

# MATERIAL SAFETY DATA SHEET

## SECTION 1: Chemical product and company identification

| Chemical/Trade Name (as used on label) | Chemical Family/Classification   |
|--|--|
| Storage Battery                        | Electric Storage Battery   |
| Manufacturer's Name                    | Address  |
| SUNSTONE POWER INDUSTRY CO.,LTD        | ROOMS 1318 20, 13/F, HOLLYWOOD PLAZA,<br>610 NATHAN ROAD, MONGKOK, KLN, H.K. |

## SECTION 2: Hazards identification

Product contains toxic chemicals that are subject to the reporting requirements of Section 302 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986).

## SECTION 3: Composition / Information on ingredients

| Material                     | Exposure Limits |            | Air Exposure Limits (ug/m <sup>3</sup> ) |       |       |
|------------------------------|-----------------|------------|--|-------|-------|
|                              | % By Wt.        | CAS Number | OSHA                                     | AGGIH | NIOSH |
| Lead                         | 57              | 7439-92-1  | 50                                       | 150   | 100   |
| Lead Oxide                   | 22              | 1309-60-0  | 50                                       | 150   | 100   |
| Electrolyte (Sulphuric Acid) | 14              | 7664-93-9  | 1  | 1     | 1     |

## SECTION 4 : First Aid Procedures:

|            |  |
|------------|--|
| Inhalation | Remove from exposure and apply oxygen if breathing is difficult.                     |
| Skin       | Wash with plenty of soap and water. Remove any contaminated clothing.                |
| Eyes       | Flush with plenty of water immediately for at least 15 minutes. Consult a physician. |
| Ingestion  | Consult a physician immediately.   |

## SECTION 5 : Fire fighting measures

|                           |                         |
|---------------------------|-------------------------|
| Flash Point               | Hydrogen = 259oC        |
| Auto ignition Temperature | Hydrogen = 580oC        |
| Extinguishing Media       | Dry Chemical, foam, CO2 |
|                           |                         |

|   |   |
|---|---|
| <b>Unusual Fire and Explosion Hazards</b> | Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery. |
|---|---|

## **SECTION 6 : Accidental release measures**

- Remove combustible materials and all sources of ignition. Cover spills with soda ash (sodium carbonate) or quicklime (calcium oxide). Mix well. Make certain mixture is neutral then
- a. collect residue and place in a drum or other suitable container. Dispose of a hazardous waste.
- Wear Acid-resistant boots, chemical face shield, chemical splash goggles, and
- b. acid-resistant gloves.
- Do not release un-neutralized acid**

## **SECTION 7 : Handling and storage**

### **Hygiene Practices:**

Following contact with internal battery components, wash hand thoroughly before eating, drinking, or smoking.

### **Respiratory Protection:**

Wear safety glasses. Do not permit flames or sparks in the vicinity of battery(s). If battery electrolyte (acid) comes in contact with clothing, discard clothing.

### **Other Handling and Storage Precautions:**

None Required.

## **SECTION 8: Exposure controls / Personal protection**

### **Engineering Controls:**

Store lead/acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space.

### **Work Practices:**

Do not remove vent caps. Follow shipping and handling instructions that are applicable to the battery type. To avoid damage to terminals and seals, do not double-stack industrial batteries.

### **Respiratory Protection:**

None required under normal handling conditions. During battery formation (high-rate charge condition), acid mist can be generated which may cause respiratory irritation. Also, if acid spillage

occurs in a confined space, exposure may occur. If irritation occurs, wear a respirator suitable for protection against acid.

**Eyes and Face:**

Chemical splash goggles are preferred. Also acceptable are "visor-gogs" or a chemical face shield worn over safety glasses.

**Hands, Arms, Body:**

Vinyl coated, VC, gauntlet type gloves with rough finish are preferred.

**Other Special Clothing and Equipment:**

Safety shoes are recommended when handling batteries. All footwear must meet requirements of

## SECTION 9 : Physical and chemical properties

Material is Solid at normal temperatures.

