



Lithium Battery Safety Document – Section II or Section IB Shipments

AWB or Tracking Number: SEE BILL OF LADING (BOL) FOR TRACKING INFORMATION

This document may be used to comply with the additional documentation requirements of the IATA DGR.

WARNING: LITHIUM BATTERIES THAT HAVE BEEN RECALLED BY THE MANUFACTURER FOR SAFETY REASONS **MUST NOT** BE SHIPPED BY AIR.

Terminology:

- Cell – *electrochemical unit, consisting of an anode and a cathode, capable of generating electrical current*
- Battery – *assembly of cells*
- Lithium ion cells/batteries – *generally rechargeable – includes lithium polymer cells/batteries*
- Lithium metal cells/batteries – *non-rechargeable*

This shipment contains lithium cells or batteries in the following configuration (check applicable description):

Lithium Ion - Maximum of <ul style="list-style-type: none">• 20 Watt-hours per cell or• 100 Watt-hours per battery	Lithium Metal – Maximum of <ul style="list-style-type: none">• 1 gram of lithium metal per cell or• 2 grams of lithium metal per battery
<input type="checkbox"/> Cells or batteries <u>only</u> (Lithium ion batteries in compliance with Section II of PI 965, UN 3480) - Cells or batteries in a package, without electronic equipment. Package Limit: ≤2.7 Wh = 2.5 kg; <u>or</u> >2.7 Wh but ≤ 20 Wh = 8 cells; <u>or</u> >2.7 Wh but ≤ 100 Wh = 2 batteries	<input type="checkbox"/> Cells or batteries <u>only</u> (Lithium metal batteries in compliance with Section II of PI 968, UN 3090) - Cells or batteries in a package, without electronic equipment. Package Limit: ≤0.3 g = 2.5 kg; <u>or</u> >0.3 g but ≤ 1 g = 8 cells; <u>or</u> >0.3 g but ≤ 2g = 2 batteries
<input type="checkbox"/> Cells or batteries <u>only</u> (Lithium ion batteries in compliance with Section IB of PI 965, UN 3480) - Cells or batteries in a package, without electronic equipment <i>Packages must be limited to 10 kg net weight of batteries.</i>	<input type="checkbox"/> Cells or batteries <u>only</u> (Lithium metal batteries in compliance with Section IB of PI 968, UN 3090) - Cells or batteries in a package, without electronic equipment <i>Packages must be limited to 2.5 kg net weight of batteries..</i>
<input type="checkbox"/> Packed <u>with equipment</u> (Lithium ion batteries in compliance with Section II of PI 966, UN 3481) - Cells or batteries contained in a package with associated electronic equipment. <i>Packages must be limited to 5 kg net weight of batteries.</i>	<input type="checkbox"/> Packed <u>with equipment</u> (Lithium metal batteries in compliance with Section II of PI 969, UN 3091) - Cells or batteries contained in a package with associated battery-powered equipment – with the batteries not installed in the equipment. <i>Packages must be limited to 5 kg net weight of batteries.</i>
<input type="checkbox"/> Contained <u>in equipment</u> (Lithium ion batteries in compliance with Section II of PI 967, UN 3481) - Cells or batteries installed in equipment. <i>Packages must be limited to 5 kg net weight of batteries.</i>	<input checked="" type="checkbox"/> Contained <u>in equipment</u> (Lithium metal batteries in compliance with Section II of PI 970, UN 3091) - Cells or batteries installed in equipment. <i>Packages must be limited to 5 kg net weight of batteries.</i>

- This package must be handled with care. A flammability hazard exists if the package is damaged.
- If this package is damaged in transportation, it must not be loaded until the condition of the contents can be verified. The batteries contained in this package must be inspected for damage and may only be repacked if they are intact and protected against short circuits.
- For more information about the batteries contained in this package, call the following telephone number:

CHEMTREC for Lithium Battery Information Number:

For EMERGENCY information call 800-424-9300 or outside the United States call 703-527-3887



210-06729+A0

This product is a consumer product which is used in a hermetically sealed state. So, it is not an object of the SDS system. This document is provided to customers as reference information for the safe handling of the product. The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Panasonic Corporation makes no warranty expressed or implied.

PRODUCT SAFETY DATA SHEET

1 Chemical product and company identification

Name of Product : Manganese dioxide lithium battery
Name of Company : Panasonic Corporation
Address : 1-1 Matsushita-cho, Moriguchi-city, Osaka, 570-8511, Japan
Emergency Contact : +81-6-6994-4560 (Working hours)
+81-6-6991-1141 (Holiday)

2 Hazards identification

GHS Classification : Not applicable
Toxicity : Vapor generated from burning batteries, may irritate eyes, skin and throat.
Hazard : Electrolyte and lithium metal are inflammable.
Risk of explosion by fire if batteries are disposed in fire or heated above 100 degrees C.
Stacking or jumbling batteries may cause external short circuits, heat generation, fire or explosion.

3 Composition/information of ingredients

Component	Material	CAS No.	Content (%)
Positive electrode	Manganese dioxide	1313-13-9	12 - 50
Negative electrode	Lithium metal	7439-93-2	0.5 - 6
Electrolyte	1,2-dimethoxyethane	110-71-4	1.5 - 3.5
	Lithium Perchlorate	7791-03-9	0.2 - 0.7
	Organic electrolyte	-	2.5 - 7
Others (Steel or Plastic parts)	Steel	7439-89-6, 7440-47-3	30 - 85
	Polypropylene	9003-07-0	0.5 - 10

Lithium content per cell

Model Number	Lithium content(g)	Model Number	Lithium content(g)	Model Number	Lithium content(g)	Model Number	Lithium content(g)
CR1025	0.008	CR2012	0.02	CR2330	0.08	CR2412	0.03
CR1216	0.008	CR2016	0.03	CR2354	0.17	CR2430	0.09
CR1220	0.01	CR2025	0.05			CR2450	0.18
CR1612	0.01	CR2032	0.07			CR2450A	0.16
CR1616	0.02	CR2032A	0.06			CR2477	0.29
CR1620	0.02	CR2032B	0.06			CR3032	0.15
CR1632	0.04	CR2050A	0.10				
CR1632A	0.04	CR2050B2	0.10				



210-06801+C0

4 First aid measures (in case of electrolyte leakage from the battery)

- Eye contact : Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Get immediate medical treatment. If appropriate procedures are not taken, this may cause eye injury.
- Skin contact : Wash the affected area under tepid running water using a mild soap. If appropriate procedures are not taken, this may cause sores on the skin. Get medical attention if irritation develops or persists.
- Inhalation : Remove to fresh air immediately. Get medical treatment immediately.

