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Report No.:21ZCTS0119002MR

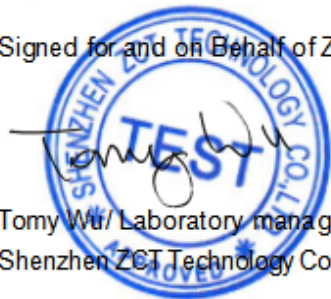
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Applicant : Jiangsu GSO New Energy Technology Co.,Ltd.
Address : No.301, Building 3, Yudai Jiayuan South District, Jingang Road, Bali Town, Yangzhou City
Sample Name : LIFEPO4 Battery
Model No. : 48100 48V-100Ah
Product Specification : 48V/100Ah
Manufacturer : Jiangsu GSO New Energy Technology Co.,Ltd.
Address : No.301, Building 3, Yudai Jiayuan South District, Jingang Road, Bali Town, Yangzhou City
Sample Received Date : Jan. 19, 2021
Completed Date : Jan. 21, 2021



Signed for and on Behalf of ZCT



Tomy Wu/ Laboratory manager
Shenzhen ZCT Technology Co.,Ltd.



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Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Identification

Product Name:	LIFEPO4 Battery
Model No.:	48100 48V-100Ah
Applicant:	Jiangsu GSO New Energy Technology Co.,Ltd.
Address:	No.301, Building 3, Yudai Jiayuan South District, Jingang Road, Bali Town, Yangzhou City
Manufacturer:	Jiangsu GSO New Energy Technology Co.,Ltd.
Address:	No.301, Building 3, Yudai Jiayuan South District, Jingang Road, Bali Town, Yangzhou City
Contact Person:	N/A
E-mail:	N/A
TEL :	N/A
FAX:	N/A

Section 2- Hazard identification

Classification of the substance or mixture:	Flammable liquids (Category 3), H226 Flammable solids (Category 1), H228 Acute toxicity, Oral (Category 4), H302 Skin corrosion (Category 1A), H314 Specific target organ toxicity - repeated exposure (Category 1), H372 Acute aquatic toxicity (Category 1), H400 Chronic aquatic toxicity (Category 3), H412 Skin sensitisation (Category 1), H317 Carcinogenicity (Category 1B), H350
GHS label elements, including precautionary statements :	Pictogram: 



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	<p>Signal word: Danger</p>
<p>GHS label elements, including precautionary statements :</p>	<p>Hazard statement(s) : H226 Flammable liquid and vapour. H228 Flammable solid. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H372 Causes damage to organs through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects. H317 May cause an allergic skin reaction. H350 May cause cancer. H351 Suspected of causing cancer.</p> <p>Precautionary statement(s) : P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking P201 Obtain special instructions before use. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P273 Avoid release to the environment P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove P370 + P378 In case of fire: Use dry powder or dry sand to extinguish P308 + P313 IF exposed or concerned: Get medical advice/ attention.</p> <p>Supplemental Hazard :none</p>
<p>Other hazards which do not result in classification</p>	<p>This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.</p>



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Section 3 - Composition/Information on Ingredients

Chemical Composition	CAS NO.	Weight(%)
Lithium iron phosphate	15365-14-7	28.0-29.5
Aluminium	7429-90-5	19.0-21.0
Graphite (C)	7782-42-5	15.0-17.0
1,3-dioxane-2-one	96-49-1	11.5-13.0
Copper	7440-50-8	9.0-10.5
Dimethyl carbonate	616-38-6	3.2-6.0
Polypropylene	9003-07-0	1.3-2.0
Carbon black	1333-86-4	1.2-1.5
Polyvinylidene fluoride resin	24937-79-9	1.0-1.5
Lithium hexafluorophosphate	21324-40-3	1.0-1.3

Section 4 - First-aid Measures

General Advice	The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.
Eyes	If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical advice.
Skin	If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical advice.
Inhaled	If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical advice.
Swallowed	If battery is swallowed seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. If mouth area irritation or burning has occurred, rinse the mouth and surrounding area with tepid water for at least 15 minutes. Do not give ipecac.



