Material Safety Datasheet (MSDS)
Li-ion button cell battery, model CR2032,
used in
PRA-SCL (F.01U.325.042)
PRA-SCM (F.01U.325.041)
PRA-SCS (F.01U.325.040)

Multiple brands

Gillette
Environment
Health and Safety

37 A Street
Needham, MA 02492
Tel 781.292.8151

MATERIAL SAFETY DATA SHEET

NAME: **DURACELL LITHIUM MANGANESE DIOXIDE COIN BATTERIES**

CAS NO: Not applicable **Effective Date:** 4/4/05 **Rev:** 4

A. — IDENTIFICATION

	%
Manganese Dioxide (1313-13-9)	65-75
Propylene Carbonate (108-32-7)	10-15
Lithium (7439-93-2)	5-10
Graphite, synthetic (7440-44-0)	5-10
1,2-Dimethoxyethane (110-71-4)	1-10
Lithium Perchlorate (7791-03-9)	<1.5

Formula: Mixture — Mixture

Molecular Weight: NA

Synonyms: Lithium Manganese Dioxide Coin Cells: 3V-DL2016; DL2025; DL2430; DL2450; DL2032; DL1616; DL1620

B. — PHYSICAL DATA

Boiling Point	Melting Point	Freezing Point
NA °F NA °C	NA °F NA °C	NA °F NA °C
Specific Gravity (H_2O=1)	**Vapor Density (air=1)**	**Vapor Pressure @ ____ °F**
NA	NA	NA mm Hg
Evaporation	**Saturation in Air**	**Autoignition Temperature**
(Ether =1)	(by volume@ ____ °F)	____ °F ____ °C
NA	NA	NA
% Volatiles	**Solubility in Water**	**pH**
NA	NA	NA

Appearance/Color: Coin cells. Contents dark in color.

Flash Point and Test Method(s): 1,2-Dimethoxyethane (Approximately 3-7% of contents): 42.8 °F, 6°C (Closed Cup)

Flammable Limits in Air (% by volume): Lower NA % Upper NA %

C. — REACTIVITY

Stability					Polymerization				
	[X]	stable	[ ]	unstable		[ ]	may occur	[X]	will not occur

Conditions to Avoid	Conditions to Avoid
Do not heat, crush, disassemble, short circuit or recharge.	Not applicable
Incompatible Materials	**Hazardous Decomposition Products**
Contents incompatible with strong oxidizing agents.	Thermal degradation may produce hazardous fumes of manganese and lithium; oxides of carbon and other toxic by-products.

*** IF MULTIPLE INGREDIENTS, INCLUDE CAS NUMBERS FOR EACH** **NA=NOT AVAILABLE**

Footnotes

Not applicable

D. — HEALTH HAZARD DATA

Occupational Exposure Limits PEL's, TLV's, etc.)

8-Hour TWAs: Manganese Dioxide (as Mn) - 5 mg/m^3 (Ceiling) (OSHA); 0.2 mg/m^3 (ACGIH/Gillette)
1,2-Dimethoxyethane - 0.15 ppm (Gillette)
Graphite (all kinds except fibrous) - 2 mg/m^3 (synthetic, ACGIH); 15 mg/m^3 (total, OSHA); 5 mg/m^3 (respirable, OSHA)

These levels are not anticipated under normal consumer use conditions.

Warning Signals

Not applicable

Routes/Effects of Exposure

These chemicals and metals are contained in a sealed can. For consumer use, adequate hazard warnings are included on both the package and on the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperature, is accidentally swallowed or is mechanically, physically, or electrically abused.

1. Inhalation	Not anticipated. Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.
2. Ingestion	An initial x-ray should be obtained promptly to determine battery location. Batteries lodged in the esophagus should be removed immediately since leakage, burns and perforation can occur as soon as 4-6 hours after ingestion. Irritation to the internal/external mouth areas may occur following exposure to a leaking battery.
3. Skin	a. Contact Irritation may occur following exposure to a leaking battery. b. Absorption Not anticipated.
4. Eye Contact	Irritation may occur following exposure to a leaking battery.
5. Other	Not applicable

E. — ENVIRONMENTAL IMPACT

1. Applicable Regulations	All ingredients listed in TSCA inventory.
2. DOT Hazard Class -	Not applicable
3. DOT Shipping Name -	Not applicable

"DURACELL certifies that all of its lithium batteries meet the requirements of the UN Manual of Tests and Criteria, Part III subsection 38.3. If you assemble these batteries into larger battery packs, it is recommended that you perform the UN Tests to ensure the requirements are met prior to shipment. Cells and batteries are to be separated so as to prevent short circuits and packed in strong packaging, except when installed in equipment. Except when installed in equipment, each package containing more than 24 cells or 12 batteries must be marked indicating that it contains lithium batteries and that special procedures should be followed in the event that the packaging is damaged. In addition, each shipment must be accompanied by appropriate documentation and the package of a type capable of meeting the drop test requirements. Except for personal use, the shipment of lithium batteries aboard passenger aircraft is no longer allowed. The following new marking requirement applies to all lithium battery shipments that are exempted from Class 9 according to CFR49: Primary Lithium Batteries - Forbidden From Transport Aboard Passenger Aircraft". This wording should appear on all packages offered for shipment."

Environmental Effects

These batteries pass the U. S. EPA's Toxicity Characteristic Leaching Procedure and therefore, maybe disposed of with normal waste.

