eate / Change (申请 / 更改文件表)

Entity * 公司主体	SZGP	Version# * 修订编号	3
Doc Title * 文件标题	Safety Data Sheet for GP Lithium ion rechargeable batteries	Status 状况	Completed (完成)
Doc Number * 文件编号	WI-PD-P02-700	Effective Date 生效日期	

Document Initiation and Approval
(本文件的制订及批核)

emarks (前言):

- The document control must be performed by authorized personnel.
  (本管制文件的制订及批核须经由指定人员执行。)
- Only authorized and responsible personnel can revise this document.
  (授权批核人授权及负责对本文件进行修订。)

itiation & Verification

Document Initiator * 文件制作人	JunWen Liu (刘均文)	Create Date 制作日期及时间	2020/12/10 下午4:16:00

ıcument Approval

Authorized Approver * 授权批核	Wei He (何伟)	Approval Date Time 批核日期及时间	2020/12/10 下午5:13:44

New Apply / Change Request(申请/更改文件表) Serial No (序號): 2020-0051

1) Document Type 文件类型: (•) New Document (新文件) ( ) Change (修改) ( ) Obsolete (撤消) ( ) Additional Issued (增发)

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4) Apply / Change Content
申请原因/更改内容

Ver. (版本)	Apply / Change Content (申请原因/更改内容) *	Applicant (制定/修订人)	Effective Date (生效日期)
3	更新标准到62版	JunWen Liu (刘均文)	12/10/2020

5) Attachment *
附件

☑ Soft Copy (Attached here)
(软媒体 附于加边)

WI-PD-P02-700 SDS of GP Lithium-ion Batteries A3.pdf

Original Document 原档案

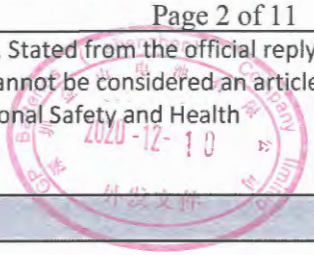
WI-PD-P02-700 SDS of GP Lithium-ion Batteries A3.doc

☐ Hard Copy (Pls Fill-in Filling Storage Location)
(硬媒体 请指家安放场所)

6) Training Records
培训记录

UPLOAD & SAVE (上传并保存)

Under normal conditions of use, the battery is hermetically sealed, NOT considered hazardous. Stated from the official reply of U.S. Department of Labor, Lithium -ion batteries have the potential to leak, spill, or break, cannot be considered an article that requires Safety Data Sheet. The SDS meets the requirement of the United States Occupational Safety and Health Administration (OSHA) 2012 Hazard Communication Standard 29 CFR 1910.1200.



Section I – Product and Company Identification

Information of Product

Product Identity (As Used on Label and List)	GP Rechargeable Li-ion

Information of Manufacturer

Manufacturer's Name GP Batteries (Shenzhen) Company Limited	**Emergency Telephone Number** Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887
Address (Number, Street, City State, and ZIP Code) A-1Building , Haixiang Industrial Park , Lanzhu Road , Shenzhen Export Processing Zone , Pingshan New Distric ,Shenzhen City ,Guanggong, P.R.China	**Telephone Number for Information** 0755-89595885
	Date of prepared and revision **10Dec,2020 A3**

Recommended use of the chemicals:

Don't directly connect (+) and (-) of a battery to make a short circuit. Don't disassemble, heat or put the battery into fire.

Section II – Hazards Identification

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

Classification:

Under normal conditions of use, the battery is hermetically sealed, NOT considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). It does not pose a physical hazard or health risk.

GHS Label elements, including precautionary statements:

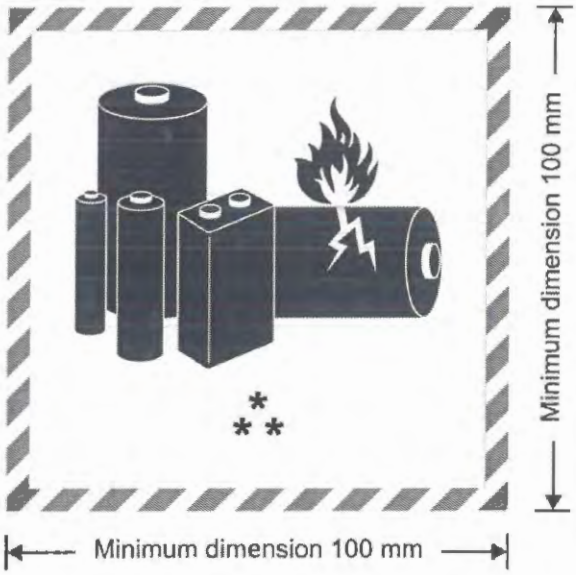
i) **Under normal conditions of use,** the battery is hermetically sealed, no hazards are available.

GHS Label: Not applicable under normal use.

IATA Label:

Accept combination use of either previous or new labels.

Class 9 Lithium Batteries DG Label



Lithium Battery Mark

Hazard Statements: Not applicable under normal use.

