

# SAFETY DATA SHEET

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

### Product identifier

**Product Name** LITHIUM ION BATTERIES  
**Model name** Lithium ion Cell INR18650-2500A  
**Synonyms** None

### Recommended use of the chemical and restrictions on use

**Recommended Use** LITHIUM ION BATTERIES  
**Uses advised against** No information available

### Details of the supplier of the safety data sheet

**Supplier Name** Roofer Energy Technology (Baoshan)Co.,Ltd  
**Supplier Address** Roofer Industrial Zone, Baoshan Industrial Park,Longyang District,Baoshan City, Guangdong, China  
**Supplier Phone Number** Phone:+ 86 0755-33239825  
 Fax: +86 0755-33239825  
 Contact Phone: +86 0755-33239825  
**Supplier Email** [hmpz@roofer.com.cn](mailto:hmpz@roofer.com.cn)  
**Emergency telephone number**

## 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.

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 1
Acute Toxicity-Oral	Category 4

### GHS Label elements, including precautionary statements

#### Emergency Overview

<b>Signal word</b>	<b>Danger</b>
<b>Hazard Statements</b>	

Harmful if swallowed  
Cause skin irritation  
Causes serious eye damage  
May cause cancer



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** Grey

**Physical State** Solid

**Odor** Odorless

#### Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

Wear eye/face protection

#### Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label)

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention

#### Skin

IF ON SKIN: Wash with plenty of soap and water

Take off contaminated clothing and wash before reuse

If skin irritation or rash occurs: Get medical advice/attention

#### Precautionary Statements - Storage

Store locked up

#### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Not applicable

#### Unknown Toxicity

#### Other information

#### Interactions with Other Chemicals

No information available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight %
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	12190-79-3	40
Graphite	7782-42-5	18
1,1-Difluoroethylene polymer	24937-79-9	5
PVC (Chloroethylene, polymer)	9002-86-2	3

Phosphate(1-), hexafluoro-, lithium	21324-40-3	18
Nickel	7440-02-0	1
Copper	7440-50-8	10
Aluminium	7429-90-5	5

#### 4. FIRST AID MEASURES

##### First aid measures

##### General Advice

First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in attendance

##### **Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area

##### **Skin Contact**

Wash off immediately with soap and plenty of water for at least 15 minutes. In the case of skin irritation or allergic reactions see a physician. May cause an allergic skin reaction.

##### **Inhalation**

Remove to fresh air. If symptoms persist, call a physician. 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.

##### **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)

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

##### **Most Important Symptoms and Effects**

Burning sensation. Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

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

##### **Notes to Physician**

May cause sensitization of susceptible persons. Treat symptomatically

#### 5. FIRE-FIGHTING MEASURES

##### **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

##### **Specific Hazards Arising from the Chemical**

Product is or contains a sensitizer. May cause sensitization by skin contact.

##### **Hazardous Combustion Products**

##### 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.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

<b>Personal Precautions</b>	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas.
<b>Other Information</b>	Refer to protective measures listed in Sections 7 and 8
<b><u>Environmental Precautions</u></b>	
<b>Environmental Precautions</b>	Refer to protective measures listed in Sections 7 and 8.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers
<b>Methods for Containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

<b>Handling</b>	In case of rupture. Use personal protection equipment. Avoid contact with skin, eyes or clothing.
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### Conditions for safe storage, including any incompatibilities

<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place.
<b>Incompatible Products</b>	Strong acids. Strong oxidizing agents. Strong bases.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Lithium Cobalt Oxide 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>		
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume TWA: 1 mg/ mg/m <sup>3</sup> Cu dust and mist	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume
Aluminum	TWA: 1 mg/m <sup>3</sup> respirable	TWA: 15 mg/m <sup>3</sup> total dust	TWA: 10 mg/m <sup>3</sup> total dust

