MATERIAL SAFETY DATA SHEET

Product Name: Lithium Polymer Battery

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Polymer Lithium Battery / Li-Polymer Battery

Applicable Model/Size: All

2. COMPOSITION/INFORMATION ON INGEREDIENTS

Ingredient Name	CAS No	Concentration	Einecs
Lithium Cobalt(III) Oxide	12190-79-3	50%	235-362-0
Graphite	7782-42-5	10%	231-955-3
Polypropylene	9003-07-0	5%	NA
Polyvinylidene fluoride	24937-79-9	2%	NA
Polyethylene	9002-88-4	5%	NA
Sodium carboxymethyl cellulose	9004-32-4	0.5%	NA
Lithium hexafluorophosphate	21324-40-3	5%	244-334-7
Ethylene carbonate	96-49-1	5%	202-510-0
Dimethyl carbonate	616-38-6	5%	210-478-4
Nickel	7440-02-0	2.5%	231-159-6
Copper	7440-50-8	5%	231-159-6
Aluminum	7429-90-5	5%	231-072-3

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3. Independent Certificate of Li-Polymer Battery UN Transportation Model Regulation

No	Test Item	Criteria	Result	Remark
T1	Altitude simulation	No mass loss, leakage, venting, disassembly, rupture and fire. OCV should not be less than 90% before testing	Passed	
T2	Thermal Test	No mass loss, leakage, venting, disassembly, rupture and fire. OCV should not be less than 90% before testing	Passed	
T3	Vibration	No mass loss, leakage, venting, disassembly, rupture and fire. OCV should not be less than 90% before testing	Passed	
T4	Shock	No mass loss, leakage, venting, disassembly, rupture and fire. OCV should not be less than 91% before testing	Passed	
T5	External Short Circuit	External temperature should be exceed 170 degC. No disassembly, rupture and fire within six hours of this test.	Passed	
T6	Impact	External temperature should be exceed 170 degC. No disassembly, rupture and fire within six hours of this test.	Passed	
T7	Overcharge	No disassembly and fire within seven days of this test	Passed	Battery Only
T8	Forced Discharge	No disassembly and fire within seven days of this test	Passed	

4. HAZAROUS IDENTIFICATION

All chemical materials of lithium ion battery cell are stored in a hermetically sealed metal case, designed to withstand temperature and pressures encountered during normal use. There is no physical danger of ignition or explosion and chemical danger of hazardous materials leakage during normal use. However, if exposed to a fire, added mechanical shocks, decomposed, added electronic stress by miss-use, the gas release vent will be operated and hazardous may be released. Handle with care. 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. The consignment does not contain any recalled and/or defective batteries.

Potential Health Effects:

Cobalt and Cobalt compounds are considered to be possible human carcinogen(s). These chemicals may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system.

Since electrolyte is flammable liquid, it does not bring close to fire. It may cause moderate to serve eye irritation, dryness of the skin. Breathing of its mist, vapor or fume may irritate nose, throat and lungs. Exposure of electrolyte material in the area which contains water may generate hydrofluoric acid, which can cause immediate burns on skin, severe eye burn. The ingestion of electrolyte can cause serious chemical burns of mouth, esophagus and gastrointestinal tract.

5. FIRST-AID MEASURES

Eyes: Flush with water for at least 15 minutes. If irritation occurs and persists, contact a medical doctor.

Skin: Remove contaminated clothing and thoroughly wash with soap and plenty of ware. If irritation persists, contact a medical doctor.

Inhalation: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, see a medical doctor. If breathing has stopped, give artificial respiration and see a medical doctor IMMEDIATELY.

6. FIRE-FIGHTING MEASURE

Hazardous Combustion Products: When burned, hazardous products of combustion including fume of carbon monoxide, carbon dioxide, and fluorine can occur. Extinguishing Media: Water, carbon dioxide, dry chemical or foam.

Basic Fire Fighting Procedures: Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual Fire &Explosion Hazardous: This material does not represent an unusual fire or explosion hazardous.

Flash Point: 65C (CC)(149F) Autolgnition Temperature: No date

Flammability Limits in Air, Lower, % by volume: 1.4

Flammability in Air, Upper, % by volume: 11

7. ACCIDENTAL RELEASE MEASURES

Procedure for Release and spill: Sweep up and place in a suitable container, dispose or waste according to all local, state and Federal Laws and Regulations.

Before cleanup measures begin, review the entire MSDS with particular attention Potential Health Effects; and on Recommended Personal Protective Equipment.

