

Safety Data Sheet

Issue Date: 13 Jun 2023

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Version: V01

SECTION 1. IDENTIFICATION

Product Identifier

Product Name: Power Battery 3.8
Power Battery 5.7
Power Battery 7.6
Power Battery 9.6
Power Battery 11.5

Models: Power Battery 3.8
Power Battery 5.7
Power Battery 7.6
Power Battery 9.6
Power Battery 11.5

Other Means of Identification

SDS #: SDS001
Synonyms: Lithium Iron Phosphate (LiFePO₄, LFP)
Proper Shipping Name (ADG Code): Lithium-ion Battery
UN/ID No: UN3480

Recommended Use of the Chemical and Restrictions on Use

Recommended Use Energy Storage; Battery Packs

Details of Manufacturer or Importer

Jiangsu RCT Power Energy Technology Co., Ltd
No.18, Ruipu Road
Suzhou Industrial Park
Pilot Free Trade Zone
Suzhou, Jiangsu, 215000, China.
RCT POWER ENERGY TECHNOLOGY (AUSTRALIA) PTY LTD
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Emergency Phone Number

Emergency Telephone +86-512-66830096
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SECTION 2. HAZARDS IDENTIFICATION

Hazard class and label elements of the product according to GHS (the ninth 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.9 (2021) Part 1.3.2.1.1]

GHS Label Elements and Hazard Statements

No signal word, pictograms, and hazard statements.

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 [↵]	CAS No. [↵]	EC No. [↵]	Concentration [↵] (weight percent, %) [↵]
Lithium iron phosphate [↵]	15365-14-7 [↵]	476-700-9 [↵]	37.3 [↵]
Graphite [↵]	7782-42-5 [↵]	231-955-3 [↵]	19.3 [↵]
Lithium [↵] hexafluorophosphate [↵]	21324-40-3 [↵]	244-334-7 [↵]	
Polycarbonate [↵]	25037-45-0 [↵]		26.4 [↵]
Ethyl methyl carbonate [↵]	623-53-0 [↵]	433-480-9 [↵]	
Diethyl carbonate [↵]	105-58-8 [↵]	203-311-1 [↵]	
Aluminum ₄ [↵]	7429-90-5 [↵]	231-072-3 [↵]	4.4 [↵]
Copper [↵]	7440-50-8 [↵]	231-159-6 [↵]	8.8 [↵]
1-Propene, homopolymer	9003-07-0 [↵]		3.8 [↵]

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 physician 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

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 Need

1. Treat symptomatically
2. Symptoms may be 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.

Special 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 MEASURES**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 drysand 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 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 ²
Graphite 7782-42-5	USA-OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-
Aluminum 7429-90-5	USA-OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-

	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-
Copper 7440-50-8	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02

Biological Limit Values

Component	Source	Biological monitoring index	Biological limits value	Sampling time
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 3002 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 Protective Equipment (PPE):

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: Lithium ion battery, individually packaged battery parameters: 76.8V 25Ah 1.92KWh

Odor Threshold: No information available

Melting Point/Freezing Point (°C): No information available

Flash Point (°C) (Closed Cup): Not applicable

Flammability: No information available

Vapor Pressure (KPa): Not applicable

Relative Density (Water=1): No information available

n-Octanol/Water Partition Coefficient: No information available

Decomposition Temperature (°C): No information available

Particle characteristics: No information available

Odor: No information available

pH: No information available

Initial Boiling Point and Boiling Range (°C): 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 (°C): No information available

Kinematic Viscosity(mm²/s): Not applicable

Critical Temperature (°C): 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.

Ultrafine powder will self-ignite in the air at room temperature. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire.

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. Oxidants, halogen, interhalogen and mercury. Halogen, interhalogen, strong oxidant, water and acids.

Hazardous Decomposition products

Under normal conditions of storage and use, hazardous decomposition product, should not be produced.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component	CAS No.	LD ₅₀ (Oral)	LD ₅₀ (Dermal)	LC ₅₀ (Inhalation,4h)
Aluminum	7429-90-5	50-300mg/kg(Rat)	275mg/kg(Rat)	No information available
Lithium hexafluorophosphate	21324-40-3	50~300mg/kg(Rat)	275mg/kg(Rat)	No information available
Diethyl carbonate	105-58-8	10000mg/kg(Rat)	>3000mg/kg(Rabbit)	No information available
1-Propene, homopolymer	9003-07-0	>15400mg/kg(Rat)	>3000mg/kg(Rabbit)	No information available
Ethyl methyl carbonate	623-53-0	695mg/kg(Rat)	>20000mg/kg(Rabbit)	47.702mg/L(Rat)

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	7782-42-5	Graphite	Not Listed	Not Listed
3	21324-40-3	Lithium hexafluorophosphate	Not Listed	Not Listed
4	25037-45-0	Polycarbonate	Category 3	Not Listed
5	623-53-0	Ethyl methyl carbonate	Not Listed	Not Listed
6	105-58-8	Diethyl carbonate	Not Listed	Not Listed
7	7429-90-5	Aluminum	Not Listed	Not Listed
8	7440-50-8	Copper	Not Listed	Not Listed
9	9003-07-0	1-Propene, homopolymer	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

Ecotoxicity

Component	CAS No.	Fish	Crustaceans	Algae
Aluminum	7429-90-5	LCso:1.55mg/L (96h)(Fish)	No information available	No information available
Copper	7440-50-8	LCso:0.665mg/L (96h)(Fish)	ECso:0.02mg/L(48h)	ErCso:7.9mg/L(96h)

Chronic Aquatic Toxicity

No information available

Others

Persistence and Degradability: No information available

Bioaccumulative: No information available

Potential Mobility in soil:

No information available.

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.

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

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

Results of PBT and vPvB Assessment:

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

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

Aluminum 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.

1-Propene, homopolymer 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.

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 Waste chemicals and Contaminated packaging.

SECTION 14. TRANSPORT INFORMATION

Transporting Label



Marine pollutant No
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 I performance level.

SECTION 15. REGULATORY INFORMATION

Internal Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Lithium iron phosphate	✓	✓	✓	✗	✗	✗	✓	✗	✗
Graphite	✓	✓	✓	✓	✓	✓	✓	✓	✗
Lithium hexafluorophosphate	✓	✓	✗	✓	✗	✓	✓	✓	✗
Polycarbonate	✗	✓	✓	✓	✓	✓	✓	✓	✗
Ethyl methyl carbonate	✓	✓	✗	✓	✗	✓	✓	✗	✓
Diethyl carbonate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aluminum	✓	✓	✓	✓	✓	✓	✓	✓	✗
Copper	✓	✓	✓	✓	✓	✓	✓	✓	✗
1-Propene homopolymer	✗	✓	✓	✓	✓	✓	✓	✓	✓

- [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

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