



Material Safety Data Sheet (MSDS) Report

MSDS Number: SDS202012193097

Applicant: Yixing Xinchu Energy Technology Co., Ltd.

No.82 Xinzhong Road, Xinzhuang Street, Yixing City, Jiangsu Province, 214200, China.

Sample Description:

Product name : High Power Battery Pack
Product model : FDB02\D23\D08
Battery type : Lithium-ion battery
Product dimension : 270mm*98mm*55mm
Nominal voltage : 24V
Nominal capacity : 6Ah/144Wh
Data reviewed : Jan 14, 2022

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Approved By:

Pingo Zhang, Manager

On behalf of Shanghai Ruifu Co., Ltd.

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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product name : High Power Battery Pack
Product model : FDB02\D23\D08
Battery type : Lithium-ion battery
Product dimension : 270mm*98mm*55mm
Nominal voltage : 24V
Nominal capacity : 6Ah/144Wh

Recommended use of the chemical and restrictions on use

Identified uses : Power supply

Details of the supplier of the product

Yixing Xinchu Energy Technology Co., Ltd.
No.82 Xinzhong Road, Xinzhuang Street,
Yixing City, Jiangsu Province, 214200,
China

Emergency telephone number

Tel: +86-519-87569726

Product Information

Tel: +86-510-87560105

E-mail: info@jsfengchi.cn

SECTION 2. HAZARDS IDENTIFICATION

As a solid, manufactured article, exposure to hazardous ingredients is not expected with normal use. The potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged. If the battery is compromised and starts to leak, based upon the battery ingredients, the contents are classified as hazardous.

The following GHS hazardous classification are derived based on the internal ingredients of battery under extreme exposure scenarios, such as breakage, leakage or being abused.

GHS-Classification(China GB standards(GB30000-2013))

Hazard classification : Carcinogenicity, Category 1
May cause cancer
Acute toxicity(oral), Category 4
Harmful if swallowed.
Skin sensitisation, Category 1
May cause an allergic skin reaction.
Specific target organ toxicity, repeated exposure, Category 1
Causes damage to organs through prolonged or repeated exposure.




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GHS-Classification(China GB standards(GB30000-2013))

Symbol(s)	:	
Signal word	:	Danger
Hazard statements	:	H350 May cause cancer. H302 Harmful if swallowed H317 May cause an allergic skin reaction. H372 Causes damage to organs through prolonged or repeated exposure
Precautionary statements	:	Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathe dust/ fume/ gas/ mist/ vapors/ spray. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. Response: P302 + P352 IF ON SKIN: Wash with plenty of water. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P362 + P364 Take off contaminated clothing and wash it before reuse. Storage: P405 Store locked up. Disposal: P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Immersion in high conductivity liquids may cause corrosion and breaching of the battery enclosure.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Product type : Manufactured article/solid



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Product components

Component Chemical Name	CAS Number	Percent of Total
Nickel cobalt manganese acid lithium	-	58-62%
Carbon	7440-44-0	12-15%
Copper	7440-50-8	7-10%
Graphite	7782-42-5	8%
PVDF	24937-79-9	6%
Aluminum	7429-90-5	5%
Ethylene carbonate	96-49-1	5%
Nickel	7440-02-0	2-5%
Dimethyl carbonate	616-38-6	2-5%
Lithium	-	2-3%

SECTION 4. FIRST AID MEASURES

Under normal conditions of battery use, internal components will not present a health hazard. The following measures are only applicable if exposure has occurred to components when battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused/damaged.

