

SDS Report

No. SHAEC1901441310

Date: Feb. 15, 2019

Page 1 of 1

Jiangsu Highstar Battery Manufacturing Co.,Ltd
No.306 Heping Road(s),Qidong City,Jiangsu,China

SGS Ref. No. : SP19-002234-SH
 Sample Name : Lithium battery ISR18650 3.7V 2000mAh
 End Uses : Power tool ,household appliance, etc
 Composition/Ingredient of sample (as per client submission) : See *section 3 Composition/information on ingredients* on the SDS report
 Job Receiving Date : Jan 21, 2019
 Last Information Date : Jan 22, 2019
 SDS Preparation Period : Jan 21 - Jan 28, 2019

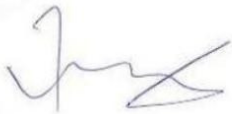
Service Requested : Preparation of Safety Data Sheet (SDS) for the sample with submitted information.

Summary : As per request, the contents and formats of the SDS are prepared in accordance with US Regulations Relating to Labor 29 CFR 1910.1200, and is provided per attached.

Remark:

This sample is likely to be classified as article and is out of scope of a SDS as set out in 29 CFR Part 1910.1200. This SDS is generated for client's reference only.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.



Wei WANG, Terry
Approved Signatory



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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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Safety Data Sheet

29 CFR 1910.1200

Printing date 02/15/2019





Version number 1

Reviewed on 01/23/2019

1 Identification

- **Product identifier**
- **Trade name:** *Lithium battery ISR18650 3.7V 2000mAh*
- **Recommended use of the chemical and restrictions on use**
- **Application of the substance / the preparation:** *Power tool ,household appliance, etc*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Jiangsu Highstar Battery Manufacturing Co.,Ltd
No.306 Heping Road(s),Qidong City,Jiangsu,China
Tel: 13405720649
E-mail: lukz@highstar.com
- **Other US contact point:** *Not available*
- **Further information obtainable from:** *Jiangsu Highstar Battery Manufacturing Co.,Ltd*
- **Emergency telephone number:**
Lukaizuan
Tel: 13405720649
- **USA**
Poison Center
Tel: + 1 800 222 1222
- **Reference Number:** *SP19-002234-SH; SHAEC1901441310*
- **Remark:**
This sample is likely to be classified as article and is out of scope of a SDS as set out in 29 CFR Part 1910.1200. This SDS is generated for client's reference only.

2 Hazard(s) identification

- **Classification of the substance or mixture**
Classification according to OSHA Hazard Communication Standard (29 CFR 1910.1200)
-  **GHS06 Skull and crossbones**
Acute Tox. 2 H330 Fatal if inhaled.
-  **GHS08 Health hazard**
Carc. 1A H350 May cause cancer. Route of exposure: Inhalation.
STOT RE 1 H372 Causes damage to the lung, the bone tissue and through prolonged or repeated exposure. Route of exposure: Inhalation.
-  **GHS05 Corrosion**
Eye Dam. 1 H318 Causes serious eye damage.
-  **GHS07**
Skin Irrit. 2 H315 Causes skin irritation.
- **Information concerning particular hazards for human and environment:**
The product has to be labeled due to the calculation procedure of OSHA Hazard Communication Standard (29 CFR 1910.1200).

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- **Classification system:**

The classification is according to the latest edition of OSHA Hazard Communication Standard (29 CFR 1910.1200), and extended by company and literature data.

- **Label elements**

- **Labelling according to OSHA Hazard Communication Standard (29 CFR 1910.1200)**

- **Hazard pictograms**



GHS05 GHS06 GHS08

- **Signal word** *Danger*

- **Hazard-determining components of labeling:**

Cobalt lithium manganese nickel oxide

Lithium hexafluorophosphate(1-)

- **Hazard statements**

H330 Fatal if inhaled.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H350 May cause cancer. Route of exposure: Inhalation.

H372 Causes damage to the lung, the bone tissue and through prolonged or repeated exposure. Route of exposure: Inhalation.

- **Precautionary statements**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P284 [In case of inadequate ventilation] wear respiratory protection.

P302+P352 If on skin: Wash with plenty of water.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P320 Specific treatment is urgent (see on this label).

P314 Get medical advice/attention if you feel unwell.

P362+P364 Take off contaminated clothing and wash it before reuse.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Hazards not otherwise classified (HNOC)** No further relevant information available.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:**

Mixture of the substances listed below with nonhazardous additions.