5 Firefighting measures

- Fire extinguishing agent : Alcohol-resistant foam and dry sand are effective.
- Extinguishing method : Be sure on the windward to extinguish the fire, since vapor may make eyes, nose and throat irritate, Wear the respiratory protection equipment in some cases.

6 Accidental release measures (in case of electrolyte leakage from the battery)

- Take up with absorbent cloth, treat cloth as inflammable.
- Move the battery away from the fire.

7 Handling and storage

- Handling :
 - When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that the single batteries are not mixed together.
 - Use strong material for packaging boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation.
 - Do not short-circuit, recharge, deform, throw into fire or disassemble.
 - Do not mix different type of batteries.
 - Do not solder directly onto batteries.
 - Insert the battery correctly in electrical equipment.
- Storage :
 - Do not let water penetrate into packaging boxes during their storage and transportation.
 - Do not store the battery in places of the high temperature or under direct sunlight.
 - Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, rain or frozen condition

8. Exposure controls and personal protection

Acceptable concentration : Not specified about Lithium Battery.
Facilities : Nothing in particular.

Protective Equipment (in case of electrolyte leakage from the battery)

Respiratory Protection : For most condition no respiratory protection.
Hand Protection : Safety gloves.
Eye Protection : Safety goggle

9. Physical and chemical properties

Appearance : Coin shape
Nominal Voltage : 3 V

10. Stability and reactivity

Since batteries utilize a chemical reaction they are actually considered a chemical product.

As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

11. Toxicological information

Swallowing can lead to chemical burns, perforation of soft tissue, and death. Severe burns can occur within 2 hours of ingestion. Seek medical attention immediately.

12. Ecological information

In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte. However, there is no environmental impact information.

Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell.

13. Disposal considerations

When the battery is worn out, dispose of it under the ordinance of each local government.

14. Transport information

Handling

During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to condensation.

During the transportation do not allow packages to be dropped or damaged.

UN Number, UN Class : UN3090, Class9 (for the Air transport by PI968 Section IA or IB)
: Exemption (for the Marine transport and the Air transport by Section II of PI 968, 969 or 970)
Even though the cells are classified as lithium metal batteries (UN3090 or UN3091), they are not subject to some requirements of Dangerous Goods Regulations because they meet the following:

1. for cells, the lithium content is not more than 0.3g ;
2. each cell is of the type proven to meet the requirements of each test

in the UN Manual of Tests and Criteria, Part III, sub-section 38.3 ;

3. each cell is manufactured in ISO9001 certified factory ;

4. the test summary is available from ;

<https://industrial.panasonic.com/ww/downloads/battery-test-summary>

Please refer to the following reference information about concrete ways of transportation. Actual content of packaging label and shipping documents varies by shipping companies. Make sure to confirm in advance with your shipping company.

Information of reference

	Reference	Packing Instruction(PI)/ Special provision(SP)	Note
Air transport	IATA DGR	PI 968 Section I A	Cells, Cargo Aircraft only; Net quantity per package Max. 35kg
		PI 968 Section I B	Cells, Cargo Aircraft only; net quantity per package Max. 2.5kg
		PI 968 Section II	Cells, Cargo Aircraft only, not more than one package in any single consignment; net quantity per package Max. 2.5kg
		PI 969 Section II	Cells packed with equipment
		PI 970 Section II	Cells contained in equipment, button cell batteries
Marine transport	IMDG Code	SP 188	

15. Regulatory information

- IATA Dangerous Goods Regulations Edition 62 (IATA DGR)
- IMO International Maritime Dangerous Goods Code 2018 Edition (IMDG Code)
- UN Recommendations on the Transportation of Dangerous Goods, Model Regulations
- UN Recommendations on the Transportation of Dangerous Goods, Manual of Tests and Criteria
- EU Battery Directive (2006/66/EC, 2013/56/EU)
- Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
- State of California Regulations - Best management practices for Perchlorate Materials
- Act on Preventing Environmental Pollution of Mercury (Japan)

16. Other information

This PSDS is provided to customers as reference information in order to handle batteries safely.

It is necessary for the customer to take appropriate measures depending on the actual situation such as the individual handling, based on this information.

In California only, packages that contain CR lithium coin cells and the Owners/Operating Instructions of products that contain CR lithium coin cells must include the following statement:

"Perchlorate Material - special handling may apply,

See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>".

The effective date for this Perchlorate label is July 1, 2006 for non-consumer products and January 1, 2007 for consumer products.

SAFETY DATA SHEET

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. 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. However, JHIH HONG makes no warranty expressed or Implied.

Section 1-Product and Company Identification

Reference No. JHT 20210101

Product Name: Lithium Manganese Dioxide Batteries		CHEMICAL SYSTEM: Lithium Manganese Dioxide	
Size: ALL	Trade Mark: JHT	Volts: 3 V	
Designed for Recharge: NO		Date of preparation: Jan 01 2021	
Company: JHIH HONG TECHNOLOGY CO.,LTD.		Telephone Numbers: +886-2-22989236	
Address (Number, Street, City, State, and ZIP Code): 6F, No.15, Wu Chuan Road, Wu-Ku Industrial Park, New Taipei 248		Fax Numbers: +886-2-22901657	

Section 2 – Hazards Identification

This contains lithium, organic solvent, and other combustible materials. For this reason, Improper handling of the battery could lead to distortion, leakage*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.

(*Leakage is defined as an unintended escape of liquid from a battery.)

Section 3- Composition/Information on Ingredients

Ingredient	CAS NO.	Content (wt%)
Lithium	7439-93-2	1.15 to 2.71
Propylene Carbonate	108-32-7	4.1 to 7.0
Manganese dioxide	1313-13-9	16.0 to 37.0
1,2-Dimethoxyethane	110-71-4	2.6 to 5.0
Lithium perchlorate	7791-03-9	0.6 to 1.8
Graphite	7782-42-5、1333-86-4	1.8 to 5.0
Polypropylene	9003-07-0	1.5 to 4.4
Stainless steel	7439-89-6	42.79 to 70.3

Lithium content for each cell

Model	Li content (g)	Model	Li content (g)
CR1216	0.008	CR2032	0.064
CR1220	0.012	CR2320	0.048
CR1225	0.014	CR2354C	0.152
CR1616	0.014	CR2430	0.086
CR1620	0.024	CR2450	0.15
CR1632	0.036	CR2477	0.285
CR2016	0.023	CR3032	0.142
CR2025	0.045		

Section 4 – First Aid Measures

None unless internal materials exposure. If contents are leaked out, observe following Instructions

Inhalation	Fumes can cause respiratory irritation . Remove to fresh air and consult a physician.
Skin	Immediately flush skin plenty of water. If itch or irritation by chemical bum persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

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

Accidental Releases: Do not breathe vapors or touch liquid with bare hands (see section 4).

