

## Safety Data Sheets (SDSs)

Client	Sunwoda Electronic Co., Ltd.
Add. of Client	1/F, 2/F of Area A&B&D, 3-9F, Administration Building, No.2, Yihe Rd., Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, China 518108
Description	Rechargeable Li-Polymer Battery
Model /Type	L16D1P33
Manufacturer	Sunwoda Electronic Co., Ltd.
Add. of Manufacturer	1/F, 2/F of Area A&B&D, 3-9F, Administration Building, No.2, Yihe Rd., Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, China 518108
Nominal Voltage	3.85V, 3500mAh, 13.5Wh
Date of Receipt	2017-07-13

Laboratory	Shenzhen ZRLK Testing Technology Co., Ltd.
Address	6F, Fuxinfa Industrial Park, Liuxiangdong, Xili Street, Nanshan District, Shenzhen, China

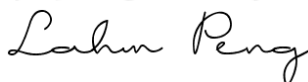
Approved Signatory	Maggie.Gao
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Inspected by	Ailis.Ma
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Censored by	Lahm Peng
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## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product Identifier

Product name: Rechargeable Li-Polymer Battery

Model: L16D1P33

### Other means of identification

Synonyms:none

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

Recommended Use:Used in portabl electronic equipments;

Uses advised against:

- a) Do not dismantle, open or shred secondary cells or batteries.
- b) Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight.
- c) Do not short-circuit a cell or a battery. Do not store cells or batteries haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.
- d) Do not remove a cell or battery from its original packaging until required for use.
- e) Do not subject cells or batteries to mechanical shock.
- f) In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.
- g) Do not use any charger other than that specifically provided for use with the equipment.
- h) Observe the plus (+) and minus (–) marks on the cell, battery and equipment and ensure correct use.
- i) Do not use any cell or battery which is not designed for use with the equipment.
- j) Do not mix cells of different manufacture, capacity, size or type within a device.
- k) Battery usage by children should be supervised.
- l) Seek medical advice immediately if a cell or a battery has been swallowed.
- m) Always purchase the battery recommended by the device manufacturer for the equipment.
- n) Keep cells and batteries clean and dry.
- o) Wipe the cell or battery terminals with a clean dry cloth if they become dirty.
- p) Secondary cells and batteries need to be charged before use. Always use the correct charger and refer to the manufacturer's instructions or equipment manual for proper charging instructions.
- q) Do not leave a battery on prolonged charge when not in use.
- r) After extended periods of storage, it may be necessary to charge and discharge the cells or batteries several times to obtain maximum performance.
- s) Retain the original product literature for future reference.
- t) Use only the cell or battery in the application for which it was intended.
- u) When possible, remove the battery from the equipment when not in use.
- v) Dispose of properly.

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

Supplier Name: Sunwoda Electronic Co., Ltd.

Address: 1/F, 2/F of Area A&B&D, 3-9F, Administration Building, No.2, Yihe Rd., Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, China 518108

Telephone number of the supplier: 0086-0755-23084910-3107

Postcode: 518108

E-mail address: liuxiaoming@ptl-global.com

**Emergency telephone number**

**Company Emergency Phone Number:** 0086-13689559817

## 2. HAZARDS IDENTIFICATION

**Classification**

No harm at the normal use. If contact the Electrolyte in the Rechargeable Li-Polymer Battery, reference as follows:

**Classification of the substance or mixture**

Classification according to GHS

Acute Toxicity, Oral(Hazard category 4)

Acute Toxicity, Dermal(Hazard category 3)

Skin, irritate(Hazard Category 1B)

Eye Irritate (Hazard category 1)

**GHS Label elements, including precautionary statements:**



GHS02



GHS05



GHS06

**Signal word: Warning**

**Hazard statement(s):**

**H242:**Heating may cause a fire;

**H311:** Toxic in contact with skin;

**H314:**Causes severe skin burns and eye damage;

**H302:**Harmful if swallowed;

**precautionary statements:**

**Prevention:**

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.

**Response:**

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: rise 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.

**Storage:**

None

**Disposal**

**P501:** Dispose of contents/container in accordance with local/national regulations

**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other information**

No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical characterization: Mixtures**

**Description:**

Product: Consisting of the following components.