7429-90-5	fraction	TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 15 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 5 mg/m <sup>3</sup> Al Aluminum	TWA: 5 mg/m <sup>3</sup> respirable dust
Nickel 7440-02-0	TWA: 1.5 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> (vacated) TWA: 1 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> TWA: 0.015 mg/m <sup>3</sup>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Physical and Chemical Properties

<b>Physical State</b>	Solid	<b>Odor</b>	Odorless
<b>Appearance</b>	Grey	<b>Odor Threshold</b>	No information available
<b>Color</b>	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks/ Method</u>
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	No data available	
Lower flammability limit	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	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	0.00001	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	0.00001	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	

## 10. STABILITY AND REACTIVITY

### Reactivity

No data available

### Chemical stability

Stable under recommended storage conditions.

### Possibility of Hazardous Reactions

None under normal processing.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

None known based on information supplied.

**Incompatible materials**

Strong acids. Strong oxidizing agents. Strong bases.

**Hazardous Decomposition Products**

Carbon oxides.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

<b>Product Information</b>	Not available
<b>Inhalation</b>	Specific test data for the substance or mixture is not available. Corrosive by inhalation.(based on components).
<b>Eye Contact</b>	Specific test data for the substance or mixture is not available. Expected to be and irritant based on components. Irritating to eyes. May cause redness, itching, and pain. May cause temporary eye irritation.
<b>Skin Contact</b>	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.
<b>Ingestion</b>	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. (based on components).

**Component Information**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite 7782-42-5	> 10000 mg/kg ( Rat )	-	-
Nickel 7440-02-0	> 9000 mg/kg ( Rat )	-	-

## 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)		48h EC50: = 0.03 mg/L

		mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)		
Nickel 7440-02-0	72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata)	96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio)		48h EC50: > 100 mg/L 48h EC50: = 1 mg/L

**Persistence and Degradability**

No information available.

**Bioaccumulation**

No information available.

**Other adverse effects**

No information available.

### 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods****Disposal methods**

Should not be released into the environment.

**Contaminated Packaging**

Dispose of in accordance with federal, state and local regulations.

**US EPA Waste Number**

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Nickel 7440-02-0	(hazardous constituent - no waste number)	Included in waste streams: F006, F039		

**California Hazardous Waste Codes 141**

Chemical Name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	Toxic
Nickel 7440-02-0	Toxic powder Ignitable powder
Aluminum 7429-90-5	Ignitable powder
Copper 7440-50-8	Toxic

### 14. TRANSPORT INFORMATION

**Note:**

The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"

<b>DOT</b>	NOT REGULATED
<b>Proper Shipping Name</b>	NON REGULATED
<b>Hazard Class</b>	N/A
<b>TDG</b>	Not regulated
<b>MEX</b>	Not regulated
<b>ICAO</b>	Not regulated
<b>IATA</b>	Not regulated
<b>Proper Shipping Name</b>	Not regulated
<b>Hazard Class</b>	N/A
<b>IMDG/IMO</b>	Not regulated
<b>Proper Shipping Name</b>	NON-REGULATED PER SP 188
<b>Hazard Class</b>	N/A
<b>EmS No.</b>	F-A, S-I
<b>RID</b>	Not regulated
<b>ADR</b>	Not regulated
<b>AND</b>	Not regulated

## 15. REGULATORY INFORMATION

### International Inventories

#### **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 <sub>2</sub> )	12190-79-3	40	0.1
Nickel	7440-02-0	1	0.1
Aluminum	7429-90-5	5	1.0
Copper	7440-50-8	10	1.0

#### **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 Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper 7440-50-8		X	X	
Nickel 7440-02-0		X	X	

### US State Regulations

#### **California Proposition 65**

This product does not contain any Proposition 65 chemicals.

Chemical Name	California Proposition 65
Nickel - 7440-02-0	Carcinogen

## 16. OTHER INFORMATION

**Prepared By** ROOFER ELECTRONIC TECHNOLOGY (SHANWEI) CO., LTD

**Issuing Date**

**Revision Date**

15-Sep-2018

**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

**End of Safety Data Sheet**