



SOTA ENERTECH INC.

**MATERIAL SAFETY DATA SHEET (MSDS)**

**MANUFACTURER IDENTIFICATION**

<b>Trade Name:</b>	SOTA Enertech, Inc.	<b>Fax Number:</b>	86-27-8429 8256
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**HAZARDOUS COMPONENTS**

Component	% Weight	TLV (mg/M <sup>3</sup> )	Ld50 Oral (mg/Kg)	Lc50 Inhalation	Ld50 Contact
Lead (Pb, PbO <sub>2</sub> , PbSO <sub>4</sub> )	~70	None	500	N/A	N/A
Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )	~20	N/A	2140	N/A	N/A

**PHYSICAL DATA**

Component	Density (mg/cc)	Melting (Boiling) Point °C	Solubility (mg/l)	Odor	Appearance
Lead (Pb)	11.34	327.4	Insoluble	None	Silver-gray
Lead Sulfate (PbSO <sub>4</sub> )	6.2	1070	40	None	White powder
Lead Oxide (PbO)	9.4	290	Insoluble	None	Brown
Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	~1.3	(114)	100	Acrid	Colorless

**FLAMMABILITY**

Component	Flash point	Explosive limits (%)	Comments
Lead (Pb)	None	None	DANGER: SLA battery can generate hydrogen (H <sub>2</sub> ) gas under prolong overcharge conditions .
Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )	None	None	
Hydrogen (H <sub>2</sub> )	N/A	4-74.2	

**REACTIVITY DATA**

<b>Component</b>	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )
<b>Stability</b>	Stable under normal temperature and conditions
<b>Polymerization</b>	Will not polymerize
<b>Incompatibility</b>	Reacts with most metals, all alkali, and most organic compounds
<b>Decomposition products</b>	Sulfur Dioxide (SO <sub>2</sub> ), Trioxide (SO <sub>3</sub> ), Hydrogen sulfide (H <sub>2</sub> S), and Hydrogen (H <sub>2</sub> )
<b>Conditions to avoid</b>	Avoid mixing acid with other chemicals Avoid pouring water onto the acid

**PROTECTION REQUIREMENT**

Exposure	Protection	Comments
Skin	Rubber gloves, apron	Protective equipment must be worn when handling cracked or damaged batteries
Respiratory	Respirator	
Eyes	Safety goggles, face shield	

## **ELECTRICAL SAFETY**

SHORT-CIRCUITING THE BATTERY MAY CAUSE BODILY HARM. PROLONG SHORTING MAY CAUSE THE BATTERY TO EXPLODE.

Since VRLA batteries have low internal resistance and fairly high power density, VERY HIGH SHORT CIRCUIT CURRENT can be generated across the battery terminals. Battery should be HANDLED WITH INSULATED TOOLS ONLY. It is a good practice not to rest tools or cables on the battery. Follow the installation instructions and diagrams when installing or maintaining the battery system.

## **HEALTH HAZARD**

Lead (Pb) poisoning is cumulative in nature and slow to appear. It affects the kidneys, reproductive, and the central nervous systems. Symptoms of lead poisoning are: anemia, constant headache, nausea frequently, acute stomach pain (lead colic), dizziness, loss of appetite, constant muscle and joint pain, and weakening of muscle strength.

Exposure to LEAD (Pb) from the batteries most often occur during Lead (Pb) reclamation operations through breathing or ingestion of Lead (Pb) dust and fumes.

Sulfuric Acid ( $H_2SO_4$ ) is a strong, corrosive and colorless liquid. It has a distinct acrid odor. Direct contact with the acid can cause severe burns to the skin, and blindness if prolonged contact with the eye is allowed. Ingestion of the acid will cause painful gastric intestinal tract burns. Acid from the battery can be released if the battery case is damaged or if the vents are tampered with.

## **EMERGENCY HANDLING**

In case of leaks or spill of the acid from the battery, neutralize the acid with:

Sodium bicarbonate ( $NaHCO_3$  - Baking Soda), or Sodium Carbonate ( $Na_2CO_3$  - Soda Ash) or Calcium Oxide (CaO - lime).

Flush the area with plenty of water.

DO NOT allow un-neutralized acid to drain into the sewage system.

Disposal of the spent batteries must be treated as hazardous waste and must be disposed of in accordance to the local, state, provincial, and federal regulations.

A copy of this material safety data sheet must be supplied to the battery dealers and lead smelters.

## **FIRST AID**

### **Sulfuric acid ( $H_2SO_4$ )**

#### **Skin contact**

Immediately flush the contact area with plenty of cold, clean water and consult a physician immediately.

#### **Eye contact**

Immediately flush eye with cold clean water for at least 5 minutes. Call and/or visit a physician immediately.

#### **Ingestion**

DO NOT induce vomiting.

DO NOT give anything to an unconscious person.

Immediately flush mouth with plenty of cold clean water.

Drink milk or Sodium Bicarbonate solution.

Call a physician immediately.

## **TRANSPORTATION**

All SOTA Valve Regulated Lead Acid (VRLA) batteries manufactured by Wuhan SOTA EnerTech, Inc. are conformed to and in compliance with all the requirements of: UN 2800, and D.O.T. Hazardous Material Regulations, Regulations 49 CFR Part 173, 159 as electric storage batteries wet, non-spillable, and are exempt from D.O.T. requirement, the International Air Transport Association (IATA), and the International Civil Aviation Organization (ICAO) and Technical Instructions for the safe Transport of Dangerous Goods by Air, Special Provision A67 and Packing Instruction 806.

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