

# SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1  
Product Name Lithium-ion Cylinder Battery - IFR18500

Issue Date 09-Feb-2015  
Revision date 09-Feb-2015

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product identifier

Product Name Lithium-ion Cylinder Battery - IFR18500  
Chemical Name Lithium-ion Battery

### Other means of identification

Product Code IFR18500; Voltage3.2V; Watt Hours: 3.2Wh; Battery weight: 28g

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

Recommended Use Power supply.  
Uses advised against No information available

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

Supplier Guangzhou Great Power Energy & Technology Co., Ltd  
Address No.912, West Village Segment, Shiliang Road, Shawan Twon, Panyu District, Guangzhou, Guangdong, PR.China  
Postal Code 511483  
Phone 0086-20-39196828  
FAX 0086-20-39196828  
E-mail lcni@greatpower.net

### Emergency telephone number

0086-20-39196828

## 2. HAZARDS IDENTIFICATION

### GHS Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

### Label elements

Symbols/Pictograms None  
Signal word None  
Hazard Statements None  
Precautionary Statements  
Prevention None  
Response None  
Storage None  
Disposal None

### Hazards not otherwise classified (HNOC)

No information available

### Unknown acute toxicity

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

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature Mixture

Chemical Name	CAS No	Weight-%
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Phosphoric acid, iron(2+) lithium salt (1:1:1)	15365-14-7	30 - 60
Graphite	7782-42-5	10 - 30
Copper	7440-50-8	7 - 13
Diethyl carbonate	105-58-8	3 - 7
Carbonate, methyl ethyl	623-53-0	3 - 7
Aluminum foil	7429-90-5	3 - 7
Polypropylene	9003-07-0	1 - 5
Polycarbonate	25037-45-0	1 - 5
Phosphate(1-), hexafluoro-, lithium	21324-40-3	1 - 5

#### 4. FIRST AID MEASURES

##### Description of first aid measures

General advice	No hazards which require special first aid measures.
Inhalation	Not an expected route of exposure.
Skin Contact	No special technical protective measures are necessary.
Eye contact	Not an expected route of exposure.
Ingestion	Rinse mouth Get medical attention Never give anything by mouth to an unconscious person

##### Most important symptoms and effects, both acute and delayed

No information available.

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

Treat symptomatically.

#### 5. FIRE-FIGHTING MEASURES

##### Extinguishing media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	No information available.

##### Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors  
Keep product and empty container away from heat and sources of ignition  
In the event of fire and/or explosion do not breathe fumes

##### 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.

#### 6. ACCIDENTAL RELEASE MEASURES

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

Ensure adequate ventilation, especially in confined areas  
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area)

##### Methods and material for containment and cleaning up

Pick up and transfer to properly labeled containers  
Pick up and transfer to properly labeled containers

Should not be released into the environment

#### 7. HANDLING AND STORAGE

##### Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice  
 Ensure adequate ventilation, especially in confined areas  
 Keep away from heat, sparks, flame and other sources of ignition  
 Do not eat, drink or smoke when using this product

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

Keep containers tightly closed in a dry, cool and well-ventilated place  
 Keep away from heat

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Denmark	European Union
Graphite (CAS #: 7782-42-5)	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	-	-	TWA: 2.5 mg/m <sup>3</sup>	-
Copper (CAS #: 7440-50-8)	TWA: 0.2 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> Cu dust and mist	-	-	TWA: 1.0 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>	-
Aluminum foil (CAS #: 7429-90-5)	TWA: 1 mg/m <sup>3</sup> respirable fraction	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 15 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 5 mg/m <sup>3</sup> Al Aluminum	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust TWA: 5 mg/m <sup>3</sup> Al	TWA: 5 mg/m <sup>3</sup> TWA: 2 mg/m <sup>3</sup>	-
Phosphate(1-), hexafluoro-, lithium (CAS #: 21324-40-3)	TWA: 2.5 mg/m <sup>3</sup> F	-	-	TWA: 2.5 mg/m <sup>3</sup>	-

Chemical Name	Latvia	France	Finland	Germany	Italy
Aluminum foil (CAS #: 7429-90-5)	TWA: 2 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 1.5 mg/m <sup>3</sup>	TWA: 4 mg/m <sup>3</sup> TWA: 1.5 mg/m <sup>3</sup>	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
Aluminum foil (CAS #: 7429-90-5)	TWA: 2.5 mg/m <sup>3</sup> TWA: 1.2 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 3 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup>

Chemical Name	Norway	United Kingdom	Australia	Austria	Belgium
Graphite (CAS #: 7782-42-5)	-	-	3 mg/m <sup>3</sup>	STEL 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	-
Copper (CAS #: 7440-50-8)	-	-	1 mg/m <sup>3</sup> 0.2 mg/m <sup>3</sup>	STEL 4 mg/m <sup>3</sup> STEL 0.4 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>	-
Aluminum foil (CAS #: 7429-90-5)	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	STEL: 30 mg/m <sup>3</sup> STEL: 12 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup> TWA: 4 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> 5 mg/m <sup>3</sup>	STEL 20 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	-
Phosphate(1-), hexafluoro-, lithium (CAS #: 21324-40-3)	-	-	2.5 mg/m <sup>3</sup>	-	-

