



**MAXON®**  
BATTERIES

# Material Safety Data Sheet

Date of Issue: January 1, 2020

MSDS Code: EBO1711016-M032

SEALED LEAD ACID BATTERY

## 1. Identification Of Substance

### Product Details

Product Name:	SEALED LEAD ACID BATTERY
Product Model:	All series
Manufacturer/Supplier By:	FUJIAN MINHUA POWER SOURCE CO.,LTD Longqiao Industrial Zone An'xi, Fujian, China Tel: +86-0595-2263 7788 Fax: +86-0595-2263 3777

## 2. Hazards Identification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

### Health

Acute Toxicity (Oral/Dermal/Inhalation) Category  
4 Skin Corrosion/Irritation Category 1A  
Eye Damage Category 1  
Reproductive Category 1A  
Carcinogenicity (lead compounds) Category 1B  
Carcinogenicity (arsenic) Category 1A  
Carcinogenicity (acid mist) Category 1A  
Specific Target Organ Category 2  
Toxicity (repeated exposure)

### Environmental

Aquatic Chronic 1  
Aquatic Acute 1

### Physical

Explosive Chemical,  
Division 1.3



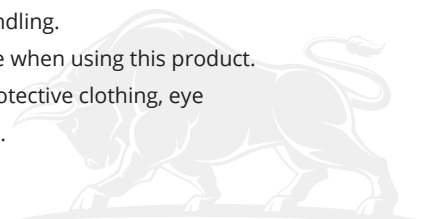
### Hazard Statements – DANGER!

Harmful if swallowed, inhaled, or in contact with skin.  
Acid causes severe skin burns and eye damage.  
May damage fertility or the unborn child if ingested or inhaled. May cause harm to breast-fed children.



### Precautionary Statements

Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves/protective clothing, eye protection/face protection.





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May cause cancer if ingested or inhaled. Causes skin irritation, serious eye damage. Contact with internal components may cause irrita severe burns. Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure or inhaled. Irritating to eyes, respiratory system, and skin. May form explosive air/gas mixture during chargin Extremely flammable gas (hydrogen). Explosive, fire, blast or projection hazard

Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid. Irritating to eyes, respiratory system, and skin. if ingested Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact during pregnancy/while nursing Keep away from heat. /sparks/open flames/hot surfaces. No smoking

## Hazards Not Otherwise Classified

(HNOC):

Unknown Toxicity:

Other information:

Interactions with Other Chemicals:

Not applicable

0.6% of the mixture consists of ingredient(s) of unknown toxicity

Very toxic to aquatic life with long lasting effects

Use of alcoholic beverages may enhance toxic effects.

## 3. Composition/Data On Components

COMPONENT	CAS #	EC No.:	% by wt.
Electrode plate: Lead	7439-92-1	231-100-4	66.2%
Electrolyte: Dilute sulphuric acid	7664-93-9	231-639-5	24.5%
Separator: Fiberglass	65997-17-3	266-046-0	2.7%
Battery shell: ABS	9003-56-9	NA	6.6%

## 4. First Aid Measures

Under normal conditions of battery use, internal 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

### Inhalation Sulfuric Acid:

Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

Lead: Remove from exposure, gargle, wash nose and lips; consult physician

### Skin Contact Sulfuric Acid:

Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.

Lead: Wash immediately with soap and water.

### Eye Contact:

Sulfuric Acid and Lead: Flush immediately with large amounts of water for at least 15 minutes while lifting lids; Seek immediate medical attention if eyes have been exposed directly to acid.

### Ingestion:

Sulfuric Acid: Give large quantities of water; Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.

Lead: Consult physician immediately.



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## 5. Fire Fighting Measures

<b>Flash Point:</b>	Not Applicable
<b>Flammable Limits:</b>	LEL = 4.1% (hydrogen gas in air) ; UEL = 74.2%
<b>Extinguishing Media:</b>	CO <sub>2</sub> ; foam; dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.
<b>Fire Fighting Procedures:</b>	Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.
<b>Hazardous Combustion Products:</b>	In operation, batteries generate and release flammable hydrogen gas. They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery.

## 6. Accidental Release Measures

<b>Protective Measures to be Taken if Material is Released or Spilled:</b>	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 un-neutralized acid to sewer. Acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.
<b>Waste Disposal Method:</b>	Dispose of as a hazardous waste. Dispose of in accordance with applicable local, state and federal regulations.



