

Material Safety Data Sheet

Manufacturer's Name: Ningbo Sealake Storage Battery Co.,Ltd

ADD: Hudi Industrial Zone, Linshan Town, Yuyao, Ningbo,

Zhejiang, China 315416

Telephone No.: +86-574-62060666

Facsimile No.: +86-574-62060456

Common Name: Sealed Lead Acid Battery

Essential Component of Battery

1. Battery container: ABS plastic 7~10%
2. Battery plates: Lead-Ca plates 60~65%
3. Battery terminals: Copper
4. Battery separator: AGM separator
5. Battery Electrolyte: Sulfuric Acid appro. 20%
6. Other material: appro.10%

This Material Safety Data Sheet provides the essential information of safety to avoid from errors and faults. In order to store, transport and operate correctly, please read this MSDS prior. In terms of any condition, safety should be considered firstly.

When meeting any problems, please contact us. We will do our best to offer our assistance.

Website: <http://www.globalsources.com/sealake.co>

Email: sealake@mail.nbptt.zj.cn

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Hazard:

- 1.Fire: Short-circuit or operating in sealed condition may cause fire.
- 2.Explosion: Over-charging or excess-current charging may cause explosion.
3. Cauterization: The electrolyte will be leaked when batteries are broken.
The electrolyte will erode the equipments.
4. Extinguishing media: CO₂; foam; dry chemical
5. Special Fire Fighting Procedures: If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing.
6. Unusual Fire and Explosion hazards: Highly flammable hydrogen gas is generated during charging and operation of batteries.
- 7.To avoid risk of fire or explosion: keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

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Operation and Use Illumination

Notice

- Do not try to disassemble, repair, separate or modify the batteries yourself, which the electrolyte and lead may hurt the people and surroundings.
- Do not short circuit the batteries or battery sets. Short circuit will damage batteries or battery sets, and cause electricity-hit, fire or malfunction.
- Please do choose suitable wire to connect the batteries.
- Please do keep the batteries away from oil, water or chemical.
- Please do tighten the bolt of terminals.
- Please do cut off the major power when operating. Operation with power may cause electricity-hit.
- Do not connect the battery with the power of different specified voltage, which will cause fire or do the damage to the battery..
- The batteries are not allowed to use directly as AC supplier.
In order to use batteries as AC supplier, some special equipments are required, such as UPS.

Examination

Please do the routine examination before starting using the batteries,

1. The capacity should be similar to the specified capacity.
2. One "Illumination" and an "Examination Table" in every box.
3. Inspect the battery on container-broken and leakage items.
4. Test the terminal voltage:

Specified Voltage	2V	6V	12V
Actual Voltage	>2.1V	>6.2V	>12.4V

When finding any irregular situation, please contact the dealers of REWOP battery at once.

Do not deposit or utilize the batteries under following conditions,

Or else, may cause malfunction, leakage of electrolyte, creepage and so on,

- The condition with the temperature of below -10°C or temperature above 50°C .
- Outdoor place where suffer the raining or shining.
- The condition where fogging or freezing.
- The condition full of corrosive gas.
- The condition moist or dusty.
- The place where shaking or would be struck.

The battery should be deposited in the cool, dry and clear place. The batteries are allowed to stack at most five layers.

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Emergency and First Aid Procedures

- **Inhalation:**
Sulfuric acid: Remove to fresh air immediately. If breathing is difficult, give oxygen.
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.
- **Ingestion:**
Sulfuric acid: Give large quantities of water; do not induce vomiting; consult physician.
Lead: Consult physician immediately.
- **Skin:**
Sulfuric acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes.
Lead: Wash immediately with soap and water.
- **Eyes:**
Sulfuric acid and lead: Flush immediately with large amounts of water for at least 15 minutes; consult physician.
- **Proposition :**
Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to cause cancer and reproductive harm. Wash hands after handling.

Transport, deposit and inspection

1. Batteries are heavy and container is fragile, please handle with care. The container break will let out the electrolyte, and may make other damage.
2. During transport or deposit, at most six-layer is permitted. Superhigh deposit will hurt the terminals of the batteries underside, even break the battery.
3. The batteries in store should be examined at least month. When terminal voltage is below specified voltage, please charge the batteries immediately. Excessive self-discharging will do harm to the batteries and even damage them. In general, a full recharging is demanded in every three months.

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Battery connection

Series-connection: Only batteries or battery sets with same actual capacity are allowed to connected in series. The total voltage of battery set is the sum of the voltage of all battery or battery set, and the total capacity depends on the lowest capacity among all.

1. The batteries with different capacity can not be connected in series.
2. New batteries should not be connected with the used ones.
3. The batteries made by different suppliers should not be connected in series.
4. The batteries with different remanent power, thought same model, should not be connected. Please fully charge the batteries firstly, then connect them in series.
5. New batteries should be floating charged for 72 hours when initial use, in order to balance the power inside. The point is significant for the battery life and performance.

Parallel connection: The batteries or battery sets with same actual voltage are allowed to connected parallel. The total voltage of battery set is the voltage of a battery. The total capacity of battery set is the sum of the capacity of all battery.

The batteries or battery sets with different specified voltage are not allowed to connected parallel.

Waste Disposal Methods:

Spent batteries: Send to secondary lead smelter for recycling.

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements.

Consult state environmental agency and/or federal EPA.

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Charging-discharging Method and Battery Life

Cycle Model:

1. The equipments are connected to the AC, and then the battery take the place of AC to power the equipment after full recharging, Please use cycle model under this condition.
2. Under cycle model, the max voltage which the charger supply should be limited,

Specified Voltage	2V	6V	12V
Charging Voltage	2.35~2.45V	7.05~7.35V	14.1~14.7V

3. When the batteries are full charged, please stop charging at once.
4. According to the cycle model of JIS (Japan) Industrial standard, the batteries can be cycled over 300 times.

Floating Model:

1. The equipments are always connected to AC, and the battery power the equipments only when AC stop powering. Please use floating model under this condition.
2. The maximum charging voltage should base on the following,: the charging voltage, floating model and 25°C, is between 13.5V and 13.8V. The maximum charging current should be not more than 25% amperes of specified capacity.
3. Battery life:
 - I. If the capacity below 24Ah, the life is above one year
 - II. If the capacity above 24Ah, the life is above three years
 - III. As for 2V series batteries, the life is above five years

Discharging:

1. When discharging time is above 20 hours, stop discharging if the voltage decrease to 10.8V
2. When discharging time is between 2 and 20 hours, stop discharging if the voltage decrease to 10.2V
3. When discharging time is below 2 hours, stop discharging if the voltage decrease to 9.6V
4. Excessive discharging will do harm to the batteries.
5. Recharge the batteries right after discharging.

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