

Shanghai Bizupwings I&E Foreign Trade Co.Ltd.

CR Coin Battery Proposal





- Top 3 CR coin Batteries Manufacturer in the world
- 28 years of focus on CR coin battery
- 0.79%: 2021 Chaochuang average customer complaints quality level



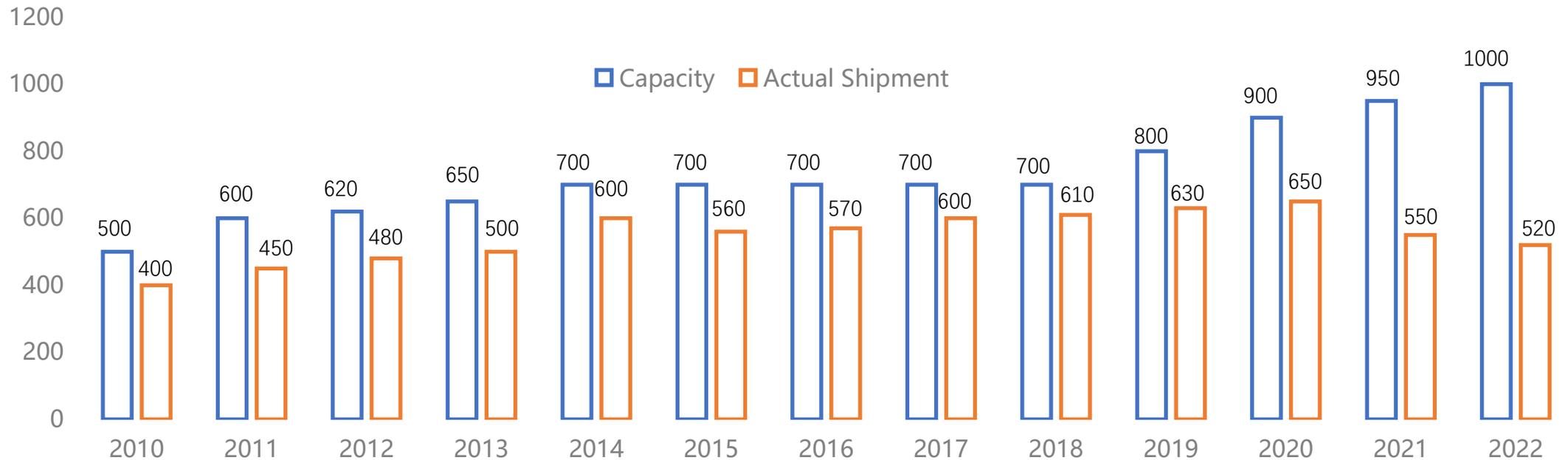
- CR coin Batteries Actual Production Capacity: totally 1 billion pcs/year
- 350 employees



- Covers all CR coin cell battery models
- Supports industrial and retail packaging

1 billion/year capacity, TOP 2 CR Coin battery maker WW.

Capacity & Actual Shipment Unit: Million PCS



Product Lineup

- Self-developed dry automatic assembly line
- The most automated CR button battery assembly line in China

□ Maximum Production Speed 85pcs/min

□ CCD Visual Inspections [structure + appearance]

□ Positive MnO₂ Dry Process

□ Double Sealing Process

Model	Capacity /M	Product Lines
CR2032	50,000,000	19
CR2025	12,000,000	4
CR2016	9,000,000	4
CR3032, CR2477, CR2450, CR2430, CR2354, CR2330, CR2325, CR2320,	75,000,000	4
CR1632, CR1620, CR1616, CR1625,	35,000,000	3
CR1216, CR1220, CR1225	4,000,000	4
CR927, CR1025, CR1130	1,000,000	2
30 Models	87,000,000	40