**Appropriate engineering controls**

Ensure adequate ventilation, especially in confined areas  
 Remove all sources of ignition

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

Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hand Protection	No special technical protective measures are necessary.
Eye/face protection	No special technical protective measures are necessary.
Skin and body protection	Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Solid
Color	No information available
Odor	Odorless
Odor Threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Boiling point / boiling range	Not determined
Flash point	Not applicable
Evaporation rate	Not determined
Flammability (solid, gas)	Not flammable
Flammability Limit in Air	Not determined
Vapor Pressure	Not applicable
Vapor density	Not determined
Density	Not determined
Relative density	Not determined
Bulk density	Not determined
Specific gravity	Not determined
Water solubility	Not determined
Partition coefficient (LogPow)	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not an explosive
Oxidizing properties	Not determined

### Other information

No 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

### Possibility of Hazardous Reactions

None under normal processing

### Conditions to avoid

Extremes of temperature and direct sunlight

### Incompatible materials

None known based on information supplied

**Hazardous Decomposition Products**

None known based on information supplied

**11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system  
 Eye contact Contact with eyes may cause irritation  
 Skin Contact Substance may cause slight skin irritation  
 Ingestion may cause irritation to mucous membranes

**Information on toxicological effects**

**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Copper (CAS #: 7440-50-8)	> 2500 mg/kg bw(rat)	> 2000 mg/kg bw(rat)	=1.03 mg/L/4 h(rat)
Polypropylene (CAS #: 9003-07-0)	>5 g/kg	-	-

**Skin corrosion/irritation**

Non-irritating to the skin

**Serious eye damage/eye irritation**

No eye irritation

**Sensitization**

No information available

**Germ cell mutagenicity**

No information available

**Carcinogenicity**

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP

**Reproductive toxicity**

No information available

**STOT - single exposure**

No information available

**STOT - repeated exposure**

No information available

**Aspiration hazard**

No information available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
Copper (CAS #: 7440-50-8)	0.031 - 0.054 mg/L/96h Pseudokirchneriella subcapitata static 0.0426 - 0.0535 mg/L/72h Pseudokirchneriella subcapitata static	-	-

**Persistence and degradability**

No information available

**Bioaccumulative potential**

No information available

**Mobility in soil**

No information available

**Other adverse effects**

No information available

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations

Contaminated packaging Dispose of in accordance with federal, state and local regulations

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder

**14. TRANSPORT INFORMATION**

1. International Air Transport Association (IATA) pursuant to PI 968 Section II
2. International Maritime Dangerous Goods Code (IMDG) pursuant to Special Provisions 188 and 230.
3. U.S. hazardous materials regulations pursuant to 49 CFR 173.185 and Special Provision 188.

According to the description above, the battery is not regard as dangerous goods.

**DOT / IMDG / IATA**

**UN/ID No.** Not regulated  
**Proper shipping name** Not regulated  
**Hazard Class** Not regulated  
**Packing Group** Not regulated  
**Special precautions** No information available  
**Marine pollutant** Not applicable

**15. REGULATORY INFORMATION**

**International Inventories**

Component	AICS	DSL/NDL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Phosphoric acid, iron(2+) lithium salt (1:1:1) 15365-14-7 ( 30 - 60 )	-	X	-	-	-	-	-	-
Graphite 7782-42-5 ( 10 - 30 )	X	X	X	-	X	X	X	X
Copper 7440-50-8 ( 7 - 13 )	X	X	X	-	X	X	X	X
Diethyl carbonate 105-58-8 ( 3 - 7 )	X	X	-	-	X	-	-	-

Carbonate, methyl ethyl 623-53-0 ( 3 - 7 )	-	X	ELINCS	X	X	X	X	X
Aluminum foil 7429-90-5 ( 3 - 7 )	X	X	X	-	X	X	X	X
Polypropylene 9003-07-0 ( 1 - 5 )	X	X	-	X	X	X	X	X
Polycarbonate 25037-45-0 ( 1 - 5 )	X	X	-	-	X	-	-	-
Phosphate(1-), hexafluoro-, lithium 21324-40-3 ( 1 - 5 )	X	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

**US Federal Regulations**

**SARA 313**

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	SARA 313 - Threshold Values %
Aluminum foil - 7429-90-5	1.0

**SARA 311/312 Hazard Categories**

Does not apply

**CWA (Clean Water Act)**

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	-

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

This product may contain substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Aluminum foil 7429-90-5	X	X	X

**16. OTHER INFORMATION**

**Revision Note**

Issue Date 09-Feb-2015  
 Revision date 09-Feb-2015  
 Revision Note Not applicable

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**TWA** - TWA (time-weighted average)

**STEL** - STEL (Short Term Exposure Limit)

**Ceiling** - Maximum limit value

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

----- **End of Safety Data Sheet** -----