Waste Disposal Methods: Evacuate area. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. A NIOSH Approved Acid Gas Filter Mask or Self-Contained Breathing Apparatus should be worn. Seal leaking battery and soda lime or baking soda in a plastic bag and dispose of as hazardous waste.

Other: Follow North American Emergency Response Guide (NAERG)#138 for cells involved in an accident, cells that have vented, or have exploded.

Section 7-Handling and Storage

1) Handling

Never swallow. Never reverse the positive and negative terminals when mounting . Never short-circuit the battery. Never heat. Never expose to open flame. Never disassemble. Never weld the terminal or wire to the body of the battery directly. Never touch the liquid leaked out of battery . Never bring fire close to battery liquid. Never keep in touch with battery.

2) Storage

Never let the battery contact with water. Never store the battery in hot and high humid place. Don't push the battery excessively and destroy the battery packaging, often wet and ventilating the dry place to keep in the normal atmospheric temperature, find the unusual battery is dealt with in time

Section 8 – Exposure Controls, Personal Protection

Respiratory Protection		NA
Ventilation	Local Exhaust	NA
	Mechanical	NA
	Special	NA
	Other	NA
Eye Protection		NA
Protective Gloves		NA
Other protective clothing		NA

Section 9 – Physical/Chemical Characteristics

State of matter: Solid state

Form : Button type

Color: True quality of stainless steel

Smell : Tasteless (At the time of the fullness)

Resolve temperature: NA

Spontaneous combustion temperature: NA

Explosion demarcation line : Higher than 170 degrees Centigrade of batteries will be burnt

To the density (Water =1): NA

Dissolving: NA

Boiling Point:	1,2-Dimethoxyethane : 83℃
Vapor Pressure:	1,2-Dimethoxyethane :6.40(20℃)
Vapor Density:	1,2-Dimethoxyethane : 3.11
Solubility in Water:	1,2-Dimethoxyethane : :diffluence contact with water
Specific Gravity:	1,2-Dimethoxyethane :1.63
Melting Point:	1,2-Dimethoxyethane :-67℃
Evaporation Rate:	N/A
Water Reactive:	1,2-Dimethoxyethane : :diffluence contact with water
Appearance & Odor:	1,2-Dimethoxyethane : achromatism liquid; slight aether odor.

Section 10 – Stability and Reactivity

Stability	Stable
Incompatibility	Water
Hazardous polymerization	Will not occur.
Condition to avoid	See section 7.
Hazardous Decomposition or Byproducts	Hydrogen

Section 11 – Toxicological Information

Acute Toxicity:

1,2-Dimethoxyethane:

LC₅₀ (Inhalation): N/A

LD₅₀: N/A

Eye Effects: Corrosive

Skin Effects: Corrosive

Section 12 –Ecological Information

Aquatic Toxicity: Do not let internal components enter marine environments. Avoid releases into waterways, wastewater or groundwater.

Section 13 – Disposal condition

The battery may be regulated by national or local regulation. Please follow the instructions of Proper regulation. As electric capacity is left in a discarded battery and it comes into contact With other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

Section 14 – Transportation Information

Lithium Manganese Dioxide Batteries is considered as “Dangerous Goods ” cargo because they complied with IATA Dangerous Goods Regulations 62st Edition of 2021 & Section IB of Packing Instruction PI 968.

Shipping Name(UN Number) Lithium metal batteries(UN3090)
 Lithium metal batteries packed with equipment(UN3091)
 Lithium metal batteries contained in equipment(UN3091)

Hazard Classification Class 9 (Miscellaneous)

Method of transportation: As the cells are manufactured under a quality management program in an ISO9001 certified factory and the cells meet all the requirements of a UN manual of tests and criteria, Part III, sub-section 38.3, the applicable packing instructions (PI) or special provisions (SP) are as per the following table. The cells or batteries classified in Section II of any Packing Instruction or SP 188 may be exempted from Class 9 Dangerous Goods if complying with all requirements of applicable Section II or SP 188. But lithium metal cells and batteries transported as cargo are restricted to Cargo Aircraft Only.

Note. This does not apply to lithium metal batteries packed with equipment (PI 969) or contained in equipment (PI 970).

Li content per cell	Product name	Air Sea*See Section 15 4)			Sea *See Section 15 5)
		Cell only	Cell packed with equipment	Cell contained in equipment	
not more than 0.3 g	CR1216, CR1220, CR1225, CR1616, CR1620, CR1632, CR2016, CR2025, CR2032, CR2320, CR2354C, CR2430, CR2450, CR2477, CR3032,	PI968 Section II	PI969 Section II	PI970 Section II	SP188
more than 0.3 g but not more than 1 g	(No)	PI 968 Section IB (8 or less cells: Section II)	PI969 Section II	PI970 Section II	SP188
more than 1 g	(No)	PI968 Section IA	PI969 Section I	PI970 Section I	SP230

As specific districts, countries and airlines may establish their own special requirements, the shipper must confirm requirements with the forwarder in advance.

Please confirm the aggregate lithium content when transport the battery.

Section 15-Regulatory Information

EC Labeling : None

Risk Phrases :None

Safety Phrases : None

Labeling is not required because batteries are classified as “articles” under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

Section 16-Other Information

Major environmental regulations are as follows:

- 1) EU BATTERY DIRECTIVE 2006/66/EC(2013/56/EU)
- 2) California Code of regulations ,Title 22,Division 4.5,Chapter 33:Best Management Practices for Perchlorate Materials

Note:

- 1) The symbol in above-mentioned materials " ——"representative consult at present it materials not relevant, but symbol "NA" represent field the getting more suitable for material.
- 2) If you want further information, please contact JHIH HONG sales representative.

