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检验
INSPECTION
CNAS IB0551



MATERIAL SAFETY DATA SHEET

Report No.: PNS20200407MSDS01

Product Name: Lithium Ion Battery

Type/Model: PNAS 602248 3.7V 650mAh 2.405Wh

Revision Date: April 11, 2020

Compiler: *Guangwei Li*

Reviewer: *Shen Huang*

Approver: *Hongbin Xu*

广州邦禾检测技术有限公司

Guangzhou MCM Certification & Testing Co., Ltd.



Material Safety Data Sheet

SECTION 1 - CHEMICAL AND COMPANY IDENTIFICATION	
Product Name:	Lithium Ion Battery
Type/Model:	PNAS 602248 3.7V 650mAh 2.405Wh
Company:	ZHONGSHAN PNAS ENERGY TECHNOLOGY CO.,LTD
Address:	4F, B Building, Dongya Area, Dache Industrial Park, Nanlang Town, Zhongshan City, Guangdong Province(Next to Zhongshan Jiaxing Electronics Co., Ltd)
Fax:	0769-33532890
Zip code:	528451
E-mail:	huazhao@gdpurina.com
Emergency Telephone: 0760-85207080	

SECTION 2 - HAZARDS IDENTIFICATION
<p>Hazards Identification: Lithium batteries itself are classified to Class 9 Dangerous Goods, Miscellaneous dangerous substances and articles. The battery has passed the test items of UN <i>Model Regulations, Manual of Test and Criteria</i> Section 38.3, and Report No.: PNS20190601U01 The sealed intact battery is not hazardous in normal use.</p>
<p>Emergency Overview: Caution: Avoid contact and inhalation the electrolyte contained inside the battery.</p>

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENT			
Ingredient	Molecular formula	CAS No.	Weigh
Lithium Nickel Cobalt Manganese Oxide	$\text{LiNi}_x\text{Co}_y\text{Mn}_z\text{O}_2$	182442-95-1	35.05%
Graphite	$\text{C}_{24}\text{X}_{12}$	7782-42-5	15.98%
Lithium Hexafluorophosphate	LiPF_6	21324-40-3	1.27%
Aluminium	Al	7429-90-5	11.12%
Copper	Cu	7440-50-8	8.39%
Graphite /Acetylene Black	C	1333-86-4	0.79%
Polychloroprene Rubber	-	69028-37-1	10.36%
Styrene Butadiene Rubber	$\text{C}_{36}\text{H}_{42}\text{X}_2$	61789-96-6	0.71%
Polypropylene	$(\text{C}_3\text{H}_6)_n$	9003-07-0	1.74%
Polyethylene	$(\text{C}_2\text{H}_4)_n$	9002-88-4	1.27%
Ethylene Carbonate	$\text{C}_3\text{H}_4\text{O}_3$	96-49-1	6.34%
Diethyl Carbonate	$\text{C}_5\text{H}_{10}\text{O}_3$	105-58-8	4.76%
Ethyl Methyl Carbonate	$\text{C}_4\text{H}_8\text{O}_3$	623-53-0	1.11%
NYLON 6	$\text{C}_{18}\text{H}_{33}\text{N}_3\text{O}_3\text{X}_2$	25038-54-4	1.11%

SECTION 4 - FIRST AID MEASURES**Eye Exposure:**

In case of contact with eyes, flush with copious of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Skin Exposure:

If the internal battery materials of an opened battery cell come into contact with skin, immediately flush with plenty of water or soap.

Inhalation Exposure:

If inhaled the internals of battery vomiting. Seeking Immediate medical attention.

Ingestion Exposure:

If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

SECTION 5 - FIRE FIGHTING MEASURES**Danger characteristic:**

Exposure to excessive heat can cause venting of the liquid electrolyte.
Battery may burst and release hazardous decomposition products when exposed to a fire situation.

Hazardous combustion products:

Corrosive and toxic gas may be emitted during fire.

Fire-Fighting method:

The staff must equip with filtermask (full mask) or isolated breathing apparatus.
The staff must wear the clothes which can defense the fire in the upwind direction.
Remove the container to the open space as soon as possible.
Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

Fire-Fighting media:

Plenty of water, dry chemical powder or carbon dioxide.

SECTION 6 - ACCIDENTAL RELEASE MEASURES**Emergency treatment:**

If the battery material is released, remove personnel from area until the batteries cool down and fumes dissipate.
Provide maximum ventilation to clear out hazardous gases and avoid skin and eye contact or inhalation of vapors
Remove spilled liquid with absorbent and incinerate waste.

SECTION 7 - HANDLING AND STORAGE**Handling:**

1. Do not allow battery terminates to contact each other, or contact with other metals.
2. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.
3. Do not expose the battery to excessive physical shock or vibration.
4. Do not immerse, throw, and wet a battery in water.
5. Short-circuiting should be avoided. Short circuit will reduces the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short- circuited battery can cause skin burn.
6. The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
7. Place the cell beyond the child packing and container.
8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.
9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.

