

Version: 1.0/EN  
Product name: Lithium ion Battery

Revision date: 01/01/2020  
Issue date: 25/03/2020

## 1. Identification

### *(a) Product identifier*

Product name: Lithium ion Battery

### *(b) Other means of identification*

Product description: Model: HJ01-16-GFP  
Nominal Voltage: 12V  
Typical Capacity: 1600mAh  
Watt-hour: 19.2Wh

### *(c) Recommended use of the chemical and restrictions on use*

Recommended use: Lithium ion Battery  
Restriction on use: No information available.

### *(d) Details of the supplier of the product*

Company name: Hangzhou Skyrich Power Co., Ltd.  
Address: No.118, Linban Road, District of Gongshu, Hangzhou, Zhejiang, China  
E-mail: sales@skyrichpower.com  
Telephone: 0571-88132007

### *(e) Emergency phone number*

0571-88132007

## 2. Hazard(s) identification

### Classification according to UN-GHS

Batteries are considered as articles and are as such exempted from the UN-GHS classification requirements.


The classification based on the hazardous substances contained in the product (electrode materials and liquid electrolyte contained in the batteries) is provided below for information purposes only.

# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

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(Classified in Accordance with Appendix A.2)			
			<b>Pictogram</b> Corrosion
<b>Hazard category</b>	<b>Signal word</b>	<b>Hazard statement</b>	
1C	Danger	Causes severe skin burns and eye damage	
Precautionary statements			
Prevention	Response	Storage	Disposal
<p><b>Do not breathe dusts or mists.</b>  <i>- if inhalable particles of dusts or mists may occur during use.</i></p> <p><b>Wash ...thoroughly after handling.</b>            ...Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling.</p> <p><b>Wear protective gloves/protective clothing/eye protection/face protection.</b>            Chemical manufacturer, importer, or distributor to specify type of equipment.</p>	<p><b>If swallowed: Rinse mouth. Do NOT induce vomiting.</b></p> <p><b>If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.</b></p> <p><b>Wash contaminated clothing before reuse.</b></p> <p><b>If inhaled: Remove person to fresh air and keep comfortable for breathing.</b></p> <p><b>Immediately call a poison center/doctor/...</b>            ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.</p> <p><b>Specific treatment (see ... on this label)</b>            ... Reference to supplemental first aid instruction.  <i>- Manufacturer, importer, or distributor may specify a cleansing agent if appropriate.</i></p> <p><b>If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</b></p>	<p><b>Store locked up.</b></p>	<p><b>Dispose of contents/container to...</b>            ... in accordance with local/regional/national/international regulations (to be specified).</p>

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<b>SENSITIZATION - RESPIRATORY</b> (Classified in Accordance with Appendix A.4)			
<b>&amp;</b>			
<b>SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure)</b> (Classified in Accordance with Appendix A.9)			
			<b>Pictogram</b> Health hazard
<b>Hazard category</b>	<b>Signal word</b>	<b>Hazard statement</b>	
1 (including both sub-categories 1A and 1B)	Danger	May cause allergy or asthma symptoms or breathing difficulties if inhaled	
1	Danger	Causes damage to Lung through prolonged or repeated exposure	
Precautionary statements			
Prevention	Response	Storage	Disposal
<b>Avoid breathing dust/fume/gas/mist/vapors/spray.</b> Chemical manufacturer, importer, or distributor to specify applicable conditions. <b>[In case of inadequate ventilation] wear respiratory protection.</b> Chemical manufacturer, importer, or distributor to specify equipment <i>- Text in square brackets may be used if additional information is provided with the chemical at the point of use that explains what type of ventilation would be adequate for safe use.</i>	<b>If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.</b> <b>If experiencing respiratory symptoms: Call a poison center/doctor/...</b> ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.		<b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international regulations (to be specified).
<b>Do not breathe dust/fume/gas/mist/vapors/spray.</b> Chemical manufacturer, importer, or distributor to specify applicable conditions. <b>Wash ... thoroughly after handling.</b> ...Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. <b>Do not eat, drink or</b>	<b>Get medical advice/attention if you feel unwell.</b>		<b>Dispose of contents/container to...</b> ... in accordance with local/regional/national/international regulations (to be specified).

