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Material Safety Data Sheet

Product: Lithium Dioxide Manganese Primary Battery Date: 2012-01-05 File No. :GLD2012-MSDS-EN01

1. Indentification.

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1.	Indentification.	家仰阿肥义	
1.1	Product Name:	Lithium Manganese Dioxide Button Cell	
	Model:	CR2025 Lithium coin cells	
	Voltage:	3.0 Volts	
	Chemistry System:	Lithium Dioxide Manganese Primary	
	Designated for Recharge:	NO to the State	
	Anode:	Lithium Metal	
	Cathode;	Liquid, dioxide manganese, Carbon	
1.2	Company:	SHENZHEN GAONENGDA BATTERY CO., LTD	
		No.28, Changjin Road, Changjiangpu Industrial Zone,	
		He'ao, Henggang town, Shenzhen'China	
	Telephone	+86-755-28626181 Fax: +86-755-28625176	
1.3	Emergency Telephone Number:	+86-755-28626184	

2. <u>Composition/Information on Ingredients</u>

Substance		CAS No.	Approximate percent	Hazard	R-phrases
			Of total weight	symbol	
Lithium Meta	ıl	7439-93-2	2-6	F,C	14/15-34
Dioxide mang	ganese	7719-09-7	18-47	С	14-34-37
Aluminium		7446-70-0	2 - 5		
Carbon		7440-44-0	2 - 5		
Steel, Nickel	Plated		35-73		
Glass			0 - 2		
PVC		9002-86-2	0 - 1		
PMMA		9011-14-7	0 - 1		
PTFE		9002-84-0	0 – 1		
Hazard Symbols: C		Corrosive			
	F	Highly flamn	nable		
R-Phrases:	R 14	Reacts violently with water			
	R 14/15	Reacts violen	tly with water liberating	extremely f	flammable gases
	R 34	Causes burns	1		
	R 37	Irritation to r	espiratory syste		
Important No	te: The ma	terial in this se	ection may only represer	nt a hazard	if the integrity of

Important Note: The material in this section may only represent a hazard if the integrity of

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the battery is compromised or if the battery is physically or electrically abused.

3. Hazards Identification

Warning: Fire, explosion, and severe, burn hazard. Do not recharge, disassemble, heat above 100 $^{\circ}$ C incinerate, or expose contents to water.

Protection from charging:

Whenever lithium batteries are not the single power source in a circuit the following measures.

Recommended by Underwriters Laboratories are relevant. The cells should not be connected in series with an electrical power source that would increase the forward current through the cells:

The circuit for these cells shall include one of the following:

A. Two suitable diodes or the equivalent in series with the cells to prevent any reverse (charging) current. The second diode is used to provide protection in the event that one should fail. Quality control, or equivalent procedures, shall be established by the device manufacturer to ensure the diode polarity is correct for each unit,

or

 B. A blocking diode or the equivalent to prevent any reverse (charging) current and a Resistor to limit current in case of a diode failure. The resistor should be sized to limit The reverse (charging) current to the maximums given in the data sheet.

4. First Aid Measures

	• Skin	Immediately flush with plenty of water for at least 15 minutes. If symptoms are present after flushing, get medical attention
	• Eyes	Immediately flush with plenty of water for at least 15 minutes and get medical attention.
	• Respiratory system:	With large quantities and irritation of the respiratory tract medical surveillance for 48 hours. Immediately inhale cortisone spray, e.g. Pulmicort.
В	Lithium Metal contact	
	• Skin	Remove particles of lithium from skin as rapidly as possible. Immediately flush with plenty of water for at least 15 minutes And get medical attention.
	• Eyes	Immediately flush with plenty of water for at least 15 minutes and get immediate medical attention.

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5. <u>Fire- fighting measures</u>

- A. Extinguishing Media
 - Copious amounts of cold water is an effective extinguishing medium for lithium batteries.
 - Do not use warm water or hot water.
 - lith-X(Class D extinguishing media) is effective on fires involving only a few lithium batteries.
 - Do not use CO₂ or Halon type extinguishers.
 - Dry chemical type extinguishers have limited extinguishing potential
- B. Fire Fighting Procedures
 - Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire.
 - Full protective clothing is necessary.
 - During water application caution is advised as burning pieces of lithium may be ejected from the fire.

6. Accidental release measures

When the battery housing is damaged, small amounts of electrolyte may leak. Seal battery air Tight in a plastic bag. Adding some chalk(CaCO₃) or lime (CaO) powder or Vermiculite. electrolyte traces may be wiped off dryly using household paper. rinse with water afterwards.

7. <u>Handling and storage</u>

- Do not allow terminals to short-circuit.
- Storage preferably in a cool(below 21 °C), dry area that is subject to little temperature change.
- Do not place near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in reduced battery service life.

8. <u>Exposure controls/ personal protection</u> Not applicable

9. <u>Physical and chemical properties</u>

Not applicable

10 Stability and reactivity

May rupture violently when heated above 150 $\,\,^\circ\! C\,$ or when charged.

11. Toxicological information

Not applicable

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Refer to information under item 2.

12. Ecological information

The Batteries do not contain mercury, cadmium or other heavy metals.

13. Disposal Consideration

- Dispose by incineration or burial at permitted waste treatment and/or disposal sites.
- Batteries do not contain hazardous materials according to EC directives 2006/66/EC.
- For large quantities a disposal service is offered upon request.

14. Transport information

GLD 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 A154 and can be shipped as "Not Restricted" cargo in accordance with IATA Dangerous Goods Regulations 53rd according to packing instruction 968 General requirements and section II. It is safe to ship by IMDG code SP188/IMO/US DOT.

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

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

15. <u>Regulatory information</u>

Not applicable

16. Other information

- Further information is given in
 - GLD Lithium Battery Product Data Catalogue
 - GLD Lithium battery technical Brochure.
- For lithium batteries in general, Safety standard IEC 60086-4 applies. It contains detailed recommendations for manufacturers of equipment and users.
- Visit our website http://www.gld-battery.com.

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of the materials and the safety and health of employees and customers.