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E-mail: service@jht-energy.com <http://www.jht-energy.com>



KTS Batteries

材料安全資料表 Safety Data Sheet

1 化學品及企業標識(Chemical Product and Company Identification)			
產品名稱 Product Name	鈕扣式鋰電池 CR2032 3.0V 220mAh Lithium manganese dioxide button cell CR2032 3.0V 220mAh		
供應商名稱 Supplier Name	仕野股份有限公司 VIC-DAWN ENTERPRISE CO., LTD.		
地址 Address	231 新北市新店區中正路四維巷 1 弄 2 號 4 樓 4F., No.2, Aly. 1, Siwei Ln., Zhongzheng Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)		
製造商名稱 Manufacturers Name	武漢力興（火炬）電源有限公司 WUHAN LIXING (TORCH) POWER SOURCES CO.,LTD.		
地址 Address	武漢市東湖高新技術開發區關東工業園 430074 The Guandong industrialized country of East Lake high and new technology development zone , Wuhan 430074		
品牌 Brand	KTS		
緊急聯絡電話 Emergency Number	886-2-22185115		
傳真 Fax	886-2-22189119		
2 成分/組成資訊(Composition/Information on Ingredients)			
名稱 Description	含量 Approximate Percent (wt %)	重量 Approximate weight (mg)	化學文摘號 CAS No.
二氧化錳 Manganese dioxide	26.8	804	1313-13-9
碳 Graphite	2.2	66	7782-42-5
Teflon (PTFE)	1.5	45	9002-84-0

PP 塑膠 Plastic	4.7	141	9003-07-0
不銹鋼 SUS430 Stainless Steel	53.6	1608	12597-68-1
鋰 Lithium	2.1	63	7439-93-2
高氯酸鋰 Lithium Perchlorate	0.9	27	7791-03-9
碳酸丙烯酯 Propylene carbonate	6.5	195	108-32-7
乙二醇二甲醚 1,2 Dimethoxyethane	1.7	51	110-71-4
總計 Total	100	3000	-

3 危險性概述(Hazards Summarizing)

鋰 Lithium	與水接觸劇烈反應,易燃燒。只能用蘇打粉,沙子等滅火。 It reacts violently when in contact with water,and it is flammable.Use only soda ash or sand to extinguish flame.
二氧化錳 Manganese dioxide	強氧化劑,具腐蝕性,攝入有毒。可用 CO ₂ 滅火。 A toxic material also an corrosive and an oxidising agent.Use only CO ₂ or halon to extinguish flame.
碳酸丙烯酯 Propylene carbonate	可腐蝕眼睛和皮膚。 可用 CO ₂ 滅火。 Will irritate the eyes and the skin by absorption,harmful if ingested or inhaled. Use only CO ₂ or halon to extinguish flame.
乙二醇二甲醚 1,2 Dimethoxyethane	極易燃。吸入和攝入有害。可用 CO ₂ 滅火。 Highly flammable. Harmful if ingested or inhaled. Use only CO ₂ or halon to extinguish flame.

其他組分不活潑,或者危害較小。

Other materials are either inert or have low hazard associated with their exposure.

4 急救措施(First-aid Measures)

眼睛:用水沖洗,立即就醫。

Eyes:irrigate thoroughly with water.Obtain medical attention.

皮膚:用水徹底沖洗,脫掉受污染的衣物並清洗。除非少量接觸,否則就醫。

Skin:drench the skin thoroughly with water.Remove contaminated clothing and wash before re-use.Unless contact has been slight,obtain medical attention.

吸入:離開污染場所,休息並保暖。嚴重時就醫。

Inhalation:remove from exposure,rest and keep warm.In severe cases,obtain medical attention.

食入:用水徹底沖洗口部後大量飲水。就醫。

Ingestion:wash out mouth thoroughly with water and give plenty of water to drink.Obtain medical attention.

5 消防措施(Fire-fighting Measures)

大量電池燃燒,可能發生爆炸。適合的滅火介質為 CO₂,乾粉滅火器和沙子。不可用水滅火。

消防人員應配戴空氣呼吸器,防護頭盔,眼鏡等。

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.

6 洩露應急處理(Accidental Release Measures)

不可呼吸洩漏液蒸汽,或用手接觸液體。若皮膚已接觸電解質,立即用大量水沖洗。可用泥土和沙子吸收洩漏液。將漏液電池和沙子按特殊廢棄物處理。

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.

7 操作處置與儲存(Handling and Storage)

保證電池包裝完整,避免短路。

Pack the batteries well,and avoid short circuit.

不要拆卸電池。
Never disassemble batteries.
不要吸入電池蒸汽或用光手接觸電池內部物質。
Do not breathe cell vapors or touch internal material with bare hands.
將電池儲存在陰涼通風的地方,避免陽光直射。
Store batteries in cool well-ventilated area,keep out of direct sunlight.
8 接觸控制/個體防護(Exposure Controls/Personal Protection)
外部含鎳殼蓋的腐蝕可能生成有毒產物。避免吞咽電池。接觸後洗手。
External corrosion of the nickle can could result in theformation of toxic metal salts.Avoid ingestion,Wash hands after contact.
9 理化特性(Physical and Chemical Properties)
本品為固態,無味。其他指標不適用。
This battery is solid state , and inodorous.The other items are not applicable.
10 穩定性和反應性(Stability and Reactivity)
有害物質被密封在殼體內,在正常情況下本產品穩定,無害。
Hazardous materials are housed within a sealed unit,under normal conditions this unit is stable and non-hazardous.
若電池密封被損壞,金屬鋰會與水反應放出可燃性氣體。
Lithium will react with water and produce flammable gas if the seal of battery is damaged.
11 毒理學資料(Toxicological Information)
若電池不損壞,無毒。
No toxicity unless the battery is damaged.
12 生態學資料(Ecological Information)
不適用。
Not Applicable.
13 廢棄處置(Disposal)
不要焚燒電池或將電池加熱超過 80℃。根據當地法規處理電池。

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

14 運輸資訊(Transport Information)

國際運送規定:

鋰電池國際運輸規程

World transports and stipulates :

Lithium battery international transportation rules

Effective April 1, 2016 all KTS lithium batteries are not subject to the requirements of the U.S. Department of Transportation (DOT), Subchapter C, Hazardous Material Regulations if shipped in compliance with 49 CFR 173.185 and Special Provision 188. Currently all KTS lithium batteries can be transported under the International Civil Aviation Organization (ICAO) and the Packing Instructions (PI) 968 Section IB(Batteries), PI 969 Section II(Batteries, packed with equipment) and PI 970 Section II (Batteries, contained in equipment).

They are considered to be non-dangerous by the IATA Dangerous Goods regulations as below:

- The goods with lithium metal cells and should complies with IATA DGR IATA Dangerous Goods Regulations 62nd edition.
- The substance is not restricted to IMO IMDG code according to special provision 188.
- Section IB of PI968 ; Section II of PI969 、PI970
- UN NUMBER: UN3090; UN3091 / Class or division: 9
- A lithium metal cell, the lithium content is not more than 1g.

