

Material Safety Data Sheet



Report No.: ARK202311075S02

Date of Issue: November 03, 2023

1. IDENTIFICATION

Product identifier

Product Name: Rechargeable Li-ion Battery

Model: VH01D

Recommended use of the chemical and restrictions on use

Recommended Use: LITHIUM ION BATTERIES

Restrictions on use: No information available

Details of the supplier of the safety data sheet

Initial supplier identifier: Shanghai Xinjin Technology Co., Ltd.

Address: 4F, Building 15A, No. 3825, Xinzhuan Road, Dongjing Town, Songjiang District, Shanghai, China

Telephone: +86-013122176819

E-mail: jtao@sigend.com

Emergency telephone number: +86-013122176819

Company Emergency Phone Number: +86-013122176819

Signed for and on behalf of

ARK Laboratories Inc.

TESTED BY:

Riven Wu

Riven Wu
Project Engineer



APPROVED BY:

Michael Chan

Michael Chan
Technical Director

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2. HAZARDS IDENTIFICATION



HEALTH	2
FIRE	2
REACTIVITY	0

Hazard description: Harmful! Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion.

Under normal conditions of use, the electrode materials and liquid electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery containers. Electrolyte leakage, electrode materials reaction with moisture/water or battery vent/explosion/fire may follow, depending upon the circumstances.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS No.	Percent of Content (%)
Lithium nickel cobalt manganese oxides	182442-95-1	30.6
Iron	7439-89-6	18.3
Graphite	7782-42-5	18.0
Copper	7440-50-8	11.1
Electrolyte solvents	/	/
Ethylene carbonate	96-49-1	1.4
Dimethyl carbonate	616-38-6	1.5
Propylene carbonate	108-32-7	2.0
Ethyl methyl carbonate	623-53-0	3.2
Aluminum	7429-90-5	4.5
Polyethylene	9002-88-4	2.2
Lithium hexafluorophosphate	21324-40-3	2.2
Polyvinylidene fluoride	25038-59-9	1.5
Carbon black	1333-86-4	1.2
Nickel	7440-02-0	0.8

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Styrene-butadiene rubber	9003-55-8	0.6
Polyvinylidene fluoride	24937-79-9	0.6
Carboxymethyl cellulose sodium salt	9004-32-4	0.3
Styrene-butadiene rubber	9003-55-8	0.6

4. FIRST-AID MEASURES

- Eyes:** Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
- Skin:** Wash off skin thoroughly with water. Remove contaminated clothing and wash before reuse. In severe cases obtain medical attention.
- Inhalation:** Remove from exposure, rest and keep warm. In severe cases obtain medical attention.
- Ingestion:** Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.
- Further treatment:** All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a Doctor.

5. FIRE-FIGHTING MEASURES

- Hazardous Combustion Products:** When burned, hazardous products of combustion including fume of carbon monoxide and carbon dioxide can occur.
- Extinguishing Media:** Water, carbon dioxide, dry chemical or foam.
- Basic Fire Fighting Procedures:** Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

- Accidental:** If the battery breakage and electrolyte leakage, evacuate personnel until the smoke cleared.
- Wipe with a cloth and placed in steel drums into the bag inside.
- If the battery is hot, away from the scene firstly, cool the battery, so that the steam dissipated. Adequate ventilation.
- Avoid skin or eye contact steam.

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Waste treatment: The battery Should discharge completely, the waste batteries will be turned over in the relevant sector, and all waste must refer to the United Nations, national, local regulations for disposal. Reference to national or federal Environmental Protection Agency EPA.

7. HANDLING AND STORAGE

Prohibit mechanical or electrical damage battery.

Stored in a dry, cool and ventilated environment, to avoid temperature changes or high temperature.

Keep away from heat, avoid prolonged sun exposure.

Against short circuit, overcharge, forced discharge, or in a fire.

Battery disassembly, crush, fire or high temperatures can cause fire or explosion, prohibit short-circuit or error operation.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION



Respiratory protection: If the battery leaks, the need for full ventilation.

Hand Protection: Under normal use, do not.

Personal Protection: Under normal use, do not.

Other protection: Under normal use, do not.



If the battery leaks, must wear the following protection products.

	Respiratory protection	In all fire situations, use self-contained breathing apparatus.
	Hand protection	In the event of leakage wear gloves.

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	Eye protection	Safety glasses are recommended during handling.
	Other	In the event of leakage, wear chemical apron.

9. PHYSICAL AND CHEMICAL PROPERTIES

Nominal Voltage:	11.1V
Capacity:	1.9Ah
Watt-hour:	21.09Wh
Appearance characters:	Blue Prismatic

10. STABILITY AND REACTIVITY

Product is stable under conditions described in Section 7.

Hazardous reactions may occur under some specific conditions.

Conditions to avoid: When a battery cell is exposed to an external short-circuit, crushes, modification, high temperature above 100 degree C, it will be the cause of heat generation and ignition. Avoid to be exposed to direct sunlight and high humidity.

Materials to avoid: Conductive materials, water, seawater, strong oxidizers and strong acids.

Hazardous decomposition products: Acrid or harmful gas is emitted during fire.

11. TOXICOLOGICAL INFORMATION

Primary irritant effect: None, unless battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

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Inhalation:	Lung irritant.
Skin contact:	Skin irritant
Eye contact:	Eye irritant.
Ingestion:	Tissue damage to throat and gastro-respiratory tract if swallowed.
Medical conditions generally aggravated by exposure:	In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

12. ECOLOGICAL INFORMATION

Environmental Impact: Proper use and disposal of the battery will not harm the environment. Dispose of the battery, away from water, rain and snow.

13. DISPOSAL CONSIDERATIONS

Do not incinerate, or subject cells to temperatures in excess of 100°C. Such abuse can result in loss of seal, leakage, and/or cell explosion.

Waste disposal must be in accordance with the applicable regulations. Disposal of the lithium ion battery cells should be performed by permitted, professional disposal page: firms knowledgeable in state or local requirements of hazardous waste treatment and hazardous waste transportation. Incineration should never be performed by battery but users, eventually by trained professional in authorized facility with proper gas and fume treatment.

14. TRANSPORT INFORMATION

According to PACKING INSTRUCTION 965 ~ 967 of IATA DGR 57th Edition for transportation, the special provision 188 of IMDG (inc Amdt 37-14). The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated

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from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

(a) UN number	3480 & 3481 LITHIUM ION BATTERIES (including lithium ion polymer batteries) or;LITHIUM ION BATTERIES CONTAINED IN
(b) UN Proper shipping name	EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
(c) Transport hazard class(es)	9
(d) Packing group (if applicable)	IB
(e) Marine pollutant (Yes/No)	No
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
(g) Special precautions	No information available.
Transport fashion:	By air, by sea, by railway, by road.

15. REGULATORY INFORMATION

《Dangerous Goods Regulation》
《Recommendations on the Transport of Dangerous Goods Model Regulations》
《International Maritime Dangerous Goods》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《Classification and code of dangerous goods》
OSHA Hazard Communication Standard Status
Toxic Substances Control Act (TSCA) Status
SARA Title III
RCRA
In accordance with all Federal, State and Local laws

16. OTHER INFORMATION

The above information is based on the data of which we are aware and is believed to be correct as

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of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.