Batteries performance

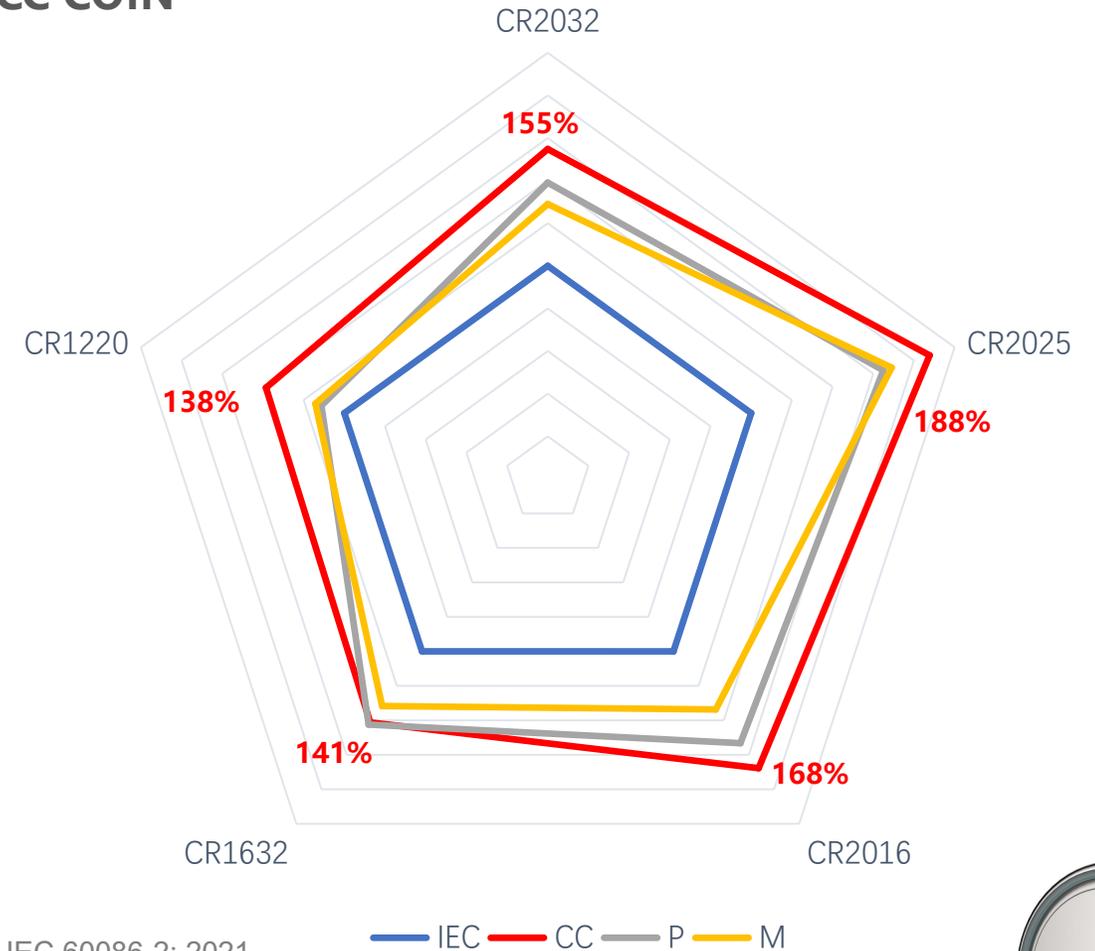
IEC standard Discharge



P COIN & M COIN VS CC COIN

Test environment: Temp 20°C RH 50%

Item	Test Method IEC 24h/d discharge, end- point voltage 2.0V (Unit: hour)	Discharge Test methods from IEC 60086-2: 2021			
		CC	P	M	IEC
CR2032	15kΩ 920	1424.3 (SH)	1279.4	1186.7	
CR2025	15kΩ 540	1013.7 (SH)	890.7	912.8	
CR2016	30kΩ 675	1132.2 (SH)	1034.4	902.4	
CR1632	15kΩ 540	762.7	769.3	711.3	
CR1220	62kΩ 700	969.4	779	799.6	



---Discharge Test methods from IEC 60086-2: 2021

— IEC — CC — P — M

* Data source: Chaochuang Quality Technology Department 2022
 * The test samples are the highest specification batteries available in the market



