LEMANS' PART NUMBERS:

4402-0713

4402-0718

January 09, 2014

Products Information Data Sheet

These products are hermetically sealed state in a vessel, and are exempted form Material Safety Data Sheet regulations. However, this manual provides you with referential information to safety use the products.

Section 1 - Products and Company Identification

Products name	:	Coin-type Manganese Dioxide Lithium Batteries (CRC)
Products sizes	:	CR1216 CR1220 CR1616 CR1632 CR2016 CR2025 CR2032 CR2430 CR2450
Company	:	TOSHIBA HOME APPLIANCES CORPORATION
Address	:	2-15, Sotokanda 2-Chome, Chiyoda-Ku, Tokyo 101-0021, Japan
Telephone	:	+81-3-3257-5871
Fax	:	+81-3-3257-5916

Section 2 - Composition/ Information on Ingredients

Ingredients	CAS#	PRTR	Weight/Content
Lithium metal (Li)	7439-93-2	Not regulated	Shown at *1
Propylene carbonate ($C_4H_6O_3$)	108-32-7	Not regulated	5~10 wt%
Manganese dioxide (MnO_2)	1313-13-9	1-412	20~40 wt%
Graphite (C)	7782-42-5	Not regulated	1.5~5.0 wt%
Acetylene black (C)	1333-86-4	Not regulated	
Dimethoxyethane ($C_4H_{10}O_2$)	110-71-4	Not regulated	3~5 wt%
Lithium perchlorate ($ClHO_4Li$)	108-32-7	Not regulated	1.5~5.0 wt%

*1 : Lithium metal weight (g) as standard

CR1216	0.009	CR2025	0.042
CR1220	0.013	CR2032	0.060
CR1616	0.012	CR2430	0.075
CR1632	0.033	CR2450	0.165
CR2016	0.021		

Section 3 - Summary of Danger and Toxicity

Fatal danger and toxicity	:	No information available
Danger and toxicity	:	Chemical ingredient is hermetically sealed in a vessel, so the product is neither dangerous nor toxic as a cell. The cell shapes like a small coin, so be careful that particularly a little child may accidentally swallow it. If the lithium metal of contents touches the skin, a chemical burn is caused. In addition, the lithium metal is oxidized and creates corrosive lithium oxide. If reacting with water, lithium metal produces hydrogen gas that may fire as a combustible gas. If a cell burnt, generated steam may stimulate eyes, skin, and throat.
Effect to environment	:	No information available
Overview of prospective emergency	:	A cell may break or be shorted by an external mechanical or electrical stress.

Section 4 - First Aid Measures

There is no problem in the normal state. But take the following measures when the contents have begun to leak by the destruction of the battery.

Inhalation	:	If a person inhaled steam, move to the place where air is fresh immediately. If he/her feels ill, immediately call a doctor for therapy and treatment.
Skin	:	If the content adheres to skin, immediately wash it with a large amount of clean water and soap promptly. If irritating, consult a doctor.
Eyes	:	If the content enters eyes, rinse eyes with a large amount of clean water for more than 15 minutes, and consult a doctor.
Ingestion	:	If a cell is swallowed, immediately call a doctor for therapy and treatment.

Section 5 - Fire Fighting Measures

Fire extinguishers	:	CO_2, dry chemical
Specific fire fighting method	:	In the initial state of a fire, move cells/batteries from near the fire source, to a safe location. At that time, work at a windward location, as far as possible, and be sure to put on a protective breathing mask.
Protection of fire fighting personnel	:	Be wear protective breathing masks, gloves, glasses and helmet for the keeping safe. (Preferably, use a self-feeding type mask.)

Section 6 - Action upon Leakage and Removing Method

A cell hermetically contains constituents in a vessel, so contents normally may not leak out. However, if the contents leaks because of a mechanical or electrical stress, scatter dry sand to absorb it, and collect the sand in a vessel. If lithium metal leaks, there is a firing potential because of a reaction with moisture in the atmosphere and reaction heat. At that time, be sure to put on a protective-breathing mask. (Preferably, use a self-feeding type mask.)

Section 7 - Handling and Storage

Handling	:	Any leakage or obnoxious odor of a cell, it should be disposed. Never solder a cell body. Do not contact cell terminals between each other, or with another conductor. Neither throws into fire, decompose, heat, dent, deform, charge nor drop a battery. Do not dip a cell in water or seawater.
Storage	:	Store cells without direct sunlight, high temperature, high humidity, rain, dew, etc., and select a storage location with a temperature as low as possible (preferable temperature 20+/-15°C and relative humidity 70% or less). In addition, keep cells away from dangerous matter such as combustible or ignitable materials. Absolutely never place a cell in contact with a combustible or conductive substance. Prepare appropriate firefighting equipment.
Note	:	See handling and storing precautions described in the product catalog, specification, etc.

Section 8 - Prevention from Exposure

Protection of respiratory organs	:	Not required in a normal operating state
Protection of eyes	:	Not required in a normal operating state
Other protective tools etc.	:	Not required in a normal operating state

Section 9 - Physical and Chemical Properties

Shape	:	Coin-shape. Contents are sealed in a stiff stainless steel vessel.
PH	:	Not applicable because a cell is not soluble with water.
Boiling point/boiling range	:	No information
Melting point	:	No information
Decomposition temperature	:	No information
Flash point	:	No information

Section 10 - Stability and Reactivity

Conditions to be avoided	:	If a number of cells are mixed up without insulating terminals, they may short and possibly heat, break and ignite. When a cell is charged, possibly in bursting the electrolyte etc. Or, it may possibly burst or fire. If a cell is heated or thrown into fire, it may explode or fire with the electrolyte etc. bursting from inside of the cell. If decomposed, there is a possibility of overheating or fire due to short circuit, and ignition of some material around etc.

