

Safety Data Sheet

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Revision Number 1.3

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Stationary Flooded Lead-Acid Tubular Batteries:
OPzS (2V, 6V, 12V) Series

Recommended Use Filled with acid battery, Standby power

Supplier Address
Starmax Corporation
1585 Cliveden Avenue
Delta, BC
V3M 6M1
Phone:888 669-1310
Contact: Technical Support
support@starmaxbatteries.co
Contact Phone: 949-588-5853

2. HAZARDS IDENTIFICATION

Emergency Overview

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




In case of rupture:

Corrosive

The product causes burns of eyes, skin and mucous membranes

Appearance: No information available, **Physical State:** Solid. **Odor:** Odorless

Label Elements :

| Health | Environmental | Physical |
|---|--|---|
|  |  |  |
| <p>Hazard Statements DANGER! Causes severe skin burns and eye damage. Causes serious eye damage. May damage fertility or the unborn child if ingested or inhaled. May cause cancer if ingested or inhaled. Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure. May form explosive air/gas mixture during charging. Extremely flammable gas (hydrogen). Explosive, fire, blast or projection hazard.</p> | <p>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. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well ventilated area. Causes skin irritation, serious eye damage. Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid. Irritating to eyes, respiratory system, and skin.</p> | |

Potential Health Effects**Principle Routes of Exposure**

Skin contact.

Acute Toxicity**Eyes**

Corrosive to the eyes and may cause severe damage including blindness.

Skin

Causes burns.

Inhalation

Harmful by inhalation. Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns.

Ingestion

Harmful if swallowed. Can burn mouth, throat, and stomach.

Chronic Effects

Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Avoid repeated exposure.

Severe exposures can lead to shock, circulatory collapse, and death Lead poisoning is characterized by a metallic taste in the mouth, loss of appetite indigestion, nausea, vomiting, constipation, sleep disturbances and overall weakness

Main Symptoms**Aggravated Medical Conditions**

None known.

Environment Hazard

See Section 12 for additional Ecological Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS-No | Weight % |
|--|------------|----------|
| Inorganic Lead/Lead Compounds | 7439-92-1 | 45-70 |
| Tin | 7440-31-5 | 0.1~0.2 |
| Antimony | 7440-36-5 | 1~2 |
| Arsenic | 7440-38-2 | <0.05 |
| Calcium | 7440-70-2 | / |
| Dilute Sulfuric Acid | 7664-93-9 | 20~40 |
| Silicon Dioxide | 60676-86-0 | 2~3 |
| Case Material: Styrene Acrylonitrile (SAN) | 9003-54-7 | <5 |

4. FIRST AID MEASURES

General Advice

First aid is upon rupture of sealed battery.

Eye Contact

Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.

Skin Contact

Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation

Move to fresh air. Call a physician or Poison Control Center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion

Immediate medical attention is required. Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Remove from exposure, lie down.

Notes to Physician

Treat symptomatically.

Protection of First-aiders

Use personal protective equipment. Avoid contact with skin, eyes and clothing.

5. FIRE-FIGHTING MEASURES

| | |
|--|--|
| Flammable Properties | Not flammable. |
| Flash Point | Not determined. |
| Suitable Extinguishing Media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Uniform Fire Code | • Corrosive: Acid-Liquid |
| Hazardous Combustion Products | Hazardous metal fumes and oxides. |
| Explosion Data Sensitivity to Mechanical Impact | No. |
| Sensitivity to Static Discharge | No. |
| Specific Hazards Arising from the Chemical | The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. |

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA Health Hazard 3 Flammability 0 Stability 2 Physical and Chemical Hazards

6. ACCIDENTAL RELEASE MEASURES

| | |
|----------------------------------|---|
| Personal Precautions | Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not get in eyes, on skin, or on clothing. |
| Environmental Precautions | Refer to protective measures listed in Sections 7 and 8. |
| Methods for Containment | Prevent further leakage or spillage if safe to do so. |
| Methods for Cleaning Up | In case of rupture: Use personal protective equipment. Dam up. Soak up with inert absorbent material. Take up mechanically and collect in suitable container for disposal. Clean contaminated surface thoroughly. |
| Other Information | Refer to protective measures listed in Sections 7 and 8. |

7. HANDLING AND STORAGE

| | |
|-----------------|--|
| Handling | Handle in accordance with good industrial hygiene and safety practice. |
| Storage | Keep containers tightly closed in a dry, cool and well-ventilated place. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|-------------------------|--|---|--|
| Lead 7439-92-1 | TWA: 0.05 mg/m ³ | TWA: 50 µg/m ³ Action Level: 30 µg/m ³ Poison, See 29 CFR 1910.1025 | IDLH: 100 mg/m ³ TWA: 0.050 mg/m ³ |
| Sulfuric acid 7664-93-9 | TWA: 0.2 mg/m ³ thoracic fraction | TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³ | IDLH: 15 mg/m ³ TWA: 1 mg/m ³ |
| Tin 7440-31-5 | TWA: 2 mg/m ³ | TWA: 2 mg/m ³ Sn except oxides (vacated) TWA: 2 mg/m ³ | IDLH: 100 mg/m ³ TWA: 2 mg/m ³ |

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value.

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits.