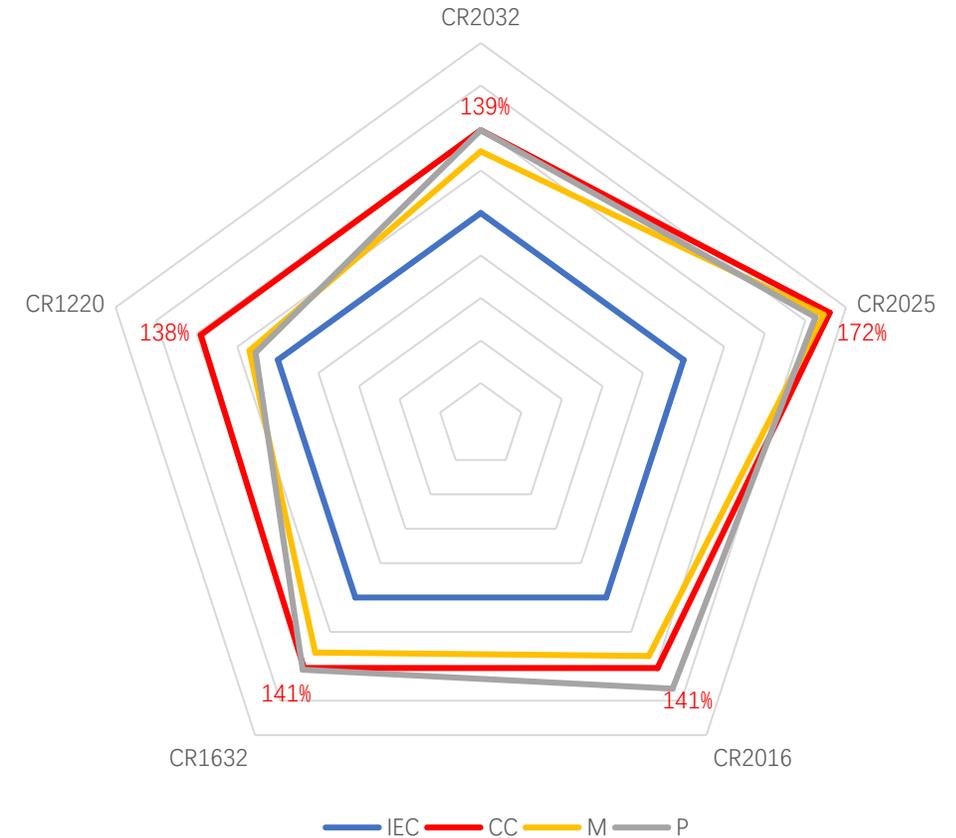
Batteries performance

IEC standard Discharge

P Cell & M Cell VS CC Cell

Test environment: Temp 20°C RH 50%

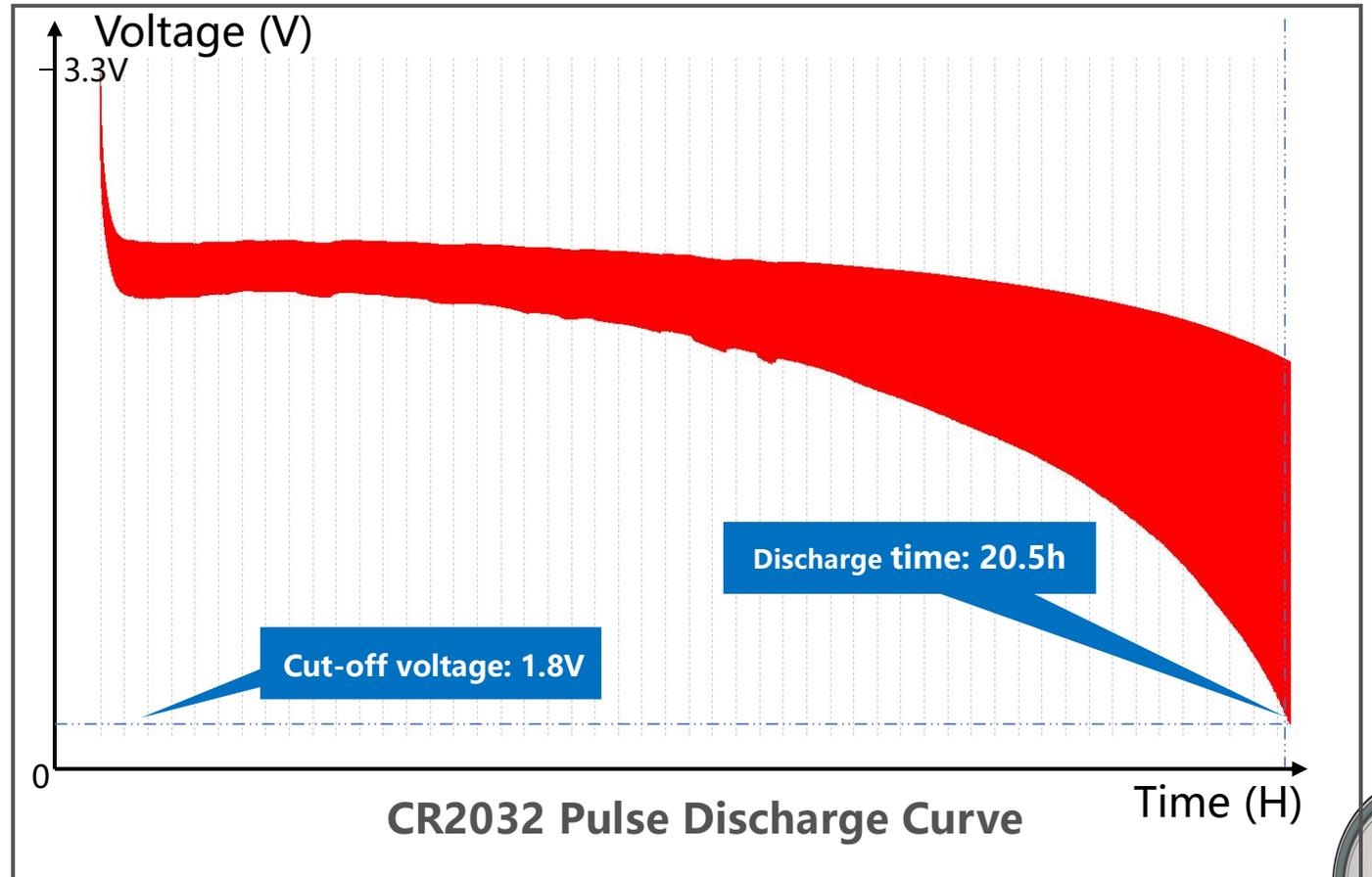
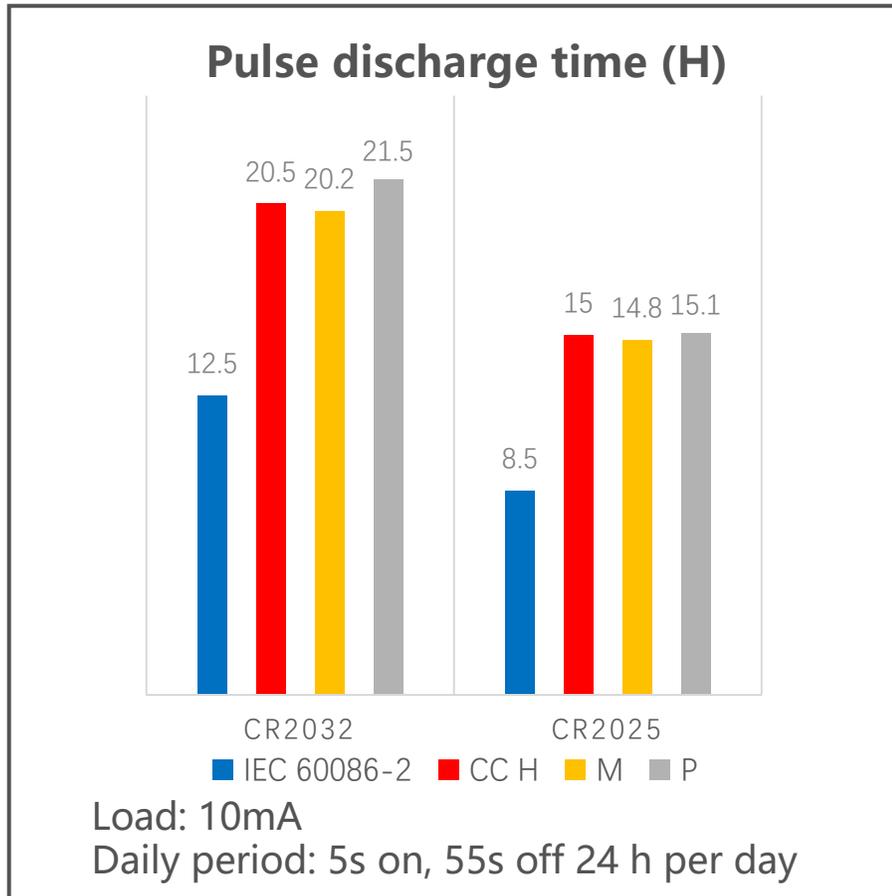
Item	Test Method IEC		CC	P	M
	24h/d discharge, end-point voltage 2.0V (Unit: hour)				
CR2032H	15kΩ	920	1279.5	1279.4	1186.7
CR2025H	15kΩ	540	926.5	890.7	912.8
CR2016	30kΩ	675	948.9	1034.4	902.4
CR1632	15kΩ	540	762.7	769.3	711.3
CR1220	62kΩ	700	969.4	779	799.6



