

GP Batteries

Safety Data Sheet for GP Lithium ion rechargeable cells/batteries

Document Number: WI-RD-P03-158

Revision: C1

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Section I – Identification

Information of Product

Product Identity (As Used on Label and List)	Lithium Ion cell
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Information of Manufacturer

Manufacturer's Name	Emergency Telephone Number
GPI International Ltd.	Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887
Address (Number, Street, City State, and ZIP Code)	Telephone Number for Information
7/F, Building 16W, 16 Science Park West Avenue Hong Kong Science Park, New Territories, Hong Kong	852-2484-3333
	Date of prepared and revision
	16 th Feb, 2016

Recommended use of the chemicals:

N.A.

Section II – Hazards Identification

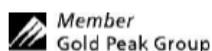
GHS Classification: N.A.

Under normal conditions of use, the battery is hermetically sealed. If the electrolyte is leaked, hazardous material may be released.

Human Health Effects

Inhalation	The electrolyte inhalation can cause respiratory irritation. It could be possibly carcinogen.
Skin contact	The electrolyte can cause skin irritation, chemical burns. Nickel compounds, cobalt and cobalt compounds can cause skin sensitization and an allergic contact dermatitis.

Remark: "N.A. is indicated if not applicable



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Eye contact	The electrolyte leaked from the battery, can cause severe irritation and chemical burns.
Ingestion	If the battery is swallowed and opened, or the electrolyte is ingested, the electrolyte irritates the mouth and the throat seriously, may lead to vomiting, nausea, hematemesis, stomach pains and diarrhea.
Environmental Effects The battery cell remains in the environment. Do not throw it out into the environment.	
Specific Hazards As previously described.	

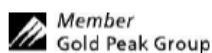
Section III – Composition/Information on Ingredients

Material/Ingredients	CAS #	Approximate % of total weight
Aluminum	7429-90-5	3-6%
Carbon	7440-44-0	10-20%
Copper	7440-50-8	7-10%
Lithium Cobaltate (LiCoO ₂)	12190-79-3	0-45%
Lithium Manganate (LiMn ₂ O ₄)	12057-17-9	0-20%
Lithium Iron Phosphate	15365-14-17	0-55%
Polyvinylidene fluoride (PVDF)	24937-79-9	1-10%
Carboxymethyl cellulose (CMC)	9004-32-4	0.1-5%
Nickel	7440-02-0	0.1-10%
Ethyl methyl carbonate	96-49-1	1-10%
Dimethyl carbonate	616-38-6	1-10%
Ethylene carbonate	623-53-0	1-10%

Section IV – First-aid Measures

Inhalation	If electrolyte vapors are inhaled, remove from exposure and provide fresh air,
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	seek medical attention if respiratory irritation develops. Ventilate the contaminated area.
Skin Contact	If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately. Remove contaminated clothing and wash before reuse. In severe cases obtain medical attention.
Eye Contact	If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.
Ingestion	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

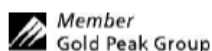
Section V – Fire-fighting Measures

Extinguishing Media	Carbon Dioxide, Dry Chemical or Foam extinguishers can be used for battery BUT water extinguisher is not suitable.
Unusual Fire and Explosion Hazards	In case of fire, it is permissible to use Carbon Dioxide, Dry Chemical or Foam extinguishers on these cells or their packing material. Cool exterior of cells if exposed to fire to prevent rupture.
Special Protective equipment and Precautions for fire-fighters	Fire fighters should wear self-contained breathing apparatus.

Section VI – Accidental Release Measures

Personal Precautions, protective equipment, emergency procedures	Cells that are leakage should be handled with rubber gloves. Avoid direct contact with electrolyte. Wear protective clothing. Remove personnel from area until fumes dissipate. If the skin has come into contact with the electrolyte, it should be washed thoroughly with water.
Containment and Clean Up	Sand or earth should be used to absorb any exuded material. Seal leaking battery and contaminated absorbent material in plastic bag and dispose of as Special Waste in accordance with local regulations.

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Section VII – Handling and Storage

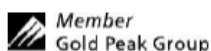
Precautions for Safe Handling	Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided, however, accidental short-circuiting for a few seconds will not seriously affect the battery. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin, and may cause the safety release vents of the enclosed cells to open. Sources of short circuits include jumbled batteries in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of batteries 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. Should an individual cell within a battery become ruptured, do not allow contact with water.
Conditions for Safe Storage	Keep cells between -20°C and 35°C for prolong storage. When the cells are closed to fully charged, the storage temperature should be between -20°C and 30°C and should be controlled at 10-20°C during transportation and packed with efficient air ventilation. Do not store in disorderly fashion, or allow metal objects to be mixed with stored cells.