- For these lithium cells/batteries contained in equipment, the equipment is equipped and protected with an effective means to prevent short circuits, dangerous reverse current flow and accidental activation.
- This consignment does not contain any recalled and/or defective batteries that have the potential of producing a dangerous evolution of heat, fire or short circuit.
- Each package of batteries must be capable of withstanding a 1.2m-drop test in any orientation without damage to cells or batteries contained therein, shifting of the contents so as to allow battery to battery(or cell to cell) contact and/or release of contents.
- Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3 as of the Material Safety Data Sheet.

The only requirement for shipping these batteries, in all modes of transportation, are that they must be separated to prevent short-circuits and to prevent movement that could lead to short-circuits. They must also be packed in strong packaging that can withstand the rigors normal to transportation.

運輸時,應避免電池短路。

The batteries being transported must be protected from shorting-circuiting and

protected from movement that could lead to short-circuiting.

During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to condensation.

During the transportation do not allow packages to be fallen down or damaged.

15 法規資訊(Regulatory Information)

特殊要求依據當地法規。

Special requirement be according to the local regulations.

16 其他資訊(Other Information)

生效時間 Effective Date:	2021.01.01
填表部門 Dept. of Issue	仕野股份有限公司 VIC-DAWN ENTERPRISE CO., LTD.
填表人	莊子儔 / Kevin Chuang
文件號 Document Number	LX-QR-824-38
備註 Remarks	以上資料只基於對產品目前狀態的瞭解。 The above information is given based on the present state of our knowledge of this product.

DBV Batteries

MATERIAL SAFETY DATA SHEET

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. 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. However, DBV makes no warranty expressed or Implied.

Section 1-Product and Company Identification

Product Name: Lithium Manganese Dioxide Batteries		CHEMICAL SYSTEM: Lithium Manganese Dioxide	Volts: 3 V
Size: CR2032	Trade Mark: DBV		Approximate Weight: 3.2 g
Designed for Recharge: NO		Date of preparation: Jan 01 2021	
Company: Double Best Corporation Limited			Telephone Numbers: 886-(02)-8751-9188
Address (Number, Street, City, State, and ZIP Code): 5F.,No.37,Ln.221,Gangqian Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C)			Fax Numbers: 886-(02)-8751-8387

Section 2- Composition/Information on Ingredients

Ingredient	CAS NO.	Content (wt%)
Lithium	7439-93-2	2.0 (0.064 gram)
Propylene Carbonate	108-32-7	6.1
Manganese dioxide	1313-13-9	29.0
1,2-Dimethoxyethane	110-71-4	4.2
Lithium perchlorate	7791-03-9	0.9
Graphite	7782-42-5、1333-86-4	3.4
Polypropylene	9003-07-0	4.1
Teflon	9002-84-0	0.3
Stainless steel	7439-89-6	50.0

DBV Batteries

Section 3 – Hazards Identification

This contains lithium, organic solvent, and other combustible materials. For this reason, Improper handling of the battery could lead to distortion, leakage*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.

(*Leakage is defined as an unintended escape of liquid from a battery.)

Section 4 – First Aid Measures

None unless internal materials exposure. If contents are leaked out, observe following Instructions

Inhalation	Fumes can cause respiratory irritation . Remove to fresh air and consult a physician.
Skin	Immediately flush skin plenty of water. If itch or irritation by chemical bum persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

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

Accidental Releases: Do not breathe vapors or touch liquid with bare hands (see section 4).

Waste Disposal Methods: Evacuate area. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. A NIOSH Approved Acid Gas Filter Mask or Self-Contained Breathing Apparatus should be worn. Seal leaking battery and soda lime or baking soda in a plastic bag and dispose of as hazardous waste.

Other: Follow North American Emergency Response Guide (NAERG)#138 for cells involved in an accident, cells that have vented, or have exploded.

Section 7-Handling and Storage

1) Handling

Never swallow. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never heat. Never expose to open flame. Never disassemble. Never weld the terminal or wire to the body of the battery directly. Never touch the liquid leaked out of battery . Never bring fire close to battery liquid. Never keep in touch with battery.

2) Storage

Never let the battery contact with water. Never store the battery in hot and high humid place. Don't push the battery excessively and destroy the battery packaging, often wet and ventilating the dry place to keep in the normal atmospheric temperature, find the unusual battery is dealt with in time

DBV Batteries

Section 8 – Exposure Controls, Personal Protection

Respiratory Protection		NA
Ventilation	Local Exhaust	NA
	Mechanical	NA
	Special	NA
	Other	NA
Eye Protection		NA
Protective Gloves		NA
Other protective clothing		NA

Section 9 – Physical/Chemical Characteristics

State of matter: Solid state

Form: Button type

Color: True quality of stainless steel

Smell: Tasteless (At the time of the fullness)

Resolve temperature: NA

Spontaneous combustion temperature: NA

Explosion demarcation line: Higher than 170 degrees Centigrade of batteries will be burnt

To the density (Water =1): NA

Dissolving: NA

All batteries including button cells containing more than 0.0005% by weight of mercury per cell (5ppm) are not allowed

Boiling Point:	1,2-Dimethoxyethane : 83°C
Vapor Pressure:	1,2-Dimethoxyethane :6.40(20°C)
Vapor Density:	1,2-Dimethoxyethane : 3.11
Solubility in Water:	1,2-Dimethoxyethane : :diffluence contact with water
Specific Gravity:	1,2-Dimethoxyethane :1.63
Melting Point:	1,2-Dimethoxyethane :-67°C
Evaporation Rate:	N/A
Water Reactive:	1,2-Dimethoxyethane : :diffluence contact with water
Appearance & Odor:	1,2-Dimethoxyethane : achromatism liquid; slight aether odor.

Section 10 – Stability and Reactivity

Stability	Stable
Incompatibility	Water
Hazardous polymerization	Will not occur.
Condition to avoid	See section 7.
Hazardous Decomposition or Byproducts	Hydrogen

DBV Batteries

Section 11 – Toxicological Information

Acute Toxicity:

1,2-Dimethoxyethane:

LC₅₀ (Inhalation): N/A

LD₅₀: N/A

Eye Effects: Corrosive

Skin Effects: Corrosive

Section 12 – Ecological Information

Aquatic Toxicity: Do not let internal components enter marine environments. Avoid releases into waterways, wastewater or groundwater.

Section 13 – Disposal condition

The battery may be regulated by national or local regulation. Please follow the instructions of Proper regulation. As electric capacity is left in a discarded battery and it comes into contact With other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

Section 14 – Transportation Information

Lithium battery model CR2032 is complied with IATA Dangerous Goods Regulations 62st Edition of 2021 & Section IB of Packing Instruction PI 968.