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

Precautionary Statements

Prevention:

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wash face, hands and any exposed skin thoroughly after handling

Keep away from heat/ sparks/ open flames/ hot surfaces. – No smoking

Do not short circuit, puncture, disassemble, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product

Response:

In considering the potential to leak, spill or break, refer to Section IV – First aid measures

Storage

Refer to Section VII – Handling and storage

Disposal

The battery cell remains in the environment. Do not throw it out into the environment. Disposal of contents/container in accordance with local regulation. Refer to section XIII – Disposal Considerations

Specific Hazards Not available

Section III – Composition/Information on Ingredients

Material/Ingredients	CAS #	Approximate % of total weight
Aluminum	7429-90-5	3-6%
Copper	7440-50-8	7-13%
Carbon	7440-44-0	10-30%
Lithium Cobalt Oxide ($LiCoO_2$)	12190-79-3	0-45%
Lithium Manganese Oxide (LiMnO2)	12057-17-9	0-20%
Lithium Nickel Manganese Cobalt Oxide(NMC)	346417-97-8	0-45%
Lithium Iron Phosphate (LiFePO4)	15365-14-7	0-55%
Lithium Nickel Cobalt Aluminum Oxide (NCA)	193214-24-3	0-45%
Ethyl methyl carbonate	96-49-1	0-10%
Dimethyl carbonate	616-38-6	1-15%
Ethylene carbonate	623-53-0	1-10%

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

Lithium Hexafluorophosphate (LiPF6)	21324-40-3	0.1-5%
PET	29154-49-2	0~2%
silver	7440-22-4	0~0.001%
Si	7440-21-3	0~0.1%
Al2O3	1344-28-1	0~0.05%
BaTiO2	12047-27-7	0~0.05%
Bisphenol F EPOXY resin	58421-55-9	0~0.2%
Glass fiber	65997-17-3	0~7%

Section IV – First-aid Measures

Inhalation	If electrolyte vapors are inhaled, remove from exposure and provide fresh air, 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.

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

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.

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 – Only for reference when electrolyte is leaked.

Common Chemical Name / General Name	OSHA PEL	ACGIH TLV

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

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)	(Celling) 5 mg/m^3	TWA 0.02 mg/m^3 (resp.)
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

Required when electrolyte is leaked.

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	**Odor**
Cylindrical or prismatic shape	Odorless **Odor Threshold** **N.A.**

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

Ph **N.A.**	**Melting point/freezing point** **N.A.**
Initial boiling point and boiling range **N.A.**	**Flash point** **N.A.**
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

Route of Entry

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

Inhalation	N.A.
Skin	N.A.
Ingestion	Ingestion of a battery can be harmful.

Health Hazard (Acute and Chronic) / Toxicological Information

There is no toxicity data for Battery. The battery is nontoxic because the chemical mixture from battery is sealed by the metal container.

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns.

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

Section XII – Ecological Information

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

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

UN Number: UN3480						
UN Proper Shipping Name: Lithium ion batteries						
UN: The Transport of Dangerous Goods, Manual of Tests and Criteria 38.3 Lithium batteries						
Shipping mode	**Regulation**	**Packing Group/Special Provision**	**Limit of Wh**	**Transport Hazard Class**	**Environmental Hazards**	**Special Precautions**
USA	US DOT 49 CFR Section 173-185 Lithium batteries and cells		>20Wh(cell) >100Wh(battery)	Dangerous goods, Class 9	No marine pollutant	Lithium handling label needed

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

			<=20Wh(cell) <=100Wh(battery)	Non-dangerous goods	No marine pollutant	Lithium handling label needed
Air	ICAO/IATA DGR 62nd edition	- PI965 Section IA	>20Wh (cell) >100Wh (battery)	Dangerous goods, Class 9	No marine pollutant	DG Label, CAO Label needed
		- PI 965 Section IB	<=2.7, 2.7 to 20Wh (Cell); <=2.7, 2.7 to 100Wh (battery) (for that exceed allowance in Section II)			Lithium handling label, DG label, CAO label needed
		- PI 965 Section II	<=2.7, 2.7 to 20Wh (Cell); <=2.7, 2.7 to 100Wh (battery) (Only allow one package prepared per consignment)	Partially-regulated dangerous goods	No marine pollutant	Lithium handling label, CAO Label needed.
Sea	IMO/IMDG CODE 39-18	P903 SP188	>20Wh(cell) >100Wh(battery)	Dangerous goods, Class 9	No marine pollutant	Lithium handling label needed
			<=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)	Dangerous goods, Class 9	No marine pollutant	Lithium handling label needed
			<=20Wh(cell) <=100Wh(battery)	Non-dangerous goods	No marine pollutant	Lithium handling label needed

2020) 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 GP Lithium ion batteries (sometimes referred to as "Lithium ion battery") has been designed to be compliant with these regulatory concerns.

Rechargeable lithium ion batteries (UN 3480), are forbidden for transportation aboard passenger-carrying aircraft. Such batteries transported in accordance with Section IA, IB & II of Packing Instruction 965 must be labeled with the CARGO AIRCRAFT ONLY label. Lithium ion cells and batteries must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.

b) International Maritime Organization (IMO) IMDG Code regulated these products as UN 3480, Lithium ion batteries, Class 9 dangerous goods with Special Provision 188 and Packing Instruction 903 assigned.

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

The watt-hour of the models can be referred to the appendix (Model list – WI-EG-P03-100).

Transport of Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment have to follow the appropriate regulations for UN3481. PI967, PI966 should be followed accordingly for Air Transport.

Section XV – Regulatory Information

Special requirement be according to the local regulations.

Section XVI – Other Information

The data in this Safety Data Sheet relates only to the specific material designated herein. However, the data is provided without any warranty; expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to assume liability on loss, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.

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
R0	初版發行	New	2018.12.12
R1	更新 ICAO/IATA DGR from 59 version to 60 version	10	2019.01.04
A0	更新 ICAO/IATA DGR from 60 version to 61 version 更新文件编号致WI-PD-P03-70重新发行	10	2019.11.30
A1	更新文件准备日期到2020	1	2019.12.16
A2	更新EISO第一页信息；更新IATA 版本描述61th改为61st	10	2020.2.25
A3	更新IATA版本从61st到62nd	10	2020.12.9
A4	更新lithium battery mark 尺寸从120X120mm为100X100mm	2	2021.1.12

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