

Alarm Panel Battery Cells

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Batteries are articles as defined under the GHS and exempt from GHS classification criteria (Section 1.3.2.1.1 of the GHS). 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, WE MAKE NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM REFERENCE ON IT.

NOTE: FIVE (5) Cells are used for the Alarm Panel Battery Pack.

Product Name:	Alarm Panel Battery Cells	Other Names:	Cylindrical Lithium Manganese Dioxide Batteries
Volts:	3.0 per Cell	Approximate Weight:	11 to 40g
Chemical System:	Lithium Manganese Dioxide	Designed for Recharge:	No
Supplier Name:	JSG Industrial System Pty Ltd	Address:	Unit 1, 21 Amour St Revesby 2212 Australia
Telephone No.:	+61 2 9914 8720	Fax No.:	+61 2 9914 8798
Email:	jsgindustrial@jsg.com.au	Website:	www.musterfire.com
Information Department:	Product Safety Department	Date Reviewed:	September 2018

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.
GHS Classification	Not applicable	Toxicity	Vapor generated from burning batteries, may irritate eyes, skin and throat.
Skin Contact:	Contents of an open battery can cause skin irritation.	Eye Contact:	Contents of an open battery can cause severe irritation.
Hazard	Electrolyte and lithium metal are inflammable. Risk of explosion by fire if batteries are disposed in fire or heated above 100 degrees C. Stacking or jumbling batteries may cause external short circuits, heat generation, fire or explosion.		

SECTION 3: COMPOSITION / INFORMATION ON 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)	CAS Number	%/wt.
Carbon Black	3.5 mg/m ³ TWA	3.5 mg/m ³ TWA	1333-86-4	0 to 1
1,2-Dimethoxyethane	None established	None established	110-71-4	0 to 6
Organic Electrolyte	-	-	-	5 - 17
1,3-Dioxolane	None established	None established	646-06-0	0 to 8
Graphite	15 mg/m ³ TWA (total dust) 5 mg/m ³ TWA (respirable fraction)	2 mg/m ³ TWA (respirable fraction)	7782-42-5	0 to 3
Lithium or Lithium Alloy	None established	None established	7439-93-2	1 to 6
Lithium Trifluoromethanesulfonate	None established	None established	33454-82-9	0 to 3
Lithium Trifluoromethanesulfonimide	None established	None established	90076-65-6	0 to 3
Manganese Dioxide	5 mg/m ³ Ceiling (as Mn)	0.2 mg/m ³ TWA (as Mn)	1313-13-9	12 to 45
Propylene Carbonate	None established	None established	108-32-7	0 to 8

Non-Hazardous Components				
Steel (Iron)	None established	None established	7439-89-6 65997-19-5 7440-47-3	25 to 50
Plastic and Other (Polypropylene)	None established	None established	9003-07-0	3 to 15


Lithium content per cell							
Model Number	Lithium content(g)	Model Number	Lithium content(g)	Model Number	Lithium content(g)	Model Number	Lithium content(g)
CR2	0.33	CR123A	0.6	CR-AAH	0.6	CR-AG	0.8
CR2J	0.33	CR-2/3A	0.6	CR-AAK	0.6		
CR2Z	0.33	CR-2/3AG	0.6	CR-AAP	0.6		
		CR-2/3AK	0.6	CR-AAS	0.6		
		CR-2/3AZ	0.6	CR-AAZ	0.6		

SECTION 4: FIRST AID MEASURES			
Ingestion:	Do not induce vomiting or give food or drink.	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.
Skin Contact:	Remove contaminated clothing and wash skin with soap and water.		
Inhalation:	Provide fresh air and seek medical attention immediately.		

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

SECTION 5: FIRE FIGHTING MEASURES	
<p>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.</p> <p>Emergency Responders should wear self-contained breathing apparatus. Burning lithium manganese dioxide batteries produce toxic and corrosive lithium hydroxide fumes.</p>	

SECTION 6: ACCIDENTAL RELEASE MEASURES			
To Cleanup Leaking Batteries: (Battery materials should be collected in a leak-proof container and wrapped in an absorbent acid and flameproof cloth. Move the battery away from the fire.)			
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.

