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**Lithium Polymer Battery**  
 30mAh - 200mAh  
 200mAh - 500mAh  
 500mAh - 1000mAh  
 1000mAh - 2000mAh  
 2000mAh - 5000mAh  
 5000mAh - 10000mAh

**High Rate Discharge  
 Lithium Polymer Battery**  
 5C - 10C  
 10C - 20C  
 30C - 40C  
 40C - 50C

**18650 Battery**  
 LP18650A+ 3500mAh  
 LP18650A 3200mAh  
 LP18650B 2800mAh  
 LP18650C 2600mAh  
 LP18650D 2200mAh

**18650 High Amp Battery**  
 1500mAh 30A  
 2000mAh 25A  
 2200mAh 10A  
 2500mAh 20A  
 3000mAh 30A  
 3200mAh 10A  
 3500mAh 25A

**RC LiPo Battery**  
 2S1P 7.4V  
 3S1P 11.1V  
 4S1P 14.8V  
 5S1P 18.5V  
 6S1P 22.2V  
 7S1P 25.9V  
 12S1P 44.4V



## What's MSDS of Lithium Polymer Battery?

Material Safety Data Sheet (MSDS) of Lithium Polymer Battery is the battery manufacturer showing the chemistry characters. It's a document that may pose a hazard to the user's health such as carcinogenic, teratogenic, etc.

### 1 ID OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

#### MSDS of PRODUCT IDENTIFIER:

Lithium Polymer Battery

#### APPROVED USE OF THE CHEMICAL AND RESTRICTIONS:

Portable Electronic Equipments

#### MSDS RECOMMENDED AGAINST:

- 1.1 Do not dismantle, open or shred lithium polymer batteries or cells.
- 1.2 Do not expose lithium polymer batteries or cells to heat or fire. Avoid storage in direct sunlight.
- 1.3 Do not short-circuit a lithium polymer battery or a cell.
- 1.4 Do not store lithium polymer batteries or cells haphazardly in a box or drawer where they may short-circuit each other or short-circuit by other metal objects.
- 1.5 Do not remove a lithium polymer battery or a cell from its original packaging until required for use.
- 1.6 Do not subject lithium polymer batteries or cells to mechanical shock.
- 1.7 In the event of a lithium polymer battery or a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If the contacts have been made, wash the affected area with copious amounts of water and seek medical advice.
- 1.8 Do not use any other charger than that expressly provided for use with the equipment.
- 1.9 Observe the plus(+) and minus(-) marks on the lithium polymer battery or the cell equipment and ensure correct use.
- 1.10 Do not use any lithium polymer battery or cell which is not designed for use with equipment.
- 1.11 Do not mix lithium polymer batteries or cells of different manufacturers, capacity, size or type within a device.
- 1.12 Battery usage by children should be supervised.
- 1.13 Seek medical advice immediately if a lithium polymer battery or a cell has been swallowed.
- 1.14 Always purchase the lithium polymer battery or the cell recommend by the device manufacturer for the equipment.
- 1.15 Keep the lithium polymer batteries or the cells clean and dry.
- 1.16 Wipe the lithium polymer battery or the cell terminals with a clean, dry cloth if they become dirty.
- 1.17 The lithium polymer batteries or the cells need to be charged before use. Always use the original & correct charger and refer to the manufacturer's instructions or equipment manual for proper charging instructions.
- 1.18 Do not leave a lithium polymer battery or a cell on prolonged charge when not in use.
- 1.19 After extended periods of storage, it may be necessary to charge and discharge the lithium polymer batteries or the cells several times to obtain maximum performance.
- 1.20 Retain the original product literature for future reference.

**UN38.3**  
**IEC 62133**



**RoHS**  
compliant

1.21 Use only the lithium polymer battery or the cell in the application for which it was intended.

1.22 When possible, remove the lithium polymer battery or the cell from the equipment when not in use.

1.23 Dispose of properly.

## 2. POSSIBILITIES IDENTIFICATION OF MSDS

### 2.1 Classification

No harm at the regular use. If contacting the Electrolyte liquid in the lithium polymer battery or the cell, reference as follows:

### 2.2 Classification of the substance or mixture

Classification according to GHS

Acute Toxicity, Oral (Hazard category 4)

Acute Toxicity, Dermal (Hazard category 3)

Skin, irritate (Category 1B)

Eye Irritate (Hazard category 1)

### 2.3 GHS Label elements, including precautionary statements



**Signal word: Warning**

**Hazard statements:**

H242: Heating may cause a fire

H311: Toxic in contact with the skin

H314: Causes severe skin burns and eye damage

H302: Harmful if swallowed

### 2.4 Precautionary statements

**Restriction:**

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves / protective clothing / eye protection / face protection

**Compliance:**

P312: Call a poison center or doctor/physician if you feel unwell.