For the wording of the listed hazard statements refer to Section 16.

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· Composition:		
182442-95-1	Cobalt lithium manganese nickel oxide ☠ Acute Tox. 2, H330; ☠ Carc. 1A, H350; STOT RE 1, H372	32.0%
7439-89-6	iron	23.0%
7440-50-8	copper	16.0%
7782-42-5	Graphite	15.0%
7429-90-5	Aluminum	8.0%
9003-07-0	polypropylene	3.0%
21324-40-3	Lithium hexafluorophosphate(1-) ☠ Acute Tox. 3, H301; ☠ STOT RE 1, H372; ☠ Skin Corr. 1A, H314	3.0%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· **After inhalation:**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth with water.

Never give anything by mouth to an unconscious person.

Call a doctor immediately.

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture:**

During heating or in case of fire poisonous gases are produced.

· **Special protective equipment and precautions for firefighters**

· **Protective equipment:**

Mouth respiratory protective device.

Wear fully protective suit.

6 Accidental release measures

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

Avoid contact with eyes.

Avoid formation of dust.

Ensure adequate ventilation.

Keep away from ignition sources.

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Use respiratory protective device against the effects of fumes/dust/aerosol.

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Use neutralizing agent.

Ensure adequate ventilation.

Dispose contaminated material as waste according to item 13.

7 Handling and storage

· **Precautions for safe handling:**

Avoid contact with eyes.

Keep away from heat and direct sunlight.

Prevent formation of dust.

Prevent short cut and movement which could lead to short circuits.

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

For the general occupational hygienic measures refer to Section 8.

· **Information about protection against explosions and fires:** Keep respiratory protective device available.

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

· **Requirements to be met by storerooms and receptacles:**

Store in a cool location.

Store only in the original receptacle.

· **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from flammable substances.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

8 Exposure controls/personal protection

· **Components with limit values that require monitoring at the workplace:**

7440-50-8 copper (16.0%)

PEL (USA) Long-term value: 1* 0.1** mg/m³
as Cu *dusts and mists **fume

REL (USA) Long-term value: 1* 0.1** mg/m³
as Cu *dusts and mists **fume

TLV (USA) Long-term value: 1* 0.2** mg/m³
*dusts and mists; **fume; as Cu

7782-42-5 Graphite (15.0%)

PEL (USA) Long-term value: 15 mppcf* mg/m³
*impinger samples counted by light field techn.

REL (USA) Long-term value: 2.5* mg/m³
*respirable dust

TLV (USA) Long-term value: 2* mg/m³
all forms except graphite fibers; *resp. fraction

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7429-90-5 Aluminum (8.0%)

PEL (USA)	Long-term value: 15*; 5** mg/m ³ *Total dust; ** Respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV (USA)	Long-term value: 1* mg/m ³ as Al; *as respirable fraction

- **Regulatory information**

PEL (USA): Guide to Occupational Exposure Values (OSHA PELs)

REL (USA): Guide to Occupational Exposure Values (NIOSH RELs)

TLV (USA): Guide to Occupational Exposure Values (ACGIH)

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Based on the composition shown in Section 3, the following measures are suggested for occupational safety measure**

- **Appropriate engineering controls:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

See Section 7 for information about design of technical facilities.

- **Personal protective equipment**

- **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material:**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **General Information**

- **Appearance:**

Form: Solid

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· Color:	Orange
· Odor:	Odorless
· Odor threshold:	Not available.
· pH-value:	Not available.
· Change in condition	
Melting point/freezing point:	Not available.
Boiling point / Boiling range:	Not available.
· Flash point:	Not available.
· Flammability (solid, gaseous):	Not available.
· Auto-Ignition temperature:	Not available.
· Decomposition temperature:	Not available.
· Explosion limits:	
Lower:	Not available.
Upper:	Not available.
· Vapor pressure:	Not available.
· Density:	Not available.
· Relative density	Not available.
· Vapor density	Not available.
· Evaporation rate	Not available.
· Solubility in / Miscibility with Water:	Not available.
· Partition coefficient (n-octanol/water):	Not available.
· Viscosity:	
Dynamic:	Not available.
Kinematic:	Not available.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No decomposition if used according to specifications.
- **Chemical stability** Stable under recommended storage conditions.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Acute toxicity**

- **LD/LC50 values that are relevant for classification:**

7439-89-6 iron

Oral LD50 30,000 mg/kg (rat)

- **Primary irritant effect**
- **Skin corrosion/irritation:** Irritant to skin and mucous membranes.
- **Serious eye damage/irritation:** Strong irritant with the danger of severe eye injury.
- **Respiratory or skin sensitisation:** Sensitization possible.

