

MSDS

Report No.: PTC18012606102C-EN01

Date: Feb. 01 , 2018

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Applicant : Zhengzhou Yuelong Electronic Technology CO.,LTD
Address : Room 1013, Incubation building1,N0.11 Changchun road,High-tech Zone,
Zhengzhou
Sample Name : Lithium Metal Battery
Model No. : CR2032 3.0V
Manufacturer : Zhengzhou Yuelong Electronic Technology CO.,LTD
Address : Room 1013, Incubation building1,N0.11 Changchun road,High-tech Zone,
Zhengzhou
Sample Received Date : Jan. 29, 2018
Completed Date : Feb. 01 , 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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Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Identification

Product Name:	Lithium Metal Battery
Model No.:	CR2032 3.0V
Applicant:	Zhengzhou Yuelong Electronic Technology CO.,LTD
Address:	Room 1013, Incubation building1,N0.11 Changchun road,High-tech Zone, Zhengzhou
Manufacturer:	Zhengzhou Yuelong Electronic Technology CO.,LTD
Address:	Room 1013, Incubation building1,N0.11 Changchun road,High-tech Zone, Zhengzhou
Nominal voltage:	3.0V
Nominal capacity:	200 mAh
Instantaneous short-circuit current:	≥300 mA
Off-load voltage:	≥3.20V

Section 2 - Composition/Information on Ingredients

Chemical Composition	CAS NO.	Weight(%)
Manganese Dioxide	1313-13-9	30
Graphite	7782-42-5	3
Lithium plate	7439-93-2	2
Electrolyte	--	8
Metal Casing	--	57

Section 3 –Hazards Summarizing

This contains lithium, organic solvent, and other combustible materials. For this reason, improper handling of the battery could lead to distortion, leakage*, overheating, explosion, or fire and cause human injury or equipment trouble. Please strictly observe safety instructions. (*leakage is defined as an unintended escape

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of liquid from a battery)

Section 4 - First-aid Measures

Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.
Inhalation	Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.
Skin	Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately
None unless internal materials exposure. If contents are leaked out, observe following instructions	

Section 5 - Fire Fighting Measures.

Extinguishing Media	Extinguisher of alkaline metal fire is effective. Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that lots of lithium batteries are burning in a confined space, use a smothering agent.
Fire fighting procedure	Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

Section 6 - Accidental Release Measures

Steps to Be Taken in Case Material is Released or Spilled:
Batteries that are leakage should be handled with rubber gloves.
Avoid direct contact with electrolyte.
Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

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Section 7 –Handling And Storage

Safe handling and storage advice:

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

The cells and batteries shall not be stored in high temperature ,the maximum temperature allowed is 60℃ for a short period during the shipment , Otherwise the cells maybe leakage and can result in shortened service life.

Section 8 - Exposure Controls/Personal Protection

Ventilation Requirements	Not necessary under normal conditions.
Respiratory Protection	Not necessary under normal conditions.
Eye Protection	Not necessary under normal conditions.
Gloves	Not necessary under normal conditions.

Section 9 - Physical and Chemical Properties

Appearance	solid state
Odour	odorlessness
Colour	Silvery
pH	Not applicable
Flash Point	Not applicable
Flammability	Not applicable
Relative density	Not applicable
Solubility (water)	Not applicable
Solubility (other)	Not applicable

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Section 10 - Stability and Reactivity

Stability	Product is stable under conditions described in Section 7.
Conditions to avoid	Heat above 70°C or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions
Hazardous Decomposition Products	Toxic Fumes, and may form peroxides.
Hazardous Polymerization	N/A.

Section 11 - Toxicological Information

Signs & symptoms	None, unless battery ruptures. In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.
Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to server irritation, burning and dryness of the skin may occur, Target organs nerves, liver and kidneys.	

Section 12 - Ecological Information

Issues such as ecotoxicity, persistence and bioaccumulation are not applicable for articles.

Section 13 - Disposal

Dispose of in accordance with all applicable federal, state and local regulations. Appropriate disposal technologies include incineration and land filling.

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Section 14 - Transport Information

All PD lithium coin cell (Lithium Metal Battery) shown in this MSDS comply to the necessary requirements under the UN Recommendations on the Transport of Dangerous Goods Model Regulations and UN Manual of Tests and Criteria as referenced in the following transportation regulations:

renced in the following transportation regulations: 1. UN Recommendation on the Transport of Dangerous Goods Model Regulations 2. U.S. Department of Transportation hazardous materials regulations (HMR) 3. International Civil Aviation Organization (ICAO) Technical Instruction, 4. International Air Transport Association (IATA) Dangerous Goods Regulations, Partially Regulated DG section II of PI 968 and 5. International Maritime Dangerous Goods (IMDG) Code. Special Provision 188, Special Provision 230 & Special Provision 903

PD lithium batteries are exempted from these regulations since they meet all UN Testing requirements and not exceed 1g lithium equivalent for single cell and 2 g lithium equivalent for battery. (UN3090) Non-dangerous Goods.

All PD lithium batteries (Lithium Metal Battery) packaging complies with Partially regulated DG section II of PI 968.

