

Material Safety Data Sheet



Report No.:A2012291-C02-R03

Date: January 11, 2021

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

Product Name: Helios Tube Containing Li-ion Battery

Model: FP2

Applicant: Astera Manufacturing Ltd

Applicant Address: 4th Floor, Building 3, CLT Technology Park, No. 7, Ganli 6th Road, Longgang District, Shenzhen, China

Emergency Telephone: +86 755 8960 8750

2. HAZARDS IDENTIFICATION

Most important hazards: This product is outside the scope of GHS system since it's considered as an "article".

Environmental influence: Air pollution, if spill into water source, will pollute water quality

Physical and chemical hazards : Inflammable and explosive.

Specific hazards: If the electrolyte contacts with water, it will generate detrimental gases. Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

Environmental properties: They pollute the environment, do not throw out it into the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical composition	Cas No.	Weight(%)
Nickel compound	1313-99-1	0-25
Manganese compound	1313-13-9	0-15
Cobalt compound	1307-96-6	4-50
Styrene-Butadiene-Rubber	27288-99-9	<1
Polyvinylidene Fluoride(PVDF)	24937-79-9	<5
Aluminum Foil	7429-90-5	2-10
Copper Foil	7440-50-8	2-10
Craphite	7782-42-5	10-30
Electrolyte (Ethylene carbonate)	96-49-1	10-20
Lithium hexafluorophosphate	21324-40-3	<5
Stainless steel, Nickel and inert materials	--	Remainder

Shenzhen Alpha Product Testing Co., Ltd.

Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

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4. FIRST AID MEASURES

Inhalation: Transfer to fresh air, If breathing is stopped, give artificial respiration, If needed, give oxygen and breathing aid. Consult a doctor immediately.

Skin contact:

- 1.Rinse the affected area gently with water and soap, until the contaminant is removed.
- 2.Remove contaminated clothes and shoes immediately.
- 3.Seek medical help if symptoms persist.

Eye contact: Do not rub one's eyes. Immediately and thoroughly wash eyes with cold water at least 15 to 30 minutes. Seek medical attention immediately.

Ingestion: If swallowed in large quantities, drink enough warm water to urge vomiting immediately, seek medical advice

Additional advice: Never give anything by mouth to an unconscious person. Show this safety data sheet to the doctor in attendance. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical powder, sandy soil. Avoid using water and carbon dioxide.

Specific hazards: No information available.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Wear personal protective equipment. Ensure adequate ventilation.

Environmental precautions: Do not flush into surface water.

Methods for cleaning up: Cut off the fire. Quickly evacuate the personnel from the contaminated area to a safe area. And isolate strictly and restrict their access. Self-contained positive pressure: breathing apparatus and protective clothing are recommended; Cut off the leakage source as much as possible. Prevent access to sewer, drainage ditch and other restrictive space; small amount of leakage: as far as possible will overflow leakage liquid collection in the closed container with sand, activated carbon or other inert materials to absorb residual liquid, can also be made of non-combustible dispersant emulsion scrub, lotion diluted into the wastewater system; Excretion: to build a dike or dig a pit for shelter. Cover with foam to reduce vapor hazards. Spray water to cool and dilute steam to protect field personnel.

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7. HANDLING AND STORAGE

Storage:

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Avoid long-time direct contact of sunlight.

Handling:

Do not breathe vapors or fumes that may be evolved during processing.

Do not disassemble or burn batteries.

Do not squeeze or pierce batteries.

Do not put batteries into water.

Workers must wear proper protective equipments and must operate strictly according to relative rules.

Packaging material: Keep in properly labelled containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory protection: Use an approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hand protection: Wear appropriate gloves to prevent skin exposure.

Eye protection: Wear appropriate protective eyeglasses or chemical safety goggles.

Hygiene measures: Use only in area provided with appropriate exhaust ventilation. Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls: No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Voltage: 14.4V.

Capacity: 3350mAh

Energy: 48.24Wh

Appearance: Blue, cylindrical, odorless, solid Li-ion Battery.

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10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions.

Hazardous decomposition products: Electrolyte may react with water in the atmosphere and produce toxic materials including fluorhydric acid. Thermal decomposition of the cells may produce of noxious or toxic fumes containing CO₂, CO, H₂, CH₄, C₂H₄ and C₂H₆. Thermal decomposition of the cell may produce releasing of electrolyte liquid/vapor, noxious materials dust and methane.

Materials to avoid: Strong mineral acids, alkali solutions, strong oxidising materials and conductive materials.

Conditions to avoid: Heat, incinerate, shock, impact, crush, vibrate, puncture, short-circuit, disassemble and store in humid environment.

11. TOXICOLOGICAL INFORMATION

Inhalation, skin contact and eye contact are possible when the battery is not opened. Exposure to internal contents, the corrosive fumes will be very irritation to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

12. ECOLOGICAL INFORMATION

Bioaccumulation: Some materials with in the cell are bioaccumulative.

Possible environmental impacts: Cause pollution to water sources, do not dispose into rivers, ditches or ground surface.

13. DISPOSAL CONSIDERATIONS

Waste from residues:

Do not allow product to reach sewage system.

Do not throw it into any open bodies of water.

Dispose of in accordance with local regulations.

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14. TRANSPORT INFORMATION

Transport information:

According to PACKING INSTRUCTION 967 section II of IATA DGR 62nd Edition for transportation.

If those lithium-ion batteries are packed with or contained in an equipment, UN No. is UN3481.the special provision 188 of IMDG, or the Technical Instructions for the Safe Transport of Dangerous Goods (TI).

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>.

Special transportation method and precautions: In the case of transportation, avoid exposure to high temperature and prevent the formation of any condensation. During the transportation, avoid falling, dropping, wet and damage.

Transport Fashion: By air, by sea, by railway, by road.

15. REGULATORY INFORMATION

Labelling: The product is not classified as dangerous in accordance with Regulation (EC) 1272/2008, Regulation (EC) 453/2010 and Regulation EC 1907/2006 (REACH) Annex II.

Symbol(s): No data available.

R-phrase(s): No data available.

S-phrase(s): No data available.

16. OTHER INFORMATION

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

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