SAFETY DATA SHEET

1. Product and company identification

Product identification: Lithium iron phosphate battery
Commercial product name: IFR18650
Nominal Voltage: 9.6V
Nominal capacity: 1500mAh
Wh rating: 14.4Wh
Revision: 1.0
Manufacturers: ChangHong Grand-Pro Tech Co.,Ltd.
Address: The intersection of Shihu Ave. And Linjing 2nd Rd,Bailutang Town,Suxian District,Chenzhou,Hunan,China
The period of validity: At the end of 2019
E-mail: grand-pro@grand-pro.cn
Tel: (86)735-2668188
Fax: (86)735-2668799

2. Hazards identification

Classification: This chemical is not considered hazardous by the 2012OSHA 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.

<table>
<thead>
<tr>
<th>Acute toxicity-Oral</th>
<th>category 4</th>
<th>Serious eye damage/eye irritation</th>
<th>category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity-Inhalation(Gases)</td>
<td>category 4</td>
<td>Reproductive toxicity</td>
<td>category 1B</td>
</tr>
<tr>
<td>Acute toxicity-Inhalation(Dusts/Mists)</td>
<td>category 4</td>
<td>Specific target organ toxicity(repeated exposure)</td>
<td>category 2</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>category 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Emergency Overview (including Signs and Symptoms, Route(s) of Entry, etc.):
Intact batteries present no specific hazards.

Acute Health Hazards (e.g., Inhalation, Eye Contact, Skin Contact, Ingestion, etc.):

Address: Intersection of Shihu Ave. and Linjing 2nd Rd. SuXian District, Chenzhou, Hunan, China
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Burning batteries: AVOID inhalation of toxic fumes. Burning batteries emit toxic fumes, which are irritating to the lungs.

Leaking batteries: AVOID exposure to leaking electrolyte, it can cause severe irritation and/or damage to the skin, mucous membrane or eyes.

Chronic Health Effects (e.g., Carcinogenicity, Teratology, Reproduction, Mutagenicity, etc.): Cobalt: Suspected human carcinogenic agent.

Medical Conditions Generally Aggravated by Exposure: None.

Hazards not otherwise classified (HNOC): Not applicable

Unknown Toxicity: 1.7% of the mixture consists of ingredient(s) of unknown toxicity.

Other information: Very toxic to aquatic life with long lasting effects.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>Molecular formula</th>
<th>%</th>
<th>CAS NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium iron phosphate</td>
<td>LiFePO4</td>
<td>34</td>
<td>349632-76-4</td>
</tr>
<tr>
<td>Carbon (graphite and acetylene black)</td>
<td>C</td>
<td>16</td>
<td>7440-44-0</td>
</tr>
<tr>
<td>Aluminum</td>
<td>Al</td>
<td>4</td>
<td>7429-90-5</td>
</tr>
<tr>
<td>Copper</td>
<td>Cu</td>
<td>7</td>
<td>7440-50-8</td>
</tr>
<tr>
<td>Six fluoride phosphate lithium</td>
<td>LiPF6</td>
<td>1</td>
<td>21324-40-3</td>
</tr>
<tr>
<td>Organic carbonate</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>plastic</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Nickel, poly (vinylidene fluoride, etc)</td>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

4. First-aid measures

Ingestion: If swallowed, obtain medical attention immediately.

Inhalation: If battery is burning, leave the area immediately. If exposed to fumes, seek medical attention promptly.

Eye Contact: Rinse eyes with water for 15 minutes and seek medical attention.

Skin Contact:
If battery electrolyte leaks on to the skin flush the affected area for at least 15 minutes with clean water. DO NOT attempt to neutralize. Seek medical attention promptly.

Ngestion: Drink milk/water and induce vomiting; seek medical attention.

5. Fire-fighting measures

Flammable Properties: N/A
Flashpoint: Method:
Autoignition Temperature:
Flammable Limits: N/A
Lower flammable limit: Upper flammable limit:
Hazardous Combustion Products: Burning batteries may emit acrid smoke irritating
fumes, and toxic fumes of fluoride.
Extinguishing Media: Carbon dioxide (CO2) or dry chemical fire extinguisher, 10-B: C.
Fire Fighting Instructions:
Personnel: Fight the fire in a defensive mode, while exiting the area. When using a CO2
fire extinguisher, DO NOT re-enter the area until it has been thoroughly ventilated (i.e.,
purged) of the CO2 extinguishing agent.
Firefighters: Use a self-contained breathing apparatus (SCBA).

6. Accidental release measures
Small Spill: If batteries show signs of leaking, AVOID skin or eye contact with the material
leaking from the battery. Use chemical resistant rubber gloves and non-flammable absor
bent materials for clean-up.
On Land: Place material into suitable containers and call local fire/police department.
In Water: If possible, remove from water and call local fire/police department.

7. Handling and storage
Handling: Recharge batteries IAW methods specified in applicable technical manuals.
DO NOT:
   Overcharge this battery.
   Abuse, mutilate or short circuit the battery.
Storage: Gain approval for storage areas from the Installation Fire Department. Store
batteries in a cool
(i.e., 130F), dry and well ventilated area.
DO NOT:
   Store batteries in direct sunlight or under hot conditions.
   Smoke and keep batteries away from open flame or heat.
   Store batteries in the same stacks with hazardous materials.
   Store batteries in office areas, or other areas where personnel congregate.
Work/Hygienic Practices: Thoroughly wash hands after cleaning-up a battery spill (i.e.,
leaking or venting batteries). NO eating, drinking or smoking in battery storage areas.

