Shanghai PYTES Energy Co., LTD

Add.	No.3492 Jinqian Road, Fengxian District, Shanghai, China	P.C	20220120
TEL	021-57475847	FAX	021-57475827

MATERLAL SAFETY DATA SHEET

Issue date:2022-01-20 Rev: A.1

MSDS REF. NO.: 20220120

LITHIUM-ION RECHARGEABLE BATTERY

MATERIAL SAFETY DATA SHEET

IDENTITY	Product Category	:	Rechargeable Li-ion Battery Pack
	Model Name	:	1584-1731
	Brand	:	PYTES
	Nominal Capacity	:	0.85 Ah
	Nominal Voltage	:	3.6 V
	Watt-hour	:	3.06 W/hr
	Chemical System	:	Lithium-Ion (Li-ion)
	Desigened for Recharge	:	☒ Yes ☐ No

SECTION 1 MANUFACTURER'S INFORMATION

Manufacturer's Name	:	Shanghai PYTES Energy Co., LTD
Supplier's Name	:	Shanghai PYTES Energy Co., LTD
Supplier's Address	:	No.3492,Jinqian Road, Fengxian District, Shanghai, China
Information Telephone	:	+ 0086（21）5747-5847
Emergency Telephone	:	+ 0086（0）150-2102-7280
Date Prepared	:	2022/01/20

SECTION 2 MATERIAL AND INGREDIENTS INFORMATION

Battery Cell :

Important Note	:	The battery should not be opened or burned since the following ingredients contained within the product that could be harmful under some circumstance if exposed or misuse. The battery contains neither metallic lithium nor lithium alloy.
Cathode	:	Based on lithiated metal oxide (Cobalt, Nickel, Manganese)
Anode	:	Based on intercalation graphite
Electrolyte	:	Organic Solvent (gel type electrolyte)
Others	:	Heavy metals such as Mercury, Cadmium, Lead, and Chromium are not used in the batteries.

Hazardous Components (Specific Chemical Identity; Common Name(s))	%	CAS Number	LD50(mg/kg) (oral-rat)	LC (mg/L)
Cobalt lithium manganese nickel oxide	30-45w/w	182442-95-1	N/A	N/A
Graphite Powder	15-25 w/w	7782-42-5	440 (ivn-mouse)	N/A
Lithium hexafluorophosphate（$LiPF_6$）	1-3 w/w	21324-40-3	1702	Rat：＞20
Poly (vinylidene fluoride) (PVDF)	0.1 -2 w/w	24937-79-9	N/A	N/A
Aluminum foil	2-8 w/w	7429-90-5	N/A	N/A
Copper foil	5-10 w/w	7440-50-8	3.5(ipr-mouse)	N/A
Carbon black and others	0.5 -2 w/w	1333-86-4	N/A	N/A
Steel, nickel and inert polymer	0.5 -5 w/w	9003-55-8	N/A	N/A

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Circuit Module :

HAZARDOUS INGREDIENTS	%	CAS number
Lead	<0.1	7439-92-1
Mercury	0	7439-97-6
Chromium	0	7440-47-3
Cadmium	0	7440-43-9

Plastic Parts :

HAZARDOUS INGREDIENTS	%	CAS number
Lead	<0.01	7439-92-1
Nickel	<0.1	7440-02-0
CFCs	0	75-69-4
Polychlorinated Biphenyls	0	1336-36-3

SECTION 3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY
Skin contact, Skin absorption, Eye contact, Inhalation, and Ingestion : NO SYMPTOMS OF EXPOSURE
Skin contact: No effect under routine handling and use.
Skin absorption: No effect under routine handling and use.
Eye contact: No effect under routine handling and use.
Inhalation: No effect under routine handling and use.
REPORTED AS CARCINOGEN : Not applicable

SECTION 4 FIRST-AID MEASURES

Internal cell materials of an opened battery cell

- Inhalation :
  Make the victim blow his/her nose, gargle. Seek medical attention if necessary.
- Skin contact :
  Remove contaminated clothes and shoes immediately. Wash the adhere or contact region with soap and plenty of water immediately.
- Eye contact :
  Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and internal cell materials of an opened battery cell

- Ingestion :
  Induce vomiting. When it is impossible or the feeling is not well after vomiting, seek medical attention.

ECTION 5 FIRE-FIGHTING MEASURE

- Suitable extinguishing media : Pouring water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.
- Specific hazards : Corrosive gas may be emitted during fire.
- Specific methods of fire-fighting : When the battery burns with other combustibles simultaneously, take fire extinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.
- Special protective equipment for firefighters :
  Respiratory protection : Respiratory equipment of a gas cylinder style or protection-against-dust mask
  Hand protection : Protective gloves
  Eye protection : Goggle or protective glasses designed to protect against liquid splashes
  Skin and body protection : Protective cloth

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SECTION 6 ACCIDENTAL RELEASE MEASURES

Internal cell materials, such as electrolyte leaked from battery cell, are carefully dealt with according to the followings.

- Personal precautions :
  Remove leaked materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as much as possible. Moreover, avoid touching with as much as possible.
- Environmental precautions : Do not throw out into the environment.
- Method of cleaning up : The leaked solid is moved to a container. The leaked place is wiped off with dry cloth.

Prevention of secondary hazards : Avoid re-scattering. Do not bring the collected materials close to fire.