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)

《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)

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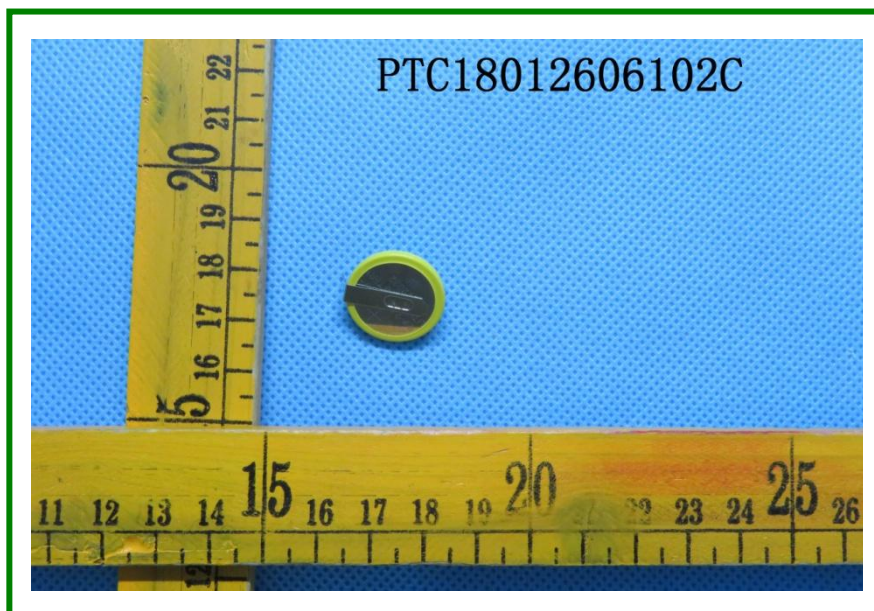
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Section 16 - Other Information

Note:	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.
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Photo(s) of Sample:



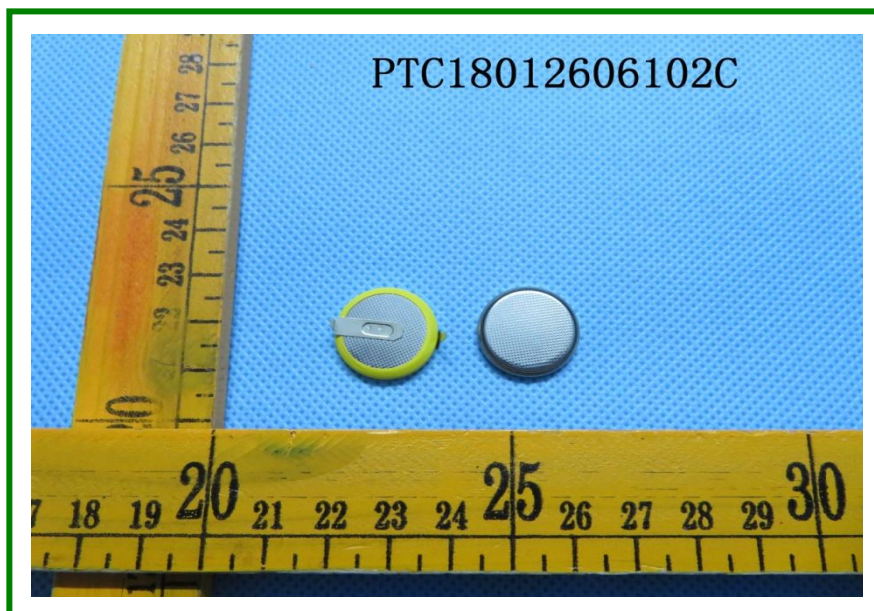
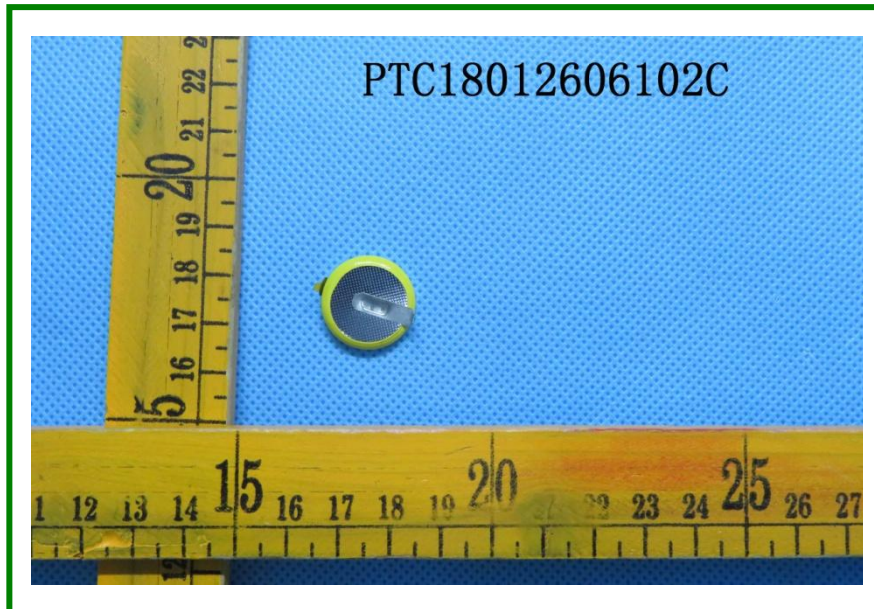
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