

SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1
Product Name LI-ION BATTERY ISR18650 3.7V 1300mAh

Issue Date 10-May-2015
Revision date 10-May-2015

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

Product identifier

Product Name LI-ION BATTERY ISR18650 3.7V 1300mAh
Product Code ISR18650

Other means of identification

Product description: Nominal Voltage: 3.7V
Ampere-hour: 1.3Ah
Lithium content(g): 0.7-0.9g

Recommended use of the chemical and restrictions on use

Recommended Use Used in electric tools
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Jiangsu Highstar Battery Manufacturing Co.,Ltd.
Address No.306 Heping Road(s), Qidong City, Jiangsu, China
Postal Code 226200
Phone +86-513-80795666
FAX +86-513-83312306
E-mail chenj@highstar.net.cn

Emergency telephone number

+86-513-80795666

2. HAZARDS IDENTIFICATION

GHS Classification

Not classified

Label elements

Symbols/Pictograms None
Signal word None
Hazard Statements None
Precautionary Statements None

Hazards not otherwise classified (HNOC)

In case of mistreatment (abusive over charge, reverse charge, external short circuit...) and in case of fault some electrolyte can leak from the battery through the safety device. In these cases refer to the risk of the electrolyte. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. The electrode materials are only hazardous, if the materials are released by mechanical damaging of the battery or if exposed to fire.

Unknown acute toxicity

52.5% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS**Chemical nature**

Mixture

Chemical Name	CAS No	Weight-%
Cobalt lithium manganese nickel oxide	182442-95-1	22-23
Iron	7439-89-6	20-22
Graphite	7782-42-5	12-14
Copper	7440-50-8	12-14
Dimethyl carbonate	616-38-6	9.8-10.5
Aluminum foil	7429-90-5	7-8
Polypropylene	9003-07-0	2.8-3
Phosphate(1-), hexafluoro-, lithium	21324-40-3	2-3
Ethylene carbonate	96-49-1	2-3
Carbonate, methyl ethyl	623-53-0	1.4-1.5

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	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	Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice / attention if you feel unwell.
Ingestion	Have victim drink 60 to 240 mL (2-8 oz.) of water. and DO NOT induce vomiting. Get medical aid.

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.

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

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
- 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

- Prevent further leakage or spillage if safe to do so
- Pick up and transfer to properly labeled containers

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
Cobalt lithium manganese nickel oxide (CAS #: 182442-95-1)	TWA: 0.02 mg/m ³ Co TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn	-	-
Graphite (CAS #: 7782-42-5)	TWA: 2 mg/m ³ respirable fraction all forms except graphite fibers	-	-
Copper (CAS #: 7440-50-8)	TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist	-	-
Aluminum foil (CAS #: 7429-90-5)	TWA: 1 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust TWA: 5 mg/m ³ Al

		respirable fraction (vacated) TWA: 5 mg/m ³ Al Aluminum	
Phosphate(1-), hexafluoro-, lithium (CAS #: 21324-40-3)	TWA: 2.5 mg/m ³ F	-	-

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	Blue
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 determined
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 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 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	Ingestion may cause irritation to mucous membranes

Information on toxicological effects

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Iron (CAS #: 7439-89-6)	98.6 g/kg bw (rat)	-	-
Copper (CAS #: 7440-50-8)	> 2500 mg/kg bw(rat)	> 2000 mg/kg bw(rat)	=1.03 mg/L/4 h(rat)
Dimethyl carbonate (CAS #: 616-38-6)	= 13000 mg/kg (Rat)	> 5 g/kg (Rabbit)	= 140 mg/L (Rat) 4 h
Polypropylene (CAS #: 9003-07-0)	>5 g/kg	-	-

Skin corrosion/irritation

The liquid in the battery irritates.

Serious eye damage/eye irritation

The liquid in the battery irritates.

Sensitization

The liquid in the battery may cause sensitization to some person.

Germ cell mutagenicity

No information available

Carcinogenicity

Chemical Name	ACGIH	IARC	NTP	OSHA
Cobalt lithium manganese nickel oxide (CAS #: 182442-95-1)	A3	-	-	-

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
Iron (CAS #: 7439-89-6)	-	13.6: 96 h Morone saxatilis mg/L LC50 static	> 100 mg/L/48h (Daphnia magna)
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	1.25: 96 h Lepomis macrochirus mg/L LC50 static 0.3: 96 h Cyprinus carpio mg/L LC50 semi-static 0.8: 96 h Cyprinus carpio mg/L LC50 static 0.112: 96 h Poecilia reticulata mg/L LC50 flow-through 0.0068 - 0.0156: 96 h Pimephales promelas mg/L LC50 0.3: 96 h Pimephales promelas mg/L LC50 static 0.2: 96 h Pimephales promelas mg/L LC50 flow-through 0.052: 96 h Oncorhynchus mykiss mg/L LC50 flow-through	-

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

Chemical Name	California Hazardous Waste Status
Cobalt lithium manganese nickel oxide 182442-95-1	Toxic
Copper 7440-50-8	Toxic
Aluminum foil 7429-90-5	Ignitable powder

14. TRANSPORT INFORMATION

The Lithium Battery has passed the test UN38.3 test.
 According to the packaging instruction 965 section II of IATA DGR 56th Edition for transportation.
 According to the packaging provision 188 of IMDG or the Recommendation on the Transportation of Dangerous Goods-Model Regulation (18th).
 The products are not subjects to dangerous.

DOT

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

IATA

Not regulated

IMDG

Not regulated

15. REGULATORY INFORMATION

International Inventories

Component	AICS	DSL/NDL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Cobalt lithium manganese nickel oxide 182442-95-1	-	-	-	-	X	-	-	X
Iron 7439-89-6	X	X	X	-	X	X	X	X
Graphite 7782-42-5	X	X	X	-	X	X	X	X
Copper 7440-50-8	X	X	X	-	X	X	X	X
Dimethyl carbonate 616-38-6	X	X	X	X	X	X	X	X
Aluminum foil	X	X	X	-	X	X	X	X

7429-90-5								
Polypropylene 9003-07-0	X	X	-	X	X	X	X	X
Phosphate(1-), hexafluoro-, lithium 21324-40-3	X	X	X	X	X	X	X	X
Ethylene carbonate 96-49-1	X	X	X	X	X	X	X	X
Carbonate, methyl ethyl 623-53-0	-	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
Cobalt lithium manganese nickel oxide 182442-95-1	-	X	-	-
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

Chemical Name	California Proposition 65
Cobalt lithium manganese nickel oxide - 182442-95-1	Carcinogen

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
Dimethyl carbonate 616-38-6	X	X	X

Aluminum foil 7429-90-5	X	X	X
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16. OTHER INFORMATION

Revision Note

Issue Date	10-May-2015
Revision date	10-May-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/NDL - 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 -----