---Discharge Test methods from IEC 60086-2: 2021



The pulse level of CC's CR2032 is about 200mAh



---Discharge Test methods from IEC 60086-2: 2021

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Batteries performance

Anti-leakage Performance

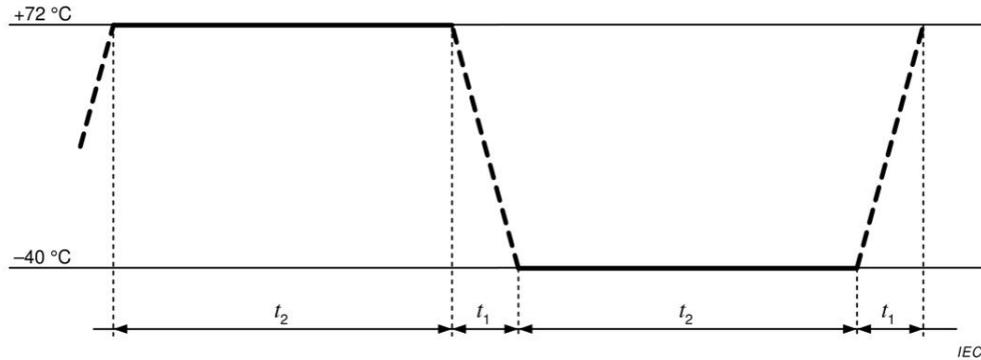


CHAOCHUANG

- There is no leakage due to the battery itself, among the 600 million batteries sold in 2020
- Limit test to ensure that the battery does not leak

Thermal Test

IEC 60086-4	test 1	Cycle: 72°C~-40°C	No leakage within 5days
	test 2	Thermostatic storage: 60°C, 90%RH	No leakage within 7days
ChaoChuang	test 3	Thermostatic storage: 45°C	No leakage within 14 days
	test 4	Cycle: 60°C~-10°C	No leakage within 14 days



Key
 $t_1 \leq 30 \text{ min}$
 $t_2 \geq 6 \text{ h}$ (12 h for large cells and batteries)

test 1 temperature curve of 1 cycle

IEC 60086-3:2016 © IEC 2016

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Table 11 (2 of 2)

Leakage levels		Diagram	Definition
Classification	Grade		
Leaks	L1		The accumulation of crystallised liquid coming from the electrolyte swells up on part of the cloud spread, which covers the entire surface of the flat negative contact
	L2		The accumulation of crystallised liquid coming from the electrolyte swells up on the entire cloud spread, which covers the entire surface of the flat negative contact

Description of leakage in international standards

Packaging

- customized design
- Anti-swallowing/ Child Secure Packaging



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Single Blister Type

Comply with:

- IEC 60086-4
- CFR 1700
- ANSI C18.1

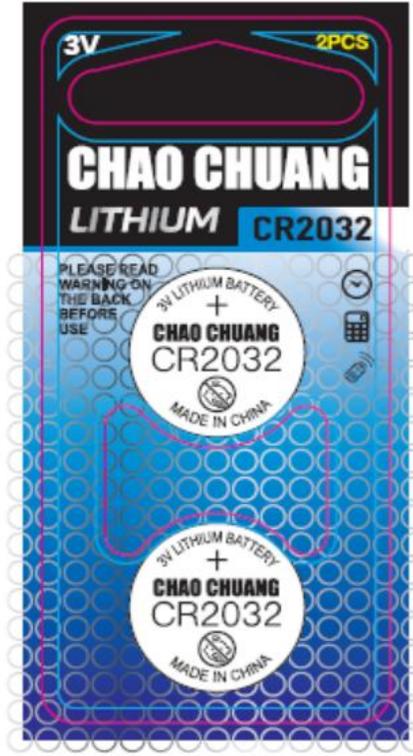
Material Option:

- PVC
- PET



Packaging

- customized design
- Anti-swallowing/ Child Secure Packaging



Double Blister Type

Comply with:

- IEC 60086-4
- CFR 1700
- ANSI C18.1

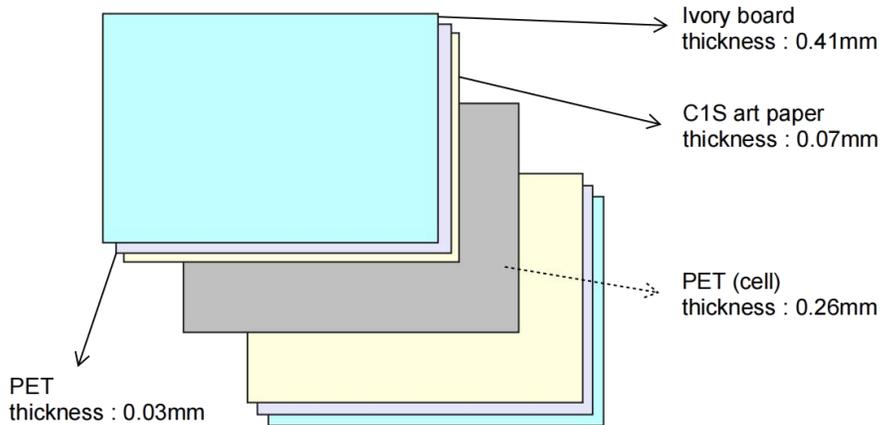
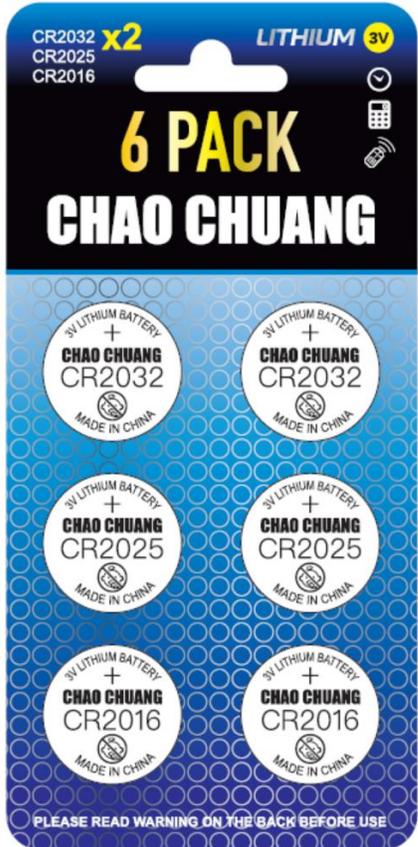
Material Option:

- PVC



Packaging

- customized design
- Anti-swallowing/ Child Secure Packaging



Lamination Structure Type

Comply with:

- IEC 60086-4
- CFR 1700
- ANSI C18.1

Material Option:

- PET



Certification



by



Valued Quality. Delivered.



MSDS



CHAOCHUANG
Jintan Battery Co., Ltd.
Jintan, Jiangsu, China

MATERIAL SAFETY DATA SHEET

Document number: MSDS_CR_QC3001

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is only provided as technical information and is intended for use of the product in question. Chaochuang makes no warranty expressed or implied.

Section 1 - Product and Company Identification

Product Name	Coin type Lithium Manganese-Dioxide Batteries(CR)
Date of preparation	Size All
Company:	CHANGZHOU JINTAN CHAOCHUANG BATTERY CO.,LTD.
Address:	Xiang Industrial Zone, Jintan City, Jiangsu Province, China
Telephone Numbers:	+86-519-82482888
Fax Numbers:	+86-519-82482398

Section 3 - Composition/information on ingredients

Content(wt%)	CSA#	Ingredient
45 to 60	15891-88-1	Stainless Steel
15 to 40	1313-13-9	Manganese Dioxide
5 to 8	108-32-7	Polypylene Carbonate
1 to 2	110-11-4	1,5-Dimethoxyethane
0 to 1.5	7781-03-9	Lithium Perchlorate
1 to 2	7439-83-2	Lithium or Lithium Alloy
1 to 4	7782-42-2	Gelatin
2 to 10	9003-01-0	Polycarbonate
1 to 5	8897-17-3	Glass Fiber
<0.0040	7439-82-1	Pb
<0.0005	7439-81-8	Hg
<0.0050	7440-43-9	Cd