<p>10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer batteries or product.</p>
<p>Storage:</p> <ol style="list-style-type: none"> Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks. Keep the sample in the cool, dry and well-ventilated place (temperature: -20~30 °C, humidity: 45~85%). Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling. For rechargeable battery, charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION	
Engineering Control:	Keep away from heat and open flame. Supply with sufficient partial air exhaust. Store in a cool, dry place.
Respiratory Protection:	Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.
Eyes Protection:	Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.
Skin and Body Protection:	Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.
Hands Protection:	Not necessary under conditions of normal use. Wear chemical resistant rubber glove.
Other Protections:	No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES	
Appearance:	Silver
Physical state:	Solid
Form:	Prismatic
Odor:	Odorless
Solubility:	Insoluble in water.

SECTION 10 - STABILITY AND REACTIVITY	
Stability:	Stable under normal temperature and pressure.
Distribution of Ban:	Explosives, inflammables, strong oxidants and corrosives
Conditions to Avoid:	Fire source, heating source, disassemble, external short circuit, crushes, deformation, high temperature above 100°C, direct sunlight and high humidity, immerse in water or overcharge.
Hazardous Polymerization:	Will not occur.

Hazardous Decomposition Products:

Metal oxides, carboxyl compound such as CO, CO₂, etc.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity:

No information is available.

Sub-acute and Chronic Toxicity:

No information is available.

Irritation Data:

The internal battery materials may cause irritation to eyes and skin.

Sensitization:

The liquid in the battery may cause sensitization to some person.

Mutagenicity:

No information is available.

Carcinogenicity:

Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

Others:

Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents.

SECTION 12 - ECOLOGICAL INFORMATION

Eco-toxicity:

No information is available.

Biodegradable:

No information is available.

Mobility in soil:

No information is available.

Bioconcentration or biological accumulation:

No information is available.

Other harmful effects:

Don't abandon the battery into environment, may cause water or soil pollution.

SECTION 13 - DISPOSAL CONSIDERATIONS

Appropriate Method of Substance:

The battery should be completely discharged prior to disposal in order to prevent short circuit.

The battery contains recyclable materials, and it is suggested recycle.

Refer to National or Local regulations before handling.

Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.

SECTION 14 - TRANSPORT INFORMATION

Lithium batteries are classified to Lithium ion batteries (including lithium ion polymer batteries) and Lithium metal batteries (including lithium alloy batteries).

Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipment" may not be classified as "Dangerous Goods" when shipped in accordance with "PI965-970 section II of IATA-DGR" or "special provision 188 of IMO-IMDG Code".

Air transportation, according to IATA DGR 61st Edition (Effective 1 January-31December 2020)

UN Number	UN 3480
Proper Shipping Name	LITHIUM ION BATTERIES
Hazard Class	Class 9
Packaging requirement	PACKING INSTRUCTION 965 of section IB
UN Number	UN 3481
Proper Shipping Name	LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, or LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
Hazard Class	Not restricted
Packaging requirement	PACKING INSTRUCTION 966-967 of section II

Sea transportation, according to IMO IMDG Code (Amend 39-2018)

UN Number	UN 3480
Proper Shipping Name	LITHIUM ION BATTERIES
Hazard Class	Not restricted
Special provision	sp188
Package instruction	Not-restricted goods
EmS No.	F-A, S-I
UN Number	UN 3481
Proper Shipping Name	LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, or LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT
Hazard Class	Not restricted
Special provision	sp188
Package instruction	Not-restricted goods
EmS No.	F-A, S-I

SECTION 15 - REGULATORY INFORMATION

Dangerous Goods Regulation (DGR)

Recommendations on the Transport of Dangerous Goods Model Regulations

International Maritime Dangerous Goods (IMDG)

Occupational Safety and Health Act (OSHA)

Toxic Substances Control Act (TSCA)

Code of Federal Regulations (CFR)

Technical Instructions for the Safe Transport of Dangerous Goods

California Proposition 65

Superfund Amendments and Reauthorization Act Title III (302/311/312/313) (SARA)

In accordance with all Federal, State and local laws.

SECTION 16 - ADDITIONAL INFORMATION**According standard:**

GB/T 16483-2008 Safety data sheet for chemical products Content and order of sections
ISO 11014:2009(E) Safety data sheet for chemical products – Content and order of sections

Editing date:

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Department:

Guangzhou MCM Certification and Testing Co., Ltd.
1 F No.13, Zhong San Section, ShiGuang Road, Panyu District, Guangzhou City, Guangdong Province, China.
Tel.:0086-20-34777662, 0086-20-34777663
WEB: [Http://www.mcmtek.com](http://www.mcmtek.com)
Email: mark.miao@mcmtek.com

Other Information:

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Sample Reference Photo

Model: PNAS 602248 3.7V 650mAh 2.405Wh