NIOSH IDLH: Immediately Dangerous to Life or Health.

| | |
|---|--|
| Other Exposure Guidelines | Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir. , 1992). |
| Engineering Measures | Showers Eyewash stations Ventilation systems |
| <u>Personal Protective Equipment</u> | |
| Eye/Face Protection | Tightly fitting safety goggles. |
| Skin and Body Protection | Wear protective gloves/clothing. |
| Respiratory Protection | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |
| Hygiene Measures | Handle in accordance with good industrial hygiene and safety practice. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|-----------------------------------|----------------------------------|--|--------------------------|
| Appearance | No information available, Black. | Odor | Odorless. |
| Odor Threshold | No information available | Physical State | Solid |
| pH | No information available | | |
| Flash Point | No information available. | Auto-ignition Temperature | No information available |
| Decomposition Temperature | No information available | Boiling Point/Range | No information available |
| Melting Point/Range | No information available | | |
| Flammability Limits in Air | No information available | Explosion Limits | No information available |
| Water Solubility | Immiscible in water | Solubility | No information available |
| Evaporation Rate | No information available | Vapor Pressure | No data available |
| Vapor Density | No data available | Partition Coefficient: noctanol/water | |

10. STABILITY AND REACTIVITY

| | |
|---|---|
| Stability | Stable under recommended storage conditions. |
| Incompatible Products | Incompatible with strong acids and bases. Incompatible with oxidizing agents. |
| Conditions to Avoid | Exposure to air or moisture over prolonged periods. |
| Hazardous Decomposition Products | Thermal decomposition can lead to release of toxic/corrosive gases and vapors |
| Hazardous Polymerization | Hazardous polymerization does not occur. |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information Product does not present an acute toxicity hazard based on known or supplied information.

Irritation Causes severe irritation and or burns

Component Information

| Chemical Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---------------|----------------------|-------------|-------------------------------------|
| Sulfuric acid | = 2140 mg/kg (Rat) | - | = 510 mg/m ³ (Rat) 2 h |

Chronic Toxicity

Chronic Toxicity

Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Avoid repeated exposure.

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|---------------|-------|----------|------------------------|------|
| Lead | A3 | Group 2A | Reasonably Anticipated | X |
| Sulfuric acid | A2 | Group 1 | Known | X |
| ABS resin | | Group 3 | | |

ACGIH: (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

| | |
|-------------------------------|--|
| Reproductive Toxicity | Product is or contains a chemical which is a known or suspected reproductive hazard. |
| Developmental Toxicity | Contains ingredients that have suspected developmental hazards. Inorganic lead compounds can cause developmental damage. |
| Target Organ Effects | None known. |

12. ECOLOGICAL INFORMATION

Ecotoxicity

The environmental impact of this product has not been fully investigated.

| Chemical Name | Toxicity to Algae | Toxicity to Fish | Toxicity to Microorganisms | Daphnia Magna (Water Flea) |
|---------------|-------------------|---|----------------------------|--|
| Lead | | LC50: 0.44 mg/L (96 h semi-static) Cyprinus carpio LC50: 1.17 mg/L (96 h flow-through) Oncorhynchus mykiss LC50: 1.32 mg/L (96 h static) Oncorhynchus mykiss | | EC50: 600 µg/L (48 h) water flea |
| Sulfuric acid | | LC50: > 500 mg/L (96 h static) Brachydanio rerio | | EC50: 29 mg/L (24 h) Daphnia magna |

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) . This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

| Chemical Name | CAS-No | Weight % | SARA 313 - Threshold Values % |
|---------------|-----------|----------|-------------------------------|
| Lead | 7439-92-1 | 60~75 | 0.1 |
| Sulfuric acid | 7664-93-9 | 20~35 | 1.0 |

SARA 311/312 Hazard Categories Acute Health Hazard Yes

Chronic Health Hazard Yes

Fire Hazard No

Sudden Release of Pressure Hazard No

Reactive Hazard No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

| Chemical Name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Lead | | X | X | |
| Sulfuric acid | 1000 lb | | | X |

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

| Chemical Name | CAS-No | Weight % | HAPS data | VOC Chemicals | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|---------------|-----------|----------|-----------|---------------|-------------------------|-------------------------|
| Lead | 7439-92-1 | 60~75 | | | | |

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

| Chemical Name | Hazardous Substances RQs | Extremely Hazardous Substances RQs |
|---------------|--------------------------|------------------------------------|
| Lead | 10 lb | |
| Sulfuric acid | 1000 lb | 1000 lb |

U.S. State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals:

| Chemical Name | CAS-No | California Prop. 65 |
|---------------|-----------|--|
| Lead | 7439-92-1 | Carcinogen Developmental Female Reproductive Male Reproductive |
| Sulfuric acid | 7664-93-9 | Carcinogen |

U.S. State Right-to-Know Regulations

| Chemical Name | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------|---------------|------------|--------------|----------|--------------|
| Lead | X | X | X | X | X |
| Tin | X | X | X | | |

| | | | | | |
|---------------|---|---|---|---|---|
| Calcium | X | X | X | | |
| Sulfuric acid | X | X | X | X | X |

International Regulations

Mexico - Grade Minimum risk, Grade 0

| Chemical Name | Carcinogen Status | Exposure Limits |
|---------------|-------------------|--|
| Lead | A3 | Mexico: TWA= 0.15 mg/m3 |
| Tin | | Mexico: TWA 2 mg/m3 Mexico: STEL 4 mg/m3 |
| Sulfuric acid | A2 | Mexico: TWA 1 mg/m3 |

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D2A Very toxic materials E Corrosive material



| Chemical Name | NPRI |
|---------------|------|
| Lead | X |
| Sulfuric acid | X |

Legend

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

Issuing Date 01-Nov-2014
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Revision Note Version Upgrade

Starmax Corporation 1585 Cliveden Avenue | Delta, BC V3M 6M1

General Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet