Material Safety Data Sheet

Product name:	Energy storage battery
Model/type designation:	BTS 5K
Principal:	Shenzhen SOFARSOLAR Co., Ltd.
Principal's address:	11/F., Gaoxinqi Technology Building, No.67 Area, Xingdong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, China

Elaborated:	Dongguan Lepont Testing Service Co., Ltd.
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Done by (name, signature) ……:	Karl Huang
Approved (signature) ……:	Steven Chen

Section 1 - Identification of the product and supplier

Product name: Energy storage battery

Model no: BTS 5K

Rated voltage: 51.2 V

Rated capacity: 100 Ah; 5.12 kWh

Manufacturer/supplier name: Guangdong SOFARSOLAR Co., Ltd.

Address: 3/F.-4/F., Building No.4, Plant of Area D, Qiaosheng Industrial Park, Lizhen Road, Panli Village, Lilin Town, Zhongkai High-tech Zone, Huizhou

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Drafting date: 2022-04-01

Control in accordance with: Commission Directive 93/112/EC, UN Recommendations on the Transport of Goods
dangerous

Section 2 - Hazard identification

Preparation hazards and classification	Does not pose a hazard under normal use. Do not disassemble, open or destroy the components contained in the battery. Their components may be harmful.
Appearance, color and smell	Solid, odorless, colorless.
Main route of exposure	Chemicals are contained in a sealed enclosure. The risk of exposure occurs only if the cell is mechanically, thermally or electrically damaged to the extent that the housing is damaged. In this case, exposure to the electrolyte solution inside can occur through inhalation, ingestion, eye and skin contact.
Potential health effects	**Acute (short term):** See Section 8 for exposure control. If the battery ruptures, the electrolyte solution inside may be corrosive and cause burns. **Inhalation**: Inhalation of substances from a sealed battery is not a potential route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.

	Ingestion: Ingestion of the substance from a sealed battery is not a potential route of exposure. Ingestion of the contents of an open battery can cause severe chemical burns to the mouth, esophagus and gastrointestinal tract. **Skin**: Contact of the battery with the skin does not cause harmful effects. Skin contact with the contents of an open battery may cause severe skin irritation or burns. **Eyes:** Contact of the battery with the eyes does not cause harmful effects. Eye contact with the contents of an open battery may cause severe irritation or burns to the eyes. **PREVENTIVE (long-term):** Additional toxicological data can be found in Section 11.
Conditions aggravated by exposure	Not applicable
Reported as a substance of carcinogenicity	Not applicable

Section 3 - Composition/Information on Ingredients

Information about the chemical composition of the product:

Chemical name	Concentration or concentration range (%)	CAS number
Graphite	7 - 25	7782-42-5
Lithium iron phosphate	15 - 40	15365-14-7
Copolymer of poly(vinylidene fluoride) and poly(hexafluoropropylene)	3 - 15	9011-17-0
Lithium hexafluorophosphate	0 - 5	21324-40-3
Soot	0 - 2	1333-86-4
Other	Other	Not applicable

Labeling in accordance with EC directives.

Symbols or hazard statements are not required.

Note: CAS number stands for Chemical Abstracts Service Registry database number.

Section 4 - First aid measures

Respiratory tract	If the contents of an open battery enter the respiratory tract, remove the source of contamination or move the affected person to fresh air. Seek medical advice.
Swallowing	If the contents of an open battery are swallowed, never give anything by mouth if the affected person suddenly loses consciousness, is unconscious or has convulsions. The affected person should rinse the mouth thoroughly with water. DO NOT INDUCE VOMITING. The affected person should drink 60 to 240 ml (2-8 oz.) of water. If vomiting occurs naturally, the affected person should lean forward to reduce the risk of aspiration, then rinse the mouth with water again. Immediately transport the affected person to an emergency medical facility.
Skin contact	If the contents of an open battery come into contact with the skin, remove contaminated clothing, footwear and leather accessories as soon as possible. Immediately flush the skin with a gentle stream of lukewarm water for at least 30 minutes. If irritation or pain persists, seek medical attention. Clean clothing, footwear and leather accessories completely before reusing or discarding.
Eye contact	If the contents of an open battery come into contact with the eyes, immediately flush the contaminated eye(s) with a gentle stream of lukewarm water for at least 30 minutes while holding the eyelids open. Saline solution may be used if available. If necessary, continue flushing while transporting to an emergency medicine facility. Be careful not to pour contaminated water over the uncontaminated eye or face. Immediately transport the injured person to an emergency medicine facility.