F. — EXPOSURE CONTROL METHODS

Engineering Controls

General ventilation under normal use conditions.

Eye Protection

None under normal use conditions. Wear safety glasses when handling leaking batteries.

Skin Protection

None under normal use conditions. Use butyl gloves when handling leaking batteries.

Respiratory Protection

None under normal use conditions.

Other

Keep batteries away from small children.

G. — WORK PRACTICES

Handling and Storage

Store at room temperature. Avoid mechanical or electrical abuse. **DO NOT** short or install incorrectly. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

Normal Clean Up

Not applicable

Waste Disposal Methods

No special precautions are required for small quantities. Large quantities of open batteries should be treated as hazardous waste. Dispose of in accordance with federal, state and local regulations. Do not incinerate, since batteries may explode at excessive temperatures.

H. — EMERGENCY PROCEDURES

Steps to be taken if material is released to the environment or spilled in the work area

Evacuate the area and allow vapors to dissipate. Increase ventilation. Avoid eye or skin contact. **DO NOT** inhale vapors. Clean-up personnel should wear appropriate protective gear. Remove spilled liquid with absorbent and contain for disposal.

Fire and Explosion Hazard	Extinguishing Media
Batteries may burst and release hazardous decomposition products when exposed to a fire situation. See Sec. C.	As for surrounding area. Dry chemical, alcohol foam, water or carbon dioxide. For incipient fires, carbon dioxide extinguishers are more effective than water.

Firefighting Procedures

Cool fire-exposed batteries and adjacent structures with water spray from a distance. Use self-contained breathing apparatus and full protective gear.

I. — FIRST AID AND MEDICAL EMERGENCY PROCEDURES

Eyes

Not anticipated. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for 30 minutes. Contact physician at once.

Skin

Not anticipated. If battery is leaking, irrigate exposed skin with copious amounts of clear, tepid water for a least 15 minutes. If irritation, injury or pain persists, consult a physician.

Inhalation

Not anticipated. Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists.

Ingestion

Consult a physician. Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up x-rays are necessary only to confirm passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. If mouth area irritation/burning has occurred, rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes.

Notes to Physician

1) For information on treatment, telephone (202)-625-3333 collect.
2) Potential leakage of less than 50 milligrams of propylene carbonate (CAS #108-32-1) and dimethoxyethane (CAS #110-71-4).
3) Dimethoxyethane readily evaporates.
4) Under certain misuse conditions and by abusively opening the battery, exposed lithium can react with water or moisture in the air causing potential thermal burns or fire hazard.

Replaces # 2033.2

As a courtesy to our customers, Energizer has prepared copyrighted Product Safety Datasheets to provide information on the different Eveready/Energizer battery systems. As defined in OSHA Hazard Communication Standard, Section 1910.1200 (c), Eveready/Energizer batteries are manufactured "articles", which do not result in exposure to a hazardous chemical under normal conditions of use. For this reason, Material Safety Datasheets are not required. The information and recommendations set forth herein are made in good faith, for information only, and are believed to be accurate as of the date of preparation. However, ENERGIZER BATTERY MANUFACTURING, INC., MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM REFERENCE ON IT.

PRODUCT SAFETY DATA SHEET

PRODUCT NAME: Energizer Battery **Type No.:** **Volts:** 3.0

TRADE NAMES: Energizer Lithium Manganese Dioxide Batteries **Approximate Weight: 0.6 – 40 g.**

CHEMICAL SYSTEM: Lithium Manganese Dioxide **Designed for Recharge:** No

SECTION 1- MANUFACTURER INFORMATION

Manufactured for
Energizer Battery Manufacturing, Inc.
25225 Detroit Rd.
Westlake, OH 44145

Telephone Number for Information:
800-383-7323 (USA / CANADA)

Date Prepared: January 2009

SECTION 2 – HAZARDS IDENTIFICATION

Under normal conditions of use, the battery is hermetically sealed.

Ingestion: Swallowing a battery can be harmful.
Inhalation: Contents of an open battery can cause respiratory irritation.
Skin Contact: Contents of an open battery can cause skin irritation.
Eye Contact: Contents of an open battery can cause severe irritation.

SECTION 3 - INGREDIENTS

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	% / wt.
Carbon Black (CAS# 1333-86-4)	3.5 mg/m^3 TWA	3.5 mg/m^3 TWA	0-1
1,2-Dimethoxyethane (CAS# 110-71-4)	None established	None established	0-6
1,3-Dioxolane (CAS# 646-06-0)	None established	None established	0-8
Graphite (CAS# 7782-42-5)	15 mg/m^3 TWA (total dust) 5 mg/m^3 TWA (respirable fraction)	2 mg/m^3 TWA (respirable fraction)	0-3
Lithium or Lithium Alloy (CAS# 7439-93-2)	None established	None established	1-6
Lithium Perchlorate (CAS# 7791-03-9)	None established	None established	0-3
Lithium Trifluoromethanesulfonate (CAS# 33454-82-9)	None established	None established	0-3
Lithium Trifluoromethanesulfonimide (CAS# 90076-65-6)	None established	None established	0-3

Manganese Dioxide (CAS# 1313-13-9)	5 mg/m^3 Ceiling (as Mn)	0.2 mg/m^3 TWA (as Mn)	12-42
Propylene Carbonate (CAS# 108-32-7)	None established	None established	0-8
Non-Hazardous Components:			
Steel (iron CAS# 7439-89-6)	None established	None established	20
Plastic and Other	None established	None established	Balance

SECTION 4 – FIRST AID MEASURES

Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately. CALL NATIONAL BATTERY INGESTION HOTLINE for advice and follow-up (202-625-3333) collect day or night.
Inhalation: Provide fresh air and seek medical attention.
Skin Contact: Remove contaminated clothing and wash skin with soap and water.
Eye Contact: Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

Note: Carbon black is listed as a possible carcinogen by International Agency for Research on Cancer (IARC).