- If inhaled : None required under normal use condition.
Electrolyte solution spill: unlikely route of exposure. Evacuate victim to a safe area as soon as possible. Loosen tight clothing. If breathing is difficult, administer oxygen. Seek medical attention if symptom persist.
- In case of skin contact : None required under normal use condition.
If battery is leaking and material contacts the skin, remove any contaminated clothing and flushed exposed skin with running water for at least 15 minutes. If irritation, injury or pain persist, seek medical advice.
- In case of eye contact : None required under normal use condition.
If material is leaking and contact the eyes, flush thoroughly for at least 15 minutes under running water (remove contact lenses if easy to do). Occasionally lifting the upper and lower eyelids until no evidence of the chemical remains. Get medical aid.
- If swallowed : None required under normal use condition.
Do not induce vomiting. Get medical aid.
- Most important symptoms and effects : None known symptom under normal use condition.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : In case of fire where lithium ion batteries are present, flood the



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- area with water. If any batteries are burning, water may not extinguish them, but will cool the adjacent batteries and control the spread of fire.
CO₂, dry chemical and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium ion batteries. Burning batteries will burn themselves out. Virtually all fires involving lithium ion batteries can be controlled with water. LITH-X or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used.
- Unsuitable extinguishing media : No further information available.
- Specific hazards during firefighting : Burning and disassembly batteries may emit acrid smoke, irritating fumes, and toxic fumes of hazardous oxides of carbons and other toxic by-products, in the event of fire and/or explosion do not breathe fumes.
Thermal shock may cause battery case to crack open.
Containers may explode when heated.
- Hazardous combustion products : Battery decompose under fire conditions. The smoke may contain polymer fragments of varying composition and unidentified toxic and/or irritating compounds.
Carbon dioxide and carbon monoxide, metal oxides/copper oxide fumes and other toxic by-products.
- Specific extinguishing methods : Product is compatible with standard fire-fighting agents.
- Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : In the event of fire and breakage, please ensure that:
Avoid contact with skin, eyes or clothing.
Use personal protective equipment.
Keep unauthorized personnel away.
Stay upwind.
Ensure adequate ventilation.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
If battery material is released, remove personnel away from area until fume dissipate. Provide maximum ventilation to clear out hazardous gases. Remove ignition sources.
Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.
- Environmental precautions : Prevent from migration into soil, sewers and natural



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- waterways.
- Methods and materials for containment and cleaning up : Do not touch spilled material.
Absorb spilled material(electrolyte) with non-reactive/inert absorbent such as dry sand, vermiculite, clay or earth.
If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc.
Sweep up and transfer to properly labeled containers for recycle or disposal according to local/national regulations.
- Other information : Comply with all applicable national and local regulations.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Improperly charging a battery may cause battery to flame or damage.
Do not drop battery, puncture, or attempt to open battery case.
Avoid contact with the internal components of a battery.
Do not subject product to open flame or fire.
Do not expose batteries to excessive physical shock or vibration. Short-circuiting should be avoided.
Prolonged short circuit will cause the battery to rapidly lose energy, could generate enough heat to burn skin, even cause fire or explosion.
For personal protection see section 8.
- Conditions for safe storage : Store batteries in cool, dry, well-ventilated areas and keep away from flames, spark, or heat.
Storage temperature: -10 - +45°C.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Airborne exposures to hazardous substances are not expected when the cells or batteries are used for their intended purposes. Exposure standards are not applicable to the sealed articles.

Personal protective equipment

- Respiratory protection : None required for normal handling of the product.
In case of battery venting, provide as much ventilation as possible. Avoid confined area with venting batteries.
- Hand protection : None required for normal handling of the product.
Wear neoprene or natural rubber gloves if handling an open or leaking battery.
- Eye protection : None required for normal handling of the product.



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Wear safety glasses if handling an open or leaking battery.

Skin and body protection : None required for normal handling of the product.
Wear appropriate protective clothing if handling an open or leaking battery.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Solid(black)

Odor : Odorless

pH : Not applicable

Melting point/freezing point : No data available

Boiling point/boiling range : No data available

Flash point : Not applicable

Evaporation rate : No data available

Flammability (solid, gas) : Non-flammable solid under normal use conditions

Upper explosion limit : Non-explosive under normal condition of use

Lower explosion limit : Non-explosive under normal condition of use

Vapour pressure : Not applicable

Relative vapour density : No data available

Relative density : No data available

Density : No data available

Water solubility : Insoluble in water

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Thermal decomposition : No data available

Viscosity, dynamic : Not applicable

Viscosity, kinematic : No applicable



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Oxidizing properties : Not an oxidizer