P302+P350 IF ON SKIN: Gently wash with plenty of soap and water.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do not induce vomiting.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Disposal:**

P501: Dispose of contents/container by local/national regulations

## 3. CONSTRUCTION / INFORMATION ON INGREDIENTS OF MSDS

Chemical characterization: Mixtures

Description:

Product: Consisting of the following components.

Note: CAS number is Chemical Abstract Service Registry Number.

| Common Chemical Name                         | Concentration (%) | CAS Number |
|----------------------------------------------|-------------------|------------|
| Lithium Cobalt Dioxide (LiCoO <sub>2</sub> ) | 30-37             | 12190-79-3 |
| Graphite (C)                                 | 15-20             | 7782-42-5  |
| Poly Vnylidene Fluoride (PVDF)               | 0-1               | 24937-79-9 |
| Acetylene Black                              | 0-1               | 1333-86-4  |
| Phosphate(1-), hexafluoro-, lithium          | 12-16             | 21324-40-3 |
| Polypropylene                                | 6-10              | 9003-07-0  |
| Aluminium                                    | 2-5               | 7429-90-5  |
| Copper                                       | 5-10              | 7440-50-8  |
| Iron                                         | 10-15             | 7439-89-6  |

## 4. FIRE-AID FIGHTING MEASURES OF MSDS

### 4.1 Suitable Extinguishing Media

CO<sub>2</sub>, dry chemical powder, water spray.

#### 4.2 Specific Hazards Arising from the Chemical

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

Carbon monoxide(CO)

Carbon dioxide

Other irritating and toxic gases.

#### 4.3 Hazardous Combustion Lithium Polymer Battery

Carbon oxides

Explosion Data

Sensitivity to Mechanical Impact: No

Sensitivity to Static Discharge: No

#### 4.4 Protective Devices and Forethoughts for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. For example: Wear self-contained respiratory protective device. Wear suitable protective clothing and eye/face protection.

#### 4.5 Special hazards arising from the substance or mixture:

Lithium Polymer Battery may burst and release hazards decomposition products when exposed to a fire situation. lithium polymer battery contains the flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature(>150°C), When damaged or abused(e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

## 5. NONESSENTIAL RELEASE MEASURES

#### 5.1 Personal precautions, protective equipment, and emergency procedures

Personal Precautions avoid contact with eyes. Refer to section 8 for personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

#### 5.2 Environmental forethoughts

Absorb with the liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

#### 5.3 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: Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other

Noncombustible absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

## 6. FIRST-AID MEASURES OF MSDS

#### 6.1 First aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Remove contaminated clothing and shoes. Wash skin with soap and water. In the case of skin

irritation or allergic reactions see a physician. Inhalation: Move to fresh air. If symptoms persist, call a physician.

Ingestion: Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

**6.2 Most important symptoms and effects, both acute and delayed. Swallowing Do not induce vomiting. Get medical attention.**

## 7. MSDS HANDLING AND STORAGE

#### 7.1 Forethoughts for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing.

Wear personal protective equipment. Wash thoroughly after handling. Use this material with adequate ventilation.

The lithium polymer battery is not explosive.

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

If the Lithium Polymer Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Lithium Polymer Battery periodically.

3 months: -10°C~ +40°C, 45 to 85%RH.

And recommended at 0°C~ +35°C for long period storage.

The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.

The voltage for a long time storage shall be 3.8V ~ 4.8V range.

Do not storage Lithium Polymer Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

Keep out of reach of children.

Do not expose Lithium Polymer Battery to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

Keep ignition sources away - Do not smoke.