SECTION 5- FIRE FIGHTING MEASURES

In case of fire where lithium batteries are present, flood area with water or smother with a Class D fire extinguishant appropriate for lithium metal, such as Lith-X. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving lithium batteries can be controlled by flooding with water. However, the contents of the battery will react with water and form hydrogen gas. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended. A smothering agent will extinguish burning lithium batteries.

Emergency Responders should wear self-contained breathing apparatus. Burning lithium manganese dioxide batteries produce toxic and corrosive lithium hydroxide fumes.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

To cleanup leaking batteries:

Ventilation Requirements: Room ventilation may be required in areas where there are open or leaking batteries.
Respiratory Protection: Avoid exposure to electrolyte fumes from open or leaking batteries.
Eye Protection: Wear safety glasses with side shields if handling an open or leaking battery.
Gloves: Use neoprene or natural rubber gloves if handling an open or leaking battery.
Battery materials should be collected in a leak-proof container.

SECTION 7 - HANDLING AND STORAGE

Storage: Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life. In locations that handle large quantities of lithium batteries, such as warehouses, lithium batteries should be isolated from unnecessary combustibles.

Mechanical Containment: If potting or sealing the battery in an airtight or watertight container is required, consult your Energizer Battery Manufacturing, Inc. representative for precautionary suggestions. Do not obstruct safety release vents on batteries. Encapsulation of batteries will not allow cell venting and can cause high pressure rupture.

Handling: Accidental short circuit for a few seconds will not seriously affect the battery. Prolonged short circuit will cause the battery to lose energy, generate significant heat and can cause the safety release vent to open. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries into devices. Damaging a lithium battery may result in an internal short circuit.

The contents of an open battery, including a vented battery, when exposed to water, may result in a fire and/or explosion. Crushed or damaged batteries may result in a fire.

If soldering or welding to the battery is required, consult your Energizer representative for proper precautions to prevent seal damage or short circuit.

Charging: This battery is manufactured in a charged state. It is not designed for recharging. Recharging can cause battery leakage or, in some cases, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards.

Labeling: If the Energizer label or package warnings are not visible, it is important to provide a package and/or device label stating:

WARNING: Battery can explode or leak and cause burns if installed backwards, disassembled, charged, or exposed to water, fire or high temperature.

Where accidental ingestion of small batteries is possible, the label should include:

WARNING: (1) Keep away from small children. If swallowed, promptly see doctor; have doctor phone (202) 625-3333 collect. (2) Battery can explode or leak and cause burns if installed backwards, disassembled, charged, or exposed to water, fire or high temperature.

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

Boiling Point @ 760 mm Hg (°C)	Not applicable for an Article
Vapor Pressure (mm Hg @ 25°C)	Not applicable for an Article
Vapor Density (Air = 1)	Not applicable for an Article
Density (g/cm^3)	2.0 – 3.0
Percent Volatile by Volume (%)	Not applicable for an Article
Evaporation Rate (Butyl Acetate = 1)	Not applicable for an Article
Physical State	Solid
Solubility in Water (% by weight)	Not applicable for an Article
pH	Not applicable for an Article
Appearance and Odor	Solid object / no odor

SECTION 10 – STABILITY AND REACTIVITY

Lithium manganese dioxide batteries do not meet any of the criteria established in 40 CFR 261.2 for reactivity.

SECTION 11 – TOXICOLOGICAL INFORMATION

Lithium manganese dioxide batteries are not hazardous waste. Under normal conditions of use, lithium manganese dioxide batteries are non-toxic.

SECTION 12 – ECOLOGICAL INFORMATION

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

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable federal, state and local regulations.

SECTION 14 – TRANSPORT INFORMATION

In general, the transportation of primary lithium cells and batteries (and batteries packaged with equipment) is regulated as UN3090 (UN 3091) by the International Civil Aviation Organization, International Air Transport Association, International Maritime Dangerous Goods Code and the US Department of Transportation. However, Energizer lithium-iron disulfide batteries are exempt from the majority of regulatory requirements of UN3090 (and UN 3091) because they meet the requirements of Special Provision A45 (prior to January 1, 2009) and the new IATA Packaging Instructions 968 – 970 after January 1, 2009. (They contain less than 1 gram of lithium and pass the tests defined in UN model regulation section 38.3) The batteries must meet the following criteria for shipment:

• For air shipments, meet the requirements listed in Special Provision A45 (prior to January 1, 2009) and IATA Packaging Instructions 968 – 970 (after January 1, 2009) of the International Air Transport Association Dangerous Goods Regulations.
• Meet the requirements for the US Department of Transportation listed in 49 CFR 173.185.
• With limited exceptions, the transport of primary lithium batteries is prohibited aboard passenger aircraft. Refer to August 9th, 2007 Federal Register (Hazardous Materials; Transportation of Lithium Batteries) for additional rules that are effective on January 1, 2008.