## 7. Handling And Storage

<b>Handling:</b>	Do not carry battery by terminals. 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.
<b>Storage:</b>	Store batteries under roof in cool, dry, well-ventilated areas separated from incompatible materials and from activities that may create flames, spark, or heat. Store sealed lead acid batteries at ambient temperature.





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**Charging:**

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged may generate and release flammable hydrogen gas. Charging space should be ventilated. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

**Other:**

Follow Manufacturers Recommendations regarding maximum recommended currents and operating temperature range. Do not overcharge beyond the recommended upper charging voltage limit. Applying pressure or deforming the battery may lead to disassembly followed by eye, skin and throat irritation.

## 8. Exposure Controls And Personal Protection

**Engineering Controls  
(Ventilation):**

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when charging or handling batteries.

**Hygiene Practices:**

Wash hands thoroughly before eating, drinking or smoking after handling batteries.

**Eye Protection:**

None required under normal conditions. If battery case is damaged, chemical goggles or face shield.

**Other Protection:**

In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.



## 9. Physical And Chemical Properties

**Form:**

Battery

**Color:**

Multicolor

**Odor:**

Odorless

**Voltage:**

2V, 6V, 8V, 12V

**Capacity:**

1.3AH-3000AH

**pH:**

Not applicable unless individual components exposed.

**Flash Point:**

Not applicable unless individual components exposed.

**Flammability:**

Not applicable unless individual components exposed.

**Relative Density:**

Not applicable unless individual components exposed.

**Solubility (Water):**

Not applicable unless individual components exposed.

**Solubility (Other):**

Not applicable unless individual components exposed.





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## 10. Stability And Reactivity

<b>Stability:</b>	Stable
<b>Conditions To Avoid:</b>	Prolonged overcharging and overheating current; sparks and other sources of ignition.
<b>Incompatibilities:</b>	Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas. No further concern for mechanical impact. Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent
<b>Hazardous Decomposition Products:</b>	Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide. Temperatures above the melting point are likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.
<b>Hazardous Polymerization:</b>	Will Not Occur

## 11. Toxicological Information

<b>Routes Of Entry:</b>	
<b>Sulfuric Acid:</b>	Harmful by all routes of entry.
<b>Lead Compounds:</b>	Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.
<b>Inhalation:</b>	
<b>Sulfuric Acid:</b>	Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.
<b>Lead Compounds:</b>	Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.
<b>Inhalation:</b>	
<b>Sulfuric Acid:</b>	May cause severe irritation of mouth, throat, esophagus and stomach.
<b>Lead Compounds:</b>	Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.
<b>Skin Contact:</b>	
<b>Sulfuric Acid:</b>	Severe irritation, burns and ulceration.
<b>Lead Compounds:</b>	Not absorbed through the skin.
<b>Arsenic Compounds:</b>	Contact may cause dermatitis and skin hyperpigmentation
<b>Eye Contact:</b>	
<b>Sulfuric Acid:</b>	Severe irritation, burns, cornea damage, and blindness.





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<b>Lead Compounds:</b>	May cause eye irritation.
<b>Effects Of Overexposure – Acute:</b>	
<b>Sulfuric Acid:</b>	Severe skin irritation, damage to cornea, upper respiratory irritation.
<b>Lead Compounds:</b>	Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.
<b>Effects Of Overexposure - Chronic:</b>	
<b>Sulfuric Acid:</b>	Possible erosion of tooth enamel, inflammation of nose, throat & bronchial tubes.
<b>Lead Compounds:</b>	Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50 µg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the bloodforming (hematopoietic) tissues.
<b>Carcinogenicity:</b>	
<b>Sulfuric Acid:</b>	The International Agency for Research on Cancer (IARC) has classified “strong inorganic acid mist containing sulfuric acid” as a Group I carcinogen, a substance that is carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.
<b>Lead Compounds:</b>	: Lead is listed by IARC as a Group 2A - likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.
<b>Arsenic:</b>	Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.
<b>Medical Conditions Generally Aggravated By Exposure:</b>	Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.
<b>Acute Toxicity:</b>	
<b>Inhalation LD50:</b>	
<b>Electrolyte:</b>	LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
<b>Elemental Lead:</b>	Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
<b>Elemental Arsenic:</b>	No data
<b>Oral LD50:</b>	
<b>Electrolyte:</b>	rat: 2140 mg/kg
<b>Elemental Lead:</b>	Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
<b>Elemental Arsenic:</b>	LD50 mouse: 145 mg/kg
<b>Elemental Antimony:</b>	LD50 rat: 100 mg/kg