Common Chemical Name	Concentration (%)	CAS Number
Aluminum foil	4.0	7429-90-5
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	44.1	12190-79-3
1,1-Difluoroethylene polymer	1	24937-79-9
Copper	7.8	7440-50-8
Carbon	21.3	7440-44-0
Phosphate(1-), hexafluoro-, lithium	13.3	21324-40-3
Steel manufacture, chemicals	7.5	65997-19-5
Nickel	1	7440-02-0

Note: CAS number is Chemical Abstract Service Registry Number.

N/A=Not apply.

### 4. FIRST-AID MEASURES

**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.

Most important symptoms and effects, both acute and delayed

**Swallowing** Do not induce vomiting. Get medical attention.

**Most Important Symptoms/Effects** No information available.

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

Notes to Physician Treat symptomatically

## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media

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

Unsuitable Extinguishing Media: No information available.

### 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.

### 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. For example: Wear self-contained respiratory protective device. Wear suitable protective clothing and eye/face protection.

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

Battery may burst and release hazardous decomposition products when exposed to a fire situation. Lithium ion batteries contain 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.

## 6. ACCIDENTAL RELEASE MEASURES

### 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.

### Environmental precautions

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

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

Dispose contaminated material as waste according to item 13.

### 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 Non combustible absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

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 product is not explosive.

### Conditions for safe storage, including any incompatibilities

If the Lithium-ion Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Rechargeable Li-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 3.7V~4.2V range.  
Do not storage Lithium-ion 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 Rechargeable Li-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.

Incompatible Products None known.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Control parameters

Ingredients with limit values that require monitoring at the workplace:	
12190-79-3 Lithium Cobalt Oxide	
TLV (USA)	0.02mg/m <sup>3</sup>
MAK (Germany)	0.1mg/m <sup>3</sup>

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962(11th Cir., 1992).

### Appropriate engineering controls

Engineering Measures Showers  
Eyewash stations  
Ventilation systems

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Ensure adequate ventilation.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection:**



**Tightly sealed goggles**

**Body protection:**

Protective work clothing.

**Skin protection:**



**Protective gloves**

**Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Penetration time of glove material:**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Form: prismatic
	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.
Odour threshold	Not determined.
Evaporation rate	Not determined.
Viscosity	Not determined.
Other Information	No further relevant information available.

## 10. STABILITY AND REACTIVITY

**Reactivity:** Stable under recommended storage and handling conditions (see section 7, Handling and storage).

**Chemical stability:** Stable under normal conditions of use, storage and transport.

**Thermal decomposition/conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Hazardous polymerization does not occur.

**Conditions to avoid:** Strong heating, fire, Incompatible materials.

**Incompatible materials:** Strong oxidizing agents. Strong acids. Base metals.

**Hazardous Decomposition Products:** Carbon oxides, Other irritating and toxic gases.

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity:** No data available.

LD/LC50 values relevant for classification:

Not available.

**Skin corrosion/irritation:** No irritant effect.

**Serious eye damage/irritation:** Cause serious eye irritation.

**Respiratory or skin sensitization:** No sensitizing effects known.

**Specific target organ system toxicity:** No information available.

**CMR effects(carcinogenicity, mutagenicity and toxicity for reproduction):** No information available.



## 12. Ecological Information

### Toxicity:

Acquatic toxicity:

No further relevant information available.

**Persistence and degradability:** No further relevant information available.

**Bioaccumulative potential:** No further relevant information available.

**Mobility in soil:** No further relevant information available.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

**Other adverse effects:** No information available.

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

Recommendation: Must not be disposed together with household garbage.

Do not allow product to reach sewage system

### Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

## 14. TRANSPORT INFORMATION

### Land transport

ADR/RID class: Not regulated.

UN-Number: UN3480 or UN3481.

### Maritime transport

IMDG Class: Class 9.

UN Number: UN3480 or UN3481.

Marine pollutant: No

### Air transport

ICAO/IATA Class: Class 9

UN/ID Number: UN3480 or UN3481

Environmental hazards: Not applicable.

Special precautions for user: Not applicable.

Transport/Additional information: Not restricted goods according to the above specifications.