By complying with the requirements specified above, Lithium Batteries are not otherwise regulated as Dangerous Goods. Lithium Batteries manufactured, packaged and shipped by Energizer Battery Manufacturing, Inc. meet the requirements specified above. Any Lithium Batteries subsequently repackaged or reshipped are required to meet all of the requirements specified above.

SECTION 15 - REGULATORY INFORMATION

Outside of the transportation requirements noted in Section 14, lithium manganese dioxide batteries marketed by Energizer Battery Manufacturing, Inc. are not regulated.

SARA/TITLE III - As an article, this battery and its contents are not subject to the requirements of the Emergency Planning and Community Right-To-Know Act.

SECTION 16 - OTHER INFORMATION

None.

maxell

CR Battery

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	Sizes:	Date of preparation:
Coin Type Lithium Manganese Dioxide Batteries (CR)	All	Jan. 1, 2009

Company:	Telephone:
Hitachi Maxell, Ltd., Primary Battery Division	81-(0)794-63-8054
Address (Number, Street, City, State, and ZIP Code):	Fax:
5, Takumidai, Ono-shi, Hyogo 675-1322, Japan	81-(0)794-63-8058

Section 2 - Composition/Information on Ingredients

Ingredient	CAS#	Content (wt%)
Manganese Dioxide	1313-13-9	15 to 40
Propylene Carbonate	108-32-7	2 to 6
1,2-Dimethoxyethane	110-71-4	1 to 5
Lithium Perchlorate	7791-03-9	0 to 1.5
Lithium or Lithium Alloy	7439-93-2	1 to 5
Graphite	7782-42-5	1 to 4

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

N/A

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		N/A
Ventilation	Local Exhaust	N/A
	Mechanical	N/A
	Special	N/A
	Other	N/A
Eye Protection		N/A
Protective Gloves		N/A
Other protective clothing		N/A

Section 9 - Physical/Chemical Characteristics

N/A

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

N/A

Section 12 - Ecological Information

N/A

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 Lithium batteries in equipment)
Hazard Classification	Class 9 (Miscellaneous)

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Packing Instruction 968-970
International	Marine	IMO	SP188
U.S.A	Air, Rail, Road, Marine	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.

Ref) Summary of Packing Instruction (IATA Dangerous Goods Regulations 50th Edition)

The minimum requirements necessary to transport as non-restricted goods are as follows;

1) For a lithium metal or lithium alloy cell, the lithium content is not more than 1 g. For a lithium metal or lithium alloy battery, the aggregate lithium content is not more than 2g.
2) Each cell or battery is of the type proven to meet the requirement of each test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3.
3) Each package must be displayed a battery handling label. (Telephone number must be printed for emergency call on the handling label.)
4) Each consignment must be accompanied with a declaration of non-dangerous goods document. (Telephone number must be printed for emergency call on the document.)
5) Each package must be capable of withstanding a 1.2 m drop test.

Maxell will offer the certificate of 1) and 2). If our package is used for transport, we offer the certificate of 5).

a) Transportation of batteries installed in equipment as non-restricted goods
If each package contains no more than 4 cells or 2 batteries, the requirement is the same as current. But for other cases of cell or battery quantity, the requirements are 1), 2), 3) and 4).

b) Transport of batteries packed with equipment as non-restricted goods
Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied.
Also the battery quantity within one package is restricted in air transport to the minimum quantity to operate the application and 2 batteries as spares.

c) Transportation of batteries only as non-restricted goods Regardless of the battery quantity, the requirements 1) to 5) shall be satisfied.
Also the maximum weight of one package is restricted in air transport, 2.5kg or less for lithium metal cells or batteries.

Section 15 - Regulatory Information

N/A

Section 16 - Other Information

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

Hitachi Maxell, Ltd.
2-18-2, Iidabashi, Chiyoda-ku, Tokyo 102-8521, Japan
http://www.maxell.com

Panasonic

Energy Company
Panasonic Corporation
1-1, Matsushita-cho, Moriguchi City, Osaka
570-8511, Japan Tel +81-6-6991-1141
http://panasonic.co.jp/ec/en

PRODUCT SAFETY DATA SHEET

1 Name of Product and Manufacturer

Name of Product	: Manganese dioxide lithium battery
Model name	: See table
Name of Company	: Panasonic Corporation Energy Company
Address	: 1-1 Matsushita-cho, Moriguchi City, Osaka, 570-8511, Japan
Division	: Energy Device Business Unit
Department	: Product Engineering Group
Telephone number	: +81-6-6994-4537
For emergency	: +81-6-6991-1141

Document number: CCRE-PSDS-1 Effective date: January 1.2012

2 Substance Identification

Substance : Lithium battery
(Lithium metal battery, Primary lithium battery, Button cell battery)

CAS number : Not specified.

UN Class : Even though the cells or batteries are classified as lithium metal batteries (UN3090/UN3091), they are exempted from Dangerous Goods because they meet the following: ＜References (1)(2)(3)＞

1. for cells, the lithium content is not more than 1g;
2. for batteries, the aggregate lithium content is not more than 2g;
3. each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, PartⅢ, sub-section 38.3.