Section 11 - Information on Toxicity

There is no toxicity because chemical substances are hermetically sealed in a metal vessel.

As a reference, chemical substances composing a cell are described below.

Lithium metal

Acute toxicity	:	No appropriate report available
Local effect	:	A skin contact may result in inflammation.

Manganese dioxide

Acute toxicity	:	L_DL_O:45 mg/kg (Intravenous injection, rabbit) L_D:422 mg/kg (Hypodermic injection, mouse)
Irritation	:	Irritating eyes, nose, throat and skin.
Chronic toxicity	:	If a person is exposed to powder for a long time or repeatedly, the lung and the nervous system may be affected, possibly causing bronchitis, pneumonia, nervous disease or mental disease.
Procreation toxicity	:	TCL_O:49mg/m^3 (Inhalation, mouse)

Graphite

Chronic toxicity	:	If inhaled for a long time without protective tools, local ventilation, etc., graphite lung may result.
Breathing toxicity	:	If inhaled for a long time without protective tools, local ventilation, etc., graphite lung may result.

Dimethoxyethane

Irritation	:	Irritating and possibly causing inflammation
Acute toxicity	:	L_{D50}:7kg/kg (Rat oral)
Chronic toxicity	:	Long-term exposure may cause inflammation. If exposed further, liver or kidney may be troubled.

Teratogenicity : Acknowledged to have Teratogenicity through experiments on animals.

Propylene carbonate
Irritation : Irritating skin and eyes
Acute toxicity : L_{D50}:29kg/kg (Rat oral)

Section 12 - Ecological Information

No information as batteries.

Section 13 - Disposal Precautions

Disposal of the substance should be done according to the laws and regulations.

Although used cells can be discarded basically as "nonflammable refuse," some local governments sort and collect them at their own discretion. Therefore, observe instructions of the government you belong to, to dispose of the substance.

Keep the following discarding precautions:

- Even a used cell sometimes stores electric energy. Therefore, to prevent the battery from short-circuit, isolate cells from each other by a method such as taping +, - terminals of cells, or using the individual housing case of a cell, used when you bought the battery, and orderly encasing batteries in a box, then submit an application of disposal to the local government of your residence, using the designated form.
- Packing cells so that they are not shorted, and prevent the package from being wetted.
- If cells must be discarded in a country other than Japan, observe the instructions of the country and local government.

Section 14 - Transportation Precautions

It is required to perform the confirmation such as laws and ordinances / the regulation about the transportation by shipper responsibility. After our product was delivered to a customer, if a customer transports a product as a shipper, it is necessary to confirm laws and ordinances / regulation with the customer. The following information is not things to guarantee with a thing to offer as reference information about the transportation.

The Thionyl chloride lithium batteries are classified in UN recommendation as follows.

- Proper Shipping Name/Description : LITHIUM METAL BATTERIES
- UN Number : UN3090
  (When cell/butteries contained in equipment and packed with equipment, it is UN3091)
- Class or Div.(Su : Class9 (Miscellaneous Dangerous Goods)
- Packing Group : II

The other major transportation regulation is as follows.

Area	Method	Regulations
International	Air	ICAO-TI／IATA-DGR
International	Water	IMO-IMDG Code
U.S.A	Air, Rail, Highway, Water	US DOT-49 CFR
Europe	Rail, Highway	RID,ADR

Their regulations are based on the UN Recommendations. Each special provision provides specifications on exceptions and packaging for lithium metal batteries shipping. The products can be transported as "Non Dangerous Goods" when they meet the requirements of Packing Instruction 968 Section II or 969 Section II or 970 Section II of IATA-DGR (54th Edition) of IMO-IMDG Code (2010 Edition).

Section 15 - Applicable Laws and Regulations

The laws and ordinances about the battery obey laws and ordinances set in each country.
Major applicable regulations for the transportation of lithium metal cells and batteries are as follows:

- Recommendations on the Transport of Dangerous Goods, 17th Revised Edition (UN)
- Dangerous Goods Regulations, 54th Edition (IATA)
- Technical Instructions for the Safety Transport of Dangerous Goods by Air, 2013-2014 Edition (ICAO)
- International Maritime Dangerous Goods (IMDG) Code, 2010 Edition (IMO)

Section 16 - Other Information

The battery is considered to be an article for purposes of the TSCA and not a chemical. Therefore, the battery is exempt form the TSCA requirements.
Contents of this manual have been edited based on data, information, etc. that Toshiba could acquire when editing the manual, so the manual may be revised by new information, if any. Contents of the manual assume normal handling of batteries, and are provided as referential information. Therefore, the manual provides no warranties. The customer is requested to use batteries on the basis of appropriate measures established depending on individual conditions, application and operation. Any numerals such as contents and concentration ranges, and others are not guaranteed.

Prepared Day	:	March 01, 2012
Revised Day	:	November 19, 2013
Preparation This Sheet	:	TOSHIBA HOME APPLIANCES CORPORATION Procurement Group Planning & Procurement Dept. Battery Business Div.