



Appearance and Odor:

Lithium is a soft, silvery metal.  
MnO<sub>2</sub> 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 <sub>2</sub> 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 recharge.
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<sub>3</sub>SO<sub>3</sub> 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.

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.

---

---

## 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 hazardous 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 Restrictions 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.

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.

---

---

## **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.

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

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.

## WEIGHT OF LITHIUM FOR LITHIUM BATTERY

(Figure: Max. amount)

	Model No.	Weight of Lithium (g)/ Cell or Battery	Weight of Battery (g)/ Cell or Battery
<b>PRIMARY BATTERIES</b>			
<b>Coin-type</b>	CR1220	0.01	0.8
	CR1620	0.02	1.2
	CR2016	0.03	1.7
	CR2025	0.04	2.7
	CR2032	0.07	3.2
	CR2430	0.08	4.0
	CR2450	0.15	6.2
	CR-1/3N	0.06	3.3
	2CR-1/3N	0.12	9.1
<b>Cylindrical-type (SE series)</b>	CR14250SE, (-R)	0.26	9.0
	CR12600SE	0.48	15.0
	CR-2NSE	0.48	15.0
	CR17335SE, (-R)	0.49	17.0
	CR17450SE, (-R)	0.72	22.0
	CR23500SE, (-R)	1.52	42.0
	CR17335SE-V	0.49	17.0
	2CR17335SE-V	0.98	44.0
<b>Cylindrical-type (Crimp sealed)</b>	CR15270	0.40	12.0
	CR15335	0.40	13.8
	CR15400	0.49	17.0
	CR17335	0.50	16.0
	CR123A	0.50	17.0
	CR-P2	1.00	37.0
	2CR5	0.98	40.0
	CR2	0.40	12.0
<b>SECONDARY BATTERIES</b>			
<b>Coin-type (ML series)</b>	ML1220	0.007	0.7
	ML2016	0.01	1.8
	ML2430	0.04	4.0

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.