SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Name	:	Maintenance Free Valve Regulated Lead Acid Battery
Synonyms	:	Sealed Lead Acid Battery
Product code	:	2-FM-4 2-FM-4.5 2-FM-5 2-FM-6 3-FM-4 3-FM-4.5 3-FM-5 3-FM-7 3-FM-10 3-FM-12 6-FM-7 6-FM-8 6-FM-10 6-FM-4 6-FM-4.5 6-FM-12 6-FM-14 6- FM-15 6-FM-20 6-FM-24 6-DZM-12 6-DZM-20
Battery Type	:	Valve regulated lead-acid battery

Recommended use of the chemical and restrictions on use

Identified use	:	Power supply

Details of the supplier of the safety data sheet

Hebei Tianyi Electric Appliance Co., Ltd.
Ningwei Road, Dongzhuang Industry Zone,
Julu County, Xingtai, Hebei, 054000**,**
China.

Emergency telephone number

Tel: +86-319-4380111, or contact your local emergency telephone number

Product Information

Tel: +86-319-4380111
E-mail: kimi@tianyidq.com

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

The following information is provided for the scenario that exposure occurred during battery production or container breakage or under extreme heat conditions such as fire, however, under normal conditions of battery use, internal ingredients/components will not present any physical, health and environmental hazard.

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

GHS-Classification- China standards(GB30000-2013)

Corrosive to Metals	:	Category 1
Skin corrosion	:	Category 1
Serious eye damage	:	Category 1
Reproductive toxicity	:	Category 1A
Specific target organ systemic toxicity - repeated exposure (Oral)	:	Category 1 (Central nervous system, Kidney, Blood)

SHANGHAI RUIFU CO., LTD MSDS

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Specific target organ systemic toxicity - repeated exposure (Inhalation) : Category 1 (Central nervous system, Kidney, Blood)

GHS-Labelling- China standards(GB30000-2013)

Hazard pictograms :

Signal Word : Danger

Hazard Statements : May be corrosive to metals.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May damage fertility or the unborn child.
Causes damage to organs (Central nervous system, Kidney, Blood) through prolonged or repeated exposure if swallowed.
Causes damage to organs (Central nervous system, Kidney, Blood) through prolonged or repeated exposure if inhaled.

Precautionary Statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep only in original container.
Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
IF exposed or concerned: Get medical advice/ attention.
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.
Storage:
Store locked up.
Store in corrosive resistant stainless steel container with a resistant inner liner.
Disposal:

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Dispose of contents/ container to an approved waste disposal plant.

Physical and chemical hazards

Not classified based on available information.

Health hazards

Not classified based on available information.

Environmental hazards

Not classified based on available information.

Other hazards which do not result in classification

No data available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Manufactured article/solid

Hazardous components

Chemical Name	CAS-No.	Classification	Concentration (%)
Lead(Pb, PbO_2, $PbSO_4$)	7439-92-1	Repr. 1A; H360 STOT RE 1; H372 STOT RE 1; H372	70%
Sulfuric acid	7664-93-9	Met. Corr. 1; H290 Skin Corr. 1; H314 Eye Dam. 1; H318	20%
Fiberglass separator	65997-17-3	Not classified	5%
Container(ABS or PP)	25155-30-0	Not classified	5%

SECTION 4. FIRST AID MEASURES

Under normal conditions of battery use, internal ingredients/components will not present a health hazard. The following information is provided for battery electrolyte (acid) and lead for exposures that may occur during battery production or container breakage or under extreme heat conditions such as fire.

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Move to fresh air.
If breathed in, move person into fresh air.

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		If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	If on skin, rinse well with water. Wash contaminated clothing before re-use.
In case of eye contact	:	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye.
If swallowed	:	Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Most important symptoms and effects, both acute and delayed	:	Causes serious eye damage. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure if swallowed. Causes damage to organs through prolonged or repeated exposure if inhaled. Causes severe burns.
Notes to physician	:	No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Foam/Carbon dioxide (CO2)/Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during firefighting	:	Highly flammable hydrogen gas is generated during charging and operation of batteries. 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.
Hazardous combustion products	:	Toxic fumes, corrosive vapors and sulfur oxides.
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	:	In the event of fire, wear self-contained breathing apparatus.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Environmental precautions	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc.
Other information	:	Comply with all applicable federal, state, and local regulations.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	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 and avoid situations that could cause arcing between terminals. Do not smoke. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers. Smoking, eating and drinking should be prohibited in the application area. For personal protection see section 8.
Conditions for safe storage	:	Store batteries under roof in cool, dry, well-ventilated areas separated from incompatible materials and from activities that may create flames, spark, or heat.

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.