8. HANDLING AND STORAGE

Handling: Specific safe handling advice: Never throw our cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material.

Storage conditions (suitable, to be avoided): Do not place the battery cell near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in shortened battery cell life and degrade performance.

Store in cool place: temperature: -20-45C, humidity: 45-75%

Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids. Packing material (recommend, not suitable): Isolative and tear proof materials are.

9. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Engineering controls: Investigate techniques to reduce exposures use with adequate ventilation and recommended personal protective equipments.

Eye protection: Minimize skin contamination by following good industrial hygiene pratices. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling. Respiratory protection: Avoid breathing dust and processing vapors. When adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic dusts.

Special clothing: Robber gloves.

10. HYSICA DATE Physical state: Solid Form: Geometric solid

Color: Metallic color (without outer PVC cover)

PH: Not applicable

Flash point: Not applicable

Explosion properties: Not applicable

Density: Not applicable

Solubility: Not soluble

11. STABILITY AND REACTIVITY

Hazardous reactions may occur under some 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. Avoid to be exposed to 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.

12. TOXICOLOGICAL INFORMATION

Eco Toxicological information: No information available.

Local environmental Effects: Unknown.

Since some internal materials remain in the environment, do not bury or throw out into the environment.

13. DISPOSAL INFORMATION

Waste disposal must be in accordance with the applicable regulations. Disposal of the lithium ion battery cells should be performed by permitted, professional disposal page: firms knowledgeable in state or local requirements of hazardous waste treatment and hazardous waste transportation. Incineration should never be performed by battery but users, eventually by trained professional in authorized facility with proper gas and fume treatment.

14. TRANSPORTATION/SHIPPING INFORMATION

Shipper or manufacturer or fully comply with the requirements of UN Manual of Tests and Criteria Part III, subsection 38.3.

US DOT, All Tenergy batteries are not subject to the requirements of the Department of battery meets the exceptions under 173.185(b). The Tenergy batteries are exempted from the US DOT regulations as long as they are separated to prevent short circuits and packed in strong packing for condition normally encountered in transportation.

ICAO and IATA, All Tenergy batteries are regulated as hazardous material by the international civil aviation origination (ICAO) and the international Air transportation association (IATA) when transporting more than 24 batteries or 12 batteries in a single package. They must be transported according to the requirement of “Comply with Section II of PI965"

IMO, All Tenergy batteries are regulated as hazardous material by the international maritime organization (IMO) when transporting more than 24 batteries or 12 batteries in a single package. These must be transported according to the requirement in special provision “188” and “230”.

ADR, RID, all Tenergy batteries are regulated as hazardous material by the ADR(road) and RID(rail) when transporting more than 24 batteries or 12 batteries in a single package. These must be transported according to the requirement in special provision “188” and “230”.

BUILDING OF NEW BATTERY PACK—if you build any of Tenergy lithium batteries into battery pack, you must assure that they are being tested in accordance with the UN Model Regulation, Manual of Test and Criteria, part III, subsection 38.3.

15. REGULATION INFORMATION

1. The transportation of the lithium-ion batteries is regulated by various bodies(IATA, IMO, ADR, US-DOT) that follows the united nations” Recommendation on the transportation of dangerous goods, model regulation, 2010 IATA 51ST EDITION.

2. Lithium batteries and cells in aircrafts are subjected to shipping requirements exceptions under 49 CFR 173.185.

3. Shipping of lithium batteries in aircrafts are regulated by the international civil aviation organization(ICAO) and the international air transportation(IATA) requirements in special provision “ PI965”. The shipment contains of PI965 including the passing of the UN38.3 test and the reference number. The lithium battery is complied with IATA-DGR; special provision A123.

4. Shipping of lithium batteries on sea are regulated the international maritime dangerous goods (IMDG) requirements of UN3480(Lithium Ion Batteries).

5. Cobalt compounds supposed hazardous and subjected to reporting requirements of section 313 of title 1:1 of the suspended are amendments and reauthorization act of 1986(SARA) and 40 CFR part 372.

6. Packing Instruction has the shipment comply with section II off PI965. The consignment does not contain any recalled and/or defective batteries

16. OTHER INFORMATION

The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Tenergy makes no warranty expressed or implied with respect to lithium content information is available from Tenergy on request.

For more information, please contact Tenergy Corporation:

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Remark: The batteries are safe for transportation, and it is advised to use dry power powder fire extinguisher in case of explosion or inflammation.