Section VIII – Exposure Controls/Personal Protection

Exposure Control Limit

Common Chemical Name / General Name	OSHA PEL	ACGIH TLV
Aluminum metal (as Al)	TWA 15 mg/m ³ (total) TWA 5 mg/m ³ (resp)	-
Cobalt metal (As Co)	TWA 0.1 mg/m ³	TWA 0.02 mg/m ³
Carbon (Artificial graphite)	15mg/m ³ (total) 5mg/ m ³ (respirable)	-
Manganese compounds (as Mn)	(Ceiling) 5 mg/m ³	TWA 0.02 mg/m ³ (resp.)

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Nickel, metal and insoluble compounds	(as Ni) TWA 1 mg/m ³	Elemental: 1.5mg/m ³ (IHL); Insoluble inorganic compounds: 0.2mg/m ³ (IHL)
Copper	0.2mg/m ³ (fume) 1.0mg/m ³ (a coarse particulate, mist)	-
Organic electrolyte	-	-

TWA – Time Weighted Average

ACGIH TLV: American Conference of Governmental Industrial Hygienists Threshold Limit Value

OSHA PEL: Occupational Safety & Health Administration Permissible Exposure Limit

Personal protective equipment

Respiratory protection: Protective mask

Hand protection: Protective gloves

Eye protection: Protective glasses designed to protect against liquid splashes

Skin and body protection: Working clothes with long sleeve and long trousers

Engineering Control

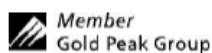
No engineering measure is necessary during normal use. In case of internal leakage of cell materials, operate the local exhaust or enhance ventilation

The contents of cell are hermetically sealed.

Section IX – Physical and Chemical Properties

Appearance Cylindrical or prismatic shape	Odor Odorless Odor Threshold N.A.
pH N.A.	Melting point/freezing point N.A.
Initial boiling point and boiling range N.A.	Flash point N.A.

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Evaporation rate N.A.	Flammability (solid, gas) N.A. Upper/lower flammability or explosive limits N.A.
Vapor pressure N.A.	Vapor density N.A.
Relative density N.A.	Solubility N.A.
Partition coefficient: n-octanol/water N.A.	Auto-ignition temperature N.A.
Decomposition temperature N.A.	Viscosity N.A.

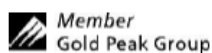
Section X – Stability and Reactivity

Reactivity	N.A.
Chemical stability	Stable under normal use
Possibility of hazardous reactions	By misuse of a battery cell or the like, gas accumulates in the cell and the internal pressure rises. These gases may be emitted through the gas release vent. When fire is near, these gases may take fire. When a battery cell is heated strongly by the surrounding fire, acrid or harmful fume may be emitted.
Conditions to avoid	Direct sunlight, high temperature and high humidity
Materials to avoid	Conductive materials, water, seawater, strong oxidizers and strong acids
Hazardous decomposition products	Acid or harmful fume is emitted during fire.

Section XI – Toxicological Information

There is no toxicity data for Lithium ion Battery. Under normal conditions of use, the battery is non-toxic.

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Section XII – Ecological Information (Non-mandatory)

Persistence/degradability :

Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

Section XIII – Disposal Considerations (Non-mandatory)

Recommended methods for safe and environmentally preferred disposal :

Product (waste from residues)

Do not throw out a used battery cell. Recycle it through the recycling company.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates them, dispose them as industrial wastes subject to special control.

Section XIV – Transport Information (Non-mandatory)

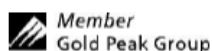
The UN Proper shipping Name is Batteries, Lithium ion

Transport of cells or batteries packed with or contained in equipment have to follow the appropriate regulations for UN3481

The watt-hour of the model can be referred to the appendix (Model list – WI-RD-P03-164)

Regulatory Body	Special Provisions
ADR	P903, P903a, P903b
IMO	UN 3480 P903 and SP188
UN	UN 3480 The Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries
US DOT	49 CFR section 173-185 Lithium batteries and cells
IATA	PI 965