The Lithium-ion Battery had been tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

The lithium ion batteries according to Section II/Section IB of PACKING INSTRUCTION 965, or Section II of PACKING INSTRUCTION 966~967 of the Dangerous Goods regulations 58<sup>th</sup> Edition may be transported.

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.

Meets requirements of DOT Special Provision 188 to be transported as non-dangerous goods

Meets the requirements of 49CFR173.185 to be transported as non-dangerous goods for road, rail, air, and vessel (Effective August 6, 2014 per HM224F)

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

## 15. REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation:

**Authorisations:** No information available.

**Restrictions on use:** No information available.

#### Regulatory information

CAS No.	EU (EINECS)	US (TSCA)	Japan (ENCS)	Canada (DSL/ NDSL)	Australia (AICS)	Korea (ECL)	China (IECSC)
7429-90-5	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
12190-79-3	Listed	Listed	Listed	DSL	Listed	Listed	Listed
24937-79-9	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
7440-44-0	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
21324-40-3	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
65997-19-5	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7440-02-0	Listed	Listed	Listed	DSL	Listed	Listed	Listed

**Chemical safety assessment** A Chemical Safety Assessment has not been carried out.

## 16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

#### Relevant phrases:

R20/22: Harmful by inhalation and if swallowed.

R36: Irritating to eyes.

H302: Harmful if swallowed.

H332: Harmful if inhaled.

\*\*\*\*\*End of SDS\*\*\*\*\*

# SDS

## SAFETY DATA SHEET

According to 2012 OSHA Hazard Communication Standard  
(29 CFR 1910.1200)

**Prepared For** : SCUD (Fujian) Electronics Co., Ltd.  
No.98, Jiangbin East Avenue, Mawei District, Fuzhou, Fujian,  
P.R.China.

**Prepared By** : Shenzhen LCS Compliance Testing Laboratory Ltd.  
1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an  
District, Shenzhen, Guangdong, China

**Issue Date** : 2017.06.23  
**Report Number** : LCS170612100AS

**Written by:** Linda.

**Approved by:** \_\_\_\_\_



# Safety Data Sheet

Version: V1.0

 According to 2012 OSHA Hazard Communication Standard  
 (29 CFR 1910.1200)

REPORT NO.: LCS170612100AS

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

## Section 1- Identification

### (a) Product identifier

Product name	Rechargeable Li-Polymer Battery
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### (b) Other means of identification

Product description	Model: L16D1P33 Nominal Voltage: 3.85V Nominal capacity: 3500mAh Watt-hour: 13.5Wh Weight: 50g
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### (c) Recommended use of the chemical and restrictions on use

Recommended use	LITHIUM ION BATTERIES
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Uses advised against	No information available.
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### (d) Details of the supplier of the safety data sheet

Supplier Name	SCUD (Fujian) Electronics Co., Ltd.
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Supplier Address	No.98, Jiangbin East Avenue, Mawei District, Fuzhou, Fujian, P.R.China.
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Supplier Phone Number	0574-86823151
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### (e) Emergency telephone number

0574-86823151

## Section 2- Hazards Identification

### (a) 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
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Serious eye damage/eye irritation	Category 2
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Carcinogenicity	Category 2
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Specific target organ toxicity (repeated exposure)	Category 1
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### (b) GHS Label elements, including precautionary statements

Emergency Overview


Signal word	Danger
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# Safety Data Sheet

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<b>Hazard Statements</b> Causes skin irritation Causes serious eye damage Suspected of causing cancer 	
<b>Appearance:</b> No information available <b>Physical State:</b> Solid <b>Odor:</b> No information available	
<b>Precautionary Statements-Prevention</b>	Do not breathe dust/fume/gas/mist/vapors/spray Wash face, hands and any exposed skin thoroughly after handling Wear protective gloves/protective clothing/eye protection/face protection Use only outdoors or in a well-ventilated area Do not eat, drink or smoke when using this product
<b>Precautionary Statements-Response</b>	Immediately call a POISON CENTER or doctor/physician Specific treatment (see supplemental first aid instructions on this label) Get medical advice/attention if you feel unwell
<b>Eyes</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician
<b>Skin</b>	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
<b>Precautionary Statements-Storage</b>	Store locked up Store in a well-ventilated place. Keep container tightly closed
<b>Precautionary Statements-Disposal</b>	Dispose of contents/container to an approved waste disposal plant
<b>(c) Hazards not otherwise classified (HNOC)</b>	
Not applicable	
<b>(d) Unknown Toxicity</b>	
32% of the mixture consists of ingredient(s) of unknown toxicity	
<b>(e) Other information</b>	
Very toxic to aquatic life with long lasting effects	
<b>(f) Interactions with Other Chemicals</b>	
No information available.	
<b>Section 3- Composition/Information On Ingredients</b>	

