SAFETY DATA SHEET

Lithium-ion battery pack system 24V20Ah

SDS

Longpower Systems (Nantong) Co., Ltd.

•**According to GHS(Seventh Revised Edition)**

Section 1 Product and Company Identification

> Product Identifier

Product Name	Lithium-ion battery pack system 48V 350Ah
Synonyms	-
CAS No.	-
EC No.	-
Molecular Formula	-

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Please consult manufacturer
Uses Advised Against	Please consult manufacturer

> Details of the Supplier of the Safety Data Sheet

Applicant Name	Longpower Systems (Nantong) Co., Ltd
Applicant Address	NO.169, Huashi north Road, Chengbei Street, Rugao City, Jiangsu Province.
Applicant Post Code	226502
Applicant Telephone	+86-513-69898888
Applicant Fax	+86-513-69898888
Applicant E-mail	dwzhang@longpowersrg.com
Supplier Name	Longpower Systems (Nantong) Co., Ltd
Supplier Address	NO.169, Huashi north Road, Chengbei Street, Rugao City, Jiangsu Province.
Supplier Post Code	226502
Supplier Telephone	+86-513-69898888
Supplier Fax	+86-513-69898888
Supplier E-mail	dwzhang@longpowersrg.com

> Emergency Phone Number

Emergency Phone Number	+86-513-69898888

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the seventh revised edition):

> GHS Hazard Class

This product meets the definition of an article. Under the Globally HarmonizedSystem of Classification and Labeling of Chemicals (GHS), Art icles as definedin the Hazard Communication Standard (29 CFR 1910.1200) of the OccupationalSafety and Health Administration of the United States of America, or by similardefinition, are outside the scope of the system. [Rev.7 (2017) Part 1.3.2.1.1]

> GHS Label Elements

Pictogram Not applicable

Signal Word **Not applicable**

> Hazard Statements

Not applicable

> Precautionary Statements

Prevention

Do not open or disassemble.

Do not expose to high temperatures or open fire.

Do not mix with batteries of varying sizes, chemistries or types.

Avoid using external impact battery.

Response

Not applicable

Storage

Store under roof in cool, dry, wellventilated areas.

Disposal

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

Section 3 Composition/Information on Ingredients

Component	Concentration (weight percent, %)	CAS No.	EC No.
Lithium iron phosphate	20-30	15365-14-7	604-917-2
Copper	10-15	7440-50-8	231-159-6
Carbon	8~12	7782-42-5	231-955-3
Fe	27-38	7439-89-6	231-096-4
Lithium hexafluorophosphate	15-22	21324-40-3	244-334-7

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Skin Contact Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a phy sician or Poison Control Center immediately.

Inhalation Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.

Protecting of First aiders Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

> Most Important Symptoms and Effects, both Acute and Delayed

1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long term occupational exposure.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

1 Treat symptomatically.

2 Symptoms may delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media	Dry chemical, carbon dioxide or alcohol resistant foam.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter or spread fire.

> Specific Hazards Arising from the Substance or Mixture

1 Containers may explode when heated.

2 Fire exposed containers may vent contents through pressure relief valves.

3 May expansion or decompose explosively when heated or involved in fire.

> Advice for Firefighters

1 As in any fire, wear self contained breathing apparatus (MSHA/NIOSH approve d or equivalent) and full protective gear.

2 Fight fire from a safe distance, with adequate cover.

3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

1 Ensure adequate ventilation. Remove all sources of ignition.

2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

> Environmental Precautions

1 Prevent further leakage or spillage if safe to do so.

2 Discharge into the environment must be avoided.

> Methods and Materials for Containment and Cleaning Up

1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by

bunding.

2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

3 Remove all sources of ignition. Use spark proof tools and explosion proof equipment.

Section 7 Handling and Storage

> Precautions for Handling

1 Handling is performed in a well ventilated place.

2 Wear suitable protective equipment.

3 Avoid contact with skin and eyes.

4 Keep away from heat/sparks/open flames/ hot surfaces.

5 Take precautionary measures against static discharges.

> Precautions for Storage

1 Keep containers tightly closed.

2 Keep containers in a dry, cool and well ventilated place.

3 Keep away from heat/sparks/open flames/ hot surfaces.

4 Store away from incompatible materials and foodstuff containers.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

Component	Country/Region	Limit Value-Eight Hours		Limit Value-Short Term	
		PPm	mg/m^3	PPm	mg/m^3
Aluminium 7429-90-5	**USA**-OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-

Biological Limit Values

Component	Country/Region	Biological monitoring indicators	Limit Value	Samoling Time
Lithium hexafluorophosphat	SCOEL	Fluorum/Urine	8mg/L	The end of the work time

Monitoring Methods

1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

2 GBZ/T 160.1~GBZ/T 160.81 2004 Determination of toxic substances in workplace air (Series standard ）.

> Engineering Controls

1 Ensure adequate ventilation, especially in confined areas.

2 Ensure that eyewash stations and safety showers are close to the workstation location.

3 Use explosion proof electrical/ventilating/lighting/equipment.

4 Set up emergency exit and necessary risk elimination area.

> Personal Protection Equipment

Eye Protection	Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).
Hand Protection	Wear protective gloves (such as butyl rubber), passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.
Respiratory protection	If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full face respira tor with multi purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
Skin and Body Protection	Wear fire/flame resistant/retardant clothing and antistatic boots.