Composition	: Positive electrode	; Manganese dioxide	12～50wt%
	: Negative electrode	; Lithium metal	0.5～ 6wt% (6～300mg)
	: Electrolyte	; Organic electrolyte	3～12wt%
		; Lithium Perchlorate	0.2～0.7wt%

Energy Company
Panasonic Corporation
1-1, Matsushita-cho, Moriguchi City, Osaka
570-8511, Japan Tel +81-6-6991-1141
http://panasonic.co.jp/ec/en

3 Hazardous and Toxicity Class

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

4 First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact	: Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.
Skin contact	: Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.
Inhalation	: Remove to fresh air immediately. Take a medical treatment.

5 Fire Fighting Measures

Extinguishing method	: Since vapor, generated from burning batteries may make eyes, nose and throat irritates, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.
Fire extinguishing agent	: Alcohol-resistant foam and dry sand are effective.

6 Measures for electrolyte leakage from the battery

- Take up with absorbent cloth.
- Move the battery away from the fire.

Energy Company
Panasonic Corporation
1-1, Matsushita-cho, Moriguchi City, Osaka
570-8511, Japan Tel +81-6-6991-1141
http://panasonic.co.jp/ec/en

7 Handling and Storage

- 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 recharge batteries. Do not deform batteries.
- Do not mix different type of batteries.
- Do not solder directly onto batteries.
- 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 or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, water drop or not to store it under frozen condition.
- Fire fighting apparatus should be installed.

8 Exposure Control (in case of electrolyte leakage from the battery)

Acceptable concentration	: Not specified in ACGIH.
Facilities	: Provide appropriate ventilation system such as local ventilator in the storage place.
Protective clothing	: Gas mask for organic gases, safety goggle, and safety glove.

9 Physical and Chemical Properties

Appearance	: Coin shape
Voltage	: 3 volts

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 (in case of electrolyte leakage from the battery)

Acute toxicity	: Oral(rat) LD50 ＞ 2,000mg/kg (estimated)
Irritation	: Irritating to eye and skin.
Mutagenicity	: Not specified.
Chronic toxicity	: Not specified.

Energy Company
Panasonic Corporation
1-1, Matsushita-cho, Moriguchi City, Osaka
570-8511, Japan Tel +81-6-6991-1141
http://panasonic.co.jp/ec/en

12 Ecological Information

In case of the worn-out battery was disposed in land, the battery case may be corroded, and leak electrolyte. But, we have no ecological information.

13 Disposal Considerations

When the battery is worn out, dispose of it under the ordinance of each local government or the low issued by relating government.

14 Transport Information

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.

For marine or air transportation, except for packages containing button cell batteries installed in equipment (including circuit board), each package shall meet the following: ＜References (1)(2)(3)＞

1. Each consignment shall be accompanied with a document including the following:
   (ⅰ) the package contains lithium metal cells or batteries;
   (ⅱ) the package shall be handled with care and that a flammability hazard exists if the package is damaged;
   (ⅲ) special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary; and
   (ⅳ) a telephone number for additional information.
   (ⅴ) For air transportation, the words “Lithium metal Battery”, ”not restricted” and “PI 968” for battery, “PI 969” for packed with equipment, or “PI 970” for contained in equipment, must be included on the air way bill. The information should be shown in the “Nature and Quantity of Goods” box of the air waybill.
2. Each package shall be marked with the previous (ⅰ) to (ⅳ). For air transportation, each package must be labeled with a lithiumbattery handling label provided by IATA.
3. Except when lithium batteries are installed in equipment, each package shall be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents.
4. Except when lithium batteries are installed in or packed with equipment, packages shall not exceed 30 kg gross mass for marine shipment or 2.5 kg gross mass for air transportation.

For more information about Air transportation, refer to the Packing Instruction 968, 969 or 970 of IATA Dangerous Goods Regulations.

15 Regulatory Information

IATA Dangerous Goods Regulations
ICAO Technical Instructions for the safe transport of dangerous goods by air

Energy Company
Panasonic Corporation
1-1, Matsushita-cho, Moriguchi City, Osaka
570-8511, Japan Tel +81-6-6991-1141
http://panasonic.co.jp/ec/en

16 Other Information

This PSDS is described on the basis of present materials, information and data. So, please notice that it will be revised by new information. Also this sheet is supplied to entrepreneurs as reference information in order to handle batteries safely. Please notice that entrepreneur have to deal with batteries as they think fit.

References

(1) UN Recommendations on the Transportation of Dangerous Goods Model Regulations (ST/SG/AC.10/1/Rev.17)
(2) IATA Dangerous Goods Regulations 53rd Edition（2012）
(3) IMO International Maritime Dangerous Goods Code 2010 Edition

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 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.

Table: This PSDS is applicable to the following models.

CR1025	CR1216	CR1612	CR2012	CR2320	CR2405	CR3032
	CR1220	CR1616	CR2016	CR2330	CR2412	
		CR1620	CR2025	CR2354	CR2450	
		CR1632	CR2032		CR2477	
			CR2050		CR2450A	
			CR2050B			

(END)

Spectrum Brands, Inc.
Rayovac Division
3001 Deming Way
Middleton, WI 53562-1431
Phone: (608) 275-3340
Fax: (608) 275-4577
http://www.rayovac.com

SAFETY DATA SHEET

The Safety Data Sheet is supplied as a service to you. For other related information, please visit:
http://www.rayovac.com

1. IDENTIFICATION

PRODUCT NAME:	Lithium Manganese Dioxide Battery CR
SIZES:	All sizes
EMERGENCY HOTLINE:	800-424-9300 (24 hr, Chemtrec)
EDITION DATE:	04/18/2016

2. HAZARD IDENTIFICATION

We would like to inform our customers that these batteries are exempt articles and are not subject to the 29 CFR 1910.1200 OSHA requirements, Canadian WHMIS requirements or GHS requirements.