Section 5 - Handling of fire

Combustible properties	If a battery ruptures, the electrolyte solution in it is flammable. As with any tightly sealed container, the battery cells may unseal when exposed to excessive heat, which can release flammable or corrosive materials.

Suitable extinguishing agents	Use extinguishing agents suitable for the material being burned.
Unsuitable extinguishing agents	No data available
Information on blast	**Sensitivity to mechanical impact**: In extreme cases, mechanical impacts can cause cracking. **Sensitivity to electrostatic discharge**: Not applicable
Special hazards associated with chemicals	Battery fires are extinguished with water. However, if water is used, hydrogen may be released. In an enclosed space, hydrogen can form an explosive mixture. In this case, fire extinguishing agents are recommended to extinguish the fire.
Protective equipment and precautions for firefighters	As with any fire, evacuate the area and extinguish the fire from a safe distance. Use a self-contained breathing apparatus with overpressure control and full protective equipment. Extinguish the fire from a safe location or from a safe distance. Use a NIOSH/MSHA-approved self-contained breathing apparatus (SCBA) and full protective equipment.
NFPA	Health: 0 Flammability: 0 Instability: 0

Section 6 - Handling of unintentional release into the environments

Personal precautions, protective equipment and emergency procedures	Restrict access to the area until cleanup is complete. Do not touch spilled material. Use appropriate personal protective equipment as indicated in Section 8.
Environmental precautions	Prevent contamination of soil and entry of material Into sewers or watercourses.
Methods and materials preventing the spread of contaminations	Stop the spill if it is safe to do so. Stop further spread of the spill with dry sand or soil. Immediately collect the spilled material.
Methods and materials for disposal of contamination	Collect the spilled substance with a neutral absorbent (dry sand or soil). Dispose of the contaminated absorbent material in a suitable waste container. Collect all contaminated absorbent and dispose of according to the guidelines in Section 13. Scrub the area with detergent and water; collect all contaminated water for proper disposal.

Section 7 - Handling and storage of substances and mixtures

Handling of substances and mixtures	Do not use metal objects to handle batteries. Batteries do not Be opened, decomposed, crushed or burned. Ensure good Ventilate/ventilate the workplace. Prevent dust generation. Information on protection against explosions and fires: Keep with Away from source of ignition - Do not smoke.
Storage	If you store batteries for more than 3 months

	is ordered to recharge the battery periodically. 3 months: -10°C~+40°C, 45 to 85% relative humidity. Recommended temperature for long-term storage: 0°C~+35°C The rate of capacity recovery at delivery (50% of full charge capacity) after storage is assumed to be at least 80%. Do not store batteries haphazardly in a box or drawer where there is a risk of short-circuiting due to contact with batteries or other metal objects. Keep out of reach of children. Do not expose the battery to high temperatures or fire. Avoid storing in a place exposed to direct sunlight. Do not store together with oxidizers and acids.

Section 8 - Exposure controls/personal protective equipment

Technical measures control	Use local exhaust ventilation or other technical means controls to control sources of dust, mist, smoke and fumes. Store away from heat sources and open flame. Store in a cool and dry place.
Individual measures protection	**Respiratory protection:** Not required under normal conditions. **Skin and body protection:** Not required under normal conditions. Use neoprene or nitrile rubber gloves when handling an open or leaking battery. **Hand protection**: Use neoprene or natural rubber gloves when handling an open or leaking battery. **Eye protection:** Not required under normal conditions. Use safety glasses when working with an open or leaking battery.

Other protection measures	A safety shower and eyewash should be easily accessible at the workplace.
Hygiene products	Do not eat, drink or smoke in the workplace. Order must be maintained.