Shipping Name(UN Number) Lithium metal batteries(UN3090)

Lithium metal batteries packed with equipment (UN3091)

Lithium metal batteries contained in equipment (UN3091)

Hazard Classification Class 9 (Miscellaneous)

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction: Section IB of PI968~970 Section II of PI969 ~970
International	Water	IMO	188 & 230
U.S.A	Air, Rail, Highway, Water	DOT	49 CFR Section 173.185

These regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for shipping lithium batteries. All the Lithium metal cells of DBV comply in all respects can be shipped in accordance with IATA Dangerous Goods Regulations 62st Edition & Section IB of Packing Instruction PI 968

If all of following 3 requirements are satisfied, lithium metal batteries can be transported as “Dangerous Goods” cargo.

1) Lithium weight or equivalent lithium content must be less than value in table.

Contents	Lithium metal cells and/or batteries with a lithium content not more than 0.3 g	Lithium metal cells and/or batteries with a lithium content greater than 0.3 g but not more than 1 g	Lithium metal cells and/or batteries with a lithium content greater than 1 g but not more than 2 g
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DBV Batteries

Maximum number of cells / batteries per package	No limit	8 pieces per carton	2 pieces per carton
Maximum net quantity (mass) per package	2.5 Kg	N/A	N/A

Equivalent lithium content (g) is calculated as 0.3 (g/Ah) times the rated capacity (Ah) .

- 2) Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part V, section 38.3 Cells
- 3) Section IB of Packing Instruction PI 968:
 - a) Be marked to indicate that it contains lithium metal cells & batteries, and that special procedures be followed in the event that the package is damaged.
 - b) Each package must be labeled with a lithium battery handling label.
 - c) Be accompanied by a shipping paper explaining that the cells and batteries are excepted from regulations.
 - d) Packaging requirement following to above 1) Lithium weight or equivalent lithium content must be less than value in table.
 - e) Be capable of withstanding a 1.2m drop test in any orientation without shifting of the contents that would allow short-circuiting, and without release of package contents.

Because the consignor has to take the responsibility, the customer has to confirm the exception conditions when shipping.

Section 15-Regulatory Information

EC Labeling: None

Risk Phrases: None

Safety Phrases: None

Labeling is not required because batteries are classified as “articles” under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

Section 16-Other Information

If you want further information, please contact:

FAE

Paul Wang

Double Best Corporation Limited

5F.,No.37,Ln.221,Gangqian Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C)

Tel: +886-2-8751-9188 Fax: +886-8751-8387

Last data revised 2021.01.01

Lithium Battery Test Summary / UN38.3 試験結果要約**Product manufacturer**

Address/住所
Telephone/電話番号
e-mail
URL

Panasonic Corporation

1-1 Matsushita-cho, Moriguchi City, Osaka 570-8511, Japan
+81-6-6994-4560
un38.3_microbattery@ml.jp.panasonic.com
<https://www.panasonic.com/global/home.html>

Test laboratory

Address/住所
Telephone/電話番号
e-mail
URL

Panasonic Corporation

1-1 Matsushita-cho, Moriguchi City, Osaka 570-8511, Japan
+81-6-6994-4560
un38.3_microbattery@ml.jp.panasonic.com
<https://www.panasonic.com/global/home.html>

Description of Product / 製品情報

Model Number/品番 CR2032
Type/タイプ Lithium metal cell
Physical description/物理特性 Non-rechargeable, Coin
Mass/質量 2.9 g
Lithium content/リチウム含有量 0.07 g
Watt-hour rating/ワット時定格値 Not applicable
Nominal Voltage/公称電圧 3.0 V
Nominal Capacity/公称容量 225 mAh

Test Results / 結果

Identification number/番号 CP0008-10
Date of test report/レポート発行日 2008/08/05
Reference edition/参照 UN Manual of Tests and Criteria 4th Amendment 1 edition

UN Manual of Tests and Criteria 国連勧告テスト判定基準	Results 結果	Remarks 備考
T1 : Altitude simulation / 高度シミュレーション	Pass / 合格	
T2 : Thermal Test / 温度試験	Pass / 合格	
T3 : Vibration / 振動	Pass / 合格	
T4 : Shock / 衝撃	Pass / 合格	
T5 : External short circuit / 外部短絡	Pass / 合格	
T6 : Impact / 衝突, Crush / 圧壊	Pass / 合格	Impact / 衝突
T7 : Overcharge / 過充電	-	for rechargeable batteries only / 充電式電池のみ
T8 : Forced discharge / 強制放電	Pass / 合格	

Hereby we certify that this model of Lithium battery meets the requirements of each test in the UN Manual of Tests and Criteria Part III, sub-section 38.3.

上記テストは国連勧告テスト(Manual of Tests and Criteria, Part III, sub-section 38.3.)に従い確認された結果であることを証明致します。

Signature:



Name and Title: Kazuyuki Amano / Manager

Energy Device Business Division



210-06829+A0



UN38.3 试验概要

UN38.3 Test Summary

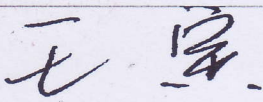


单位信息 Company information			
委托单位 Consignor	仕野股份有限公司 VIC-DAWN ENTERPRISE CO., LTD 新北市新店區中正路四維巷1弄2號4樓 4F., No.2, Aly. 1, Siwei Ln., Zhongzheng Rd., Xindian Dist., New Taipei City 231, Taiwan 886222185115 kevin@shihno.com.tw www.shihno.com.tw		
生产单位 Manufacturer	武汉力兴(火炬)电源有限公司 WUHAN LIXING (TORCH) POWER SOURCES CO.,LTD 武汉东湖新技术开发区关东工业园7号地 Guandong Industrial Park ,East Lake High Technology DEV Zone 027-87785520 jingc@lisun.com www.lisun.com		
测试单位 Test lab	上海化工院检测有限公司 Shanghai Research Institute of Chemical Industry Testing Co., Ltd. 中国.上海.普陀区云岭东路345号, 200062 No.345 East Yunling Road, Putuo, Shanghai, China 200062 86-21-31765555 battery@ghs.cn www.ghs.cn		
电池信息 Battery information			
名称 Name	锂原电池/锂金属电池/锂-二 氧化锰钮扣电池 Lithium manganese dioxide button cell	品牌 Brand	KTS
型号 Type	CR2032	原始测试型号 Original tested type	/
标称电压(V) Nominal voltage	3	容量 Capacity	220mAh
描述 Description	不可充电锂金属电池芯 Primary Li-metal cell	锂含量(g) Li content	0.06
质量(kg) Mass	0.003	外观 Appearance	银色钮扣状金属外壳 Silvery Button Metal Shell
测试信息 Test information			
原报告编号 Original test report No.	1119030278	测试报告日期 Date of test report	2019-04-26
测试标准 Test standard	联合国《关于危险货物运输的建议书 试验和标准手 册》第38.3章 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria 38.3 ST/SG/AC.10/11/Rev.6		
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 挤压 Crush	合格 Passed
T.7 过度充电 Overcharge	/	T.8 强制放电 Forced discharge	合格 Passed
38.3.3 (f)	/	38.3.3 (g)	/



