

MATERIAL SAFETY DATA SHEET

Product Name: Li-Ion Polymer Battery

Type/Model: ZJ 18650(4S2P)14.8V 6400mAh 94.72Wh

Revision Date: Jan.31. 2023

Material Safety DataSheet

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SECTION1:Identification of the substance/mixture and of the company/undertaking

1.1Product Identifier

Name of Product :Lithium-ion rechargeable pack battery

1.2Other means of identification

ProductModels:ZJ18650

NominalVoltage:14.8V

Nominal capacity:6400mAh

Nominal Power: 94.72Wh

Weight: 397g

1.3Recommended use of the chemical and restriction on use

Recommended Use: Rechargeable Li-ion Battery

Restriction on Use: No information available

1.4Information Of Company:

Company Name: AEC lighting Solutions Co.,Ltd.

Address: 2548 Bao'an Highway, Jiading District, Shanghai 201801, China,

Zip code:201801

Contact person: Bruce li

Tel:+86-136 8180 2512

E-mail: liyue@aeclight-reel.com

1.5EmergencyTelephone

+86-136 8180 2512

SECTION2.Hazard(s) Identification

2.1Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard(29CFR1910.1200).This product is an article which is a sealed battery and as such does not require an SDS per the OSHA hazard communication standards unless ruptured. The hazards indicated are for a ruptured battery.

Skin corrosion/irritation	Category2
Serious eye damage/eye irritation	Category2A
Carcinogenicity	Category2
Specific target organ toxicity(repeated exposure)	Category1

2.2 Label elements

2.2.1SignalWord **Danger**

2.2.2HazardStatements

This is a battery. In case of rupture:.

Harmful if swallowed

Toxic if swallowed

Harmful in contact with skin

Cause severe skin burn sand eye damage

May cause an allergic or reaction

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May cause cancer
Cause damage to organs
May cause respiratory irritation

2.2.3Symbol



This product is an article which contains a chemical substance. Safety information is given for exposure to the article as solid. 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.

2.3PrecautionaryStatements

2.3.1PrecautionaryStatements –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.
Contaminated work clothing should not be allowed out of the workplace.
Keep away from flames and hot surface –no smoking.
Do not breath dust/fume/gas/mist/vapors/spray.
Do not eat, drink or smoke when using this product.
Wear protective gloves

2.3.2PrecautionaryStatements –Response

If exposed or connected: Get medical advice/attention. Specific treatment(see supplemental first aid/instruction on this label).

Skin

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.

Eye

If in eyes: Rinse cautiously with water for several minutes, remove contact lenses, if present
And easy to do, Continue rinsing. Call a poison center or doctor/physician.

Inhalation

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.

Ingestion

If swallowed: rinse mouth, do not induce vomiting ,Call a poison center or doctor/physician if
Feel unwell.

2.3.3PrecautionaryStatements –Storage

Store locked up

2.3.4PrecautionaryStatements –Disposal

Dispose of contents/container to an approved waste disposal plant.

2.4Hazards not otherwise classified (HNOC)

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Not applicable

2.5 Unknown Toxicity

10% of the mixture consists of ingredient(s) of unknown toxicity.

2.6 Other information

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.7 Interactions with other chemicals

Use of alcoholic beverages may enhance toxic effect.

SECTION 3. Composition/ Information on Ingredients

Chemical Name	CAS No.	Weight%
lithium nickel cobalt manganese oxides	182442-95-1	35.01%
graphite	7782-42-5	23.04%
lithium hexafluorophosphate	21324-40-3	1.70%
Polyvinylidene fluoride	24937-79-9	0.47%
iron	7439-89-6	17.72%
Copper	7440-50-8	6.63%
Aluminum	7429-90-5	3.40%
Nickel	7440-02-0	0.20%
carbon black	1333-86-4	0.66%
styrene-butadiene rubber	9003-55-8	0.40%
carboxymethyl cellulose sodium salt	9004-32-4	0.21%
electrolyte solvents: ethylene carbonate dimethyl carbonate propylene carbonate ethyl methyl carbonate	96-49-1 616-38-6 108-32-7 623-53-0	8.91%
Polyethylene	9002-88-4	0.18%
Polyethylene terephthalate	25038-59-9	1.46%

ET7680 4. First Aid Measures

4.1 General Advice

First aid is Applicable only in the case of cell rupture.

4.1.1 Eye contact

If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eyes wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area.

4.1.2 Skin Contact

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

4.1.3 Inhalation of Vented Gas

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 substances; 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.

4.1.4 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.

4.1.5 Self-protection of the first aider

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

4.2 Most important symptoms and effects, both acute and delayed

Burning sensation, Itching. Rashes. Hives, Coughing.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

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 of susceptible persons. Treat symptomatically.

SECTION 5. Fire–Fighting Measures

5.1 Suitable Extinguishing Media

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

5.2 Unsuitable Extinguishing Media

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

5.3 Specific Hazards Arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact. Product is or contains a sensitizer.

Hazardous Combustion products

CO, CO₂, Metals oxides, Irritating fumes

5.4 Explosion Data

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Sensitivity to Mechanical Impact :No.**Sensitivity to Static Discharge: No.****5.5 Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/IOSH (approved or equivalent) and full protective gear. Move containers from fire area if you can do it without risk.

SECTION 6. Accidental Release Measures

6.1 Person precautions, protective equipment and emergency procedures

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.

6.2 Environmental Precautions

Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3 Methods for containment

Prevent further leakage or spillage if safe to do so. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

6.4 Methods for cleaning up

Pick up and transfer to properly labeled containers.

