Omnergy **Power Glory Battery Tech (HK) Co., Ltd.**
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This product is a consumer product which is used in a hermetically sealed state. So, it is not an object of the SDS system. This document is provided as technical information only. The information and recommendations set forth are made in good faith and are believed to be accurate as of the date of preparation. Power Glory makes no warranty expressed or implied.

MATERIAL SAFETY DATA SHEET

Section 1: Chemical product and company identification

Name of Product	:	Lithium Manganese Dioxide Battery
Product models	:	CR1025 CR1216 CR1220 CR1225 CR1616 CR1620 CR1632 CR2016 CR2025 CR2032 CR2320 CR2325 CR2330 CR2335 CR2354 CR2430 CR2450 CR2477 CR3032 CR3832
Name of Company	:	Power Glory Battery Tech (Shenzhen) Co., Ltd.
Address	:	Room 306, West Four Row, Heshuikou Village, Heshuikou Commnunity, Gongming Town, Guangming New District, Shenzhen, China
Department:	:	Lithium battery development & engineering department
Telephone number	:	+86 717-6593355 , +852 34275537
Date of preparation	:	30-Dec-2019

Section 2: Hazards identification

This contains lithium, organic solvent, and other combustible materials. For this reason, improper handling of the battery could lead to distortion, leakage*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.
(*Leakage is defined as an unintended escape of liquid from a battery.)

Section 3: Composition/information of ingredients

Material	CAS No.	Content (%)
Manganese Dioxide	1313-13-9	16 - 37
Lithium metal	7439-93-2	1 - 3
1,2-Dimethoxyethane	110-71-4	2.6 - 5.8
Lithium perchlorate	7791-03-9	0.6 - 1.3
Propylene Carbonate	108-32-7	4.3 - 8
Graphite	7782-42-5 , 1333-86-4	1.8 - 5.5
Steel	7439-86-6 , 7440-47-3	30 - 85
Polypropylene	9003-07-0	0.5 - 10

Lithium content per cell model

Model	Weight of battery (in g)	Lithium content (in g)	Model	Weight of battery (in g)	Lithium content (in g)
CR1025	0.6	0.010	CR2320	3.0	0.038
CR1216	0.7	0.008	CR2325	3.3	0.052
CR1220	0.8	0.012	CR2330	4.0	0.076
CR1225	0.9	0.014	CR2335	4.3	0.080
CR1616	1.1	0.014	CR2354	6.9	0.150
CR1620	1.4	0.023	CR2430	4.6	0.086
CR1632	2.0	0.033	CR2450	6.9	0.165
CR2016	2.0	0.024	CR2477	10.5	0.265
CR2025	2.7	0.052	CR3032	6.8	0.133
CR2032	3.2	0.064	CR3832	8.8	0.180

Section 4: First aid measures

None unless internal materials exposure. If contents are leaked out, read the following instructions.

Inhalation: Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.

Skin: Immediately flush skin plenty of water. If itch or irritation by chemical bum persists, consult a physician.

Eyes: Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately

Ingestion: If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

Section 5: Firefighting measures

Extinguishing agent: Extinguisher of alkaline metal fire is effective. Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may evolve by the reaction of water and lithium and it can form an explosive mixture. Therefore, in the case that lots of lithium batteries are burning in a confined space, use a smothering agent.

Firefighting procedure: Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

Section 6: Accidental release measures

Accidental Releases: Do not breathe vapors or touch liquid with bare hands (see section 4).

Waste Disposal Methods: Evacuate area. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. A NIOSH Approved Acid Gas Filter Mask or Self-Contained Breathing Apparatus should be worn. Seal leaking battery and soda lime or baking soda in a plastic bag and dispose of as hazardous waste.

Other: Follow North American Emergency Response Guide (NAERG)#138 for cells involved in an accident, cells that have vented, or have exploded.

Section 7: Handling and storage

1) Handling
   Never swallow.
   Never reverse the positive and negative terminals when mounting.
   Never short-circuit the battery.
   Never heat.
   Never expose to open flame.
   Never disassemble.
   Never weld the terminal or wire to the body of the battery directly.
   Never touch the liquid leaked out of battery.
   Never bring fire close to battery liquid.
   Never keep in touch with battery.
2) Storage
   Never let the battery contact with water.
   Never store the battery in hot and high humid place.

