



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 are believed to be accurate as of the date of preparation. However, **Maxell makes no warranty expressed or implied.**

Section 1 - Product and Company Identification

Product Name Coin Type Lithium Manganese Dioxide Battery (CR)	Sizes: All	Date of preparation: Jan. 1, 2020
Company: Maxell, Ltd., Energy Division	Telephone Numbers: 81-(0)794-63-8054	
Address (Number, Street, City, State, and ZIP Code): 5, Takumidai, Ono-shi, Hyogo 675-1322, Japan	Fax Numbers: 81-(0)794-63-8445	

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, or fire and cause human injury or equipment trouble. Please strictly observe safety instructions.

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

Section 3 - Composition/Information on Ingredients

Ingredient	CAS#	Content (wt %)
Manganese Dioxide (MnO ₂)	1313-13-9	15 to 40
Propylene Carbonate (C ₄ H ₆ O ₃)	108-32-7	2 to 6
1,2-Dimethoxyethane (C ₄ H ₁₀ O ₂)	110-71-4	1 to 5
Lithium Perchlorate (LiClO ₄)	7791-03-9	0.1 to 1.5
Lithium or Lithium Alloy (Li)	7439-93-2	1 to 5
Carbon (C)	7782-42-5	1 to 4

Lithium content for each cell

Model	Li content (g)	Model	Li content (g)
CR1216	0.008	CR2016	0.03
CR1220	0.011	CR2025	0.05
CR1616	0.02	CR2032	0.07
CR1620	0.025	CR2032H	0.07
CR1632	0.04		



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 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.
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 metal batteries are burning in a confined space, use a smothering agent (e.g. carbon dioxide or dry sand).
Fire fighting procedure	Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

Section 6 - Accidental Release Measures

If the battery releases liquid, wipe it with a dry cloth.

Keep the battery away from fire or heat.

Section 7 - Handling and Storage

1) Handling

● **Never swallow.**

If a battery is accidentally swallowed, see Section 4 - First Aid Measures.

● **Never charge.**

The battery is not designed to be charged by any electrical source. Charging can generate gas and internal short-circuiting, leading to distortion, leakage, overheating, explosion or fire.

- **Never heat.**

Heating the battery to more than 100 deg. C can increase the internal pressure, causing distortion, leakage, overheating, explosion or fire.

- **Never expose to naked flames.**

Exposing to naked flames can cause the lithium metal to melt, causing the battery to catch fire and explode.

- **Never disassemble or deform.**

Disassembly or deforming the battery can cause leakage, overheating, explosion or fire due to internal short-circuits.

- **Never reverse the positive and negative terminals when inserting in electrical equipment.**

Inserting the battery incorrectly can lead to short-circuiting, charging or forced-discharging. This can cause distortion, leakage, overheating, explosion or fire.

- **Never short-circuit the battery.**

Do not allow the positive and negative terminals to short-circuit. Never carry or store the battery with metal objects such as necklaces or hairpins. Do not take multiple batteries out of the package and stack or mix them when storing. Otherwise, this can lead to distortion, leakage, overheating, explosion or fire.

- **Never weld the terminals or weld wire to the body of the battery.**

The heat of welding or soldering can cause the lithium to melt or cause damage to the insulating material in the battery. This can cause distortion, leakage, overheating, explosion or fire.

- **Never use different batteries together.**

Using different batteries together, i.e. different types or old/used and new or those of different manufacturers, can cause distortion, leakage, overheating, explosion or fire because of the differences in battery properties. Please consult Maxell before designing devices that use two or more batteries connected in a series or parallel, even with the same battery type.

- **Never touch liquid leaking from a battery.**

If the liquid enters the eyes or mouth, see Section 4 - First Aid Measures.

- **Never allow battery liquid to come into contact with a naked flame.**

If leakage or a strong odor is detected, keep the battery away from all naked flames. The leaked liquid is inflammable.

- **Never attach a battery to the skin.**

Attaching a battery to the skin using tape, etc. should be avoided. Moisture from the skin can cause battery discharge, which can produce certain chemical substances that burn the skin.

2) Storage

Never let the battery contact with water. Never store the battery in hot and high humid place.

Section 8 - Exposure Controls, Personal Protection

Respiratory Protection	NA
Ventilation	NA
Eye Protection	NA
Protective Gloves	NA
Other protective clothing	NA

Section 9 - Physical/Chemical Characteristics

Coin shape with primary cell of 3V nominal voltage

Section 10 - Stability and Reactivity

Stability: Stable (Performance deterioration depends on circumstance.)

Incompatibility: Water

Hazardous polymerization: Will not occur.

Condition to avoid: See section 7.

Hazardous Decomposition or Byproducts: Hydrogen (By moisture)

Section 11 - Toxicological Information

As the contents are sealed in the battery case, there is no toxicity.