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Section 5 - Fire Fighting Measures

Fire and Explosion Hazards	Batteries may burst and release hazardous decomposition products when exposed to a fire situation.
Extinguishing Media	Use any extinguishing media that is appropriate for the surrounding fire.
Special Fire Fighting Procedures	Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing. Fight fire from a distance or protected area. Cool fire exposed batteries to prevent rupture. Use caution when handling fire-exposed containers (batteries may explode in heat of fire).
Hazardous Combustion Products	Thermal degradation may produce hazardous fumes of lithium and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.

Section 6 - Accidental Release Measures

Notify safety personnel of large spills. Irritating vapors and flammable may be released from leaking or ruptured batteries. Eliminate all ignition sources. Evacuate the area and allow the vapors to dissipate. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal. Remove spilled liquid with absorbent and contain for disposal.

Section 7 - Handling And Storage

Handling	Avoid mechanical or electrical abuse. DO NOT short circuit or install incorrectly. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time. Do not carry batteries loose in a pocket or bag.
Storage	Store batteries in a dry place at normal room temperature.



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Section 8 - Exposure Controls/Personal Protection

Respiratory Protection	In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.
Ventilation	Not necessary under conditions of normal use.
Other Protective Clothing or Equipment	Not necessary under conditions of normal use.
Personal Protection is recommended for venting battery	Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

Section 9 - Physical and Chemical Properties

Appearance	Square
Odour	Odorlessness
Colour	Black
pH	Not applicable
Flash Point	Not applicable
Flammability	Not applicable
Relative density	Not applicable
Solubility (water)	Not applicable
Solubility (other)	Not applicable

Section 10 - Stability and Reactivity

Stability	This product is stable.
Incompatibility/Conditions to Avoid	Contents are incompatible with strong oxidizing agents. Do not heat, crush, disassemble, short circuit or recharge.
Hazardous Decomposition Products	Thermal decomposition may produce hazardous fumes of lithium and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.
Hazardous Polymerization	Will not occur



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Section 11 - Toxicological Information

Potential Health Effects	The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.
Eye Contact	Contact with battery contents may cause irritation.
Skin Contact	Contact with battery contents may cause irritation.
Inhalation	Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.
Ingestion	Swallowing is not anticipated for larger batteries due to battery size. Smaller batteries may be swallowed. If battery is swallowed, seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. Irritation to the internal/external mouth areas, may occur following exposure to a leaking battery.
Chronic Effects	The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.
Target Organs	Skin, eyes and respiratory system.
Carcinogenicity	None of the components of this product are listed as carcinogens by the EU Directive on the classification and labeling of substances.

Section 12 - Ecological Information

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

Section 13 - Disposal

Do not incinerate or subject cells to temperature in excess of 80°C. Dispose of in accordance with local regulations.



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Section 14 - Transport Information

All lithium, lithium ion and lithium polymer cells and batteries must be tested in accordance with the "UN Manual of Tests and Criteria, Part III, Subsection 38.3.

The 62nd edition of the IATA Dangerous Goods Regulations incorporates all amendments made by the ICAO Dangerous Goods Panel in developing the content of the 2021 edition of the ICAO Technical Instructions as well as changes adopted by the IATA Dangerous Goods Board.

Their regulations are based on the UN Recommendations. The UN Recommendations require that lithium ion cells and batteries shall be manufactured under a quality management program and this requirement is adopted by IMDG Code and ICAO TI/IATA DGR.

The following list is intended to assist the user to identify the main changes introduced in this edition and must not be considered an exhaustive listing. The changes have been prefaced by the section or subsection in which the change occurs.

UN number

UN3480. PACKING INSTRUCTION 965 Single Lithium-ion Batteries only.

Proper shipping name

Air transport (ICAO/IATA)	LIFEPO4 Battery
Sea transport (IMDG)	LIFEPO4 Battery
Inland waterway transport (ADN)	LIFEPO4 Battery
Land transport (ADR/RID)	LIFEPO4 Battery

Hazard Class

Air transport (ICAO/IATA)	9
Sea transport (IMDG)	9
Inland waterway transport (ADN)	9
Land transport (ADR/RID)	9

Packing Group

Air transport (ICAO/IATA)	
Sea transport (IMDG)	
Inland waterway transport (ADN)	
Land transport (ADR/RID)	

Environmental Hazards

Dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Worldwide air transportation: The goods are packaged according to Section 1A of PACKING INSTRUCTION



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965 of the 2019 IATA Dangerous Goods. Lithium-ion batteries may be air transported on CARGO AIRCRAFT ONLY and are forbidden in passenger aircraft.

