

MSDS

Report No.: PTCNQ06171211603C-EN01V02

Date: Jan. 03, 2018

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Applicant : Power System Electronic Technology Co., Ltd.
Address : No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China
Sample Name : Sherpa 15 Polymer lithium battery
Model : SP675372 - 3870
Manufacturer : Power System Electronic Technology Co., Ltd.
Address : No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China
Sample Received Date : Dec. 18, 2017
Completed Date : Jan. 03, 2018

Signed for and on Behalf of PTC



Raul Cheng / P & C Department General Manager
DongGuan Precise Testing and Certification Corp. Ltd.

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DongGuan Precise Testing and Certification Corp. Ltd. (PTC)
Building D, Baoding Technology Park, Guangming 2th Road, Guangming Community,
Dongcheng District, Dongguan, Guangdong, China
Tel: 86-769-38808222 Fax: 86-769-38826111 [http:// www.ptc-testing.com](http://www.ptc-testing.com)

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Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Identification

Product Name:	Sherpa 15 Polymer lithium battery
Model:	SP675372 - 3870
Applicant:	Power System Electronic Technology Co., Ltd.
Address:	No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China
Manufacturer:	Power System Electronic Technology Co., Ltd.
Address:	No.1 Shangbian Road, Puxin Industrial District, Shipai Town, Dongguan City, Guangdong, China
Capacity:	Typical Capacity: 3930mAh, Min. Capacity: 3870mAh
Open Circuit Voltage:	3.70~3.91V
Initial Internal Impedance:	Battery: $\leq 150\text{m}\Omega$
Voltage:	Nominal Voltage: 3.8V, Fully Charge (FC) Voltage: 4.35V, Fully Discharge (FD) Voltage: 3.0V, Charge Upper Limit Voltage: 4.40V, Discharge Lower Limit Voltage: 2.8V
Standard Charge Current:	0.5 C
Standard Charge Method:	0.5C CC (constant current) charge to FC Voltage, then CV (constant voltage) charge till charge current decline to 0.01C.
Charge Time:	Approx 3.5 hrs.
Standard Discharge Method:	Using 0.2C constant current discharge to FD Voltage.
Max. Charge Current:	0°C~15°C: 0.2C, 15°C~45°C: 0.65C
Max. Discharge Current:	- 20°C~15°C: 0.2C, 15°C~60°C: 1.03C

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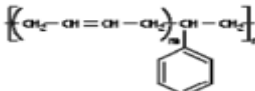
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Section 2 - Composition/Information on Ingredients

Chemical Composition	Molecular Formula	CAS NO.	Weight(%)
Lithium Cobalt Oxide	LiCoO ₂	12190-79-3	35~38%
Polyvinylidene Fluoride	(C ₂ H ₂ F ₂) _n	24937-79-9	0.5~2%
Aluminium	Al	7429-90-5	2~10%
Graphite	C	7782-42-5	23~25%
Styrene-Butadiene Rubber		9003-55-8	0%
Copper	Cu	7440-50-8	5~10%
Lithium Hexafluorophosphate	LiPF ₆	21324-40-3	4~10%
Polyethylene	(C ₂ H ₄) _n	9002-88-4	2~5%
Polypropylene	(C ₃ H ₆) _n	9003-07-0	1~3%
Electrolyte Carbonate	C ₃ H ₄ O ₃	96-49-1	8~10%
Others	N/A	---	3~7%
Lead	Pb	7439-92-1	0%

Section 3 –Hazards Summarizing

Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The rechargeable lithium-ion batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer. Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

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Section 4 - First-aid Measures

Eyes:	Irrigate thoroughly with water. Obtain medical attention.
Skin:	Drench the skin thoroughly with water. Remove contaminated clothing and wash before re-use. Unless contact has been slight, obtain medical attention.
Inhalation:	Remove from exposure, rest and keep warm. In severe cases, obtain medical attention.
Ingestion:	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

Section 5 - Fire Fighting Measures

There would be explosion in the case where significant quantities of lithium/manganese dioxide batteries have been involved in a fire. Applicable extinguishing media: CO₂ fire extinguisher, ABC dry powder extinguisher, sand, etc. Do not use water as extinguishing agent. Firemen should wear the air breathe machine, helmet, glasses, etc.

Section 6 - Accidental Release Measures

Do not breath vapours or touch liquid with bare hands. If the skin has come into contact with the electrolyte it should be washed thoroughly with water. Earth or sand should be used to absorb the exudation, Seal leaking battery and earth in a heavy-duty Polythene bag and dispose of as special waste.

Section 7 - Handling And Storage

Pack the batteries well, and avoid short circuit.
Never disassemble batteries.
Do not breathe cell vapors or touch internal material with bare hands.
Store batteries in cool well-ventilated area, keep out of direct sunlight.

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Section 8 - Exposure Controls/Personal Protection

External corrosion of the nickle can result in the formation of toxic metal salts. Avoid ingestion, Wash hands after contact.

Section 9 - Physical and Chemical Properties

This battery is solid state, and inodorous. The other items are not applicable.

Section 10 - Stability and Reactivity

Hazardous materials are housed within a sealed unit, under normal conditions this unit is stable and non-hazardous.

Lithium will react with water and produce flammable gas if the seal of battery is damaged.

Section 11 - Toxicological Information

Lithium will react with water and produce flammable gas if the seal of battery is damaged.

Section 12 - Ecological Information

Not Applicable.

Section 13 - Disposal

Do not incinerate or subject cells to temperature in excess of 80°C. Dispose of in accordance with local regulations.

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Section 14 - Transport Information

All lithium, lithium ion and lithium polymer cells and batteries must be tested in accordance with the "UN Manual of Tests and Criteria, Part III, Subsection 38.3 2017.

