



PRODUCT 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 Batteries (CR)	Sizes: CR2032H	Date of preparation: Aug. 25, 2008
Company: Hitachi Maxell, Ltd. Ono Works	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 - Composition/Information on Ingredients

Ingredient		CAS#	Content (wt%)
Positive material	Manganese Dioxide	1313-13-9	25 to 35
	Graphite	7782-42-5	2 to 3
	Teflon	9002-84-0	0 to 1
Electrolyte solution	Propylene Carbonate	108-32-7	4 to 5
	1,2-Dimethoxyethane	110-71-4	2.5 to 3.5
	Lithium Perchlorate	7791-03-9	0 to 1.0
Negative material	Lithium	7439-93-2	1.5 to 2.5
Positive can	Stainless steel	-	20 to 25
Negative cap	Iron	7439-89-6	25 to 30
Gasket and separator	Polypropylene	9003-07-0	2.5 to 3.5

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, 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 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 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

NA

Section 7 - Handling and Storage

1) Handling

Never swallow. Never charge. Never heat. Never expose to open flame. Never disassemble. Never reverse the positive and negative terminals when mounting. Never short-circuit the battery. Never weld the terminal or wire to the body of the battery directly. Never use different batteries together. 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.

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

NA

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

NA

Section 12 - Ecological Information

NA

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

Shipping Name	Lithium Batteries
UN Number	UN3090 (UN3091 for <i>Lithium batteries in equipment</i>)
Hazard Classification	Class 9 (Miscellaneous)

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	A45
International	Water	IMO	188
U.S.A	Air, Rail, Highway, Water	DOT	49 CFR Section 173.185

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for lithium batteries shipping. All CR batteries of Maxell meet all special provisions.

Ref) Summary of A45 (IATA Dangerous Goods Regulations 49th Edition)

If all of following 3 requirements is satisfied, lithium batteries can be transported as no dangerous goods.

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

	Lithium Cell/Battery (Lithium weight)	Lithium ion Cell/ Battery (Equivalent lithium content)
Cell	1g or less	1.5g or less
Battery	2g or less	8g or less

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

- 2) Cells and batteries must meet the requirements of the UN T1–T8 tests.
- 3) Except for batteries contained in equipment, packages containing more than 24 cells or 12 batteries must:
 - a) Be marked to indicate that they contain lithium batteries, and that special procedures should be followed in the event that the package is damaged;
 - b) Be accompanied with a shipping paper explaining that the cells and batteries are excepted from regulations;
 - c) Be capable of withstanding a 1.2m drop test in any orientation without shifting of the contents that allow short-circuiting, and without release of package contents; and
 - d) Be no more than 30kg (gross weight) of a package weight except in the case of lithium batteries packed with equipment.

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

Section 15 - Regulatory Information

NA

Section 16 - Other Information

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