(*) Lithium content for each cell

Page 1 of 2

UN38.3





中国认可
国际互认
检测
TESTING
CNAS L0095

Page 1 of 13 Pages
No.:RZUN2015-3127

检验报告 TEST REPORT

UN38.3

NAME OF SAMPLE: Li-MnO₂ Button Cell
产品名称: 锂-二氧化锰扣式电池

CLIENT: JINTAN CHAOCHUANG BATTERY CO., LTD.
委托单位: 金坛市超创电池有限公司

CLASSIFICATION OF TEST: Commission Test
检验类别: 委托测试



Vkan Certification & Testing Co., Ltd.
检验专用章

Certification




NO.2120257815



中国认可
检测
INSPECTION
CNAS 890071

货物运输条件鉴定书

Certification
for Safe Transport of Chemical Goods

锂电池类货物

样品名称: 锂-二氧化锰电池 CR2032 3V

Sample name: Lithium button battery CR2032 3V

委托单位: 常州金坛超创电池有限公司
CHANGZHOU JINTAN CHAOCHUANG BATTERY CO., LTD

生产单位: 常州金坛超创电池有限公司
CHANGZHOU JINTAN CHAOCHUANG BATTERY CO., LTD



上海化工院检测有限公司
检验检测专用章



上海化工院检测有限公司
Shanghai Research Institute of Chemical Industry Testing Co., Ltd




□ In-vehicle Equipment

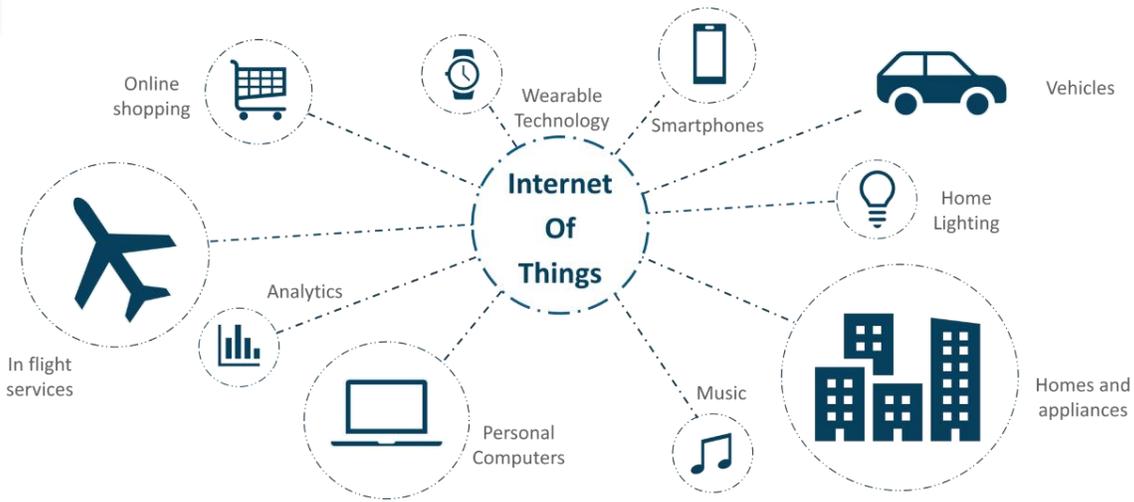


- Keyless Entry
- TPMS

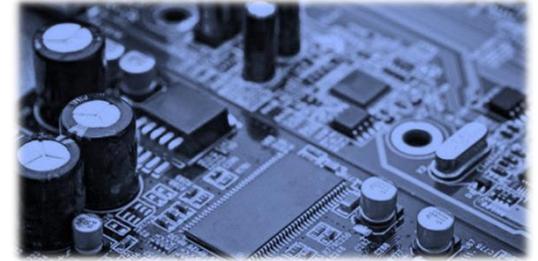
□ Medical devices



- Sphygmomanometer
- Thermometer
- CGM



□ Electronics



- Memory Backup
- Remote Control
- RTC

□ IOT



- Smart Home
- Security
- ESL

Key Customers Worldwide

