

Others	-	3-6%	
Lithium equivalent content	1.77[g] for battery pack		

First Aid Measures

Under normal conditions of use, the battery is hermetically sealed.

1. Ingestion : If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.
2. Skin Contact : If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
3. Eye Contact : If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.
4. Ingestion : If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

Fire Fighting Measures

- If fire or explosion occurs when battery are on charge , should shut off power to charger. In case of fire where lithium ion battery is present, flood the area with water. If any battery is burning, water may not extinguish them, but will cool the adjacent battery and control the spread of fire. CO₂ , dry chemical, and foam extinguishers are preferred for small fires.
- extinguishers :
water/CO₂/dry chemical/foam

Accidental Release Measures

- **personal protection** :
 1. Respiratory Protection : Not necessary under normal conditions.
 2. Eye Protection : Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

3. Gloves : Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery

- **Ventilation Requirements** : Not necessary under normal conditions
- Should depend on environmental protection stipulation recycle mode processing.

Handling and Storage

- Handling :
Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery.
Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include jumbled battery in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of battery in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery.
- Storage :
If the Polymer Li-ion Rechargeable Battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the Polymer Li-ion Rechargeable Battery periodically. 3 months: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$, 45 to 85%RH
And recommended at $0^{\circ}\text{C} \sim +35^{\circ}\text{C}$ for long period storage.
The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more. Do not storage Polymer Li-ion Rechargeable Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep out of reach of children. Do not expose Polymer Li-ion Rechargeable Battery to heat or fire. Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials.

Exposure controls

- ENGINEERING CONTROLS : -----

Control parameter		
Common chemical name/ General name	TLV-TWA	BEI
Lithium Cobaltic (LiCoO ₂)	0.02mg/ m ³ (as cobalt)	-----
Aluminum	10mg/ m ³ (metal coarse particulate) 5mg/ m ³ (inflammable powder) 5mg/ m ³ (weld fume)	-----
Carbon (Natural graphite) (Artificial graphite)	2mg/ m ³ (inhalant coarse particulate)	-----
Copper	0.2mg/ m ³ (fume) 1.0mg/ m ³ (a coarse particulate , mist)	-----
Organic electrolyte	-----	-----

Physical and Chemical Properties

Physical state	(Solid)	(Solubility in water)	/
Cell Color	(Metallic color)	(Explosion limit)	/
Odor	(Odorless)	(Auto flammability)	/
Flashpoint	/	(Melting Point)	LiCoO ₂ about 1130 C
Boiling Point	/	(Freezing Point)	/

Stability and Reactivity

- Stability :
Stable under normal use
- Reactivity :
Avoid contact with water and acids.

Toxicological Information

Under normal conditions of use, the battery is toxicological sealed. So void to open and damage battery directly

Ecological Information

If the battery is scrapped, it should be selected and disposed by professional company

Disposal Considerations

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

Transportation Information

The rechargeable lithium Ion battery pack meet all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3. The lithium battery pack comply with IATA DGR 60th edition lithium ion battery pack UN3480 and comply with Section IB of Packing Instruction of 965. Lithium battery label must be placed on the package when the statement is required.

Regulatory Information

(ACGIH)
(OSHA)
European Union (UN)
(ISO)

Other Information

- Reference : CSIP LI-ION POLYMER CELL BATTERY MSDS
- Made by : Joules Miles Co., Ltd.
10F, No. 1-26, Kuo-Chien Rd., Chien-Chen Dist.,Kaohsiung, Taiwan
TEL : 886-7-8157868 FAX : 886-7-8154982 www.jms.com.tw

Note: The reference data provide from supplier.

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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 : Coin Type Lithium Alloy Manganese Dioxide Batteries
Product model : ML1220
Volts : 3 V
Designed for Recharge : Yes
Name of Company : Power Glory Battery Tech (Shenzhen) Co., Ltd.
Address : No.19 Xianfeng Street, Xiaoting District, Yichang City, Hubei 443007, China
Department: : Lithium battery development & engineering department
Telephone number : +86 717-6593355 , +852 34275537
Date of preparation : 2-Jan-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 (weight %)
Lithium	7439-93-2	0.1 (0.01 gram)
Aluminum	7429-90-5	7.5
Propylene Carbonate	108-32-7	7.0
Manganese dioxide	1313-13-9	18.0
1,2-Dimethoxyethane	110-71-4	5.0
Lithium Hexafluorophosphate	31324-40-3	1.2
Graphite	7782-42-5、1333-86-4	2.0
Polypropylene	9003-07-0	1.65
Teflon	9002-84-0	1.9

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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 burn 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.



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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 (Physical state, color, etc.) : Appearance is a coin shape and it is a rechargeable cell with 3V nominal voltage

State of matter: Solid state

Form : Coin shape

Color: True quality of stainless steel

Smell : Tasteless (At the time of the fullness)

Resolve temperature: NA

Spontaneous combustion temperature: NA

Explosion demarcation line : Higher than 170 degrees Centigrade of batteries will be burnt

To the density (Water =1): NA

Dissolving: NA



Omnergy *Power Glory Battery Tech (HK) Co., Ltd.*

Room. A, 13 Floor, Hoi Bun Industrial Building, 6 Wing Yip Street, Kwun Tong, Hong Kong

Website: <http://www.omnergy.com.hk> Tel: (852) 3427 5536 Fax: (852) 3427 5526 Email: sales@omnergy.com.hk

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Boiling Point:	1,2-Dimethoxyethane : 83°C
Vapor Pressure:	1,2-Dimethoxyethane :6.40(20°C)
Vapor Density:	1,2-Dimethoxyethane : 3.11
Solubility in Water:	1,2-Dimethoxyethane : :diffluence contact with water
Specific Gravity:	1,2-Dimethoxyethane :1.63
Melting Point:	1,2-Dimethoxyethane : -67°C
Evaporation Rate:	N/A
Water Reactive:	1,2-Dimethoxyethane : :diffluence contact with water
Appearance & Odor:	1,2-Dimethoxyethane : achromatism liquid; slight aether odor.

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:

LC₅₀ (Inhalation): N/A

LD₅₀: 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.

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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 60th Edition of 2019, 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)



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Section 14: Transport information (... continued)

IATA DGR 60th 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, Part III, 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, 2018-2019 Edition
- IATA Dangerous Goods Regulations 60th Edition (IATA DGR)
- IMO International Maritime Dangerous Goods Code 2014 Edition (IMO, IMDG Code)

Section 16: Other information

If you want further information, please contact:

Technology Manager

Wang Baojun

No.19 Xianfeng Street, Xiao District, Yichang City, Hubei Province, 443007 P.R. China

Tel:+86-0717-6593355 Fax:+86-0717-6523399

