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Safety Data Sheet

(Safety Data Sheet LiPO MSDS Transportation, Date of Issue: **1-Jan. 2021)**

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1. Product and Company Identification

[Product]
1.1 Product Name: Lithium-ion Polymer Battery
1.2 System: Rechargeable Lithium-ion Polymer batteries
(IP604480-2P 3.7V 5400mAh, 20.0Wh)
[Comapny]
1.3 Company Name: RPC Corporation
1.4 Company Address: 17F-5, No. 716, Zhongzheng Rd., Zhonghe District, New Taipei City, Taiwan, R.O.C
1.5 Emergency Telephone Number: +886 2 8227 8799

2. Hazards Identification

The batteries herein are defined as “articles” under 29 CFR 1910.1200, and are not subject to OSHA’s requirements for material safety data sheets under its Hazard Communication Standard, 29 CFR 1910.1200. The batteries are not classified as hazardous according to Regulation (EC) No. 1272/2008.
The battery ingredients are contained in a sealed enclosure. Therefore, it is not classified as dangerous or hazardous under normal use. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of dismantling the enclosure. If this occurs, exposure to the electrolyte solution within can occur by Inhalation, Ingestion, Eye contact and Skin contact. Damaged or opened cells or batteries may result in rapid heat release, and the release of flammable vapors.

3. Composition Information on Components

Some components are considered to be hazardous.

Component	Percent of Content	CAS No.	Classification & Hazard labeling
Lithium Cobalt Oxide	20-40%	12190-79-3	Eye, Skin, Respiratory irritant
Carbon, as Graphite	10-30%	7782-42-5	Eye, Skin, Respiratory irritant
Aluminum metal	5-15%	7429-90-5	Inert
Copper metal	5-15%	7440-50-8	Inert
Electrolyte	10-25%	21324-40-3	Mixture (flammable, reactive; sensitizer; eye, skin, respiratory irritant.)
Ethylene carbonate		96-49-1	
Dimethyl carbonate		616-38-6	
Ethyl methyl carbonate		623-53-0	
Li-hexafluorophosphate		21324-40-3	

The materials contained in the battery may only become a hazard if the battery or the cell is disintegrated or if the battery is physically or electrically abused.

4. First Aid Measures

In case of contacting the materials from a damaged or ruptured cell or battery:
Eye contact: Washing immediately with plenty of water and soap or for at least 15 minutes. Get medical attention.
Skin Contact: Washing immediately with water and soap.
Inhalation of Vented Gas: Remove to fresh air. Get medical attention.
Ingestion: Get medical attention immediately.

5. Fire Fighting Measures

Extinguishing Media: Dry chemicals (for small fire), large amount of water(for large fire).
Fire-Fighting Procedures:
Use self-contained breathing apparatus and protective clothing.
Unusual Fire and Explosion Hazards:
Toxic gases (HF, PF_6) will be formed if cells or battery are involved in a fire. Cells or battery may flame or leak potentially hazardous organic vapors if exposed to excessive heat, fire or over-voltage conditions. Damaged or opened cells or batteries may result in rapid heat and the release of flammable vapors.

6. Accidental release measures

The material contained within the batteries would only be expelled under abusive conditions.
Using shovel or broom, cover battery or spilled substances with dry sand or vermiculite, place in approved container (after cooling if necessary) and dispose in accordance with local regulations.

7. Handling And Storage

7.1 Do not store batteries in a manner that allows terminals to short circuit.
7.2 Do not place batteries near heating sources, nor exposed to direct sunlight for long periods.
Elevated temperatures can result in reduced battery service life.

7.3 Charging Battery

Use only approved chargers and procedures. Improperly charging a cell or battery may cause the cell or battery to flame or damage.

7.4 Battery Disassembly

Never disassemble a battery.
Should a battery unintentionally be crushed, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid inhalation of any vapors that may be emitted.

7.5 Battery Short Circuit

Do not short-circuit a battery. A short circuit can result in over-heating of the terminals and provide an ignition source.

More than a momentary short circuit will generally reduce the cell or battery service life and can lead to ignition of surrounding materials or materials within the cell or battery if the seal integrity is damaged.
Extended short-circuiting creates high temperature in the cell and at the terminals. Physical contact to high temperatures can cause skin burns. In addition, extended short-circuit may cause the cell or battery to flame.
Avoid reversing cell polarity within a battery assembly. Reversing cell polarity may cause the cell or battery toflame or to emit gases.