样品图片 Sample Picture



结论 Conclusion	测试样品符合联合国《关于危险货物运输的建议书试验和标准手册》ST/SG/AC.10/11/Rev.638.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 38.3	
备注 Remark	/	
签名 Signature 职务 Title	 <div>王寅</div> <div>副总工程师 Vice chief engineer</div>	<div>签发日期 Issued date</div> <div>2019-10-16</div>

-验证码:752466-

报告结束



UN38.3 试验概要

UN38.3 Test Summary



811900200310565

单位信息 Company information

委托单位 Consignor	博特科科技(深圳)有限公司 Pro-Tek (Shenzhen) Co.,Ltd. 深圳市光明新区公明办事处上村社区明环东路松白工业园 B 区 B1 号厂房 B1 building,Zone B,Songbai Industrial Park.Minghuan East Road,Shangcun Community Gongming office,Gua 0755-27543369 ping_zhao@ptk-energy.com www.jht-energy.com
生产单位 Manufacturer	博特科科技(深圳)有限公司 Pro-Tek (Shenzhen) Co.,Ltd. 深圳市光明新区公明办事处上村社区明环东路松白工业园 B 区 B1 号厂房 B1 building,Zone B,Songbai Industrial Park.Minghuan East Road,Shangcun Community Gongming office,Gua 0755-27543369 ping_zhao@ptk-energy.com www.jht-energy.com
测试单位 Test lab	上海化工研究院检测中心 Shanghai Research Institute of Chemical Industry Testing Center 中国.上海.普陀区云岭东路 345 号, 200062 No.345 East Yunling Road, Putuo, Shanghai, China 200062 86-21-31765555 battery@ghs.cn www.ghs.cn

电池信息 Battery information

名称 Name	锂金属电池 Lithium metal battery	品牌 Brand	JHT
型号 Type	CR2032	原始测试型号 Original tested type	/
标称电压(V) Nominal voltage	3.0	容量 Capacity	220mAh
描述 Description	不可充电锂金属电池芯 Primary Li-metal cell	锂含量(g) Li content	0.064
质量(kg) Mass	0.0031	外观 Appearance	银色钮扣状 Silvery Button

测试信息 Test information

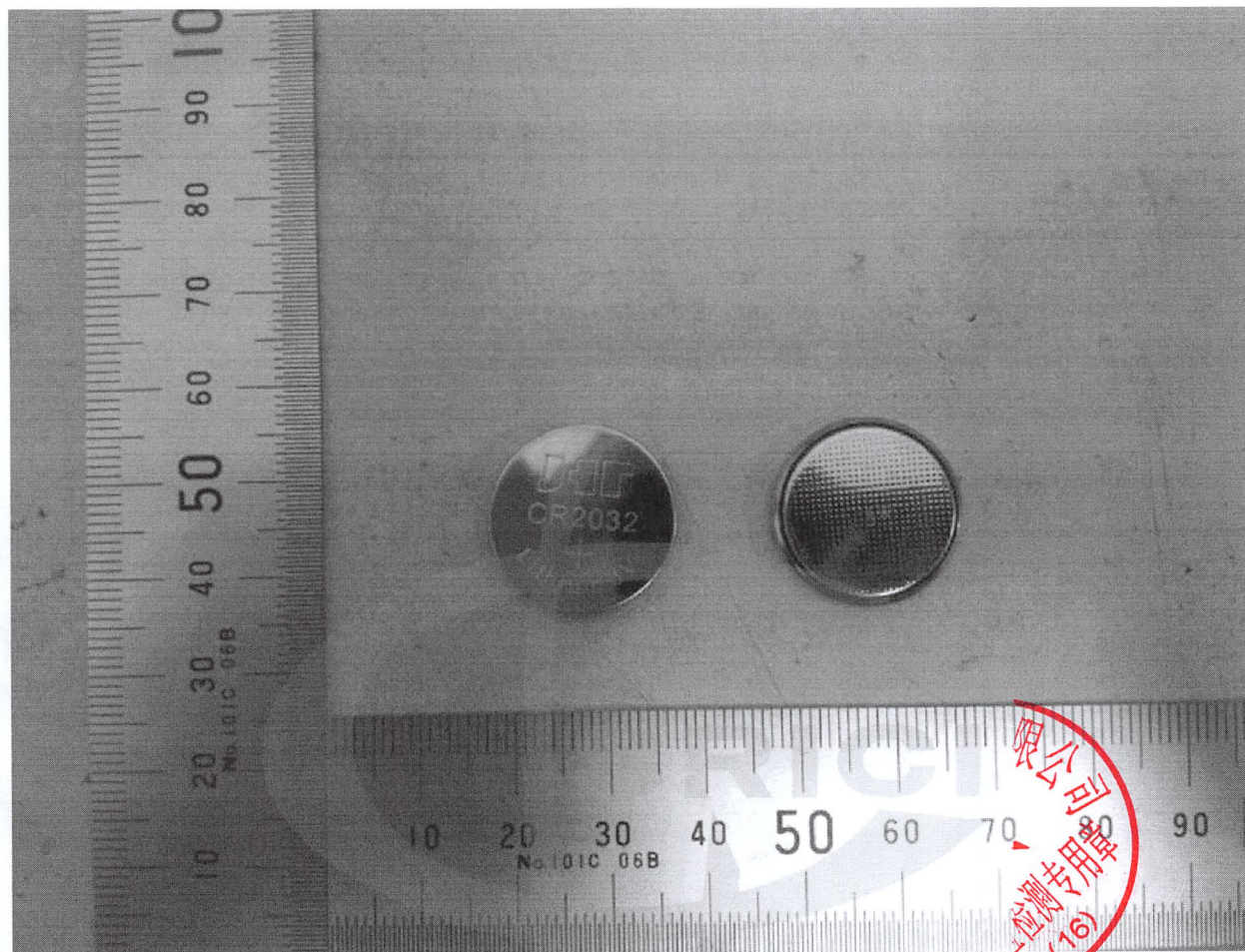
原报告编号 Original test report No.	1113050034	测试报告日期 Date of test report	2013-08-13
测试标准 Test standard	联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria 38.3 ST/SG/AC.10/11/Rev.5/Amend.1		
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 挤压 Crush	合格 Passed
T.7 过度充电 Overcharge	/	T.8 强制放电 Forced discharge	合格 Passed
38.3.3 (f)	/	38.3.3 (g)	/

