Design Report of Safety Data Sheet

Report No.: DG1952680E
Date: 2019/09/04

Name of the sample	Rechargeable Li-ion Battery UP2500 25.6V 111Ah		
Applicant	Pylon Technologies Co., Ltd.		
Supplier	Pylon Technologies Co., Ltd.		
Composition of the sample	Lithium Iron Phosphate; Graphite; Copper; Aluminium; Poly(vinylidene difluoride); Carbon black; Polyacrylic acid; Lithium hexafluorophosphate; Nickel		
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Seventh revised edition		
Design Result of SDS please see next page.			
Designer		**Approver**	

Notes: This SDS is valid before the implementation of the eighth revised edition GHS.

SAFETY DATA SHEET

Rechargeable Li-ion Battery UP2500 25.6V 111Ah

SDS

Pylon Technologies Co., Ltd.

- According to GHS (Seventh Revised Edition)

Section 1 Product and Company Identification

> Product Identifier

Product Name	Rechargeable Li-ion Battery UP2500 25.6V 111Ah
Synonyms	-

> 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	Pylon Technologies Co., Ltd.
Application Address	Plant 8, No.505 Kunkai Road, Jinxi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324
Applicant Post Code	——
Applicant Telephone	+86-21-51317699
Applicant Fax	——
Applicant E-mail	xu.min@pylontech.com.cn
Supplier Name	Pylon Technologies Co., Ltd.
Supplier Address	Plant 8, No.505 Kunkai Road, Jinxi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324
Supplier Post Code	——
Supplier Telephone	+86-21-51317699
Supplier Fax	——
Supplier E-mail	xu.min@pylontech.com.cn

> Emergency Phone Number

Emergency Phone Number	+86-21-51317699

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 Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar

definition, 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, well-ventilated 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	Commercial secrets	15365-14-17	-
Graphite	Commercial secrets	7782-42-5	231-955-3
Copper	Commercial secrets	7440-50-8	231-159-6
Aluminium	Commercial secrets	7429-90-5	231-072-3
Poly(vinylidene difluoride)	Commercial secrets	24937-79-9	200-867-7
Carbon black	Commercial secrets	1333-86-4	215-609-9
Polyacrylic acid	Commercial secrets	9003-01-4	202-415-4
Lithium hexafluorophosphate	Commercial secrets	21324-40-3	244-334-7
Nickel	Commercial secrets	7440-02-0	231-111-4

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 If contact with substances in the battery, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Skin Contact If contact with substances in the battery, 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	If you eat the substances in the battery, do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	If the substance in the battery is inhaled, 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 be delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media	Plenty of water, dry chemical, carbon dioxide or alcohol-resistant foam.

> 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 approved 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/m³	ppm	mg/m³
Graphite 7782-42-5	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-
Copper 7440-50-8	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium 7429-90-5	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-
Carbon black 1333-86-4	USA - OSHA	-	3.5	-	-
	South Korea	-	3.5	-	-

	Ireland	-	3.5	-	7
	France	-	3.5	-	-
	Denmark	-	3.5	-	7
	Australia	-	3	-	-
Nickel 7440-02-0	USA - OSHA	-	1	-	-
	South Korea	-	1	-	-
	Ireland	-	0.5	-	-
	Hungary	-	0.1	-	0.1
	Denmark	-	0.05	-	0.1
	Australia	-	1	-	-

Biological Limit Values

Component	Source	Biological monitoring index	Biological limits value	Sampling time	remark
Lithium hexafluorophosphate	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

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 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 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 respirator 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: Li-ion battery, individually packaged, 25.6V 111Ah

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point (℃): No information available

Initial Boiling Point and Boiling Range (℃): No information available

Flash Point (℃)(Closed Cup): Not applicable

Evaporation Rate: Not applicable

Flammability: No information available

Upper/lower explosive limits[%(v/v)]: Upper limit: No information available; Lower limit: No information available

Vapor Pressure (KPa): Not applicable

Relative Vapour Density(Air = 1): 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

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	Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Ultrafine powder will self-ignite in the air at room temperature.
Conditions to Avoid	Incompatible materials, heat, flame and spark.
Incompatible Materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous Decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> Acute Toxicity

Component	CAS No.	LD_{50}(Oral)	LD_{50}(Dermal)	LC_{50}(Inhalation, 4h)
Polyacrylic acid	9003-01-4	2500mg/kg(Rat)	No information available	No information available
Carbon black	1333-86-4	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	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	15365-14-17	Lithium Iron Phosphate	Not Listed	Not Listed
2	7782-42-5	Graphite	Not Listed	Not Listed
3	7440-50-8	Copper	Not Listed	Not Listed
4	7429-90-5	Aluminium	Not Listed	Not Listed
5	24937-79-9	Poly(vinylidene difluoride)	Not Listed	Not Listed
6	1333-86-4	Carbon black	Category 2B	Not Listed
7	9003-01-4	Polyacrylic acid	Category 3	Not Listed
8	21324-40-3	Lithium hexafluorophosphate	Not Listed	Not Listed
9	7440-02-0	Nickel	Category 2B	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
Copper	7440-50-8	LC_{50}: 0.665mg/L (96h)(Fish)	EC_{50}: 0.02mg/L (48h)	ErC_{50}: 7.9mg/L (96h)
Aluminium	7429-90-5	LC_{50}: 1.55mg/L (96h)(Fish)	No information available	No information available
Nickel	7440-02-0	LC_{50}: 40mg/L (96h)(Fish)	EC_{50}: 1mg/L (48h)	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	Lithium Iron Phosphate 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. Copper does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Aluminium does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Poly(vinylidene difluoride) does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Carbon black does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII. Polyacrylic acid 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. Nickel 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	LITHIUM ION 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

> International Chemical Inventory

Section 15 Regulatory Information

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Lithium Iron Phosphate	×	×	×	×	×	×	×	×	×
Graphite	√	√	√	√	√	√	√	√	×
Copper	√	√	√	√	√	√	√	√	×
Aluminium	√	√	√	√	√	√	√	√	×
Poly(vinylidene difluoride)	×	√	√	√	√	√	√	√	√
Carbon black	√	√	√	√	√	√	√	√	×
Polyacrylic acid	×	√	√	√	√	√	×	√	√
Lithium hexafluorophosphate	√	√	×	√	×	√	√	√	×
Nickel	√	√	√	√	√	√	√	√	×

【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 2019/09/04
Revision Date 2019/09/04
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 knowledge. 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 this 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.

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2. According to the demand of this SDS, DPTC requires the applicant to provide true and exact sample and data.
3. Information from applicant is the key of this Label, so the center will not respond for the wrong of applicant.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
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