7.6 Mixed Batteries and Types

Avoid to use old and new cells or cells of different sizes; different chemistry or types in the same battery assembly.

8. Exposure Controls/Personal Protection

Respiratory protection : N*ot necessary under normal use.* In case of battery rupture, use self-contained full-face respiratory equipment.
Hand protection : *Not necessary under normal use.* Use Viton rubber gloves if handling a leaking or ruptured battery.
Eye protection : *Not necessary under normal use.* Wear safety goggles or glasses with side shields if handling a leaking or ruptured battery**.**
Skin protection : *Not necessary under normal use*. Use rubber apron and protective working in case of handling of a ruptured battery.

9. Physical and Chemical Properties

Appearance :	square shape.
Relative Density :	n/a
Odor :	if leaking, smell like ether.
pH :	not applicable as supplied
Flash Point :	not applicable unless individual components being exposed.
Flammability :	not applicable unless individual components being exposed.
Solubility (water) :	not applicable unless individual components being exposed.
Solubility (other) :	not applicable unless individual components being exposed.

10. Stability and Reactivity

Conditions to avoid : Heat above 70°C or incinerate. Do not deform, mutilate, crush, pierce, disassemble, or Short circuit the battery. Avoid prolonged exposure to humid conditions.
Materials to avoid : N/A.
Hazardous decomposition products : Corrosive/Irritant Hydrogen fluoride (HF) is produced in case of reaction of *lithium hexafluorophosphate(LiPF6)* with water. Combustible vapors and formation of Hydrogen fluoride (HF) and phosphorous oxides during fire.

11. Toxicological Information

The batteries do not contain toxic materials under normal conditions. In case of accidental release of content, refer to Section 2, 3, & 4 above.

12. Ecological Information

When properly used or disposed RPC rechargeable Li-Ion polymer batteries do not present environmental hazard.

13. Disposal Procedures

The batteries contain no toxic metals, only naturally occurring trace elements. To avoid short circuit and heating, the used batteries should not be stored or transported in bulk. It is advisable to consult with local authorities as disposal regulations may vary depending on location.

14. Transportation

The Lithium-ion Polymer cells and batteries are manufactured under Quality Management Program ISO 9001:2015 [assessed by Sira Certification Service (UK); Certificate No. 115010.], meeting the Provisions of 3.9.2.6(e).

This document refers to the Lithium-ion Polymer Cells of not more 20Whtt-hour and Batteries of not more than 100Whtt-hour. Cells or batteries are of the type proven to meet the requirements of each test in the UN Manual of Test and Criteria, Part III, Subsection 38.3. meeting the Provisions of 3.9.2.6(a).

The Lithium-ion cells and batteries are packaged as below:

1. the cells or batteries are designed to preclude a violent rupture upon transport accident [3.9.2.6(b)];

2. the cells or batteries are with individual package to avoid short-circuit [3.9.2.6(c)];

3. the batteries, in case with cells connected in parallel, would be equipped with effective means to prevent dangerous reverse current flow (e.g. diodes, fuses, etc.) [3.9.2.6(d)]

4. the export packing is marked with a Lithium-ion battery handling Label(and/or the Class 9 hazard label), and must be quarantined, inspected and repacked if damaged;

Subject to the Packing List information against individual shipping consignment, they are packaged in compliance with ONE of the followings :

The Section II of Packing Instruction (PI) 967 (under UN3481 Lithium-ion Batteries, contained in equipment) requirement of shipping as “Not Restricted” Dangerous Goods, per INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO) and the INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) DGR 62nd edition [2021].

They do not contain any prototype, heavy, recalled and/or defective batteries.

15. Regulation information

15.1 USA

TSCA Status : all ingredients in the battery are listed on the TSCA inventory.

15.2 EC Classification for the Substance/Preparation

The batteries are not classified as hazardous according to Regulation (EC) No. 1272/2008.
Keep out of the reach of children.

16. Other Information

The information contained herein is based on the data available to us and believed to be correct. However, RPC Corporation makes no warranty, expressed or implied. Users should consider the data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.