Emergency Overview

OSHA Hazards-not applicable
Target Organs-not applicable
GHS Classification-not applicable
GHS Label Elements, including precautionary Statement-not applicable
Pictogram-not applicable
Signal words-not applicable
Hazard statements-not applicable
Precautionary statements-not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS #	%	TLV*/**TWA
Manganese Dioxide	1313-13-9	30-40	C5.0 (Mn, TWA)
Steel as metal	---	40-50	None Established
Dimethoxyether	110-71-4	4-8	None Established
Graphite	7782-42-5	1-3	15 mppcf
Teflon		1-2	None Established
Propylene Carbonate	108-32-7	2-6	None Established
Dimethoxyethane (1,2)	110-71-4	7-11	None Established
Lithium	7439-93-2	1-4	None Established
Lithium Trifluoromethane Sulfonate	33454-82-9	<1.5	None Established

**Source: OSHA 29 CFR 1910.1000 Table Z-1, 2 or 3 11-01-2012*

4. First Aid Information

THRESHOLD LIMIT VALUE (TLV) AND SOURCE: NA

EFFECTS OF OVEREXPOSURE: None in normal use

EMERGENCY FIRST AID PROCEDURES:

Skin and Eyes:

Do not pick up a shorting battery as it may cause a burn. Lithium reacts with moisture; do not pick up a damaged or hot battery without proper hand protection. Get immediate medical attention when eyes may have been exposed to battery contents from a ruptured battery

Swallowing:

LITHIUM COIN CELL SAFETY NOTICE: Keep lithium coin batteries out of the reach of small children; coin cell batteries can be accidentally ingested. If ingested, these batteries may leak harmful contents causing chemical burns, perforation of soft tissue, and in severe cases may cause death. Lithium coin batteries must be removed immediately if swallowed. Seek medical attention immediately. If you or your doctor suspects that a battery has been ingested-for assistance in the US call the NATIONAL BATTERY INGESTION HOTLINE any time at (202) 625-3333: in Canada call 416-813-5900

For more information, please visit:

http://www.nema.org/Policy/Environmental-Stewardship/Documents/batteryingest.pdf

5. Fire Fighting Measures

FLASH POINT:	NA
LOWER (LEL):	NA
FLAMMABLE LIMITS IN AIR (%):	NA
UPPER (UEL):	NA
EXTINGUISHING MEDIA:	Use foam, dry powder, Lithex™, or water* as appropriate.
AUTO-IGNITION:	NA

SPECIAL FIRE FIGHTING PROCEDURES: As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products (See section 2). Water will cool the fire but may react with available lithium in the batteries producing flammable hydrogen.

SPECIAL FIRE OR EXPLOSION HAZARDS: DO NOT RECHARGE. As a typical sealed battery they may rupture when exposed to excessive heat. Rupture may expose lithium to moisture causing it to react or release flammable or corrosive materials. Do not accumulate undischarged batteries together.

Do not use water on these batteries if fighting fire within an enclosed area. Evolving hydrogen may build up and auto-ignite.

6. Accidental Release Measures

TO CONTAIN AND CLEAN UP LEAKS OR SPILLS: In the event of a battery rupture, prevent skin contact and contact with moisture or flammable/combustible materials. If possible, collect all released material in a metal container. Place damaged cells in mineral oil or graphite if available.
REPORTING PROCEDURE: Report all spills in accordance with Federal, State and Local reporting requirements.

7. Handling and Storage

Store batteries in a dry place. Storing unpackaged cells together with other combustible materials could result in cell shorting and fire. Do not recharge. Do not puncture or abuse.

8. Exposure Control/Personal Protection

RESPIRATORY PROTECTION (SPECIFY TYPE):		NA
VENTILATION:	Local Exhaust:	NA
	Mechanical (General):	NA
	Special:	NA
	Other:	NA
PROTECTIVE GLOVES:		NA
EYE PROTECTION:		NA
OTHER PROTECTIVE CLOTHING:		NA

9. Physical and Chemical Properties

Boiling Point @ 760 mm Hg (°C):	NA	Percent Volatile by Volume (%):	NA
Vapor Pressure (mm Hg @ 25°C):	NA	Evaporation Rate (Butyl Acetate = 1):	NA
Vapor Density (Air = 1):	NA	Physical State:	NA
Density (grams/cc):	NA	Solubility in Water (% by Weight):	NA
pH:	NA		
Appearance and Odor:	Cylindrical assembled and sealed solid product - Coin, AA and D sizes		

10. Stability and Reactivity

STABLE OR UNSTABLE:	Stable
INCOMPATIBILITY (MATERIALS TO AVOID):	NA
HAZARDOUS DECOMPOSITION PRODUCTS:	NA
DECOMPOSITION TEMPERATURE (0°F):	NA
HAZARDOUS POLYMERIZATION:	Will Not Occur
CONDITIONS TO AVOID:	Avoid electrical shorting, puncturing or deforming