Section 12 - Ecological Information

If the battery is disposed of on land or in water, the battery case may corrode and liquid leak from the battery. Ecological information has not been reported.

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

- 1) Shipping Name (UN Number): Lithium metal batteries (UN3090)
Lithium metal batteries packed with equipment (UN3091)
Lithium metal batteries contained in equipment (UN3091)
- 2) Hazard Classification: Class 9 (Miscellaneous)
- 3) 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

NA=Not Applicable



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 *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, CR1616, CR1620, CR1632, CR2016, CR2025, CR2032, CR2032H	PI968 Section II	PI969 Section II	PI970 Section II	SP188
more than 0.3 g but not more than 1 g	(No)	PI968 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

Major applicable regulations for the transportation of lithium metal cells and batteries are as follows:

- 1) UN(United Nations) Recommendations on the Transport of Dangerous Goods: Model Regulations 20th revised edition
- 2) UN(United Nations) Recommendations on the Transport of Dangerous Goods: Manual of Test and Criteria
- 3) International Civil Aviation Organization (ICAO): Technical Instructions for Safety Transport of Dangerous Goods by Air, 2019-2020 Edition
- 4) International Air Transport Association (IATA): Dangerous Goods Regulations, 61st Edition
- 5) International Maritime Organization (IMO): International Maritime Dangerous Goods (IMDG) Code, 2018 Edition



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

Section 16 - Other Information

If you want further information, please contact Maxell sales representative.





仅限货机
CAO



NO.2120132990



中国认可
检验
INSPECTION
CNAS IB0071

货物运输条件鉴定书

Certification

for Safe Transport of Chemical Goods

锂电池 — 符合包装说明968第II部分

样品名称： 锂电池CR1632 3V 140mAh

Sample name: Lithium battery CR1632 3V 140mAh

委托单位： 麦克赛尔（深圳）贸易有限公司
Maxell (Shenzhen) Trading co., Ltd.

生产单位： 麦克赛尔株式会社
Maxell, Ltd.



上海化工院检测有限公司

Shanghai Research Institute of Chemical Industry Testing Co., Ltd



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样品名称 Sample name	中文 Chinese	锂电池CR1632 3V 140mAh		
	英文 English	Lithium battery CR1632 3V 140mAh		
委托单位 Consignor		麦克赛尔（深圳）贸易有限公司 Maxell (Shenzhen) Tarding co., Ltd.		
生产单位 Manufacturer		麦克赛尔株式会社 Maxell, Ltd.		
检验方法、程序 Inspection method and procedure		国际航空运输协会《危险品规则》61版 IATA Dangerous Goods Regulations (DGR) 61st Edition		
样品外观 Sample appearance		银色钮扣状金属外壳 Silvery Button metal shell		
包装件信息 Package information		锂电池总净重1.9kg, 锂电池总数量1000颗。 Lithium batteries total net weight:1.9kg, Lithium batteries total quantity:1000.		
序号 NO.	电池种类 Battery type	型号 Model	容量Capacity /锂含量Li content	放置方式 Placement
1	不可充电锂金属电池芯 Primary Li-metal cell	CR1632	140mAh / ≤0.3g	电池单独运输 Battery only
鉴定结论	IDENTIFICATION CONCLUSION	<p>1. 危险性识别 (Hazards identification) 锂金属电池。 Lithium metal battery.</p> <p>2. 空运按照国际航空运输协会《危险品规则》办理的类项 (Suggestion according to IATA DGR) 该物品满足包装说明968基本要求和第II部分的规定。 The goods meet the requirements in General Requirements and section II of Packaging Instruction 968.</p> <p>3. 包装要求 (Packaging requirements) 按包装说明968第II部分要求办理。 The goods are packaged according to the Packaging Instruction 968 section II.</p> <p>仅限货机。 Cargo Aircraft Only.</p> <p style="text-align: center;"> 检验日期: 2019-12-19 签发日期: 2019-12-19 生效日期: 2020-01-01 Inspection Date: Issue Date: Effective Date: </p>		
备注 Comment	/			



批准 Approver:

审核 Checker:

主检 Appraiser:



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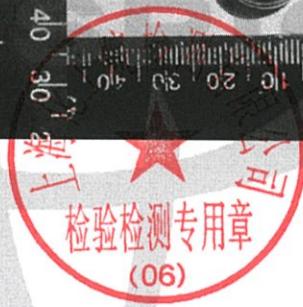
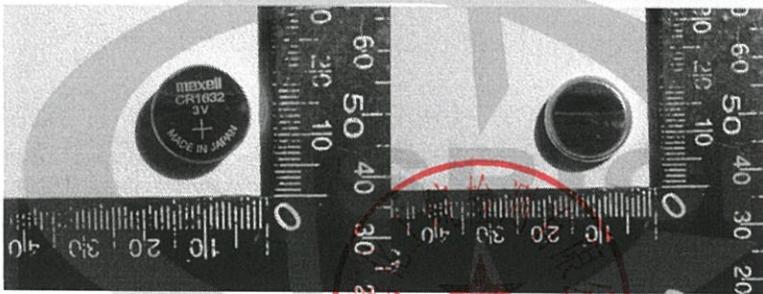
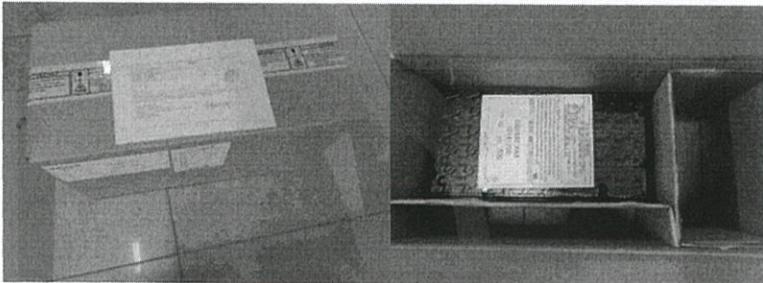
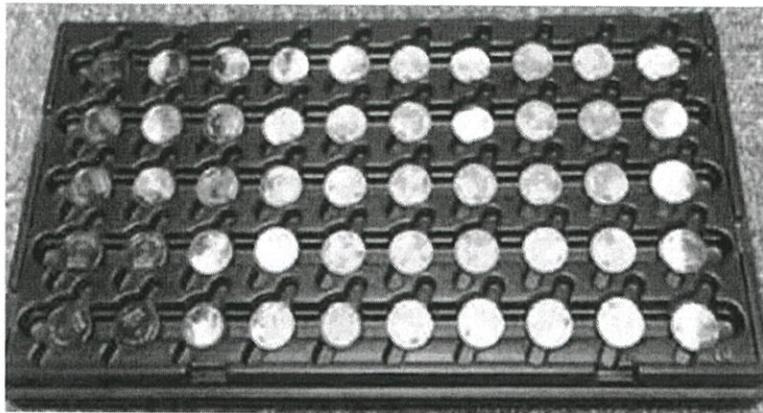
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序号 No.	检验结果及其他事项 Inspection results and other things
1	<p>本报告所述锂电池按照《危险品规则》(61版)[以下简称DGR] 3.9.2.6.1(e)规定的质量管理体系进行制造。</p> <p>本报告所述锂电池不属于因安全原因召回的锂电池。</p> <p>本报告所述锂电池不进行以回收或处置为目的的航空运输, 不属于废弃锂电池。</p> <p>Lithium cells and batteries listed in this report were manufactured under the quality management programme as described in IATA DGR 61st 3.9.2.6.1(e).</p> <p>Lithium cells and batteries listed in this report are not the defective cells or batteries returned to the manufacturer for safety reasons.</p> <p>Lithium cells and batteries listed in this report are not waste lithium cells or batteries, and they will not be shipped for recycling or disposal.</p>
2	<p>本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。</p> <p>包装件能够承受1.2m跌落试验。</p> <p>Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.</p> <p>The package has passed the 1.2m drop test.</p> <p>UN38.3试验概要编号</p> <p>The UN38.3 Test Summary No. (s)</p> <p>811900600834141</p> <p>详细信息请扫描右侧二维码。</p> <p>Please scan the QR code on the right for more information.</p> 
3	<p>锂电池完全封装在内包装内, 位于坚固的刚性外包装中。</p> <p>电池具有适当的防短路措施。</p> <p>Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong rigid outer packaging.</p> <p>Cells and batteries are properly protected to prevent short circuits.</p>
4	<p>—当使用航空货运单时, 必须在“货物名称和数量”栏注明“锂金属电池符合包装说明968第II部分”和“仅限货机”。</p> <p>—The words “Lithium metal batteries in compliance with Section II of PI 968” and “Cargo Aircraft Only” or “CAO” must be included on the air waybill, when an air waybill is used. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill.</p>
5	<p>每个包装件必须耐久清晰的标识DGR图7.1.C所示标记。包装件必须具有足够的尺寸在其一个面上粘贴未被折叠的标记。</p> <p>每个包装件必须贴有“仅限货机”标签(DGR图7.4.B)。当包装件的尺寸足够, “仅限货机”标签必须位于靠近锂电池标记的同一表面。</p> <p>Each package must be durably and legibly marked with the mark shown in Figure 7.1.C in IATA DGR. The package must be of such a size that there is adequate space to affix the mark on one side of the package without the mark being folded.</p> <p>Each package must be labelled with the “Cargo Aircraft Only” label(Figure 7.4.B in IATA DGR). When the package dimensions are adequate, the Cargo Aircraft Only label must be located on the same surface of the package near the lithium battery mark.</p>
6	<p>在任何一票托运货物中, 托运人不允许托运1个以上根据第II部分要求准备的包装件。根据第II部分条款准备的锂电池包装件, 必须与不受这些规则限制的货物分开交付给运营商, 并且在提供给运营商之前不得装入集装箱(U LD)。</p> <p>A shipper is not permitted to offer for transport more than one (1) package prepared according to Section II in any single consignment. Packages of lithium batteries prepared in accordance with the provisions of Section II must be offered to the operator separately from cargo which is not subject to these Regulations and must not be loaded into a unit load device(ULD) before being offered to the operator.</p>
7	<p>电池不得与其它危险品包装在同一外包装内。</p> <p>Cells and batteries must not be packed in the same outer packaging with other dangerous goods.</p>
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报告结束