Section 8: Exposure controls and personal protection

Respiratory Protection		N/A
Ventilation	Local Exhaust	N/A
	Mechanical	N/A
	Special	N/A
	Other	N/A
Eye Protection		N/A
Protective Gloves		N/A
Other protective clothing		N/A

Section 9: Physical and chemical properties

Appearance	:	Coin shape. Contents are sealed in stainless steel vessel
Nominal Voltage	:	3 V
PH	:	Not applicable because the article is not soluble in water
Boiling point/boiling range	:	Not applicable for the article
Melting point	:	Not applicable for the article
Decomposition Temperature	:	Not applicable for the article
Flash point	:	Not applicable for the article

Section 10: Stability and reactivity

Stability	:	Stable
Incompatibility	:	Water
Hazardous polymerization	:	Will not occur
Condition to avoid	:	See section 7
Hazardous decomposition or byproducts	:	Hydrogen

Section 11: Toxicological information

Acute Toxicity:
1,2-Dimethoxyethane:
- LC_{50} (Inhalation): N/A
- LD_{50}: N/A
- Eye Effects: Corrosive
- Skin Effects: Corrosive

Section 12: Ecological information

Aquatic Toxicity: Do not let internal components enter marine environments. Avoid releases into waterways, wastewater, or groundwater.

Section 13: Disposal considerations

The battery disposal may be regulated by national or local government regulation. Please follow the instructions of proper regulation. As electric capacity is left in a discarded battery and it comes into contact with other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

Section 14: Transport information

In general, all cells/batteries being transported by ship, aircraft or railway, must be packaged in a safe and responsible manner. Do not leave them in high temperature or in high condensation. Battery cartons should be handled with care. Rough handling may result in batteries being short circuited or damaged.

Lithium metal cells and batteries are subject to the following transport rules. All Power Glory lithium cells/batteries meet the requirements of the special provisions listed below:

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	Dangerous Goods Regulation (Packaging Instructions 968 – 970)

Ocean Transportation

All Power Glory lithium coin cells/batteries can be transported as Non-Dangerous Goods by vessel as these articles satisfy with SP188 of IMO-IMDG Code.

Air Transportation

Power Glory Lithium cells/batteries can meet the requirement of IATA Dangerous Goods Regulations 61st Edition of 2020 Packing Instruction PI 968 - 970.

Proper Shipping Name	:	Lithium Metal Batteries
UN Number	:	UN3090 (When cell/batteries contained in equipment / packed with equipment, it is UN3091)
Hazard Classification	:	Class 9 (Miscellaneous)

Section 14: Transport information (… continued)

IATA DGR 61st Edition, Packing Instruction (PI)	Packing Instruction (PI) brief description
PI 968 Section IA	Cells, Cargo Aircraft only; net quantity per package Max. 35kg
PI 968 Section IB	Cells, Cargo Aircraft only; net quantity per package Max. 2.5kg
PI 968 Section II	Cells, Cargo Aircraft only, not more than one package in any single consignment; net quantity per package Max. 2.5kg
PI 969 Section II	Cells packed with equipment
PI 970 Section II	Cells contained in equipment, button cell batteries

1. for cells, the lithium content cannot be more than 0.3g for PI 968 Section II, not more than 1.0g for PI 968 Section IB, and can be more than 1.0g for PI 968 Section IA.

2. each cell is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, PartⅢ, sub-section 38.3.

3. each cell is manufactured in good qualification factory.

Section 15: Regulatory information

Major applicable regulations for transportation are listed below:
- Technical Instructions for the Safety Transport of Dangerous Goods by Air, 2019-2020 Edition
- IATA Dangerous Goods Regulations 61st Edition (IATA DGR)
- IMO International Maritime Dangerous Goods Code 2018 Edition (IMO, IMDG Code)

Section 16: Other information

If you want further information, please contact:
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