Store in cool, dry and well-ventilated place.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

#### 8.1 Instrument Parameters

Ingredients with limit values that require monitoring at the workplace

12190-79-3 Lithium Cobalt Oxide

TLV (USA): 0.02mg/m3

MAK (Germany): 0.1mg/m3

Vacated limits revoked by the court of appeals decision in AFL-CIO OSHS 965 F.2d 962 (11th Cir., 1992)

#### 8.2 Individual protection measures, such as personal protective equipment

Eye/Face Protection

Body protection

Skin protection

Respiratory Protection

Hygiene Measures



## 9. STABILITY AND REACTIVITY OF MSDS

### 9.1 Reactivity

Stable under recommended storage and handling conditions.

### 9.2 Element stability

Stable under normal conditions of use, storage, and transport.

### 9.3 Thermal decomposition/conditions to be avoided

No decomposition if used according to specifications.

### 9.4 The possibility of Hazardous Reactions

None under normal processing.

### 9.5 Hazardous Polymerization

Hazardous polymerization does not occur.

### 9.6 Conditions to avoid

Strong heating, fire, Incompatible materials

### 9.7 Incompatible materials

Strong oxidizing agents. Strong acids. Base metals.

### 9.8 Hazardous Decomposition Products

Carbon oxides, other irritating and toxic gases.

## 10. DISPOSAL MSDS CONSIDERATIONS

### 10.1 Waste treatment methods

Recommendation: Must not be disposed of together with household garbage. Do not allow the product to reach the sewage system

### 10.2 Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

## 11 MSDS TRANSPORT INFORMATION

11.1 The Lithium Polymer Battery had been tested according to the requirements of the UN manual of tests and Criteria.

11.2 The Lithium Ion Polymer Battery with a Watt-hour rating not exceeding 100Wh or the cell with a Watt-hour rating in not exceeding of 20Wh.

11.3 Meets the requirements of International Maritime Dangerous Goods(IMDG)-2014 Special Provision 188 to be transported as non-dangerous goods;

11.4 Meets the requirements of 49CFR173.185 to be transported as non-dangerous goods for the road, rail, air, and vessel.

11.5 Meets the requirements of TDG special provision 34 to be transported as non-dangerous goods.

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

11.7 The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

## 12. PHYSICAL AND CHEMICAL PROPERTIES

|                                              |                                          |                                            |
|----------------------------------------------|------------------------------------------|--------------------------------------------|
| Physical State                               | Form: Almost Cuboid                      |                                            |
|                                              | Color: Silver                            |                                            |
|                                              | Odour: Odourless                         |                                            |
|                                              | Odor Threshold: No information available |                                            |
| Change in condition:                         |                                          |                                            |
| pH, with indication of the concentration     |                                          | Not determined.                            |
| Melting point/freezing point                 |                                          | Not determined.                            |
| Initial boiling point and Boiling range:     |                                          | Not determined.                            |
| Flash Point                                  |                                          | Not determined.                            |
| Evaporation rate                             |                                          | Not determined.                            |
| Flammability (solid, gas)                    |                                          | Not determined.                            |
| Upper/lower flammability or explosive limits |                                          | Not determined.                            |
| Vapor Pressure:                              |                                          | Not determined.                            |
| Vapor Density:                               |                                          | Not determined.                            |
| relative density:                            |                                          | Not determined.                            |
| Solubility in Water:                         |                                          | Not determined.                            |
| Solubility in other solvents                 |                                          | Not determined.                            |
| n-octanol/water partition coefficient        |                                          | Not determined.                            |
| Auto-ignition temperature                    |                                          | Product is not self-igniting.              |
| Decomposition temperature                    |                                          | Not determined.                            |
| Odout threshold                              |                                          | Not determined.                            |
| Evaporation rate                             |                                          | Not determined.                            |
| Viscosity                                    |                                          | Not determined.                            |
| Other Information                            |                                          | No further relevant information available. |

### 13. REGULATORY INFORMATION

13.1 Safety, health and environmental regulations/legislation specific to the substance or mixture

13.2 Regulatory information

**End of Lithium Polymer Battery MSDS**

[LiPo Battery Safety Precautions](#)

[LiPo Battery Performance Standards](#)

[How to Store Lithium Polymer Battery Safely](#)

[Caution of Lithium Polymer Battery](#)

[What's IEC 62133-2:2017 Certification of Lithium-Ion Battery?](#)

[What's MSDS of Lithium Polymer Battery?](#)

[Quality Control for Lithium Polymer Battery Production](#)

[What you should do when you got the lithium polymer battery from us](#)