Section 9 Physical and Chemical Properties

Appearance: Lithium ion batteries, individually packaged
Odor Threshold: No information available
Melting Point/Freezing Point (℃): No information available
Flash Point (℃)(Closed Cup): Not applicable
Flammability: No information available
Vapor Pressure (MPa): Not applicable
Relative Density(Water=1): No information available
n-Octanol/Water Partition Coefficient: No information available
Decomposition Temperature (℃): No information available
Particle characteristics: No information available

Odor: No information available
pH: No information available
Initial Boiling Point and Boiling Range (℃): No information available
Evaporation Rate: Not applicable
Upper/lower explosive limits[%(v/v)]: Upper limit：No information available；Lower limit：No information available
Relative Vapour Density(Air+1): Not applicable
Solubility: No information available
Auto-Ignition Temperature(℃): No information available
Kinematic Viscosity (mm^2/s): Not applicable

Section 10 Stability and Reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical Stability	Stable under proper operation and storage conditions.
Possibility of Hazardous Reactions	Ultrafine powder will self ignite in the air at room temperature.
Conditions to Avoid	Incompatible materials, heat, flame and spark.
Incompatible Materials	Oxidants, halogen, interhalogen and mercury.
Hazardous Decomposition products	Under normal con ditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> Acute Toxicity

Compone	CAS No.	LD50(From mouth)	LD50(From skin)	LC50(Breath，4h)
Fe	7439-89-6	30000mg/kg（mouse）	No information	No information available

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

No information available

> Respiratory Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

ID	CAS No.	Component	IARC	NTP
1	15365-14-7	Lithium iron phosphate	Not Listed	Not Listed
2	7440-50-8	Cu	Not Listed	Not Listed
3	7782-42-5	C	Not Listed	Not Listed
5	7439-89-6	Fe	Not Listed	Not Listed
6	21324-40-3	Lithium hexafluorophosphate	Not Listed	Not Listed

> Reproductive Toxicity

No information available

> Reproductive Toxicity (Additional)

No information available

> STOT Single Exposure

No information available

> STOT Repeated Exposure

No information available

> Aspiration Hazard

No information available

Section 12 Ecological Information

> Acute Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Al	7429-90-5	LC_{50}：1.55mg/L (96h)	No information available	No information available
Cu	7440-50-8	LCso： 0.665mg/L	EC_{50}： 0.02mg/L (48h)	ErCso： 7.9mg/L (96h)
Fe	7439-89-6	LC_{50}：1.29mg/L (96h)	No information available	No information available

> Chronic Aquatic Toxicity

No information available

> Others

Persistence and Degradability No information available

Bioaccumulative Potential No information available

Mobility in Soil No information available

Results of PBT and vPvB Assessment

Aluminium does not meet the criteria for PBT and vPvB according to Regulation.(EC) No 1907/2006, annex XIII.

Cuprum does not meet the criteria for PBT and vPvB according to Regulation.(EC) No 1907/2006, annex XIII.

Graphite does not meet the criteria for PBT and vPvB according to Regulation.(EC) No 1907/2006, annex XIII.

Lithium hexafluorophosphate does not meet the criteria for PBT and vPvB according to Regulation.(EC) No 1907/2006, annex XIII.

Section 13 Disposal Considerations

Waste Chemicals Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.

Contaminated Packaging Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.

Disposal Recommendations Refer to section 13.1and 13.2.

Section 14 Transport Information

Transporting Label

Marine pollutant None

UN Number	3480
UN Proper Shipping Name	LITHIUMION BATTERIES (including lithium ion polymer batteries)
Transport Hazard Class	9
Transport Subsidiary Hazard Class	None
Packing Group	Packagings shall conform to the packing group Ⅱ performance level

Section 15 Regulatory Information

> International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Aluminium	√	√	√	√	√	√	√	√	×
Lithium iron	×	√	×	×	×	×	√	×	×
Cuprum	√	√	√	√	√	√	√	√	×
Graphite	√	√	√	√	√	√	√	√	×
Iron	√	√	√	√	√	√	√	√	×
Lithium hexafluorophosphate	√	√	×	√	×	√	√	√	×

[EINECS] European Inventory of Existing Commercial Chemical Substances.
[TSCA] United States Toxic Substances Control Act Inventory.
[DSL] Canadian Domestic Substances List.
[IECSC] China Inventory of Existing Chemical Substances.
[NZIoC] New Zealand Inventory of Chemicals.
[PICCS] Philippines Inventory of Chemicals and Chemical Substances.
[KECI] Existing and Evaluated Chemical Substances.
[AICS] Australia Inventory of Chemical Substances.
[ENCS] Existing And New Chemical Substances.

Note：
"√" Indicates that the substance included in the regulations
"×" That no data or included in the regulations

Section 16 Additional Information

Creation Date	**2021-05-15**
Revision Date	**2021-05-15**
Reason for Revision	**-**

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 7th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowled ge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user s reference. Users should make their independent judgment of suitability of t his information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.