

# SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1  
Product Name Li-ion Battery

Issue Date 30-Jan-2014  
Revision date 30-Jan-2014

## 1. IDENTIFICATION

### Product identifier

Product Name Li-ion Battery

### Other means of identification

Product Code

Product description:

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

Recommended Use The uses for telephone, GPS, MID, mini sound box.  
Uses advised against No information available

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

Supplier  
Address  
E-mail  
Phone

### Emergency telephone number

## 2. HAZARDS IDENTIFICATION

### GHS Classification

Not classified. The batteries are defined as "articles". They are exempted from the requirements of the Hazard Communication Standard. A sealed Li-ion Battery is not hazardous in normal use.

### Label elements

Symbols/Pictograms None  
Signal word None  
Hazard Statements Not classified  
Precautionary Statements Not applicable

### Hazards not otherwise classified (HNOC)

The chemicals are contained in a sealed can. In a fire, battery may cause to explode. Risk of exposure occurs only if the battery is mechanically or electrically abused.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature Mixture

Chemical Name	CAS No	Weight-%
Lithium Cobalt Oxide (CoLiO <sub>2</sub> )	12190-79-3	40
Phosphate(1-), hexafluoro-, lithium	21324-40-3	> 17.1
Graphite	7782-42-5	15

Aluminum foil	7429-90-5	11
Copper	7440-50-8	6
Polyethylene	9002-88-4	5
Styrene-Butadiene polymer	9003-55-8	≤3%
Carbon black	1333-86-4	≤3%
Carbonate, methyl ethyl	623-53-0	≤0.72
Ethylene carbonate	96-49-1	≤0.18

#### 4. FIRST AID MEASURES

##### Description of first aid measures

General advice	In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention.

##### Most important symptoms and effects, both 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).

##### 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

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.

##### Protective equipment and precautions for firefighters

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.

#### 6. ACCIDENTAL RELEASE MEASURES

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

Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes or clothing. Do not touch or walk through spilled material. Use personal protection recommended in Section 8. Avoid breathing vapors or mists. Evacuate personnel to safe areas.

**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.

**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. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Take precautionary measures against static discharges. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use personal protection recommended in Section 8.

**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
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) (CAS #: 12190-79-3)	TWA: 0.02 mg/m <sup>3</sup> Co	-	-
Phosphate(1-), hexafluoro-, lithium (CAS #: 21324-40-3)	TWA: 2.5 mg/m <sup>3</sup> F	-	-
Graphite (CAS #: 7782-42-5)	TWA: 2 mg/m <sup>3</sup> respirable fraction all forms except graphite fibers	-	-
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	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
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	-	-
Carbon black (CAS #: 1333-86-4)	TWA: 3 mg/m <sup>3</sup> inhalable fraction	-	-

**Appropriate engineering controls**

Showers  
Eyewash stations  
Ventilation systems

**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	Wear protective gloves.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and body protection	Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Solid
Color	Silvery white
Odor	Odorless
Odor Threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Boiling point / boiling range	Not determined
Flash point	Not determined
Evaporation rate	Not determined
Flammability (solid, gas)	Non flammable
Flammability Limit in Air	Not determined
Vapor Pressure	Not determined
Vapor density	Not determined
Density	Not determined
Relative density	Not determined
Bulk density	Not determined
Specific gravity	Not determined
Water solubility	Insoluble in water.
Partition coefficient	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	No oxidizing properties

## 10. STABILITY AND REACTIVITY

### Reactivity

Stable under recommended storage and handling conditions (see SECTION 7, handling and storage).

### Chemical stability

Stable under recommended storage 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 under normal use conditions

## **11. TOXICOLOGICAL INFORMATION**

### **Information on likely routes of exposure**

Under normal situation, no narcotic, irritating and other hazards. Risk of exposure occurs only if the battery is mechanically or electrically abused.

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

Eye contact 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.

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

### **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)

#### **Skin corrosion/irritation**

Under normal situation, non-irritating to the skin.

#### **Serious eye damage/eye irritation**

Under normal situation, no eye irritation.

#### **Sensitization**

No sensitization responses were observed.

#### **Germ cell mutagenicity**

No information available

#### **Carcinogenicity**

Chemical Name	ACGIH	IARC	NTP	OSHA
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) (CAS #: 12190-79-3)	A3	-	-	-
Carbon black (CAS #: 1333-86-4)	A3	2B	-	-

#### **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
Lithium Cobalt Oxide (CoLiO2) (CAS #: 12190-79-3)	-	275 mg/L/96h(Fundulus heteroclitus)	-
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.

**14. TRANSPORT INFORMATION**

The battery is applicable to transport by air, shipped by passenger and cargo aircraft. Test proves that this type of battery pass the UN 38.3 test and the 1.2m drop test. The goods are packaged according to the packaging instruction 966 Section II of DGR.

UN/ID No. Not regulated

Proper shipping name Not regulated

Hazard Class Not regulated

Packing Group Not regulated

Marine pollutant Not regulated

Special precautions Each package must be labeled with a "lithium battery handling label". Each consignment must be accompanied with a document with an indication including packed with lithium batteries, handled with care, special procedures should be followed in the event that the package is damaged, a telephone number etc. Lithium batteries as being defective for safety reasons are forbidden for transport. Cells and batteries offered for transport must meet the provisions of 3.9.2.6(a) and (e). OVERPACK must be marked with the word "OVERPACK" and labeled with the lithium battery label unless the labels on the package inside the overpack are visible.

Reference method Recommendations on the Transport of Dangerous Goods-Model Regulations(18<sup>th</sup>)  
IATA "Dangerous Goods Regulation"(55<sup>th</sup>)  
The UN 38.3 test report  
The drop test report

## 15. REGULATORY INFORMATION

### International Inventories

Component	TSCA	DSL/NDSL	IECSC
Lithium Cobalt Oxide (CoLiO <sub>2</sub> ) 12190-79-3	X	X	X
Phosphate(1-), hexafluoro-, lithium 21324-40-3	X	X	X
Graphite 7782-42-5	X	X	X
Aluminum foil 7429-90-5	X	X	X
Copper 7440-50-8	X	X	X
Polyethylene 9002-88-4	X	X	X
Styrene-Butadiene polymer 9003-55-8	X	X	X
Carbon black 1333-86-4	X	X	X
Carbonate, methyl ethyl 623-53-0	X	X	X
Ethylene carbonate 96-49-1	X	X	X

"-" Not Listed

"X" Listed

## 16. OTHER INFORMATION

### Revision Note

Issue Date	30-Jul-2014
Revision date	30-Jul-2014
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

**IECSC** - China Inventory of Existing 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 -----