11. TOXICOLOGICAL INFORMATION

INGREDIENT NAME	CAS #	%	TLV*/**TWA
Manganese Dioxide	1313-13-9	30-40	C5.0 (Mn, TWA)
Steel as metal	---	40-50	None Established
Dimethoxyether	110-71-4	4-8	None Established
Graphite	7782-42-5	1-3	15 mppcf
Teflon		1-2	None Established
Propylene Carbonate	108-32-7	2-6	None Established
Dimethoxyethane (1,2)	110-71-4	7-11	None Established
Lithium	7439-93-2	1-4	None Established
Lithium Trifluoromethane Sulfonate	33454-82-9	<1.5	None Established

**Source: OSHA 29 CFR 1910.1000 Table Z-1, 2 or 3 11-01-2012*

12. ECOLOGICAL INFORMATION

Consumers should dispose of discharged batteries through waste disposal services or legitimate collection outlets. Those collecting batteries should follow state and federal regulations. Partially discharged damaged batteries can overheat and cause fires in the presence of other combustible materials.

13. DISPOSAL CONSIDERATIONS

Always comply with Federal, state or local requirements. Hazardous waste generators should check with the USEPA or their state authorized agency for guidance.
http://www.nema.org/Policy/Environmental-Stewardship/Documents/Companies%20Claiming%20to%20Recycle.MARCH2005.pdf

14. TRANSPORTATION INFORMATION

TRANSPORTATION-SHIPPING: These are lithium metal coin cells, also known as primary or non-rechargeable lithium. These CR and KECR cells, unless exempted, are regulated as Class 9, see UN3090. Our CR and KECR cells meet the general regulatory requirements for shipping Lithium batteries and, when in our original packaging, meet the requirements listed in the Special Instructions or Packing Instructions noted below and may be classified as non-dangerous goods for transportation.
USDOT – See 49 CFR 173.185. Also note: these cells are forbidden on passenger aircraft and must be labeled accordingly even for ground or ocean transport.
IMO/Ocean – See Special Provisions 188 and 230.
ICAO/IATA – The Rayovac cells designated with “CR” & “KECR” can be shipped by air in accordance with International Air Transport Association (IATA) 57th edition, Packing Instruction 968. These cells have less than 0.3 g of Lithium per cell and may qualify for section II (Cargo Aircraft only. Not more than one package per consignee per day. Max carton weight 2.5 kg). Also see Packing Instructions: PI 969 (Batteries, packed with equipment) and PI 970 (Batteries, contained in equipment) as applicable.

Our batteries designated with “RL” and “RLCR” have lithium amounts that fall within the Section 1B requirements and those cartons require additional labeling and documentation. See Packing Instructions: PI 968 (Batteries), PI 969 (Batteries, packed with equipment) and PI 970 (Batteries, contained in equipment) as applicable for detailed shipping instructions.

15. REGULATORY INFORMATION

SARA 313: Notification is not required because these products are article(s) that do not release a covered toxic chemical under the normal conditions of storage, use, or handling.

NOTICE: The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Spectrum Brands Inc. (Rayovac) makes no warranty expressed or implied.

MATERIAL SAFETY DATA SHEET

SANYO Batteries
SANYO Energy
2055 Sanyo Ave.
San Diego, CA 92154

Telephone No.: (619) 661-4888
www.sanyobatteries.com
In case of emergency contact:
CHEMTREC at (800) 424-9300

Date of Preparation: 6/23/03

Section I — Product Identification

Product Name: Lithium Battery

Model: Cylindrical (Crimp) Type Cells

Nominal Voltage: 3.0V

Chemical System: Manganese Dioxide Lithium Primary

Designated for Recharge:

___Yes _X_ No

Section II — Composition / Information on Ingredients

IMPORTANT NOTE: The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances.

Chemical Name	CAS No.	Concentration/ Concentration range	Classification and Hazard labeling
Manganese Dioxide	1313-13-9	35-45%	Specific hazards
Lithium metal	7439-93-2	3%*	Water prohibited
Mixture solvent of carbonate and ether	—	10-15%	Inflammability
Lithium Trifluoro methane sulphonate ($LiCF_3SO_3$)	33454-82-9		—

* Weight of lithium per cell or battery: See table page 5.

Section III — Physical Data

Boiling point (°C):	EC:248, BC:240, DME:85
Vapor pressure (mmHg):	EC, BC<0.1, DME:61
Vapor Density (Air=1):	EC-3.0, BC-4.0, DME:3.1
Solubility in Water:	EC, BC:moderate, DME:complete
Specific Gravity (H_2O=1):	$Mn0_2$:5.03, EC:1.32, BC:1.15, DME:0.87 Li-0.54, $LiCF_3S0_3$:0.5~0.6 (bulk)
Melting Point (°C):	Li-179, $Mn0_2$:decomposes at 535, $LiCF_3S0_3$:430
Evaporation Rate (Butyl Acet.=1):	DME:4.99

The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. SANYO ENERGY CORP. makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.

Appearance and Odor:	Lithium is a soft, silvery metal. $Mn0_2$ is a black powder. EC, BC is a colorless, odorless liquid. DME is a colorless liquid with a sweet odor.

Section IV — Fire and Explosion Hazard Data

Flash Point (°C):	DME: -1
Extinguishing Media:	Water
Flammable Limits:	Not available
Special Fire Fighting Procedure:	In case of fire in an adjacent area, use water, CO_2 or dry chemical extinguishers if cells are packed in their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpackaged cells use LITH-X (Graphite Base). In this case, do not use water.

