

# Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN  
Product name: Li-ion Polymer Battery

Revision date: 12-Nov-2015  
Printing date: 12-Nov-2015

## 1. Identification

### *(a) Product identifier*

Product name: Li-ion Polymer Battery

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

Product description: Model: 652535  
Nominal Voltage: 3.7V  
Ampere-hour: 0.5Ah  
Typical Capacity: 500mAh  
Weight: 13g  
Dimension: 37.5mm×25.7mm×6.84mm (L×W×T)

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

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

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

Company name(China) SPRINGPOWER TECHNOLOGY SHENZHEN CO., LTD  
Address: Chaoshun Industrial Zone, Renmin Road, Fumin, Guanlan, Baoan, Shenzhen, Guangdong, China  
E-mail: yma@highpowertech.com  
Telephone: +86-755-61862699-887

### *(e) Emergency phone number*

+86-755-61862699-887

## 2. Hazard(s) identification

### *(a) Classification of the chemical*

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.

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 1

### *(b) GHS Label elements, including precautionary statements*

#### Emergency Overview

Signal word

Danger

#### Hazard Statements

Harmful if swallowed  
Harmful in contact with skin  
Causes severe skin burns and eye damage  
May cause an allergic skin reaction

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This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist.

## **Precautionary Statements – Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Do not breathe dust/fume/gas/mist/vapors/spray

Contaminated work clothing should not be allowed out of the workplace

Wear protective gloves

## **Precautionary Statements – Response**

Specific measures (see supplemental first aid/instruction on this label)

Immediately call a POISON CENTER or doctor/physician

Specific treatment (see supplemental first aid instructions on this label)

## **Eyes**

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

## **Skin**

Call a POISON CENTER or doctor/physician if you feel unwell

Wash contaminated clothing before reuse

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

If skin irritation or rash occurs: Get medical advice/attention

## **Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Immediately call a POISON CENTER or doctor/physician

**Ingestion:** IF SWALLOWED: Call a POISON CENTER or doctor/physician.

if you feel unwell, Rinse mouth. Don't induce vomiting

**Precautionary Statements – Storage:** Store locked up

**Precautionary Statements – Disposal:** Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC):** Not applicable

## **(c) Unknown Toxicity**

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## **(d) Other information**

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Very toxic to aquatic life with long lasting effects;  
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

**(e) Interactions with Other Chemicals**

No information available.

### 3. Composition/information on ingredients

(a) Mixtures information

Chemical name	CAS No.	Concentration%
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	12190-79-3	35.95
Graphite powder	7782-42-5	24.54
Phosphate(1-), hexafluoro-, lithium	21324-40-3	13.71
Polyethylene	9002-88-4	0.79
Copper	7440-50-8	6.7
Nickel	7440-02-0	2.24
Polyvinylidene fluoride	24937-79-9	1.15
Polypropylene	9003-07-0	3.8
Aluminum foil	7429-90-5	7.3
Silicon	7440-21-3	1.21
Epoxy Resin	38891-59-7	1.8
PVC	9002-86-2	0.43
Gold	7440-57-5	0.31
Tin	7440-31-5	0.07

### 4. First-aid measures

**(a) Description of first aid measures**

<b>General Advice</b>	First aid is upon rupture of sealed battery.
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Skin contact:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required. May cause an allergic skin reaction.
Inhalation:	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Ingestion:	Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Self-protection of the first aider:	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

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

Most important Itching. Coughing and/ or wheezing. Burning sensation.

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symptoms and  
effects:

**(c) Indication of any immediate medical attention and special treatment needed**

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization of susceptible persons. Treat symptomatically.

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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, batteries 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**

Personal Precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

**(b) Environmental Precautions**

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

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

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

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## 7. Handling and storage

### (a) Precautions for safe handling

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

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

If the Li-ion Polymer Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Li-ion Polymer Battery periodically. Operating temperature: Charge: 0°C~45°C. Discharge: -20°C~60°C And recommended at -20°C~45°C for 1 month storage, at -20°C~35°C for 3 months 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 Li-ion Polymer Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of reach of children.

## 8. Exposure controls/personal protection

### (a) Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	TWA: 0.02 mg/m <sup>3</sup>		
Graphite powder 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
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>	
Nickel 7440-02-0	TWA: 1.5 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> (vacated) TWA: 1 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> TWA: 0.015 mg/m <sup>3</sup>
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> Cu dust and mist	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume
Aluminum foil 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>	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust

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		total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 5 mg/m <sup>3</sup> Al Aluminum	
Tin 7440-31-5	TWA: 2mg/m <sup>3</sup> TWA: 2mg/m <sup>3</sup> Sn except Tin hydride		

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 Showers  
Eyewash stations  
Ventilation systems

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

Eye/Face Protection Face protection shield.  
Skin and Body Protection Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.  
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. 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.

## 9. Physical and chemical properties

(a) Appearance solid  
(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 Non flammable.  
(j) Upper/lower flammability or explosive limits Not available.  
(k) Vapor pressure Not applicable.

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(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	Not available.
(q) Decomposition temperature	Not available.
(r) Viscosity	Not available.

## 10. Stability and reactivity

### (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

Do not subject Li-ion Polymer Battery to mechanical shock. Keep away from open flames, high temperature.

### (e) Incompatible materials

Strong oxidizer, strong acid.