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- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant
Carcinogenic.
Corrosive
Harmful
Very toxic

- **Carcinogenic categories**

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

182442-95-1	Cobalt lithium manganese nickel oxide	1
9003-07-0	polypropylene	3

- **NTP (National Toxicology Program)**

182442-95-1	Cobalt lithium manganese nickel oxide	K
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- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN3480
- **UN proper shipping name**
- **DOT** Lithium ion batteries
- **IMDG, IATA** LITHIUM ION BATTERIES

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· **Transport hazard class(es)**· **DOT, IMDG, IATA**· **Class**

9 Miscellaneous dangerous substances and articles

· **Label**

9A

· **Packing group**· **DOT, IMDG, IATA**

-

· **Environmental hazards**

Not applicable.

· **Special precautions for user**

Warning: Miscellaneous dangerous substances and articles

· **EMS Number:**

F-A,S-I

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**· **IMDG**· **Limited quantities (LQ)**

0

· **Excepted quantities (EQ)**

Code: E0

Not permitted as Excepted Quantity

· **Remarks:**

Referring to the Certification for Safe Transport of Chemical Goods (Report No. 2119374723) issued by Shanghai Research Institute of Chemical Industry Testing Co., Ltd, LI-ION BATTERY ISR18650 3.7V 2000mAh (Sample Model: ISR18650) is tested and is passed in accordance with: special provision 188 of Regulation (upon supplier's information).

Referring to the Certification for Safe Transport of Chemical Goods (Report No. 2119374723) issued by Shanghai Research Institute of Chemical Industry Testing Co., Ltd, Inspection method and procedure of LI-ION BATTERY ISR18650 3.7V 2000mAh (Sample Model: ISR18650) is IMO International Maritime Dangerous Goods Code (2016 Edition) (upon supplier's information).

· **IATA**· **Remarks:**

Referring to the Certification for Safe Transport of Chemical Goods (Report No. 2119374716) issued by Shanghai Research Institute of Chemical Industry Testing Co., Ltd, Inspection method and procedure of LI-ION BATTERY ISR18650 3.7V 2000mAh (Sample Model: 18650) is IATA Dangerous Goods Regulations (DGR) 60th Edition (upon supplier's information).

· **UN "Model Regulation":**

UN 3480 LITHIUM ION BATTERIES

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Sara**· **Section 355 (extremely hazardous substances):**

None of the ingredient is listed.

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· Section 313 (Specific toxic chemical listings):

182442-95-1 Cobalt lithium manganese nickel oxide

7440-50-8 copper

7429-90-5 Aluminum

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65
· Chemicals known to cause cancer:

182442-95-1 Cobalt lithium manganese nickel oxide

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· New Jersey Right-to-Know List:

7440-50-8 copper

7782-42-5 Graphite

7429-90-5 Aluminum

· New Jersey Special Hazardous Substance List:

7429-90-5 Aluminum

F3, RI

· Pennsylvania Right-to-Know List:

7440-50-8 copper

7782-42-5 Graphite

7429-90-5 Aluminum

· Pennsylvania Special Hazardous Substance List:

7440-50-8 copper

E

7429-90-5 Aluminum

E

· Cancerogenity categories
· EPA (Environmental Protection Agency):

7440-50-8 copper

D

· TLV (Threshold Limit Value established by ACGIH):

7429-90-5 Aluminum

A4

· NIOSH-Ca (National Institute for Occupational Safety and Health):

None of the ingredients is listed.

16 Other information

· Relevant hazard statements

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

H350 May cause cancer. Route of exposure: Inhalation.

H372 Causes damage to the lung, the bone tissue and through prolonged or repeated exposure. Route of exposure: Inhalation.

The contents and format of this SDS are in accordance with 29 CFR 1910.1200.

DISCLAIMER OF LIABILITY :

The information in this SDS was obtained from sources which we believe are reliable. However, the

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information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

· **Remark**

This sample is likely to be classified as article and is out of scope of a SDS as set out in 29 CFR Part 1910.1200. This SDS is generated for client's reference only.

· **Date of preparation / last revision** 02/15/2019 / -

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 2: Acute toxicity – Category 2

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Carc. 1A: Carcinogenicity – Category 1A

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

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