Section V - Reactivity Data

Stability:	Stable
Conditions to Avoid:	Do not heat, disassemble or charge.
Hazardous Decomposition or By-products:	N/A

Hazardous polymerization will not occur.

Section VI - Health Hazard Data

Routes of Entry:	Inhalation	Yes
	Skin	Yes
	Ingestion	Yes

Health Hazards (Acute and Chronic):

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents.

DME is believed to be slightly to moderately toxic, and EC and BC are considered to be non-toxic but moderately irritating to the eyes. $LiCF_3S0_3$ is irritating to skin, eyes and mucous membranes. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Carcinogenicity:

NTP: None IARC Monograph: None OSHA Regulated: None

Signs / Symptoms of Exposure:

DME may be a reproductive hazard. Lithium can cause thermal and chemical burns upon contact with the skin.

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

Emergency and First Aid Procedures:

In case of skin contact with contents of battery, flush immediately with water. For eye contact, flush with copious amounts of water for 15 minutes. Do not inhale leaked material. If irritation persists, get medical help.

Section VII - Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled:

The preferred response is to leave the area and allow the batteries to cool and the vapors to dissipate. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

Waste Disposal Method:

Dispose in accordance with appropriate regulations. Open cells should be treated as hazardous waste.

Precautions to be Taken in Handling and Storing:

Avoid mechanical or electrical abuse.

Other Precautions:

Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

Section VIII - Control Measure

Respiratory Protection (Specify Type):	Not necessary under conditions of normal use.
Ventilation:	Not necessary under conditions of normal use.
Protective Gloves:	Not necessary under conditions of normal use.
Eye Protection:	Not necessary under conditions of normal use.
Other Protective Clothing or Equipment:	Not necessary under conditions of normal use.

Section IX - Disposal

Lithium batteries are best disposed of as a non-hazardous waste when fully or mostly discharged. The Federal Environmental Protection Agency (EPA) (governed by the Resource Conservation and Recovery Act (RCRA)) do not list or exempt Lithium as a hazardous waste. However, if waste lithium batteries are still fully charged or only partially discharged, they can be considered a reactive hazardouse waste because of significant amounts of unreacted, or unconsumed lithium remaining in the spent battery. The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste (as required by the U.S. Land Ban Restricitons for the hazardous and Solid Waste Amendments of 1984.) Secondary treatment centers receive these batteries as manifested hazardous waste under code "D003 - reactive." Button cells are exempt because they contain so little lithium and therefore can be disposed of in the normal municipal waste stream. Use a professional disposal firm for disposal of mass quantities of undischarged lithium batteries.

DO NOT INCINERATE or subject battery cells to temperatures in excess of 212°F. Such treatment can cause cell rupture.

Section X - Transportation

SANYO Lithium batteries are exempt from dangerous goods regulations and meet the exceptions of 49CFR Part 173.185(b). They are considered non-dangerous goods by the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) because they meet all requirements of Special Provision A45. More information concerning shipping, testing, marking and packaging can be obtained from Labelmaster at http://www.labelmaster.com.

Separate Lithium batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport.

Each SANYO cell or battery has been tested under provisions of the UN Manual of Tests and Criteria, Part III, Sub-section 38.3.

WEIGHT OF LITHIUM FOR LITHIUM BATTERY

(Figure: Max. amount)

Batttery Type		Model	Weight of Battery(g) /cell or Battery	Weight of Lithium(g) /cell or Battery
Primary Batteries	Coin-type	CR1220	0.8	0.01
		CR2016	1.7	0.03
		CR2025	2.5	0.05
		CR2032	3.0	0.06
		CR2430	4.0	0.08
		CR2450	6.9	0.16
	Cylindrical-type	CR-1/3N	3.3	0.06
		2CR-1/3N	9.1	0.12
		CR15270	11.0	0.33
		CR14500	17.4	0.62
		CR15400	17.0	0.54
		CR17335	16.0	0.57
		CR2	11.0	0.33
		CR123A	17.0	0.57
		CR-V3	38.0	1.24
		CR-P2	37.0	1.14
		2CR5 (CR15400x2)	40.0	1.08
		2CR5 (CR17335x2)	38.0	1.14
		CR17335E-R	16.0	0.55
		CR17450E-R	22.0	0.82
		CR17335HE-R	16.0	0.47
		CR17450HE-R	22.0	0.71
	Cylindrical-type (SE series)	CR14250SE (SE-R)	9.0	0.26
		CR12600SE	15.0	0.48
		CR17335SE (SE-R)	17.0	0.49
		CR17450SE (SE-R)	22.0	0.72
		CR23500SE (SE-R)	42.0	1.52
Secondary Batteries	ML series	ML414	0.07	0.0004
		ML414R	0.07	0.0007
		ML414RU	0.08	0.0007
		ML414RU2	0.08	0.0008
		ML421	0.10	0.0009
		ML614	0.16	0.0012
		ML614R	0.19	0.0012
		ML621	0.22	0.0038
		ML1220	0.80	0.009
		ML2016	1.80	0.016
		ML2020	2.20	0.024
		ML2430	4.10	0.048
	NBL series	NBL414	0.07	0.0004
		NBL414R	0.08	0.0007
		NBL621	0.23	0.0038