**Electrolyte:**

|                              |                    |                         |                |
|------------------------------|--------------------|-------------------------|----------------|
| <b>Boiling Point</b>         | 230°F / 110°C      | <b>Melting Point</b>    | Lead 327.4°C   |
| <b>Specific Gravity</b>      | 1.215 - 1.350      | <b>Vapor Density</b>    | Not determined |
| <b>% Volatiles By Weight</b> | Not Applicable     | <b>Vapor Pressure</b>   | Not determined |
| <b>Solubility in Water</b>   | 100% (electrolyte) | <b>Evaporation Rate</b> | Not determined |

Appearance and Odor: Electrolyte is a clear ACID with a acidic odor

## SECTION 10 : Chemical stability and reactivity information

|                            |                                      |
|----------------------------|--------------------------------------|
| <b>Stability</b>           | Stable                               |
| <b>Conditions to Avoid</b> | Sparks and other sources of ignition |

**Incompatibility: (materials to avoid)**

1. Lead/lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus
2. Battery electrolyte (acid): Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.

**Hazardous Decomposition Products**

1. Lead/lead compounds: Oxides of lead and acid
2. Battery electrolyte (acid): Hydrogen, Simo2

**Conditions to Avoid**

High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.

## SECTION 11 : Toxicological information

Under normal operating conditions, the internal material will not be hazardous to your health. Only internally exposed material during production or case breakage or extreme heat (fire) may be hazardous to your health.

### Routes of Entry:

|                        |   |
|------------------------|---|
| <b>Installation</b>    | acid from formation process may cause respiratory irritation.           |
| <b>Skin Contact</b>    | Acid may cause irritation, burns and/or ulceration.                     |
| <b>Skin Absorption</b> | Not a significant route of entry.                                       |
| <b>Eye Contact</b>     | Acid may cause sever irritation, burns, cornea damage and/or blindness. |
| <b>Ingestion</b>       | Acid may cause irritation of mouth, throat, esophagus and stomach.      |

### Sign and Symptoms of Over Exposure:

|                                  |   |
|----------------------------------|---|
| <b>Acute Effects</b>             | Over exposure to lead may lead to loss of appetite, constipation, sleeplessness and fatigue. Over exposure to acid may lead to skin irritation, corneal damage of the eyes and upper respiratory system.  |
| <b>Chronic Effects</b>           | Lead and its components may cause damage to kidneys and nervous system. Acid and its components may cause lung damage and pulmonary conditions.   |
| <b>Potential to Cause Cancer</b> | The International Agency for Research on Cancer has classified "strong inorganic acid containing simo2 as a Category 1 carcinogen, a substance that is carcinogenic to humans. contained within a battery. Inorganic acid mist is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of acid mist. |

## SECTION 12 : Ecological information

### California Proposition 65:

The State of California has determined that certain battery terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm.

**Warning: Wash hands thoroughly after handling batteries.**

## SECTION 13 : Disposal considerations

**Waste Disposal Method:**

Battery electrolyte (acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as hazardous waste. Do not flush lead contaminated to sewer.

**Batteries:**

Send to lead smelter for reclamation following applicable Federal, state and local regulations. Product can be recycled along with automotive (SLI) batteries..

**SECTION 14: Transportation information**

To transport these batteries as "non-spillable" they must be shipped in a condition that would protect them from short-circuits and be securely packaged so as to with stand conditions normal to transportation by a consumer, in or out of a device, they are unregulated thus requiring no additional special handling or packaging. so We hereby certify that our batteries are non-dangerous and non-hazardous materials under IMDG regulations .

**SECTION 15: Regulatory information**

|  |  |
|--|--|
| <b>Proper Shipping Name</b>  | Batteries, Non-Spillable, Electric Storage                   |
| <b>U. S. DOT(US Department of Transportation)</b>  | Unregulated, meets the requirement of 49 CFR 173.159(d)      |
| <b>IATA (International Air Transportation Association)/ ICAO (International Civil Aviation Administration)</b> | Unregulated, meets the requirements of Special Revisions A67 |
| <b>IMDG (International Maritime Dangerous Goods)</b>   | Unregulated  |

**SECTION 16: Other information**

SUNSTONE POWER s Acid batteries are classified as "non-spillable" for the purpose of transportation by DOT, and IATA/ICAO as result of passing the Vibration and Pressure Differential Test described in DOT[49 CFR 173.159(d) and IATA/ICAO [Special Provision A67]. SHIMASTU Acid batteries can be safely transported on deck, or under deck stored on either a passenger or cargo vessel as result of passing the Vibration and Pressure Differential Tests as described in the regulations.