Worldwide sea transportation: The goods are packaged according to the special provision 188 of IMDG. IMO-IMDG Code [P903]

Labeling

Use Class 9 Miscellaneous Dangerous Goods and UN Identification labels for transportation of lithium-ion batteries which are assigned Class 9. Refer to relevant transportation documents. Lithium and lithium-ion cells and batteries are regulated in the USA in accordance with Part 49 Regulations of the Code of Federal Regulations, (49 CFR Sections 105-180) of the U.S. Hazardous Materials Regulations.

Lithium-ion batteries, under UN3480, PI 965, Section IB



Cells and batteries must be packed in inner packaging that completely encloses the cell or battery.

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 a short circuit.

Each consignment must be accompanied with a document such as an air waybill with an indication that:

- the package contains lithium ion cells or batteries;
- the package must be handled with care, and that a flammability hazard exists if the package is damaged;
- special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- a telephone number for additional information.

Each package must be labelled with a lithium battery handling label;

Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities.



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Section 15 - Regulatory Information

Special requirement be according to the local regulations.

« Dangerous Goods Regulations »

« Recommendations on the Transport of Dangerous Goods Model Regulations »

« International Maritime Dangerous Goods »

« Technical Instructions for the Safe Transport of Dangerous Goods »

« Classification and code of dangerous goods »

« Occupational Safety and Health Act » (OSHA)

« Toxic Substance Control Act » (TSCA)

« Consumer Product Safety Act » (CPSA)

« Federal Environmental Pollution Control Act » (FEPCA)

« The Oil Pollution Act » (OPA)

« Superfund Amendments and Reauthorization Act Title III(302/311/312/313) » (SARA)

« Resource Conservation and Recovery Act » (RCRA)

« Safety Drinking Water Act » (CWA)

« California Proposition 65 »

« Code of Federal Regulations » (CFR)

« 2019 Lithium battery guidance document, revision 1 »

Section 16 - Other Information

Note	This Sheet is provided as technical information only. The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Shenzhen ZCT Technology Co., Ltd. makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.
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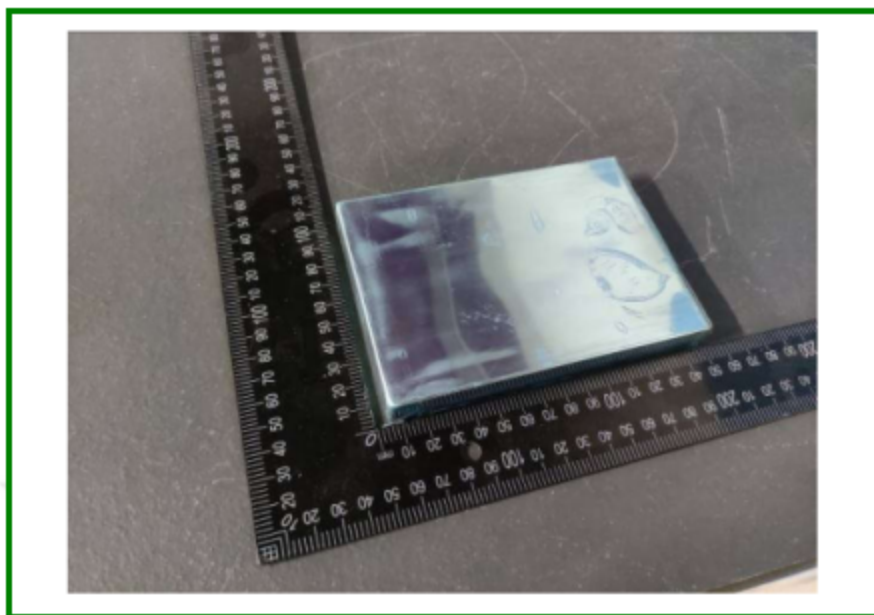
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Photo(s) of Sample:



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