 Information on basic physical and chemical properties:

<b>Appearance:</b>	Solid
<b>Colour:</b>	Not available
<b>Odour:</b>	odorless
<b>Odour threshold:</b>	Not available
<b>pH:</b>	Not available
<b>Melting point/range (°C):</b>	Not available
<b>Boiling point/range (°C):</b>	Not available
<b>Flash point (°C):</b>	Not available
<b>Evaporation rate:</b>	Not available
<b>Flammability limit - lower (%):</b>	Not available
<b>Flammability (solid, gas):</b>	Not available
<b>Ignition temperature (°C):</b>	Not available
<b>Upper/lower explosive limits:</b>	Not available
<b>Vapour pressure (20°C):</b>	Not available
<b>Vapour density:</b>	Not available
<b>Relative Density:</b>	Not available
<b>Bulk density (kg/m<sup>3</sup>):</b>	Not available
<b>Water solubility (g/l):</b>	insoluble
<b>n-Octanol/Water (log Po/w):</b>	Not available
<b>Auto-ignition temperature:</b>	Not available
<b>Decomposition temperature:</b>	Not available
<b>Viscosity, dynamic (mPa.s):</b>	Not available
<b>Explosive properties:</b>	Not explosive
<b>Oxidising properties:</b>	Not oxidising

### 9.2. Other information:

<b>Fat solubility(solvent– oil to be specified) etc:</b>	Not available
<b>Surface tension:</b>	Not available
<b>Dissociation constant in water( pKa):</b>	Not available
<b>Oxidation-reduction Potential:</b>	Not available

## Section 10 Stability and reactivity

<b>10.1 Reactivity:</b>	The substance is stable under proper storage and handling conditions.
<b>10.2 Chemical stability:</b>	Stable at room temperature under proper storage and handling conditions.
<b>10.3 Possibility of hazardous reactions:</b>	No dangerous reactions known.
<b>10.4 Conditions to avoid:</b>	Incompatible materials. Contact of battery with fire or high temperatures must be avoided. Do not dismantle, squash, short-out or connect with twisted

**10.5 Incompatible materials:**

polarity. Avoid mechanical and electrical misuse.

**10.6 Hazardous decomposition products:**

Not specified at proper use.

Not specified at proper use. During fire of electric, harmful smoke arises. In general the decomposition products of electrolyte (after thermal event) consists of CO<sub>2</sub>, CO, H<sub>2</sub> and HC (hydrocarbons) as main products.**Section 11 Toxicological information****11.1 Information on toxicological effects:****Acute toxicity:**

Cells are not hazardous when used properly. In case of fire or leakage combustion and decomposition products may cause irritation and toxicity to skin, eye and respiratory systems.

**Cobalt oxide(CAS#1307-96-6)****LD50(Oral, Rat):**

159 mg/kg bw

**LD50(Dermal, Rabbit):**

Not available

**LC50(Inhalation, Rat):**

0.06 mg/L air (males and females combined)

**Skin corrosion/Irritation:**

Not classified

**Serious eye damage/irritation:**

Not classified

**Respiratory or skin sensitization:**

Not classified

**Germ cell mutagenicity:**

Not classified

**Carcinogenicity:**

Not classified

**Reproductive toxicity:**

Not classified

**STOT- single exposure:**

Not classified

**STOT-repeated exposure:**

Not classified

**Aspiration hazard:**

Not classified

**Section 12 Ecological information****12.1 Toxicity:****Acute (short-term) toxicity:****Cobalt oxide(CAS#1307-96-6)****LC50(96h, Fish):**

1.5 mg/L

**LC50(48h, Crustacea):**

Not available

**EC50(72h, Algae/aquatic plants):**

197 µg/L

**Chronic (long-term) toxicity:****NOEC(Fish):**

351.4 µg/L

**NOEC(Crustacea):**

7.55 µg/L

**EC50(Algae/aquatic plants):**

Not available

**12.2 Persistence and degradability:**

Not available.

**12.3 Bioaccumulative potential:**

Not available.

**12.4 Mobility in soil:**

Not available.

**12.5 Results of PBT and vPvB assessment:**

Not available.

**12.6 Other adverse effects:**

Not available.

**Section 13 Disposal considerations****13.1 Waste treatment methods:**

The material should be disposed of by incineration in a chemical incinerator in compliance with national and regional requirements. At the disposal, the European Waste Register must be applied.