### (f) Hazardous decomposition products

Carbon oxides.

## 11. Toxicological information

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

#### Product Information

Product does not present an acute toxicity hazard based on known or supplied information.

In case of rupture:

Inhalation:

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

Ingestion:

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

Skin contact:

Contact with battery electrolyte may cause burns and skin irritation.

Eye contact:

Contact with battery electrolyte may cause burns. Eye damage is possible.

#### Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Graphite powder 7782-42-5	> 10000 mg/kg ( Rat )		
Nickel	> 9000 mg/kg ( Rat )		

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7440-02-0			
Aluminum foil 7429-90-5	LD50> 15900 mg/kg bw(rat)		LC50> 0.888 mg/L/4 h(rat)
Copper 7440-50-8	> 2500 mg/kg bw(rat)	> 2000 mg/kg bw(rat)	=1.03 mg/L/4 h(rat)
Polypropylene 9003-07-0	>5 g/kg		

**(b) Information on toxicological characteristics**

**Symptoms** Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing. Itching. Rashes. Hives.

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

**Sensitization** May cause sensitization of susceptible persons. May cause sensitization by skin contact.

**Mutagenic Effects** No information available.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	A3	Group 2B		X
Nickel 7440-02-0		Group 1 Group 2B	Reasonably Anticipated	X

**ACGIH (American Conference of Governmental Industrial Hygienists)**

A1 - Known Human Carcinogen

A3 - Animal Carcinogen

**IARC (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**NTP (National Toxicology Program)**

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X - Present

**Reproductive Toxicity** No information available

**STOT - single exposure** No information available

**STOT - repeated exposure** 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 RE).

**Chronic Toxicity** Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Contains a known or suspected carcinogen.



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Target Organ Effects	Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse liver effects. Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Central Vascular System (CVS). Kidney. Liver. Lungs. Nasal cavities.
Aspiration Hazard	No information available.

## 12. Ecological information

### (a) Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Nickel 7440-02-0	72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata)	96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio)		48h EC50: > 100 mg/L 48h EC50: = 1 mg/L
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

### (b) Persistence and Degradability

No information available.

### (c) Bioaccumulative potential

No information available.

### (d) Other adverse effects

No information available.

## 13. Disposal considerations

### (a) Waste treatment methods

Disposal methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material,

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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.

Contaminated Packaging Dispose of contents/containers in accordance with local regulations

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Nickel 7440-02-0	(hazardous constituent - no waste number)	Included in waste streams: F006, F039		

California Hazardous Waste 141

Codes

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

Chemical Name	California Hazardous Waste
Lithium Cobalt Oxide (CoLiO2) 12190-79-3	Toxic
Nickel 7440-02-0	Toxic powder Ignitable powder
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder

## 14. Transport information

<b>Note:</b>	The transportation of primary lithium cells and batteries is regulated by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. The batteries must meet the following criteria for shipment: 1. Air shipments must meet the requirements listed in Special Provision A45 of the International Air Transport Association Dangerous Goods Regulations. 2. Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185. 3. The transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to the Federal Register December 15, 2004 (Hazardous Materials; Prohibited on the Transportation of Primary Lithium Batteries and Cells Aboard Passenger Aircraft; Final Rule) Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code"
<b>UN number</b>	3480&3481
<b>DOT</b>	NOT REGULATED
<b>Proper Shipping Name</b>	NON REGULATED
<b>Hazard Class</b>	N/A
<b>TDG</b>	Not regulated
<b>MEX</b>	Not regulated
<b>ICAO</b>	Not regulated
<b>IATA</b>	Not regulated
<b>Proper Shipping Name</b>	NON REGULATED
<b>Hazard Class</b>	N/A

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<b>IMDG/IMO</b>	Not regulated
<b>Hazard Class</b>	N/A
<b>EmS-No.</b>	F-A, S-I
<b>RID</b>	Not regulated
<b>ADR</b>	Not regulated
<b>ADN</b>	Not regulated

## 15. Regulatory information

### (a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA TSCA	EU EINECS	Japan ENCS	Korea ECL	China IECSC	Canada DSL
12190-79-3	Listed	Listed	Listed	Listed	Listed	Listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed
21324-40-3	Not listed	Listed	Listed	Listed	Listed	Not listed
9002-88-4	Listed	Listed	Listed	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Listed	Listed	Listed	Not listed
7440-02-0	Not listed	Listed	Listed	Listed	Listed	Not listed
24937-79-9	Listed	Not listed	Listed	Listed	Listed	Listed
9003-07-0	Listed	Listed	Listed	Listed	Listed	Listed
7429-90-5	Listed	Listed	Not listed	Listed	Listed	Listed
7440-21-3	Listed	Listed	Listed	Listed	Listed	Not listed
38891-59-7	Listed	Listed	Listed	Listed	Listed	Listed
9002-86-2	Listed	Listed	Listed	Listed	Listed	Listed
7440-57-5	Listed	Listed	Listed	Not listed	Listed	Listed
7440-31-5	Listed	Listed	Not listed	Listed	Listed	Not listed

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

### (a) Preparation and revision information

Date of previous revision: Not applicable.

Date of this revision: 12-Nov-2015

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 batteries 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

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provide safety preventive measures for the users who have got professional training. The personal user who obtained 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 -----