SECTION 7 PERCAUTIONS FOR SAFE HANDLING AND USE

Storage	:	Store in a cool, well-ventilated area. Do not expose to high temperature（60℃）. Since short circuit can cause burn hazard or safety vent to open, do not store with metal jewelry, metal covered tables, or metal belt.
Handling	:	Do not disassemble, crush or solder. Do not short + and – terminals with a metal. Do not open the battery.
Charging	:	Charge within the limits of 0℃ to 45℃ temperature. Charge with specified charger designed for this battery.
Discharging	:	Discharge within the limits of -20℃ to 60℃ temperature.
Battery Energy Rate	:	The battery capacity at shipment is ≤30% of the full capacity.
Disposal	:	Dispose in accordance with applicable federal, state and local regulations.
Warning	:	Fire, Explosion, and Severe Burn Hazard. Do not Crush, Disassemble, Heat Above 100℃/212℉, or Incinerate.

SECTION 8 ECOLOGICAL INFORMATION

- Persistence/degradability :

Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

- Appearance
  Physical state : Solid
  Form : Cylindrical
  Color : Metallic color (without tube)
  Odor : No odor
- pH : NA
- Specific temperatures/temperature ranges at which changes in physical state occur.
  There is no useful information for the product as a mixture.
- Flash point : NA
- Explosion properties : NA
- Density : NA
- Solubility ,with indication of the solvent(s) : Insoluble in water
-

SECTION 10 STABILITY AND REACTIVITY

- Stability : Stable under normal use
- Hazardous reactions occurring under specific conditions
- Conditions to avoid : When a battery cell is exposed to an external short-circuit, crushes, modification, high temperature above 100 degree C, it will be the cause of heat generation and ignition. Direct sunlight and high humidity.
- Materials to avoid : Conductive materials, water, seawater, strong oxidizers and strong acids.
- Hazardous decomposition products : Acrid or harmful gas is emitted during fire.

SECTION 11 TOXICOLOGICAL INFORMATION

This product does not elicit toxicological properties during routine handling and use.

Sensitization: NO	Teratogenicity: NO	Reproductive toxicity: NO	Acute toxicity: NO

This product does not contain any kinds of the following substances and halogen-type flame retardants including Chlorine and Bromide type harmful flame retardants which are listed in Appendix of TCO documents and relevant international ECO requirements:

Polybromated Biphenyls (PBB)
Polybromated Biphenyl Ethers (PBBE)
Polybromated Biphenyl Oxides (PBBO)
Polybromated Diphenylethers (PBDE)
Polychlorinated Biphenyl (PCB)
Polychloronated Diphenylethers (PCDE)
Tetrabromphisphenol A (TBBPA)
Asbestos, Antimonytrioxide, Dioxine

None of the following substances will be exposed, leaked, or emitted during transportation, storage or any operation and any temperature condition:

Chlorinated Fluorohydrocarbon (FCKW)
Acrylonitride
Styrol
Phenol
Benzol
Mercury of greater than 0.0001 wt% for alkaline battery
Mercury of greater than 0.0005 wt% for other battery
Cadmium, lead, and other harmful heavy metal
Lithium ion batteries containing no more than 1.2g/cell and 46.8g/battery pack
Lithium ion cell, a watt-hour rating is not more than 8.2Wh and for lithium ion battery is not more than 320Wh

And will comply with the regulation of 51 CFR (DOT regulation), International Air Transport Association (IATA), and Deuche Forschungsgemeinschaft (DFG) regarding concentrations of emitted substances.
If the cells are opened through misuse or damage, discard immediately. Internal components of cell are irritants and sensitizers.

SECTION 12 ECOLOGICAL INFORMATION

Some materials within the cell are bioaccumulative. Under normal conditions, these materials are contained and pose no risk to persons or the surrounding environment.

SECTION 13 DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal :

Product(waste from residues)

Do not throw out a used battery cell. Recycle it through the recycling company.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

SECTION 14 Transport information

- UN Number : UN 3480
- Proper Shipping Name : LITHIUM ION BATTERY
- Hazard class : 9
- Packing group : IB
- The Li-ion battery are complied with Section IA of PI965 (63rd Edition - 2022).
- The consignment can be shipped as “Not Restricted” in accordance with the current edition-62nd of IATA-DGR-2022.
- With regard to air transport, the following regulations are cited and considered:
  - The International Civil Aviation Organization(ICAO) Technical Instructions.
  - The International Air transport Association (IATA) Dangerous Goods Regulations.
  - The International Maritime Dangerous Goods (IMDG) Code.
  - The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
  - The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT)
- Research and Special Programs Administration (RSPA)

SECTION 15 REGULATORY INFORMATION

Regulations specifically applicable to the product :

- The transport of the lithium batteries is regulated by the United Nations, “Model Regulations on Transport of Dangerous Goods”.
- Lithium batteries are subject to shipping requirements exceptions under 49 CFR 173.185(paragraph c).
- Shipping of Lithium batteries in aircrafts are regulated by the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) requirements in Special Provision “A48”.
- Shipping of lithium batteries on sea are regulated the International Maritime Dangerous Goods (IMDG) requirements of UN 3480.

  The internal component (thionyl chloride) is non-hazardous and under the criteria of the Federal OHSA Hazard Communication Standard 29 CFR 190.1200.

SECTION 16 SPECIAL PROTECTION INFORMATION

Respiratory Protection	:	Not necessary under normal use.
Ventilation	:	Not necessary under normal use.
Eye Protection	:	Not necessary under normal use.
Protective Gloves	:	Not necessary under normal use.