SECTION 7: HANDLING AND STORAGE	
Storage:	<ul style="list-style-type: none"> - 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. - 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. - Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, rain or frozen condition
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:	<ul style="list-style-type: none"> - 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 short-circuit, recharge, deform, throw into fire or disassemble. - Do not mix different type of batteries. - Do not solder directly onto batteries. - Insert the battery correctly in electrical equipment.
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:	<p>If the Energizer label or package warnings are not visible, it is important to provide a package and/or device label stating:</p> <p>WARNING: Battery can explode or leak and cause burns if installed backwards, disassembled, charged, or exposed to water, fire or high temperature.</p> <p>Where accidental ingestion of small batteries is possible, the label should include:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">  WARNING </div> <p>(1) KEEP OUT OF REACH OF CHILDREN. Swallowing may lead to serious injury or death in as little as 2 hours due to chemical burns and potential perforation of the esophagus. Keep in original package until ready to use. Dispose of used batteries immediately.</p>

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION			
Safety items to be worn if battery leakage has occurred or is being treated.			
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.
Acceptable concentration	Not specified in ACGIH.	Facilities	Provide appropriate ventilation system such as local ventilator in the storage place.

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/cm³):	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 Odour:	Solid object / no odour Cylindrical shape
Nominal Voltage	3 V		

SECTION 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.

Lithium manganese dioxide batteries contain no sulfides or cyanides and they do not meet any other reactivity criteria including "reacts violently with water" and therefore 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.

In case of electrolyte leakage from the battery

Acute toxicity	Oral(rat) LD50 >2000mg/kg (estimated)	Mutagenicity	Not specified.
Irritation	Irritating to eye and skin	Chronic toxicity	Not specified.

SECTION 12: ECOLOGICAL INFORMATION

Issues such as ecotoxicity, persistence and bioaccumulation are not applicable for articles.
 In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte.
 Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell.

SECTION 13: DISPOSAL CONSIDERATIONS




When the battery is worn out, dispose of it under the ordinance of each local government.
 LiMnO2 batteries are not hazardous waste per the United States Resource Conservation and Recovery Act(RCRA) - 40 CFR Part 261 Subpart C.
 Dispose of in accordance with all applicable federal, state and local regulations.

SECTION 14: TRANSPORT INFORMATION

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents. All original packaging for Energizer lithium batteries are compliant with these regulatory concerns.

Lithium manganese dioxide batteries are exempt from the classification as dangerous goods as they meet the requirements of the special provisions listed below. (Essentially, they are properly packaged and labeled, contain less than 1 gram of lithium and pass the tests defined in UN model regulation section 38.3).

Regulatory Body	Special Provisions
ADR	188, 230, 310, 636, 656
IMDG	188, 230, 310, 957
UN	UN 3090, UN 3091
US DOT	29, A54, A100, A101
IATA, ICAO	Packaging Instructions 968 - 970
Transport Canada TDG	34

Label Summary Chart						
Shipping Mode	Li content	Net quantity wt. of batteries per package	Battery Type			
Air	0.3g to <1g/cell 0.3g to <2g/ battery	<2.5 kg	123, 1CR2, 223, 2CR5, 2L76, CRV3, LA522	YES	YES	YES
	<0.3g/cell	<2.5 kg	All Li Coin & 2L76	NO	YES	YES
	<0.3g/cell	>2.5 kg	All Li Coin & 2L76	YES	YES	YES
Land/Sea only	All	All	All	NO	YES	YES

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.

Other Regulations:

- IATA Dangerous Goods Regulations 58th Edition (IATA DGR)
- IMO International Maritime Dangerous Goods Code 2014 Edition (IMDG Code)
- UN Recommendations on the Transportation of Dangerous Goods, Model Regulations
- UN Recommendations on the Transportation of Dangerous Goods, Manual of Tests and Criteria
- EU Battery Directive 2006/66/EC, 2013/56/EU)
- Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
- State of California Regulations - Best management practices for Perchlorate Materials

SECTION 16: OTHER INFORMATION

General:	This data is based on our present knowledge. However, it shall not constitute a guarantee for any specific product featured and shall not establish a legally valid contractual relationship.	Contact:	Customer Support +61 2 9914 8720
Department Issuing Data Specification Sheet:	Product Safety Department		