

SAFETY DATA SHEET

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

Product identifier

Product Name JS17650

Other means of identification

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 Dongguan Joysun New Energy Co.Ltd

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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 2



Reproductive Toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word	Danger	
Hazard Statements	Causes skin irritation Causes serious eye irritation May damage fertility or the unborn child	
		
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	Green	Physical state Solid containing liquid Solid
		Odor None

Precautionary Statements - Prevention

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- 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
- Wear eye/face protection

Precautionary Statements - Response

- IF exposed or concerned: Get medical advice/attention
- 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
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash before reuse

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

30 % of the mixture consists of ingredient(s) of unknown toxicity

Other information

Very toxic to aquatic life with long lasting effects

Interactions with Other Chemicals

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No	Weight-%	Trade Secret
Lithium Cobalt Oxide (CoLiO ₂)	12190-79-3	15 - 40	*
Graphite	7782-42-5	10 - 30	*
Copper	7440-50-8	10 - 30	*
Aluminum foil	7429-90-5	7 - 13	*
Aluminum	7429-90-5	5 - 10	*
1-Methyl-2-pyrrolidone	872-50-4	1 - 5	*
Phosphate(1-), hexafluoro-, lithium	21324-40-3	1 - 5	*
Ethylene carbonate	96-49-1	1 - 5	*

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

4. FIRST AID MEASURES

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. 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. Get medical attention if irritation develops and persists.

Inhalation

Remove to fresh air. Get medical attention immediately if symptoms occur.

Ingestion

Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. 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

Coughing and/ or wheezing. Itching.

Indication of any immediate medical attention and special treatment needed



Notes to Physician 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

No information available.

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.

6. ACCIDENTAL RELEASE MEASURES

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.

Other Information

Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions

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

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

Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Use personal protection equipment. Avoid contact with skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up.

Incompatible Products 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 (CoLiO ₂) 12190-79-3	TWA: 0.02 mg/m ³	-	
Graphite 7782-42-5	TWA: 2 mg/m ³ respirable particulate matter 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
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 particulate matter	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
Aluminum 7429-90-5	TWA: 1 mg/m ³ respirable particulate matter	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
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	

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

Appropriate engineering controls



Engineering Measures
 Showers
 Eyewash stations
 Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection If splashes are likely to occur. Wear safety glasses with side shields (or goggles). None required for consumer use.

Skin and body protection Wear protective gloves and protective clothing. Long sleeved clothing. Impervious gloves.

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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	Solid containing liquid, Solid	Odor	None
Appearance	Green	Odor Threshold	No information available
Color	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>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	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	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		

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

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
1-Methyl-2-pyrrolidone 872-50-4	= 3914 mg/kg (Rat)	= 8 g/kg (Rabbit)	> 5.1 mg/L (Rat) 4 h
Ethylene carbonate 96-49-1	= 10 g/kg (Rat)	> 3 g/kg (Rabbit)	-

Information on toxicological effects

Symptoms Erythema (skin redness). May cause redness and tearing of the eyes.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

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 Contains a known or suspected reproductive toxin.

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. Contains a known or suspected reproductive toxin. Possible risk of irreversible effects. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.

Target Organ Effects Respiratory system. Eyes. Skin. Reproductive System. Central Vascular System (CVS). Kidney. Liver. Bone marrow. Endocrine system. Lungs. Spleen.

Aspiration Hazard No information available.

Numerical measures of toxicity Product Information

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

ATEmix (oral)

23,232.00 mg/kg

ATEmix (dermal)

16,077.00 mg/kg (ATE)

ATEmix (inhalation-dust/mist)

142.00 mg/l

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: = 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 (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)		48h EC50: = 0.03 mg/L
1-Methyl-2-pyrrolidone 872-50-4	72h EC50: > 500 mg/L (Desmodesmus subspicatus)	96h LC50: = 832 mg/L (Lepomis macrochirus) 96h LC50: = 1072 mg/L (Pimephales promelas) 96h LC50: = 1400 mg/L (Poecilia reticulata) 96h LC50: = 4000 mg/L (Leuciscus idus)		48h EC50: = 4897 mg/L

Persistence and Degradability

No information available.

Bioaccumulation

Chemical name	Log Pow
1-Methyl-2-pyrrolidone 872-50-4	-0.46

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

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

Dispose of contents/containers in accordance with local 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 (CoLiO2) 12190-79-3	Toxic
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder
Aluminum 7429-90-5	Ignitable powder

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"

DOT

Proper Shipping Name
Hazard Class
Emergency Response Guide
Number

NOT REGULATED
NON-REGULATED
N/A
147

TDG

Not regulated

MEX

Not regulated

ICAO

Not regulated

IATA

Not regulated



Proper Shipping Name	NON REGULATED
Hazard Class	N/A
IMDG/IMO	Not regulated
Hazard Class	N/A
EmS-No.	F-A, S-I
RID	Not regulated
ADR	Not regulated
ADN	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Not determined
DSL	Not determined

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

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 (CoLiO2) - 12190-79-3	12190-79-3	15 - 40	0.1
Copper - 7440-50-8	7440-50-8	10 - 30	1.0
Aluminum foil - 7429-90-5	7429-90-5	7 - 13	1.0
Aluminum - 7429-90-5	7429-90-5	5 - 10	1.0
1-Methyl-2-pyrrolidone - 872-50-4	872-50-4	1 - 5	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 Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous 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
Aluminum foil 7429-90-5			



US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
1-Methyl-2-pyrrolidone - 872-50-4	Developmental

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	X		X	X	X
Graphite 7782-42-5	X	X	X		
Copper 7440-50-8	X	X	X	X	X
Aluminum foil 7429-90-5	X	X	X	X	
Aluminum 7429-90-5	X	X	X	X	
1-Methyl-2-pyrrolidone 872-50-4	X	X	X	X	
Dimethyl carbonate 616-38-6	X	X	X		

International Regulations

Mexico

National occupational exposure limits

Chemical name	Carcinogen Status	Exposure Limits
Graphite		Mexico: TWA= 2 mg/m ³
Copper		Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³
Aluminum foil		Mexico: TWA 10 mg/m ³
Aluminum		Mexico: TWA= 10 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

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

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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