Section 9 - Physical and chemical properties

Physical condition	Form: solid
	Color: white
	Fragrance: unscented
Change in conditions:	
pH, with determination of the concentration of	Not applicable
Melting/freezing point	No data available
Boiling point, initial temperature boiling point and boiling range	No data available
Flash point	No data available
Lower/upper flammability or explosive limits	No data available
Vapor pressure	Not applicable
Vapor density: (air = 1)	Not applicable
Density/relative density	No data available
Solubility in water	Insoluble

Partition coefficient n-octanol/water	No data available
Auto-ignition temperature	130°C
Decomposition temperature	No data available
Odor threshold	No data available
Evaporation rate	No data available
Flammability (soil, gas)	No data available
Viscosity	Not applicable

Section 10 - Stability and reactivity

Stability	The product is stable under normal conditions.
Conditions to avoid (e.g. electrostatic discharges, shocks or vibration)	Do not subject the battery to mechanical shocks. Vibrations occurring during transport do not cause leakage, fire or explosion. Do not disassemble or crush the battery. Do not short-circuit or misconnect the polarity. Avoid the occurrence of mechanical or electrical damage.
Incompatible materials	No data available
Hazardous decomposition products	If burned or exposed to fire, the material may emit toxic fumes.
Possibility of dangerous reactions	No data available

Section 11 - Toxicological information

Irritating effect	The risk of irritation occurs only in the event of mechanical, thermal or electrical damage to the cell, which may lead to the destruction of the housing. In such a case, irritation of the skin, eyes and respiratory tract may occur.
Sensitizing effects	No data available
Neurological effects	No data available
Teratogenic effects	No data available
Reproductive toxicity	No data available
Mutagenic effects (effects genetic)	No data available
Toxicological materials synergistic	No data available

Section 12 - Ecological information

General comments	Water hazard class 1 (self-assessment): Slightly hazardous to water. Do not allow undiluted product or large quantities of it to enter groundwater, watercourses or sewers.
Predicted behavior of the chemical product in the environment/possible environmental impact/ecotoxicity	No data available
Mobility in soil	No data available
Persistence and degradability	No data available

Bioaccumulative potential	No data available
Other harmful effects	No data available

Section 13 - Waste treatment

Do not incinerate or expose the cells to temperatures exceeding 70°C, as this may result in loss of leakage, leakage and/or explosion of the cell. Dispose of the product in accordance with relevant local regulations.

Section 14 - Transport information

Transport label: Lithium battery label

UN No.: UN3480 or UN3481

Packing group: not applicable

Emergency procedure codes (EmS codes): F-A, S-I

Substance causing marine pollution: No

Correct shipping name: 1) Lithium-ion batteries; 2) Lithium-ion batteries packed with devices; 3) Lithium-ion batteries in devices (including lithium-ion-polymer batteries)

Hazard Classification: Class 9. The cargo shall comply with the requirements of Section I (or Section IA) of Packing Instructions 965 - 967 of the 63rd edition of the IATA Dangerous Goods Regulations for the Transport of Dangerous Goods by International Air Transport (IATA Dangerous Goods Regulations) (2022 edition) , including passing the UN38.3 test and Special Provisions 188 and 230 of the UN International Maritime Dangerous Goods (IMDG) Code (Amendment 40-20), edition.

Section 15 - Regulatory information

Legislation:

Regulations on dangerous goods

Recommendations for the transport of dangerous goods Model regulations International

Dangerous Goods Code

Technical Instructions for the Safe Transport of Dangerous Goods by Air.

Hazardous Goods Classification and Codes

Occupational Safety and Health Act (OSHA) Toxic

Substances Control Act (TSCA)

Consumer Product Safety Act (CPSA) Federal Environmental Pollution

Control Act (FEPCA) Oil Pollution Act (OPA)

Law on Amendments and Renewal of the Law on Substances that Deplete the Ozone Layer Title III (302/311/313) (SARA)

Resource Conservation and Recovery Act

(RCRA) Drinking Water Safety Act (CWA) Law

of the State of California 65

Code of Federal Regulations (CFR)

In accordance with federal, state and local laws.

Section 16 - Other information

The above information is believed to be correct to the best of our knowledge and belief. However, Dongguan Lepont Testing Service Co., Ltd. makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and assumes no liability for its use. Users should check for themselves whether the information is useful for specific purposes. Although due care has been taken in compiling the data contained herein, it is intended for informational, analytical and research purposes only. This SDS provides guidance on the safe handling and use of the product. The sheet does not and cannot provide guidance for all potential situations, so the specific use of the product should be evaluated to determine if additional precautions are required.
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