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<b>smoke when using this product.</b>			
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### 3. Composition/information on ingredients

*(a) Mixtures information*

Chemical name	CAS No.	Concentration%
Phosphoric acid, iron(2+) lithium salt (1:1:1)	15365-14-7	28
Graphite	7782-42-5	12
Polypropylene	9003-07-0	5
1,1-Difluoroethylene polymer	24937-79-9	2
Polyethylene	9002-88-4	5
Sodium carboxymethyl cellulose	9004-32-4	0.5
Ethylene carbonate	96-49-1	9
Dimethyl carbonate	616-38-6	9
Copper	7440-50-8	13
Aluminum	7429-90-5	7
Styrene-Butadiene polymer	9003-55-8	5
Phosphate(1-), hexafluoro-, lithium	21324-40-3	4.5

### 4. First-aid measures

*(a) Description of first aid measures*

<b>General Advice</b>	First aid is upon rupture of sealed battery.
Eye contact:	Show this safety data sheet to the doctor in attendance. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.
Skin contact:	Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Get medical advice / attention if you feel unwell.
Ingestion:	Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical aid.
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.

*(b) Most important symptoms/effects, acute and delayed*

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system. Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

*(c) Immediate medical attention and special treatment*

No information available.

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## 5. Fire-fighting measures

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### **(a) Extinguishing media**

Suitable extinguishing media: Use foam, dry powder or dry sand, CO<sub>2</sub> as appropriate.

Unsuitable extinguishing media: No information available.

### **(b) Special hazards arising from the chemical**

Under fire conditions, cells may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO, CO<sub>2</sub>, Metal oxides, Irritating fumes

### **(c) Special protective equipment and precautions for fire-fighters**

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

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## 6. Accidental release measures

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

If the cell material 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, dispose the case after the cells cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

### **(b) Environmental Precautions**

Prevent material from contaminating soil and from entering sewers or waterways.

### **(c) Methods and materials for containment and cleaning up**

If the cell 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.

## 7. Handling and storage

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

Always follow the warning information on the cells and in the manuals of devices. Only use the recommended cell types. Keep cells away from children. For devices to be used by children, the cell casing should be protected against unauthorized access. Unpacked cells shall not lie about in bulk. In case of cell change always replace all cells by new ones of identical type and brand. Do not swallow cells. Do not throw cells into water. Do not throw cells into fire. Avoid deep discharge. Do not short-circuit cells Use recommended charging time and current.

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

If the cell is subject to storage for such a long term as more than 3 months, it is recommended to recharge the cell periodically. And recommended at -5°C~45°C for 1 month storage, at -5°C~35°C for 3 months storage. Do not storage the cell 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.

## 8. Exposure controls/personal protection

### *(a) Control parameters*

#### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Aluminum 7429-90-5	TWA: 1 mg/m3 respirable fraction	TWA: 15 mg/m3 total dust TWA: 5 mg/m3 respirable fraction (vacated) TWA: 15 mg/m3 total dust (vacated) TWA: 5 mg/m3 respirable fraction (vacated) TWA: 5 mg/m3 Al Aluminum	TWA: 10 mg/m3 total dust TWA: 5 mg/m3 respirable dust
Copper 7440-50-8	TWA: 0.2 mg/m3 fume TWA: 1 mg/m3 Cu dust and mist	TWA: 0.1 mg/m3 fume TWA: 1 mg/m3 dust and mist (vacated) TWA: 0.1 mg/m3 Cu dust, fume, mist	IDLH: 100 mg/m3 dust, fume and mist TWA: 1 mg/m3 dust and mist TWA: 0.1 mg/m3 fume

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Phosphate(1-), hexafluoro-, lithium 21324-40-3	TWA: 2.5 mg/m3 F	TWA: 2.5 mg/m3 F TWA: 2.5 mg/m3 dust (vacated) TWA: 2.5 mg/m3	
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ACGIH TLV: American Conference of Governmental Industrial Hygienists -Threshold Limit Value

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

**Other Exposure Guidelines:** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962(11th Cir., 1992) See section 15 for national exposure control parameters

***(b) Appropriate engineering controls***

- Engineering Measures:**
1. Showers
  2. Eyewash stations
  3. Ventilation systems

***(c) Individual protection measures, such as personal protective equipment***

**Eye/Face Protection:** Not necessary under normal conditions, wear safety glasses if handling an open or leaking cell.

**Skin and body Protection:** Not necessary under normal conditions, wear protective gloves and protective clothing such as long-sleeved clothing, impervious gloves, chemical resistant apron, and antistatic boots if handling an open or leaking cell.

**Respiratory Protection:** Not necessary under normal 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink, or smoke in work area. Maintain good housekeeping.



