

MSDS

MATERIAL SAFETY DATA SHEET

Goods Name : Lithium ion Battery

Model Name : 18650

Applicant : Zhangzhou Wah Fu New Energy Technology Co., Ltd.

Report Number : KS2012S02526B04

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Written by: Jessica Yang

Approved by: Sam yoo.

KSIGN(Guangdong) Testing Co., Ltd.





Material Safety Data Sheet

Report No.: KS2012S02526B04

* The MSDS is prepared based on the information provided by client. The contents and formats of this MSDS are revised as per client's request.

1. IDENTIFICATION

Product identifier

Product Name Lithium ion Battery (Model: 18650)

Other means of identification

Product description Rating: 3.7Vd.c., 1800mAh, 6.66Wh
Weight: appr. 43.256g
Dimensions: Max.: Φ18.0*65.0 (mm)

Trademark N/A

Recommended use of the chemical and restrictions on use

Recommended Use LITHIUM ION BATTERIES

Restrictions on use No information available

Details of the supplier of the Material safety data sheet

Initial supplier identifier Zhangzhou Wah Fu New Energy Technology Co., Ltd.

Address LED avenue of Yunling industrial development zone, Yunxiaocounty, Zhanzhou City, Fujian Province

Telephone +86-13823781362

Website www.qixin.com/company/f6affaf4-3faf-4595-8681-2065f1dc3cba

E-mail pengxinhuang@163.com

Emergency telephone number

Company Emergency Phone Number +86-13823781362

2. HAZARDS IDENTIFICATION

Classification LITHIUM ION BATTERIES

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

GHS Label elements, including precautionary statements

Signal Word: Danger

Hazard Label



Hazard statements

This is a battery. In case of rupture:
Harmful in contact with skin
Causes severe skin burns and eye damage
May cause an allergic skin reaction
May cause cancer
Causes damage to organs through prolonged or repeated exposure

CAS#7429-90-5

Classification according to GHS

Substances and mixtures which, in contact with water, emit flammable gases (2, 3)
Specific target organ toxicity, repeated exposure (1) (respiratory system)
H261 in contact with water releases flammable gas
H372 causes damage to organs through prolonged or repeated exposure (respiratory system)

CAS# 7440-50-8

Classification according to GHS

Sensitisation, skin(1, 1A, 1B)
Specific target organ toxicity, single exposure (1)(digestive system)
Specific target organ toxicity, single exposure; Respiratory tract irritation(3)
H317 May cause an allergic skin reaction
H370 causes damage to organs (digestive system)
H335 May cause respiratory irritation

Precautionary Statements - Prevention

CAS#7429-90-5

P223 Do not allow contact with water.
P231+ P232 Handle and store contents under inert gas, protect from moisture.
P280 wear protective gloves, protective clothing, eye protection and face protection.
P260 Do not breathe dust.
P264 wash skin and clothing thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

CAS# 7440-50-8

P260 Do not breathe dust, fume.
P272 contaminated work clothing should not be allowed out of the workplace.
P280 wear protective gloves, eye protection, face protection.
P264 wash skin and clothing thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 use only outdoors or in a well-ventilated area.

Precautionary Statements - Response

CAS#7429-90-5

P302+ P335+ P334 IF ON SKIN: Brush off loose particles from skin and immerse in cool water.
P370+ P378 in case of fire: use the appropriate media put out the fire.
P314 Get medical advice if you feel unwell.

CAS# 7440-50-8

P302+ P352 IF ON SKIN: wash with plenty water.

P333 +P313 if skin irritation or rash occurs: Get medical advice.

P321 specific treatment (see additional emergency instructions).

P362+ P364 Take off contaminated clothing and wash it before reuse

P308+ P311 IF exposed or concerned: call a POISON CENTER.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 call a POISON CENTER if you feel unwell.

Eyes

Immediately call a POISON CENTER or doctor

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

Continue rinsing

Skin

Call a POISON CENTER or doctor if you feel unwell

Take off contaminated clothing and wash it before reuse

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]

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

Wash contaminated clothing before reuse

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Immediately call a POISON CENTER or doctor

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other information

May be harmful if swallowed Very toxic to aquatic life Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Lithium Cobalt Oxide (CoLiO ₂)	12190-79-3	15 - 40	-	-
Copper	7440-50-8	11 - 31	-	-
Graphite	7782-42-5	10 - 27	-	-
Ethylene carbonate	96-49-1	10 - 31	-	-
Phosphate(1-), hexafluoro-, lithium	21324-40-3	5 - 16	-	-
Aluminum foil	7429-90-5	3 - 10	-	-

4. FIRST AID MEASURES

Description of first aid measures

General advice

First aid is upon rupture of sealed battery. Show this Material safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention.