# Safety Data Sheet

Version: V1.0

 According to 2012 OSHA Hazard Communication Standard  
 (29 CFR 1910.1200)

REPORT NO.: LCS170612100AS

Chemical Name	CAS Number	Weight (%)
Lithium Cobaltate(CoLiO <sub>2</sub> )	12190-79-3	42.4
Graphite	7782-42-5	19.9
Copper Foil	7440-50-8	10.9
Aluminium Foil	7429-90-5	5.8
SBR	9003-55-8	0.5
NMP	872-50-4	0.3
PVDF	24937-79-9	1.9
Ethylene carbonate(EC)	96-49-1	6.3
Dimethyl carbonate(DMC)	616-38-6	4.2
Diethyl carbonate(DEC)	105-58-8	3.5
Phosphate(1-),hexafluoro-, lithium	21324-40-3	4.3

## Section 4- First-aid Measures

### Description of first aid measures

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## Section 5- Fire-fighting measures

### (a) Suitable Extinguishing Media

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

### (b) Unsuitable extinguishing media

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

### (c) 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.

### (d) Hazardous Combustion Products

Carbon oxides.

### (e) 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.

## Section 6- Accidental Release Measures

# Safety Data Sheet

Version: V1.0

 According to 2012 OSHA Hazard Communication Standard  
 (29 CFR 1910.1200)

REPORT NO.: LCS170612100AS

**(a) Personal precautions, protective equipment and emergency procedures**

If the battery is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the vapors to dissipate. Avoid skin and eyes contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerated. If leakage of the battery happens, liquid could be absorbed with sand, earth or other inert substance and contaminated area should be ventilated meantime.

**(b) Environment precautions**

Do not allow product to reach sewage system or any water source.  
 Inform respective authorities in case of seepage into water course or sewage system.  
 Do not allow to enter sewers/ surface or ground water.

**(c) Methods and material for containment and cleaning up**

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

## Section 7- Handling and Storage

**(a) Precautions for safe handling**
**Handling**

Handle in accordance with good industrial hygiene and safety practice. Wear personal protective equipment. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

**(b) Conditions for safe storage, including any incompatibilities**
**Storage**

Keep containers 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 agents. Strong bases

## Section 8- Exposure Controls/Personal Protection

**(a) Control parameters**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Carbon black 1333-86-4	TWA: 3 mg/m <sup>3</sup> inhalable fraction	TWA: 3.5 mg/m <sup>3</sup> (vacated) TWA: 3.5 mg/m <sup>3</sup>	IDLH: 1750 mg/m <sup>3</sup> TWA: 3.5 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup> Carbon black in presence of Polycyclic aromatic hydrocarbons PAH
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>	-	-
Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m <sup>3</sup> F	TWA: 2.5 mg/m <sup>3</sup> F TWA: 2.5 mg/m <sup>3</sup> dust (vacated) TWA: 2.5 mg/m <sup>3</sup>	

# Safety Data Sheet

Version: V1.0

 According to 2012 OSHA Hazard Communication Standard  
 (29 CFR 1910.1200)