8. Exposure controls/personal protection
ENGINEERING CONTROLS
   Keep away from heat and open flame. Store in a cool dry place.
PERSONAL PROTECTION
   Respirator: Not required during normal operations. SCBA required in the event of a fire.
   Eye/face protection: Not required beyond safety practices of employer.
   Gloves: Not required for handling of cells.
   Foot protection: Steel toed shoes recommended for large container handling.
9. Physical and chemical properties

Boiling Point @ 760 mm Hg (°C): NA
Vapor Pressure (mm Hg @ 25°C): NA
Vapor Density (Air = 1): NA
Density (grams/cc): NA
Percent Volatile by Volume (%): NA
Evaporation Rate (Butyl Acetate = 1): NA
Physical State: NA
Solubility in Water (% by Weight): NA
pH: NA
Appearance and Odor: geometric solid object

10. Stability and reactivity

Stable or unstable: Stable
Incompatibility (Materials to avoid): NA
Hazardous decomposition products: NA
Decomposition temperature (0°F): NA
Hazardous polymerization: Will Not Occur
Condition to Avoid: Avoid electrical shorting

11. Toxicological information

This product does not elicit toxicological properties during routine handling and use.

<table>
<thead>
<tr>
<th>Sensitization</th>
<th>Teratogenicity</th>
<th>Reproductive toxicity</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

This product does not contain any kinds of the following substances and halogen-type flame retardants including Chlorine and Bromide type harmful flame retardants which are listed in Appendix of TCO documents and relevant international ECO requirements:

- Polybromated Biphenyls (PBB)
- Polybromated Biphenyl Ethers (PBBE)
- Polybromated Biphenyl Oxides (PBBO)
- Polybromated Diphenylethers (PBDE)
- Polychlorinated Biphenyl (PCB)
- Polychloronated Diphenylethers (PCDE)
- Tetra bromophisphenol A (TBBPA)
- Asbestos, Antimony trioxide, Dioxine

None of the following substances will be exposed, leaked, or emitted during transportation, storage or any operation and any temperature condition:

- Chlorinated Fluoro hydrocarbon (FCKW)
- Acrylonitrile
Styrol Phenol Benzol
Mercury of greater than 0.0001 wt% for alkaline battery
Mercury of greater than 0.0005 wt% for other battery
Lithium content of greater than 0.5g/battery cell Cadmium, lead, and other harmful heavy metal
This product does not contain mercury and lithium-metal.
Mercury content: <
Lithium-Ion content: <
If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

12. Ecological information
Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

13. Disposal considerations
Grand-Pro Polymer Lithium Ion rechargeable cells and batteries contain no toxic metals, only naturally occurring trace elements. Lithium Cells and batteries are exempted from hazardous waste standards under the Universal Waste Regulations, therefore, it is advisable to consult with local state or federal authorities as disposal regulations may vary dependent on location.

14. Transport information
For the international transport of lithium batteries, they must comply with these regulations: the International Maritime Dangerous Goods (IMDG) Code by International Maritime Organization (IMO), Dangerous Goods Regulations (DGR) by International Air Transport Association (IATA) and Technical Instructions for the Safe Transport of Dangerous Goods by Air (TI) by International Civil Aviation Organization (ICAO). These regulations are based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria. Lithium batteries which meet the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3) could be transported by air and by sea as ordinary goods, otherwise should be transported according to Class 9, Packing Group II hazardous goods. As the published of the UN Recommendations on the Transport of Dangerous Goods, all these regulations have added some new contents to regulate the transport of lithium ion batteries. We regard to air transport, the following regulations are cited and considered:
A、For lithium ion batteries, UN ID number is 3480 or Lithium Ion Batteries contained in equipment or Lithium Batteries packed with equipment, UN ID number 3481, Transport hazard No:9.
C、For transported by air, Lithium iron phosphate Cells/Batteries shipped as “Not Restricted” Cargo: Must comply with section II of PI965- PI967; For cells, the Watt-hour rating should not be more than 20Wh; For batteries, the Watt-hour rating should not be more than 100Wh. Watt-hour rating must be marked on the outside of the battery case (marked by manufacturer). (Except those manufactured before 1 January 2009, which may be transported without this marking until 31 December 2014).

D、Each consignment must be accompanied with a document such as an air waybill with an indication. For those Lithium ion cells/batteries contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for Grand-Pro cells is +86-735-2668188.

E、Quantity per package shall not exceed 10kg.

f、Each package must be capable of withstanding a 1.2m drop test in any orientation without damage of cells or batteries contained therein.

G、Lithium batteries which meet the requirements of A154 could be transported by air, (A154 Lithium batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.)

H、Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit.

I、Comply with SP188 of Imdg.

Mode of transport: to air, sea, railway, highway-based.

<table>
<thead>
<tr>
<th>Manual of Test and Criteria [38.3 Lithium battery]</th>
<th>Test Results</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>Test Item</td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>Altitude Simulation</td>
<td>Pass</td>
</tr>
<tr>
<td>T2</td>
<td>Thermal Test</td>
<td>Pass</td>
</tr>
<tr>
<td>T3</td>
<td>Vibration</td>
<td>Pass</td>
</tr>
<tr>
<td>T4</td>
<td>Shock</td>
<td>Pass</td>
</tr>
<tr>
<td>T5</td>
<td>External Short Circuit</td>
<td>Pass</td>
</tr>
<tr>
<td>T6</td>
<td>Impact</td>
<td>Pass</td>
</tr>
<tr>
<td>T7</td>
<td>Overcharge</td>
<td>Pass For Pack Only</td>
</tr>
<tr>
<td>T8</td>
<td>Forced Discharge</td>
<td>Pass For Pack Only</td>
</tr>
</tbody>
</table>

15. Regulatory information

Non-hazardous

16. Other information

Revision Date: 2019-08-06
Revision Note: No information available

Address: Intersection of Shihu Ave.and Linjing 2nd Rd.SuXian District, Chenzhou, Hunan,China
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