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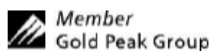
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UN No.	Shipping modes	Guidance Transport in bulk	Packing Group	Limit of Wh	Transport Hazard Class	Environmental Hazards	Special Precaution
UN3480 CLASS I	USA	US Department of Transportation of Hazardous Substances (HMR)		>20Wh(cell) >100Wh(battery)	Dangerous goods, class 9	No marine pollutant	Lithium handling label needed
	Air	ICAO/IATA DGR 57 th edition	PI965 Section IA & 1B	IA: >20Wh (cell) IB: >2.7 to <=20Wh (>8 cells) (Cell) IA: >100Wh (battery) IB: >2.7 to <=100Wh (>2 batteries) (battery)	Dangerous goods, class 9	No marine pollutant	Lithium handling label needed
	Sea	IMO/IMDG CODE 36-12	P903 SP188	>20Wh(cell) >100Wh(battery)	Dangerous goods, class 9	No marine pollutant	Lithium handling label needed
	Road/Rail	ADR / RID	P903 P903a P903b	>20Wh(cell) >100Wh(battery)	Dangerous goods, class 9	No marine pollutant	Lithium handling label needed
UN3480 CLASS II	USA	US Department of Transportation of Hazardous Substances (HMR)		<=20Wh(cell) <=100Wh(battery)	Non-dangerous goods	No marine pollutant	Lithium handling label needed
	Air	ICAO/IATA DGR 57 th edition	PI965 Section IIA & IIB	IIA: <=2.7Wh IIB: >2.7 to <=20Wh (<=8 cells) (Cell) IIA: <=2.7Wh IIB: >2.7 to <=100Wh (<=2 batteries) (Battery)	Non-dangerous goods	No marine pollutant	Lithium handling label needed
	Sea	IMO/IMDG CODE 36-12	P903 SP188	<=20Wh(cell) <=100Wh(battery)	Non-dangerous goods	No marine pollutant	Lithium handling label needed
	Road/Rail	ADR / RID	P903 P903a P903b	<=20Wh(cell) <=100Wh(battery)	Non-dangerous goods	No marine pollutant	Lithium handling label needed

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Section XV – Regulatory Information (Non-mandatory)

Special requirement be according to the local regulations.

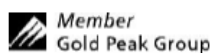
Section XVI – Other Information (Non-mandatory)

The data in this Safety Data Sheet relates only to the specific material designated herein.

文件履歷表

版次	制定/修訂內容	制定/修訂頁次	制定/修訂日期
A0	初版發行	N	2013.01.13
A1	加鋰電型號	P6	2013.01.21
A2	精縮電池型號	P6-P8	2013.04.01
A3	Add the IIb model list	P8	2013.04.19
A4	1、 Add the page of history 2、 增加電池型號 XP1015-10S 3、 IATA DGR 54th edition to IATA DGR 55th edition. 4、 IMDG Code 35-10 to IMDG Code 36-12	P6	2013.12.23
A5	精縮電池型號	P7	2014.01.13
A6	Date of prepared and revision 改為 14 th Feb,2014	P2	2014.02.14
A7	Date of prepared and revision 改為 20 th March,2014	P2	2014.03.20
A8	1、增加電池型號 ICR18650-26F 2、 Add the IIA model list	P8 P6	2014.05.30
A9	1、增加電池型号 XP0620-05S/GP0620-05S XP0620-05SN/GP0620-05SN PP0620-05S/PP0620-05SN 2、 Date of prepared and revision 改為 27 th Jun,2014	P7 P2	2014.06.27
B0	1、 增加電池型号 GP1012-08S 2、 Section XV 增加 Transportation Information	P7 P5	2014.10.10
B1	1、 0620 電池 Rated voltage 改為 3.8、 Watt hour 改為 0.209 2、修改 GP1012-08S 電池 Rated capacity (Ah) 為 0.08 3、刪減電池型號	P7-P10	2014.12.04
B2	增加電池型號: GP1048-49S, 修改模板內容	All	2015.01.01
B3	New format	All	2015.1.9
B4	Add model 18650-29HD	P9	2015.1.22

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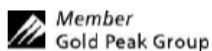
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B5	New SDS format	All	2015.02.03
B6	Amend the composition	P2, P3	2015.02.09
B7	Amend models	P10	2015.03.30
B8	Amend Models	P10	2015.05.30
B9	Delete model list	P10	2015.07.30
C0	Amend version of Section XIV	P8	2016.01.05
C1	Amend address of company	P2	2016.02.16

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