REPORT NO.: LCS170612100AS

Copper 7440-50-8	TWA:0.2mg/m <sup>3</sup> fume TWA:1mg/m <sup>3</sup> Cu dust and mist	TWA:0.1mg/m <sup>3</sup> fume TWA:1mg/m <sup>3</sup> dust and mist (vacated) TWA:0.1mg/m <sup>3</sup> Cu dust,fume,mist	IDLH:100mg/m <sup>3</sup> dust ,fume and mist TWA:1mg/m <sup>3</sup> dust and mist TWA:0.1mg/m <sup>3</sup> fume
Aluminum foil 7429-90-5	TWA:1mg/m <sup>3</sup> respirable fraction	TWA:15mg/m <sup>3</sup> total dust TWA:5mg/m <sup>3</sup> respirable fraction (vacated) TWA:15mg/m <sup>3</sup> total dust (vacated) TWA:5mg/m <sup>3</sup> respirable fraction(vacated) TWA:5mg/m <sup>3</sup> AL Aluminum	TWA:10mg/m <sup>3</sup> total dust TWA:5mg/m <sup>3</sup> respirable dust

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

<b>Other Exposure Guidelines</b>	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
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## (b) Appropriate engineering controls

Engineering Measures	Showers Eyewash stations Ventilation systems
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## (c) Individual protection measures, such as personal protective equipment

<b>Eye/Face Protection</b>	None required for consumer use. If there is a risk of contact: Tight sealing safety goggles. Face protection shield.
<b>Skin and body Protection</b>	None required for consumer use. If there is a risk of contact: Wear protective gloves and protective clothing.
<b>Respiratory Protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>Hygiene Measures</b>	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. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. 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

<b>Form</b>	Solid
<b>Color</b>	Silver
<b>Odor</b>	No available
<b>pH</b>	No available



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Melting point/freezing point	No available
Boiling Point and Boiling range	No available
Flash Point	No available
Upper/lower flammability or explosive limits	No available
Vapor Pressure	No available
Vapor Density	No available
Relative density	No available
Solubility in Water	No available
Auto-ignition temperature	No available
Decomposition temperature	No available
Evaporation rate	No available
Flammability (soil, gas)	No available
Viscosity	No available
<b>Section 10- Stability and reactivity</b>	
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. Excessive heat.
Incompatible materials	Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products	Carbon oxides.
<b>Section 11 – Toxicological Information</b>	
Product Information	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:
Irritation	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

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<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.			
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.			
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes 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. May be fatal if swallowed and enters airways.			
<b>Component Information</b>				
Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	
Carbon black 1333-86-4	> 10000 mg/kg ( Rat )	> 3 g/kg ( Rabbit )	-	
<b>Information on toxicological effects</b>				
<b>Symptoms</b>	Erythema (skin redness). May cause redness and tearing of the eyes. Itching. Rashes. Hives.			
<b>Delayed and immediate effects as well as chronic effects from short and long-term exposure</b>				
<b>Sensitization:</b>	May cause sensitization of susceptible persons. May cause sensitization by skin contact.			
<b>Mutagenic Effects:</b>	No information available.			
<b>Carcinogenicity:</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.			
Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	A3	Group 2B		X
Carbon black 1333-86-4	A3	Group 2B		X
<b>ACGIH (American Conference of Governmental Industrial Hygienists)</b> <i>A3 - Animal Carcinogen</i> <b>IARC (International Agency for Research on Cancer)</b> <i>Group 2B - Possibly Carcinogenic to Humans</i> <b>OSHA (Occupational Safety and Health Administration of the US Department of Labor)</b> <i>X - Present</i>				
<b>Reproductive Toxicity</b>	No information available.			
<b>STOT - single exposure</b>	No information available.			
<b>STOT - repeated exposure</b>	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			

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	RE).
<b>Chronic Toxicity</b>	Contains a known or suspected carcinogen. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects.
<b>Target Organ Effects</b>	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS).Kidney. Liver. Liver. Cardiovascular system. Systemic Toxicity.
<b>Aspiration Hazard</b>	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):

12,905.00 mg/kg

ATEmix (dermal):

10,200.00 mg/kg (ATE)

## Section 12- Ecological Information

### Ecological Toxicity

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 mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas)		48h EC50: = 0.03 mg/L
Carbon black 1333-86-4				24h EC50: > 5600 mg/L

### Persistence and Degradability

No information available.

### Bioaccumulation

No information available.

### Other adverse effects

No information available.