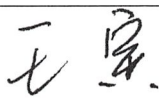



210-06830-A0



样品图片 Sample Picture



结论 Conclusion	测试样品符合联合国《关于危险货物运输的建议书试验和标准手册》ST/SG/AC.10/11/Rev.5/Amend.138.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5/Amend.1 38.3		
备注 Remark	无。None.		
签名 Signature 职务 Title	 王寅 副总工程师 Vice chief engineer	签发日期 Issued date	 2019-11-07

-验证码:931376-

报告结束



UN38.3 试验概要

UN38.3 Test Summary

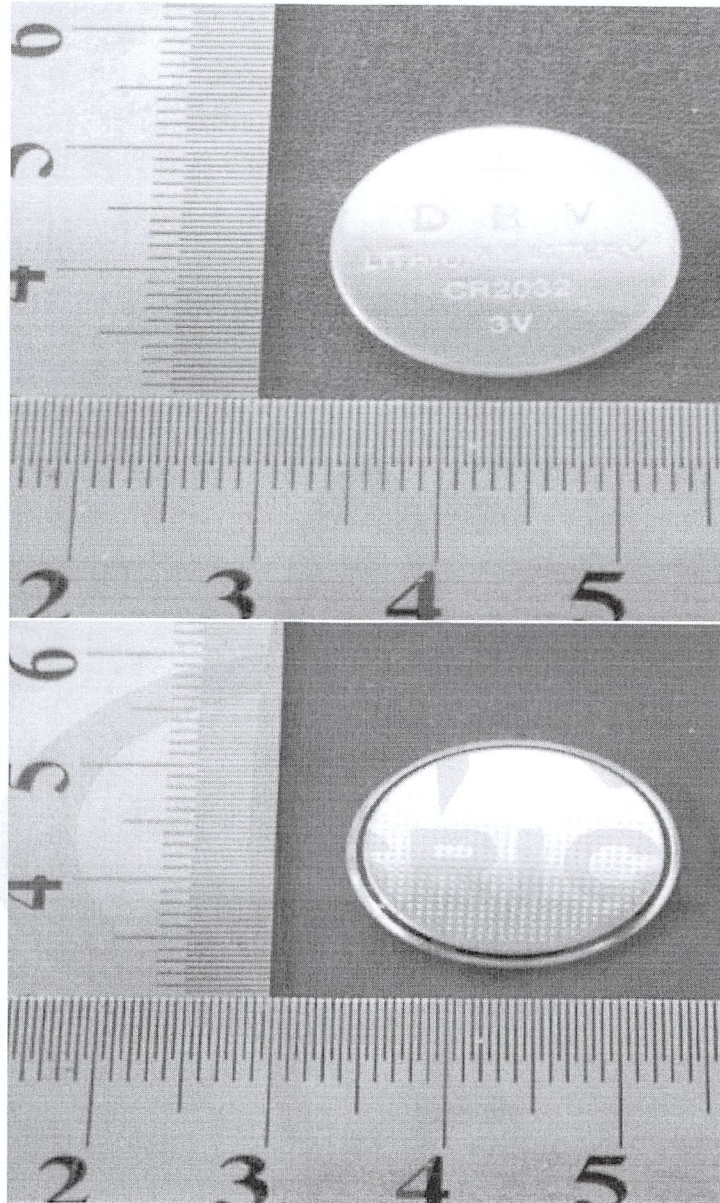


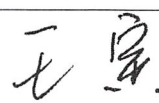

811900200821392

单位信息 Company information			
委托单位 Consignor	广立登股份有限公司 Double Best Corporation Limited 台北市内湖区港墘路 221 巷 37 号 5 楼 5F., No. 37, Ln.221, Gangqian Rd., Neihu Dist., Taipei City 114, Taiwan +886287519188 angel.chen@double-best.com http://www.szlijia.com		
生产单位 Manufacturer	力佳电源科技(深圳)股份有限公司 POWER GLORY BATTERY TECH (SHENZHEN) CO., LTD. 深圳市光明新区公明办事处合水口社区合水口新村西区一排 4 栋 306 室 Room 306, West Four Row, Heshuikou Village, Heshuikou Community, Gongming Town, Guangming New District, Shenzhen, China 0717-6300188 cy@szlijia.com http://www.szlijia.com		
测试单位 Test lab	广州邦禾检测技术有限公司 Guangzhou MCM Certification & Testing Co.,LTD 广州市番禺区钟村街市广路钟三路 13 号之一广州农业科技开发研究基地生物科技大楼东座第一层 102 室 1/F, Road No.13, Shiguang Road , Panyu District,Guangzhou,China 34777630 mark.miao@mcmtek.com http://www.mcmtek.com		
电池信息 Battery information			
名称 Name	锂-二氧化锰电池 LITHIUM MANGANESE DIOXIDE BATTERY	品牌 Brand	DBV
型号 Type	CR2032	原始测试型号 Original tested type	/
标称电压(V) Nominal voltage	3.0	容量/能量 Capacity/energy	220mAh
描述 Description	不可充电锂金属电池芯 Primary Li-metal cell	锂含量(g) Li content	0.064
质量(kg) Mass	0.0031	外观 Appearance	钮扣状金属外壳 button metal shell
测试信息 Test information			
原报告编号 Original test report No.	20130101031	测试报告日期 Date of test report	2013-02-21
测试标准 Test standard	联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria 38.3 ST/SG/AC.10/11/Rev.5/Amend.1		
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 挤压 Crush	合格 Passed
T.7 过度充电 Overcharge	/	T.8 强制放电 Forced discharge	合格 Passed
38.3.3 (f)	/	38.3.3 (g)	/



样品图片 Sample Picture



结论 Conclusion	测试样品符合联合国《关于危险货物运输的建议书试验和标准手册》ST/SG/AC.10/11/Rev.5/Amend.138.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5/Amend.1 38.3		
备注 Remark	/		
签名 Signature 职务 Title	 王寅 副总工程师 Vice chief engineer	 签发日期 Issued date	2019-11-25



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-验证码:475182-

报告结束