

Material Safety Data Sheet

OSHA's Hazard Communication Standard 29 CFR 1910.1200.

IDENTITY

Manganese Dioxide Lithium Primary Batteries
Model:CR17335SE-R-CJ5

SECTION I**Supplier's Name:**

SANYO Electric Co., Ltd. Japan

Emergency Telephone Number

SANYO Energy (USA) Corporation
2001 Sanyo Ave., San Diego
California 92173, Tel (619)661-6620

SANYO Energy (Europe) Corp. GmbH
Hans-Stiessberger-Str. 2b,D-85540 Haar,
Germany Tel (089)460095-0

Date Prepared: Jul. 7,1999

SECTION II Hazardous Ingredients / Identity Information

Hazardous Components (Specific Chemical Name/ common Name(s))	OSHA PEL	ACGIH TLV	CAS#
Manganese Dioxide (MnO ₂)	5mg/m ³ (as Manganese)	5mg/m ³ (as Manganese)	1313-13-9
Lithium*	None established		7439-93-2
Propylene Carbonate (PC)	None established		108-32-7
Dimethoxyethane (DME)	None established		110-71-4
Lithium Perchlorate(LiClO ₄)	None established		7791-03-9

* Weight of Lithium per cell: 0.49 g

SECTION III Physical / Chemical Characteristics

Boiling point (°C)	PC:242, DME:85
Vapor pressure (mmHg)	PC:0.03, DME:61
Vapor Density (Air=1)	DME:3.1
Solubility in Water	DME:complete, PC:moderate
Specific Gravity (H ₂ O=1)	MnO ₂ :5.03, PC:1.20, DME:0.87, Li:0.54, LiClO ₄ :2.43
Melting Point (°C)	Li:179, MnO ₂ :decomposes at 535, LiClO ₄ : 236
Evaporation Rate (Butyl Acetate=1)	DME:4.99
Appearance and Odor	Lithium is a soft, silvery metal. MnO ₂ is a black powder. PC 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 cell use LITH-X (Graphite Base). In this case, use no water.

SECTION V Reactivity Data

Stability:	Stable
Conditions to avoid:	Do not heat, disassemble or charge.
Hazardous Decomposition or Byproducts:	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. DME is believed to be slightly to moderately toxic, and propylene carbonate is considered to be non-toxic but moderately irritating to the eyes. LiCLO₄ 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
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Signs / Symptoms of Exposure:

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

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

Emergency & First Aid Procedures:

In case of skin contact with contents of battery, flush immediately with water. For eye contact, flush with copious amount of water of 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 batteries to cool and 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 wastes.

Precautions to be Taken in Handling and Storing:

Avoid mechanical or electrical abuse.

Other Precautions:

Batteries may explode or cause burn, if disassembled, crushed, charged or exposed to fire or high Temperature. Do not short nor 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.

DATE : Jul 7, 1999

CERTIFICATE FOR MATERIAL OF PART

SANYO Electric Co., Ltd.
 Primary Battery Division
 Engineering Dep. Technical Service Sec.
 Manager M. Zjish

MODEL NO. : CR17335SE--R--CJ5

WE HEREBY CERTIFY THAT FOLLOWING MATERIALS USED FOR ABOVE PART.

NO.	COMPONENT	MANUFACTURER	MATERIAL		UL FILE NO.	FLAME CLASS
			GENERIC NAME	CATNO.		
1	Lithium Cell	SANYO ELECTRIC CO., LTD.		CR17335SE-R	MH12383	
2	Appliance wiring Material	HITACHI CABLE LTD.	PVC	None	E41447	UL62-VW1
3	Connector	JAPAN AVIATION ELECTRONICS INDUSTRY, LTD.	66-Nylon	None	E41938	UL94V-0
4	Tube	MTSUBISHI PLASTICS INDUSTRIES LTD.	PVC	Hishi Tube VW	E90727	UL224-VW1
5	Lead Plate	NONE	Ni/Cu Plate	None	None	None