**Section 14 Transport information**

With regard to transport, the following regulations are cited and considered:  
 The International Civil Aviation Organization (ICAO) Technical Instructions, Packing Instruction 965, Section IB (2015 Edition);  
 The International Air Transport Association (IATA) Dangerous Goods Regulations, Packing Instruction 965, Section IB (61st Edition, 2020);  
 The International Maritime Dangerous Goods (IMDG) Code (2019 Edition);  
 US Hazardous Materials Regulations 49 CFR(Code of Federal Regulations) Sections 173-185 Lithium batteries and cells;  
 The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries, Rev.5, Amend.1;

Our products are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to all the applicable international and national governmental regulations, not limited to the above mentioned. We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in accordance with UN Recommendations (T1 – T8) on the Transport of Dangerous Goods Model Regulations and the Manual of Testes and Criteria.

#### Test results of the UN Recommendation on the Transport of Dangerous Goods

Manual of Test and Criteria(38.3 Lithium battery)		Test results	Remark
No.	Test items		
T1	Altitude Simulation	Pass	
T2	Thermal Test	Pass	
T3	Vibration	Pass	
T4	Shock	Pass	
T5	External Short Circuit	Pass	
T6	Impact	Pass	
T7	Overcharge	Pass	For pack and single cell battery only
T8	Forced Discharge Pass	Pass	

Even classified as lithium ion batteries UN3480 or UN3481(Contained in Equipment or Packed with Equipment),the product is handled as Non-Dangerous Goods by meeting the UN Recommendations on the Transportation of Dangerous Goods Model Regulations Special Provision SP188. (1)

(a) For a lithium-ion cell, the Watt-hour rating is not more than 200Wh;

(b) For a lithium-ion battery, the Watt-hour rating is not more than 200 Wh.

Lithium ion batteries subject to this provision shall be marked with the Watt-hour rating on the outside case, except those manufactured before 1 January 2009 ;

(c) Each cell or battery is of the type proved to meet the requirements of each test in the UN Manual of Tests and Criteria, Part 38.3 ;

(d) Cells and batteries, except when installed in equipment, shall be packed in inner packagings that completely enclose the cell or battery. Cells and batteries shall be protected so as to prevent short circuits.

This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. The inner packagings shall be packed in strong outer packagings ;

(e) Cells and batteries when installed in equipment shall be protected from damage and short circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. When batteries are installed in equipment, the equipment shall be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained;

(f) Except for packages containing button cell batteries installed in equipment (including circuit boards), or no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:

(i) an indication that the package contain "lithium ion" cells or batteries, as appropriate;

(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;

(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and

(iv) a telephone number for additional information;

(g) Each consignment of one or more packages marked in accordance with paragraph (f) shall be accompanied with adocument including the following:

(i) an indication that the package contains "lithium ion" cells or batteries, as appropriate;

(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;

(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and

(iv) a telephone number for additional information;

(h) Except when batteries are installed in equipment, each package shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents: and

(i) Except when batteries are contained in or packed with equipment, packages shall not exceed 30 kg gross mass for marine transportation. (not exceed 10kg for air transportation)

Package complies with the special provision 188 of IMDG CODE (amdt.39-18) 2018 Edition.

(3) For air transportation the product is handled as Non-Dangerous Goods by meeting the IATA Dangerous Goods Regulations 58 Edition Effective 1 January 2017 Packing Instruction 965-967 General Requirement and Section II/ Section IB (Excepted) and UN Special Provision SP188 above. (2)

(j) Lithium ion batteries identified by manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons).

(k) Each package contains more than four cells or more than two batteries must be labeled with a lithium battery.

## Section 15 Regulatory information

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

Relevant information regarding authorization:

Not applicable.

Relevant information regarding restriction:

Not applicable.

Other EU regulations:

Employment restrictions concerning young person must be observed.  
For use only by technically qualified individuals.

Other National regulations:

Not applicable

15.2 Chemical safety assessment

YES

NO

## Section 16 Other information

### 16.1 Indication of changes:

Version 1.0 Amended by (EU) 2015/830

### 16.2 Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation for rail International transportation of Dangerous goods

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: Code international maritime dangerous goods code

ICAO: International Civil Aviation Organization

IATA: International Air Transport Association

LC50: median lethal concentration

EC50: The effective concentration of substance that causes 50% of the maximum response.

NOEC: No Observed Effect Concentration

DNEL: derived no-effect level

PNEC: predicted no-effect concentration

### 16.3 Key literature references and sources for data

ECHA Registered substances data

### 16.4 Training instructions:

Not applicable.

### 16.5 Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

### 16.6 Notice to reader:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.