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#### Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the work site. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction. Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

## 12. Ecological Information

#### Environmental Fate:

lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

#### Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:

24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L 96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L

Lead:

48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion

#### Additional Information:

No known effects on stratospheric ozone depletion

Volatile organic compounds: 0% (by Volume)

Water Endangering Class (WGK): NA

## 13. Disposal Considerations

#### Sulfuric Acid:

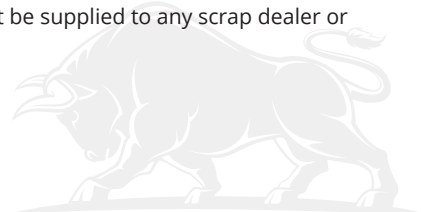


Neutralize as described above for a spill, collect residue and place in a container labeled as containing hazardous waste. Dispose of as a hazardous waste. If uncertain about labeling procedures, call your local battery distributor or listed contact.

DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.

#### Spent Batteries:

Send to secondary lead smelter for recycling. Follow applicable federal, state and local regulations. Neutralize as in preceding step. Collect neutralized material in sealed container and handle as hazardous waste as applicable. A copy of this MSDS must be supplied to any scrap dealer or secondary lead smelter with the battery.





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## 14. Transport Information

### GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:

No proper shipping name therefore is not regulated as hazardous material.

#### Label:

“NON-SPILLABLE” or “NON-SPILLABLE BATTERY”

For US, refer to 49 CFR 173.159(f)(1) & (2) for details. Non-spillable batteries are excepted from 49 CFR if the following criteria are met:

- The battery must be protected against short circuits and securely packaged
- Each battery and the outer packaging must be plainly and durably marked “NON-SPILLABLE” or “NON-SPILLABLE BATTERY”.

### AIRCRAFT – ICAO- IATA:

No proper shipping name therefore is not regulated as hazardous material.

#### Label:

“NON-SPILLABLE” or “NON-SPILLABLE BATTERY”

For air shipments, reference IATA Dangerous Goods Regulations Special Provision A67 and Packing Instruction 872. Non-spillable batteries are excepted from IATA – IATA regulations provided that the battery terminals are protected against short circuits.

### VESSEL – IMO-IMDG:

No proper shipping name therefore is not regulated as hazardous material.

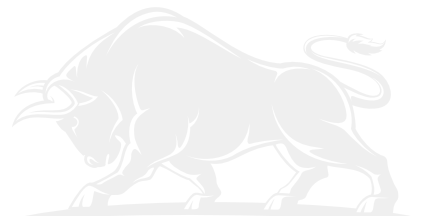
#### Label:

“NON-SPILLABLE” or “NON-SPILLABLE BATTERY”

For shipments by water, reference IMDG Special Provision 238.1 & .2 and Packing Instruction P003. Non-spillable batteries are excepted from all IMDG Code provided that the battery terminals are protected against short circuits.

### ADDITIONAL INFORMATION:

- Non-Spillable Battery complies with the provisions listed in 49 CFR 173.159. Does not require marking with an identification number or hazardous label and is not subject to hazardous shipping paper requirements.
- Non-Spillable Battery complies with the provisions listed in ICAO- IATA. The words “Not Restricted” and the Special Previsions number must be included in the description of the substance on the Air Waybill.
- Each battery and the outer packaging must be plainly and durably marked “NON-SPILLABLE” or “NON-SPILLABLE BATTERY”.
- Batteries must be kept upright at all times and packaged as required to prevent short circuits.
- Transport may require packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.







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## 15. Regulations

### EPA SARA Title III

#### Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 500 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). An average automotive/commercial battery contains approximately 5 lbs of sulfuric acid. Contact your GNB representative for additional information.

### Section 304 CERCLA

#### Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

### Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more.

### Section 313 EPCRA Toxic Substances:

Supplier Notification: This product contains a toxic chemical or chemicals subject to the reporting requirements of section 313 of (Title) III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical	CAS	Percent by Weight
Lead (Pb)	7439-92-1	65-69
Electrolyte: Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	7664-93-9	17-30

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year. Note: The Section 313 supplier notification requirement does not apply to batteries that are "consumer products".

## 16. Other Information

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



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