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.

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. Get immediate medical advice/attention.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention. May cause an allergic skin reaction.

Ingestion

Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Self-protection of the first aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific 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 None.

Sensitivity to Static Discharge None.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

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. Attention! Corrosive material. 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.

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

Advice on safe handling

In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Protect from moisture. Keep out of the reach of children. Store away from other materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor.

Keep away from heat and open flame. Store in a cool, dry place.

Personal Protective Equipment

Respiratory Protection: Not necessary under normal conditions.

Skin and body Protection: Not necessary under normal conditions, Wear suitable protective clothing and gloves if handling an open or leaking battery.

Hand protection: Wear suitable gloves if handling an open or leaking battery.

Eye Protection: Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.

Other Protective Equipment

Have a safety shower and eye wash fountain readily available in the immediate work area.

Hygiene Measures

Do not eat, drink, or smoke in work area. Maintain good housekeeping.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Blue
Odor	No information available
Color	No information available
Odor Threshold	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	No data available	None known	
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	
Relative density	No data available	None known	
Water Solubility	Insoluble in water		

Solubility(ies)	No data available	None known
Partition coefficient: n-octanol/water	N/A	
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

Other Information

Explosive properties	No information available.
Oxidizing properties	No information available.
Softening Point	No information available
Molecular Weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk Density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

10. STABILITY AND REACTIVITY

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Exposure to air or moisture over prolonged periods.
Incompatible materials	Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products	Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

12. ECOLOGICAL INFORMATION

Ecological Toxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. TRANSPORT INFORMATION

UN Number -DOT, IMDG, IATA UN 3480 & UN 3481

Transport information Lithium ion Battery (Sample Model: 18650) is tested and has passed in accordance with UN manual of Tests and Criteria, Part III, subsection 38.3. The goods shall be complied with the requirements of Section IB-II of Packing Instruction 965 or of Section II of Packing Instruction 966 & 967 of 62nd DGR Manual of IATA or special provision 188 of IMDG CODE (Amdt. 39-18).

Separate Lithium-ion batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport, ensure that the goods will not falling, dropping, and breakage, prevent collapse of cargo piles and wet by rain.

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".

Proper Shipping Name Lithium ion Batteries (Including lithium ion polymer batteries) or; Lithium ion Batteries packed with equipment (Including lithium ion polymer batteries) or; Lithium ion Batteries contained in equipment (Including lithium ion polymer batteries)

TDG Not regulated

DOT
Hazard Class 9
Emergency Response Guide Number 147

MEX Not regulated

ICAO Not regulated



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<u>IATA</u>	
Hazard Class	9
<u>IMDG/IMO</u>	
Hazard Class	9
EmS-No.	F-A, S-I
<u>RID</u>	Not regulated
<u>ADR</u>	Not regulated
<u>ADN</u>	Not regulated

15. REGULATORY INFORMATION

Law information

- 《Dangerous Goods Regulations》
 - 《Recommendation on the Transport of Dangerous Goods Model Regulations》
 - 《International Maritime Dangerous Goods》
 - 《Technical Instructions for the Safe Transport of Dangerous Goods》
 - 《Classification and code of dangerous Goods》
 - 《Occupational Safety and Health Act》 (OSHA)
 - 《Toxic Substance Control Act》 (TSCA)
 - 《Consumer Product Safety Act》 (CPSA)
 - 《Federal Environmental Pollution Control Act》 (FEPCA)
 - 《The Oil Pollution Act》 (OPA)
 - 《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》 (SARA)
 - 《Resource Conservation and Recovery Act》 (RCRA)
 - 《Safety Drinking Water Act》 (CWA)
 - 《California Proposition 65》
 - 《Code of Federal Regulations》 (CFR)
- In according with all Federal, State and local laws.

16. OTHER INFORMATION

<u>NFPA</u>	Health hazards 1	Flammability 0	Instability 0	Physical and Chemical Properties
<u>HMS</u>	Health hazards 0	Flammability 0	Physical hazards 0	Personal Protection X

Disclaimer

The information provided in this Material 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 Material Safety Data Sheet