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## 9. Physical and chemical properties

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(a) Appearance	Black plastic
(b) Odor	Odorless
(c) Odor threshold	Not available.
(d) pH	Not available.
(e) Melting point/freezing point	Not available.
(f) Initial boiling point and boiling range	Not available.
(g) Flash point	Not applicable.
(h) Evaporation rate	Not applicable.
(i) Flammability	Nonflammable.
(j) Upper/lower flammability or explosive limits	Not available.
(k) Vapor pressure	Not applicable.
(l) Vapor density	Not available.
(m) Relative density	Not available.
(n) Solubility(ies)	Insoluble in water.
(o) Partition coefficient: n-octanol/water	Not available.
(p) Auto-ignition temperature	130°C
(q) Decomposition temperature	Not available.
(r) Viscosity	Not available.

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## 10. Stability and reactivity

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**(a) Reactivity**

Stable under recommended storage and handling conditions.

**(b) Chemical stability**

Stable under normal conditions.

**(c) Possibility of hazardous reactions**

When heated above 150°C the risk of rupture occurs. Due to special safety construction, rupture implies controlled release of pressure without ignition.

**(d) Conditions to avoid**



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

***(e) Incompatible materials***

Strong oxidizer, strong acid.

***(f) Hazardous decomposition products***

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

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## 11. Toxicological information

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***(a) Information on the likely routes of exposure***

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of cell contents may cause mouth, throat and intestinal burns and damage.

Skin contact: Contact with cell electrolyte may cause burns and skin irritation.

Eye contact: Contact with cell electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 4. Swallowing of a cell can be harmful. Call the local Poison Control Centre for advice and follow-up.

***(b) Information on toxicological characteristics***

**Acute toxicity:** No data available.

**Skin corrosion/irritation:** The liquid in the cell irritates.

**Serious eye damage/irritation:** The liquid in the cell irritates.

**Respiratory sensitization:** The liquid in the cell may cause sensitization to some person.

**Skin sensitization:** The liquid in the cell may cause sensitization to some person.

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

**Germ Cell Mutagenicity:** No data available.

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<b>Reproductive Toxicity:</b>	No data available.
<b>STOT-Single Exposure:</b>	No data available.
<b>STOT-Repeated Exposure:</b>	No data available.
<b>Aspiration Hazard:</b>	No data available.

*(c) Delayed and immediate effects as well as chronic effects from short and long-term exposure*

<b>Sensitization:</b>	No data available.
<b>Mutagenic Effects:</b>	No data available.
<b>Carcinogenicity:</b>	No data available.
<b>Reproductive Toxicity:</b>	No data available.
<b>Chronic Toxicity:</b>	No data available.
<b>Target Organ Effects:</b>	No data available.
<b>Aspiration Hazard:</b>	No data available.

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## 12. Ecological information

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***(a) Ecotoxicity***

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

***(b) Persistence and Degradability***

No information available.

***(c) Bio accumulative potential***

No information available.

***(d) Mobility in soil***

No information available.

***(e) Other adverse effects***

No information available.

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## 13. Disposal considerations

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***Safe handling and methods of disposal***

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Disposal should be in accordance with applicable regional, national and local laws and regulations.  
Local regulations may be more stringent than regional or national requirements.  
Product disposal recommendation: Observe local, state and federal laws and regulations.  
Packaging disposal recommendation: Be aware discarded cells may cause fire, tape the cell terminals to insulate them. Don't disassembly the cell. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.  
The potential effects on the environment and human health of the substances used in cells and accumulators; the desirability of not disposing of waste cells and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling.

## 14. Transport information

According to PACKING INSTRUCTION 965 ~ 967 of IATA DGR 61th Edition for transportation, the special provision 188 of IMDG (inc Amdt 38-16). The cells should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

(a) UN number	3480 or 3481
(b) UN Proper shipping name	LITHIUM ION cells (including lithium ion polymer cells) or; LITHIUM ION cells CONTAINED IN EQUIPMENT or LITHIUM IONCE EQUIPMENT (including lithium ion polymer cells)
(c) Transport hazard class(es)	9
(d) Packing group (if applicable)	II
(e) Marine pollutant (Yes/No)	No
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
(g) Special precautions	No information available.

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## 15. Regulatory information

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*OSHA hazard communication standard (29 CFR 1910.1200)*

*Hazardous*                       *Non-hazardous*

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## 16. Other information, including date of preparation or last revision

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### *(a) Preparation and revision information*

Date of previous revision: Not applicable.

Date of this revision: 01/01/2020

Revision summary: The first New SDS

### *(b) Abbreviations and acronyms*

TSCA: Toxic Substances Control Act, The American chemical inventory.

DSL Domestic Substances List

EINECS: European Inventory of Existing Commercial chemical Substances

ENCS Japanese Existing and New Chemical Substances

ECL: Existing Chemicals List, the Korean chemical inventory.

IECSC: Inventory of existing chemical substances in China.

### *(c) Disclaimer*

Because all of our cells are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained

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this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

----- End of the SDS -----