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
LEAD	7439-92-1	TWA	0.05 mg/m3 (as Pb)	PY OEL

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LEAD	7439-92-1	TWA	0.05 mg/m3 (as Pb)	ACGIH
LEAD	7439-92-1	REL	0.050 mg/m3 (as Pb)	NIOSH/GUIDE
LEAD	7439-92-1	TWA	0.05 mg/m3	OSHASP
LEAD	7439-92-1	OSHA_ACT	0.03 mg/m3	OSHASP
SULFURIC ACID	7664-93-9	TWA	0.2 mg/m3 Thoracic fraction.	ACGIH
SULFURIC ACID	7664-93-9	REL	1 mg/m3	NIOSH/GUIDE
SULFURIC ACID	7664-93-9	PEL	1 mg/m3	OSHA_TRANS
SULFURIC ACID	7664-93-9	TWA	1 mg/m3	TN OEL

Engineering measures : Store sealed lead acid batteries at ambient temperature.
Never recharge batteries in an unventilated, enclosed space.
Do not subject product to open flame or fire.
Avoid conditions that could cause arcing between terminals.

Personal protective equipment

Respiratory protection : None required for normal handling of the finished product.

Hand protection : None required for normal handling of the finished product.

Eye protection : None required for normal handling of the finished product.

Skin and body protection : None required for normal handling of the finished product.

Hygiene measures : Wash hands before breaks and at the end of workday.
When using do not eat or drink.
When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Manufactured article

Colour : Black

Odor : No odor
Sharp, penetrating, pungent odor(electrolyte)

Odor Threshold : No data available

pH : No data available

Melting point/freezing point : 327.4°C(lead)
-35 to -60°C (electrolyte)

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Boiling point/boiling range	:	1740°C (lead) Approx. 108~114°C (electrolyte)
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Non-flammable under normal use conditions
Upper explosion limit	:	Non-explosive
Lower explosion limit	:	Non-explosive
Vapour pressure	:	<0.3mmHg @25°C (electrolyte)
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	11.35 g/cm³(lead) 1.2 to 1.3 g/cm³(electrolyte)
Water solubility	:	0.15mg/l (lead) Fully soluble(Electrolyte)
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Thermal decomposition	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	Not an oxidizer

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under recommended storage conditions. The sealed battery is considered stable.
Possibility of hazardous reactions	:	Product will not undergo hazardous polymerization.
Incompatible materials	:	Electrolyte: Contact with combustibles and organic materials may cause fire and explosion. Reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur

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dioxide fumes and may release flammable hydrogen gas. Acids/Bases, combustible material, organic materials, strong oxidizing agents and strong reducing agents.

Hazardous decomposition products : Electrolyte: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide, corrosive vapors, sulphur oxides, toxic fumes.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Not classified based on available information.
LEAD**:**
Acute oral toxicity : LD L0 (Human): 155 mg/kg

Acute inhalation toxicity : LC Lo (Human): 271 mg/m3

SULFURIC ACID**:**
Acute oral toxicity : LD 50 (Rat): 2,140 mg/kg

Skin corrosion/irritation
Causes severe burns.

SULFURIC ACID**:**
Result: Corrosive to skin

Serious eye damage/eye irritation
Causes serious eye damage.

SULFURIC ACID**:**
Result: Corrosive 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
May damage fertility or the unborn child.
STOT - single exposure
Not classified based on available information.
STOT - repeated exposure
Causes damage to organs (Central nervous system, Kidney, Blood) through prolonged or repeated exposure if swallowed.
LEAD**:**
Exposure routes: Ingestion
Target Organs: Central nervous system, Kidney, Blood

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Assessment: Causes damage to organs through prolonged or repeated exposure.

Exposure routes: Inhalation
Target Organs: Central nervous system, Kidney, Blood
Assessment: Causes damage to organs through prolonged or repeated exposure.

Aspiration toxicity
Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

LEAD**:**

M-Factor (Acute aquatic toxicity)	:	10
Ecotoxicology Assessment		
Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

SULFURIC ACID**:**

Toxicity to fish	:	LC 50 (Lepomis macrochirus (Bluegill sunfish)): > 28 mg/l Exposure time: 96 h Method: Static Remarks: Mortality
Toxicity to daphnia and other aquatic invertebrates	:	EC 50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: Static
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice	:	Dispose of in accordance with all applicable local, state and federal regulations. Lead-acid batteries are completely recyclable.

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SECTION 14. TRANSPORT INFORMATION

International transport regulations

AIR TRANSPORT - IATA/ICAO(2020-2021 Edition of the ICAO Technical Instruction for the Safe Transport of Dangerous Goods by Air (Technical Instructions) and the 62nd Edition of the IATA Dangerous Goods Regulations (DGR)):
This valve regulated lead-acid battery is exempt from DG regulation and classified as “non-spillable battery”, so this battery is not subject to DG regulations, since it meets the requirement of packing instructions 872 of special provision A67.
This valve regulated lead-acid battery is securely packaged, protected from short circuits and labeled “non-spillable”, they are good for transportation on either passenger or cargo aircraft.

MARINE TRANSPORT – IMDG(IMDG Code(39-18)):
This valve regulated lead-acid battery is non-spillable battery and meet the requirements of special provision 238, so it is not subject to the provision of IMDG code.

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)
Guidance on the compilation of safety data sheet for chemical products(GB/T 17519-2013)
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)
Occupational exposure limits for hazardous agents in the workplace - Part 1: Chemical hazardous agents(GBZ 2.1-2019)

SECTION 16. OTHER INFORMATION

Further information
Revision Date: 01/01/2022

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

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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 Material Safety Data Sheet

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