## Section 13- Disposal Considerations

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<b>Waste treatment methods</b>	
<b>Disposal methods</b>	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.
<b>Contaminated Packaging</b>	Disposal should be in accordance with applicable regional, national and local laws and regulations.
<b>California Hazardous Waste Codes 141</b> This product contains one or more substances that are listed with the State of California as a hazardous waste.	
<b>Chemical Name</b>	<b>California Hazardous Waste</b>
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	Toxic
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder
<b>Section 14 – Transport Information</b>	
<b>UN Number</b> -DOT, IMDG, IATA	3480 & 3481
<b>UN Proper shipping name</b> -DOT, IMDG, IATA	Lithium ion Batteries Lithium ion Batteries contained in equipments
<b>Transport information</b>	Rechargeable Li-Polymer Battery (Sample Model: L16D1P33) is tested and has passed in accordance with UN manual of Tests and Criteria, Part III, subsection 38.3.  The transportation of lithium cells and batteries is regulated by the International Air Transport Association (According to Section IB of Packing Instruction 965 or Section II of Packing Instruction 965 and 967 of IATA DGR 58 <sup>th</sup> Edition for transportation), International Civil Aviation Organization, International Maritime Dangerous Goods Code and the US Department of Transportation listed in 49 CFR 173.185.
<b>Transport hazard class(es)</b> -DOT, IMDG, IATA	9
<b>Environmental hazards</b>	Yes(DOT)
<b>Marine pollutant</b>	Symbol (fish and tree)
<b>Special precautions for user</b> <b>EMS Number</b>	Warning: Miscellaneous dangerous substances and articles F-A,S-N
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable

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<b>DOT Remarks:</b>		Special marking with the symbol (fish and tree)			
<b>IMDG Limited quantities (LQ) Excepted quantities (EQ)</b>		0 Code: E0 Not permitted as Excepted Quantity			
<b>Section 15- Regulatory information</b>					
<b>(a) International Inventories</b>					
<b>TSCA</b>		Complies.			
<b>DSL</b>		All components are listed either on the DSL or NDSL.			
<b>(b) US Federal Regulations</b>					
<b>SARA 313</b>		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	15-40	0.1		
Copper	7440-50-8	3-7	1.0		
Aluminum foil	7429-90-5	7-13	1.0		
<b>SARA 311/312 Hazard Categories</b>					
Acute Health Hazard		No			
Chronic Health Hazard		No			
Fire Hazard		No			
Sudden release of pressure hazard		No			
Reactive Hazard		No			
<b>CWA (Clean Water Act)</b>		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		
<b>CERCLA</b>		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		
<b>(c) US State Regulations</b>					
<b>California Proposition 65</b>			This product contains the following Proposition 65 chemicals.		
Chemical name			California Proposition 65		
Carbon black - 1333-86-4			Carcinogen		
<b>U.S. State Right-to-Know Regulations</b>					
Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois

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Carbon black 1333-86-4	X	X	X		X
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	X		X	X	X
Dimethyl carbonate 616-38-6	X	X	X		
Aluminum 7429-90-5	X	X	X	X	
Copper 7440-50-8	X	X	X	X	X
Ethylene carbonate 96-49-1		X	X		

**(d) International Regulations**
**Mexico**
**National occupational exposure limits**

Component	Carcinogen Status	Exposure Limits
Carbon black 1333-86-4 ( 15 - 40 )		Mexico: TWA=3.5 mg/m <sup>3</sup>
Aluminum 7429-90-5 ( 7 - 13 )		Mexico: TWA= 10 mg/m <sup>3</sup>
Copper 7440-50-8 ( 3 - 7 )		Mexico: TWA= 1 mg/m <sup>3</sup> Mexico: TWA= 0.2 mg/m <sup>3</sup> Mexico: STEL= 2 mg/m <sup>3</sup>

*Mexico - Occupational Exposure Limits - Carcinogens*
**Canada**
**WHMIS Hazard Class**

Not determined

## Section 16- Additional Information

<b>NFPA</b>	<b>Health Hazards</b>	1	<b>Flammability</b>	0	<b>Instability</b>	0	<b>Physical and Chemical Hazards</b>	-
<b>HMIS</b>	<b>Health Hazards</b>	2*	<b>Flammability</b>	0	<b>Physical Hazard</b>	0	<b>Personal Protection</b>	X

Chronic Hazard Star Legend \* = Chronic Health Hazard

**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\*\*\*\*\*