SECTION 7. Handling and Storage

7.1 Precaution for safe handling

In case of rupture, use personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray.

7.2 Conditions for safe storage, including any incompatibilities**Storage**

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

Incompatible products

Strong acids. Strong oxidizing agent.

SECTION 8. Exposure Controls/Personal Protection

8.1 Exposure Guidelines

Not established

8.2 Appropriate engineering controls**Engineering Measures:**

Showers, Eye wash stations, Ventilation systems

8.3 Individual protection measures, such as personal protective equipment

Respiratory protection: No protective equipment is needed under normal use conditions. If

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Exposure limits are exceeded or irritation is experienced, ventilation and evacuation maybe required.

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

Skin protection: Wear protective gloves and protective clothing. Long sleeved clothing Imperious gloves.

Hygiene Measure: 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. 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

Physical State: Solid

Color:Blue

Odor:Odorless

Odor Threshold:No information available

pH:No data available

Melting/freezing point: No data available

Boiling point/boiling range: No data available

Flash Point: No data available

Evaporation Rate: No data available

Flammability(Solid, gas): No data available

Flammability Limit in Air:

Upper flammability limit: No data available

Lower flammability limit: No data available

Vapor pressure: No data available

Vapor density: No data available

Specific Gravity: No data available

Solubility: Insoluble in water

Partition coefficient: n-octanol/water: No data available

Auto ignition temperature: No data available

Decomposition temperature: No data available

Kinematicviscosity:No data available

Dynamicviscosity:No data available

SECTION 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:

Do not subject battery to mechanical shock. Keep away from open flames, high temperature.

Incompatible materials:

Strong acids, Strong oxidizing agents. Strong bases.

Hazardous decomposition products:

Under fire conditions, the electrode materials can form carcinogenic cobalt oxides.

SECTION 11. Toxicological Information

11.1 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. Corrosive by inhalation (based on components). Inhalation of corrosion fumes/gases may cause coughing, choking, headache, dizziness and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure and increased heart rate. Inhaled corrosive substances can lead to toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye Contact:

Specific test data for the substance or mixture is not available. Cause burns. (based on components). Corrosion to the eyes and may cause severe damage including blindness. Cause serious eye damage. May cause irreversible damage to eyes.

Skin Contact:

Specific test data for the substance or mixture is not available. Corrosion (based on components). Cause burns. Toxic in contact with skin. May be absorbed through the skin in harmful amounts.

Ingestion:

Specific test data for the substance or mixture is not available. Cause burns. (based on components). Ingestion cause burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. Maybe fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and

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diarrhea. Maybe harmful if swallowed.

11.2 Information on toxicological effects

Symptoms:

Erythema (skin redness). May cause redness and tearing of eyes. Itching. Rashes. Hives. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/or wheezing.

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

Sensitization: May cause sensitization of susceptible person, May cause sensitization by skin contact. May cause sensitization by inhalation.

Mutagenic Effects: No information available.

Carcinogenicity: Cobalt and Cobalt compounds are considered to be possible human carcinogen(s)

ACGIH (American Conference of Governmental Industrial Hygienists)

A3-Animal Carcinogen

IARC (International Agency for research on Cancer)

Group 2B- Possibly Carcinogenic to humans

NTP (National Toxicology Program) Reasonably Anticipated- reasonably anticipated to be a Human Carcinogen.

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: No information available.

Chronic Toxicity: Prolonged exposure may cause chronic effects. Repeated contact may cause allergic reactions in very susceptible persons. Contains known or suspected carcinogen. Avoid repeated exposure. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.

Target Organ Effects: Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Blood. Central Nervous System (CNS). Kidney. Liver. Lungs. Nasal cavities.

Aspiration Hazard: No information available.

SECTION 12. Ecological Information

Ecotoxicity: Water hazard class 1 (Self-assessment): slightly hazardous for water.

Persistence and Degradability: No information available

Bioaccumulation: No information available

Other adverse effects: No information available

SECTION 13. Disposal Considerations

13.1 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. Should not be released into the environment.

Contaminated Packaging:

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

SECTION 14. Transportation Information

The battery shall be passed the test items of the UNITED NATIONS "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" section 38.3 and meet the requirements of UNITED NATIONS "Recommendations on the Transport of Dangerous Goods, model Regulations".

The battery 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 short circuit.

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.

The package must be handled with care and that a flammability hazard exists if the package is damaged.

With regard to transport, the following regulations are cited and considered:

- The international Civil Aviation Organization (ICAO) Technical Instructions.
- The international Air transport Association (IATA) Dangerous Goods Regulations.

The battery can be shipped by air in accordance to PACKING INSTRUCTION 965 Section IB, or PACKING INSTRUCTION 966 ~ 967 Section II of the 2022 IATA Dangerous Goods regulations 64th Edition.

UN number: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;

UN Classification (Transport hazard class): Class 9 (PI965 Section IB) or N/A (PI965 ~ 967 Section II). **UN packaging group:** N/A

- The international Maritime Dangerous Goods (IMDG) Code.

UN number: UN3480 or UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;

UN Classification (Transport hazard class): N/A

UN packaging group: N/A

The battery is not restricted according to IMO IMDG Code (inc Amdt 40-20) Special Provision 188.

The goods are non dangerous goods in accordance with the latest revised version 2020 of the

IMO IMDG Code.

SECTION 15. Regulatory information

Regulatory information

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous

Non-hazardous

SECTION 16. Other Information

Preparation and revision:

Prepared By: AEC lighting Solutions Co., Ltd.

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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 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 material used in combination with any other materials or in any process, unless specified in the test.