The 58th edition of the IATA Dangerous Goods Regulations incorporates all amendments made by the ICAO Dangerous Goods Panel in developing the content of the 2017-2018 edition of the ICAO Technical Instructions as well as changes adopted by the IATA Dangerous Goods Board. The following list is intended to assist the user to identify the main changes introduced in this edition and must not be considered an exhaustive listing. The changes have been prefaced by the section or subsection in which the change occurs.

UN3480, PACKING INSTRUCTION 965, Lithium Ion Batteries

UN3481, PACKING INSTRUCTION 966, Lithium Ion Batteries packed with equipment

UN3481, PACKING INSTRUCTION 967 Lithium Ion Batteries contained in equipment

Cells and batteries must be packed in inner packaging that completely encloses the cell or battery.

Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit.

Each consignment must be accompanied with a document such as an air waybill with an indication that:

- the package contains lithium ion cells or batteries;
- the package must be handled with care, and that a flammability hazard exists if the package is damaged;
- special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary; and
- a telephone number for additional information.

Each package must be labelled with a lithium battery handling label;

Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities.

Section 15 - Regulatory Information

Special requirement be according to the local regulations.

《Dangerous Goods Regulations》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《Classification and code of dangerous goods 》

《Occupational Safety and Health Act 》 (OSHA)

《Toxic Substance Control Act》 (TSCA)

《Consumer Product Safety Act 》 (CPSA)

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- 《Federal Environmental Pollution Control Act》 (FEPCA)
- 《The Oil Pollution Act》 (OPA)
- 《Superfund Amendments and Reauthorization Act TitleIII(302/311/312/313) 》 (SARA)
- 《Resource Conservation and Recovery Act》 (RCRA)
- 《Safety Drinking Water Act》 (CWA)
- 《California Proposition 65》
- 《Code of Federal Regulations》 (CFR)

Section 16 - Other Information

Note:	<p>This Sheet is provided as technical information only. The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Dongguan Precise Testing Service Co. Ltd. makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.</p> <p>This report instead of the original report PTCNQ06171211603C-EN01V01, and cancel the original report PTCNQ06171211603C-EN01V01.</p>
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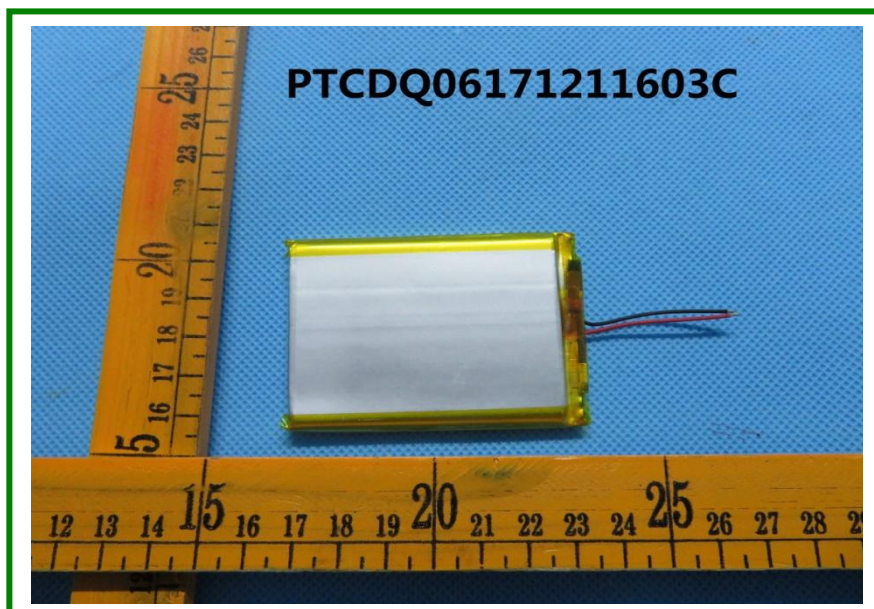
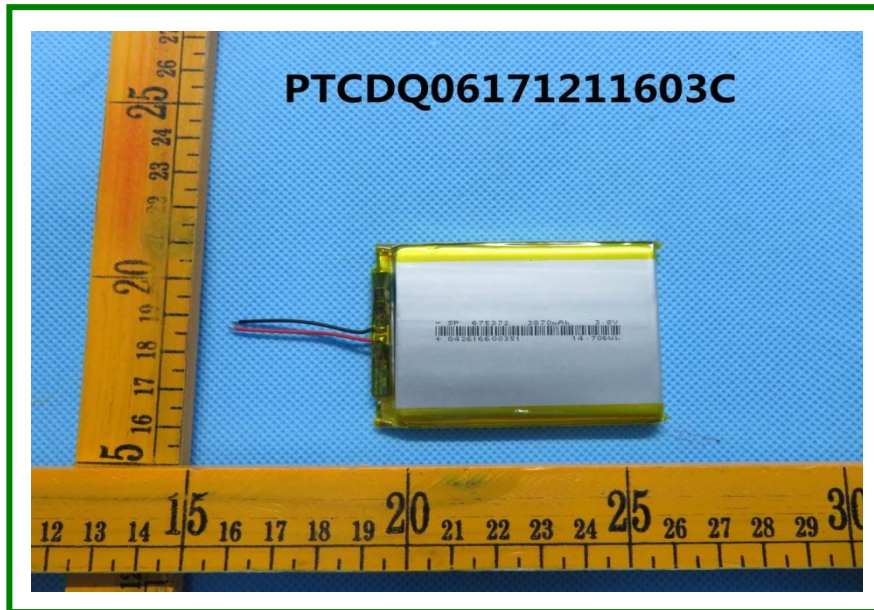
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Photo(s) of Sample:



End of MSDS

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