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Non-reactive if stored and applied as directed.
Chemical stability : Sealed and normally functioning batteries are considered stable.
Possibility of hazardous reactions : Product will not undergo hazardous polymerization.
Conditions to avoid : Heat, flames and sparks.
Mechanical abuse (such as crushing, piercing and disassembly) and electrical abuse (such as recharging, voltage reversal and short circuiting).
Incompatible materials : Acids, oxidizing agents, chloride, metal and conductive materials.
Hazardous decomposition products : Thermal decomposition during fire produces hazardous oxides of carbon (mainly CO and other VOC's), metal oxides/copper oxide fumes, and other toxic by-products.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

COPPER:

Result: Not irritating to skin

ALUMINUM:

Result: Not irritating to skin

Serious eye damage/eye irritation

Not classified based on available information.

COPPER:

Result: Slightly irritating to eyes

ALUMINUM:

Result: Mildly irritating to eyes

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.



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STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Under normal conditions of use, this product does not present environmental hazard.

Acute aquatic toxicity : Not classified based on available information.

Chronic aquatic toxicity : Not classified based on available information.

Persistence and degradability

No data available

Bioaccumulative potential

Partition coefficient: n-octanol/water No data available

Mobility in soil

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice : The battery should be recycled if possible.
The battery must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste.
Recycling of battery can be done in authorized facility, through licensed waste carrier.
Dispose of in accordance with all applicable local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

Lithium-ion batteries (limited to a maximum of 30% SoC) are subject to the following transport rules:



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Method	Technical Guidelines	Packing Instruction and Special
Air	2021-2022 Edition of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air (Technical Instructions) and the 63rd edition of the IATA Dangerous Goods Regulations (DGR).	Packing Instruction 965(PI965, section IA) IMP: RBI Limit per package: Pax A/C = Forbidden CAO = 35 kg
Sea	IMDG Code(2020 edition amendmen 40-20)	Special Provision 188, 230, 310, 348, 376, 377,384

Provisions for the international transportation (pursuant to ICAO-TI/IATA-DGR, IMDG Code):

UN-No.: UN 3480
 Proper Shipping Name: Lithium Ion Batteries

IMDG((2020 edition amendmen 40-20))

UN Number	UN3480
UN Proper shipping name	Lithium ion batteries
Transport hazard class(es)	9
Packing Group	N/A

IATA(63rd Edition of the IATA Dangerous Goods Regulations (DGR))

UN Number	UN3480
UN Proper shipping name	Lithium ion batteries
Hazard Class	9
Packing Group	N/A

ADR

UN Number	UN3480
UN Proper shipping name	Lithium ion batteries
Hazard Class	9
Packing Group	N/A



Note: All lithium ion cells and batteries shipped by themselves (UN 3480) are forbidden for transport as cargo on passenger aircraft. All packages prepared in accordance with Packing Instruction 965, Section IA, IB and II, must bear a Cargo Aircraft Only label, in addition to existing marks and/or labels.

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SECTION 15. REGULATORY INFORMATION

Regulations on the Control over Safety of Dangerous Chemicals (Decree No. 591 of the State Council of the People's Republic of China)
General rules for preparation of chemical safety data sheet(GB16483-2008)
Rules for classification and labelling of chemicals(GB30000-2013)
Classification and labels of dangerous chemical substances commonly used(GB13690-2009)
List of dangerous goods(GB12268-2012)
Classification and code of dangerous goods(GB6944-2012)

SECTION 16. OTHER INFORMATION

Further information

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Disclaimer:

This SDS is intended to provide a brief summary of our knowledge and guidance regarding the use of this material. The information contained here has been compiled from sources considered by us to be dependable and is accurate to the best of our knowledge. It is not meant to be an all-inclusive document on worldwide hazard communication regulations.

This information is offered in good faith. Each user of this material needs to evaluate the conditions of use and design the appropriate protective mechanisms to prevent employee exposures, property damage or release to the environment. We assumed no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

*****End of Report*****