NO.2120132991



货物运输条件鉴定书

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锂电池类货物

样品名称： 锂电池CR1632 3V 140mAh

Sample name: Lithium battery CR1632 3V 140mAh

委托单位： 麦克赛尔（深圳）贸易有限公司
Maxell (Shenzhen) Tarding co., Ltd.

生产单位： 麦克赛尔株式会社
Maxell, Ltd.



上海化工院检测有限公司

Shanghai Research Institute of Chemical Industry Testing Co., Ltd



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样品名称 Sample name	中文 Chinese	锂电池CR1632 3V 140mAh		
	英文 English	Lithium battery CR1632 3V 140mAh		
委托单位 Consignor	麦克赛尔(深圳)贸易有限公司 Maxell (Shenzhen) Tarding co., Ltd.			
生产单位 Manufacturer	麦克赛尔株式会社 Maxell, Ltd.			
检验方法、程序 Inspection method and procedure	国际海事组织《国际海运危险货物规则》(2018版) IMO International Maritime Dangerous Goods Code (2018 Edition)			
样品外观 Sample appearance	银色钮扣状金属外壳 Silvery Button metal shell			
包装件信息 Package information	重量≤30kg. Weight≤30kg.			
序号 NO.	电池种类 Battery type	型号 Model	容量Capacity / 锂含量Li content	放置方式 Placement
1	不可充电锂金属电池芯 Primary Li-metal cell	CR1632	140mAh / ≤0.3g	电池单独运输 Battery only
鉴定结论 I D E N T I F I C A T I O N C O N C L U S I O N	1. 危险性识别 (Hazards identification) 锂金属电池。 Lithium metal battery.			
	2. 海运按照国际海事组织《国际海运危险货物规则》办理的类项 (Suggestion according to IMO IMDG Code) 根据特殊规定188, 该物品不受IMO IMDG Code其他条款限制。 The article is not subject to other provisions of IMO IMDG Code according to special provision 188.			
3. 包装要求 (Packaging requirements) 无。 None.				
备注 Comment	检验日期: 2019-12-19 签发日期: 2019-12-19 生效日期: 2020-01-01 Inspection Date: Issue Date: Effective Date:			



批准 Approver: 张小明

审核 Checker: 董学胜

主检 Appraiser: 孙清



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序号 No.	检验结果及其他事项 Inspection results and other things
1	<p>本报告所述锂电池按照《国际海运危险货物规则》(2018版) 2.9.4.5规定的质量管理体系进行制造。 Lithium cells and batteries listed in this report were manufactured under the quality management programme as described in IMDG CODE 2018 EDITION 2.9.4.5 .</p>
2	<p>本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。 包装件能够承受1.2m跌落试验。 Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. The package has passed the 1.2m drop test. UN38.3试验概要编号 The UN38.3 Test Summary No. (s) 811900600834141 详细信息请扫描右侧二维码。 Please scan the QR code on the right for more information.</p> 
3	<p>锂电池完全封装在内包装内, 位于坚固的外包装中。 Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong outer packaging.</p>
4	<p>电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits.</p>
5	<p>每个包装件必须标示恰当的锂电池标记。 装有锂电池的包装件, 符合国际民航组织关于危险货物安全空运的《技术细则》第4部分第11章的包装说明965或968第IB部分规定的, 黏贴5.2.1.10(锂电池标记)和5.2.2.2所示的9A型标签, 应视为符合本特殊规定188的规定。 Each package shall be marked with the appropriate lithium battery mark. Packages containing lithium batteries packed in conformity with the provisions of part 4, chapter 11, packing instructions 965 or 968, section IB of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by air that bear the mark as shown in 5.2.1.10(lithium battery mark) and the label shown 5.2.2.2, Model No.9A shall be deemed to meet the provisions of this special provision 188.</p>
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无检
专用章



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