

Safety Data Sheet

Issuing Date 01-Nov-2017

Revision Date 02-Jan-2023

Revision Number 3.3

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Valve Regulated Maintenance Free Lead-Acid Batteries:
ST, STL, STF, STX, STS, XP, HXP, SPLH, SPLX, SPLC+C, SOP, SC, SRC, SRCF,
SHT, SHTF Series

Recommended Use Lead acid battery. Lead Acid (Non-spillable) Battery

Supplier Address
Starmax Corporation
1585 Cliveden Avenue
Delta, BC
V3M 6M1
Phone: 1888-669-1310
Contact: Technical Support
support@starmaxbatteries.com
Contact Phone: 1888-669-1310

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

| Health | | Environmental | | Physical |
|--|-------------|---------------|-----------|---------------------------------|
| Acute Toxicity (Oral/Dermal/Inhalation) | Category 4 | Aquatic | Chronic 1 | Explosive Chemical Division 1.3 |
| Skin Corrosion/Irritation | Category 1A | Aquatic | Acute 1 | |
| Eye Damage | Category 1 | | | |
| Reproductive | Category 1A | | | |
| Carcinogenicity (lead) | Category 2A | | | |
| Carcinogenicity (acid mist) | Category 1A | | | |
| Specific Target Organ Toxicity (Repeated exposure) | Category 1A | | | |

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.

Main Symptoms

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.

Aggravated Medical Conditions

None known.

Environment Hazard

See Section 12 for additional Ecological Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS-No | Weight % |
|---------------|-----------|----------|
| Lead | 7439-92-1 | 65~75 |
| Sulfuric acid | 7664-93-9 | 10~20 |
| ABS resin | 9003-56-9 | ~5 |
| Tin | 7440-31-5 | <0.5 |
| Calcium | 7440-70-2 | <0.1 |

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

| | |
|--|--|
| Flash Point | Hydrogen – 259 °C |
| Auto ignition | Hydrogen – 580 °C |
| Temperature | |
| Flammable Limits | LEL = 4.1% (Hydrogen Gas in air) ; UEL = 74.2% |
| 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. |
| 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 throatirritation. |

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

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles.
Skin and Body Protection Wear protective gloves/clothing.

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 acarcinogen.

| 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 |

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). Should not be released into the environment.

Contaminated Packaging Do not re-use empty containers.

US EPA Waste Number D002 D008

| Chemical Name | RCRA | RCRA - Basis for Listing | RCRA - D Series Wastes | RCRA - U Series Wastes |
|-------------------|---|---|-----------------------------|------------------------|
| Lead 7439-92-1 | (hazardous constituent - no waste number) | Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K064, K065, K066, K069, K086, K100, K176 | = 5.0 mg/L regulatory level | |

California Hazardous Waste Codes 792

This product contains one or more substances that are listed with the State of California as a hazardous waste.

| Chemical Name | California EHW | California Carc | California Hazardous Waste | California Waste - Part 2 |
|---------------|--------------------|-----------------|----------------------------|----------------------------------|
| Lead | | | Toxic | TCLP (for CA Toxicity): 5.0 mg/L |
| Sulfuric acid | | | Toxic Corrosive | |
| Calcium | Ignitable Reactive | | | |

14. TRANSPORT INFORMATION

Note: Transportation requirements do not apply once the battery pack has been installed in a vehicle as part of the vehicle's functional components.

Transportation: Sealed Lead Acid Battery is not a DOT Hazardous Material

Other: Per DOT, IATA, ICAO, and IMDG rules and regulations, these batteries are exempt from "UN2800" classification as a result of successful completion of the following tests:

- 1.) Vibration tests
- 2.) Pressure Differential Tests
- 3.) Case Rupturing Tests (no free liquids)

United States DOT:

Not regulated as dangerous goods per 49 CFR 173.159d

IATA

Not regulated as dangerous goods per Special Provision A67

IMDG

Not regulated as dangerous goods per exception 238

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL Not determined

U.S. Federal Regulations

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 | 65~75 | 0.1 |
| Sulfuric acid | 7664-93-9 | 10~20 | 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 | 65~75 | | | | |

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- 2017
Revision Date 02-Jan-2023
Revision Note Version Upgrade
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