MATERIAL SAFETY DATA SHEET

SEALED ENERGY SYSTEMS

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Product : Sealed Lead Acid Battery
Applicable model / size : All
Revision : II , Dated 27.02.2009

HAZARDOUS COMPONENTS, PHYSICAL DATA, FLAMMABILITY DATA, FIRST AID, REACTIVITY DATA

HAZARDOUS COMPONENTS

COMPONENTS	%WEIGHT	TLV	LD50 ORAL	LC50 INHALATION	LC50 CONTACT
Lead (Pb, PbO2, $PbSO_4$)	About 80%	N/A	(500) mg/Kg	N/A	N/A
Sulfuric Acid	About 5%	1 mg/m3	(2.140) mg/Kg	N/A	N/A
Fiberglass Separator	About 8%	N/A	N/A	N/A	N/A
ABS	About 7%	N/A	N/A	N/A	N/A

PHYSICAL DATA

COMPONENTS	DENSITY	MELTING POINT	SOLLUBILITY (H^2O)	ODOR	APPEARANCE
Lead	11.34	327.4°C (Boiling)	None	None	Sliver-Gray Metal
Lead Sulfate	6.2	1070°C (Boiling)	40 mg/l (15°C)	None	White Powder
Lead Dioxide	9.4	290°C (Boiling)	None	None	Brown Powder
Sulfuric Acid	About 1.3	About 114°C (Boiling)	100%	Acidic	Clear Colorless Liquid
Fiberglass Sep.	N/A	N/A	SLIGHT	TOXIC	WHITE FIBROUS GLASS
ABS	N/A	N/A	NONE	NO ODOR	SOLID

FLAMMABILLITY DATA

COMPONENTS	FLASHPOINT	EXPLOSIVE LIMITS	COMMENTS
Lead	None	None	
Sulfuric Acid	None	None	
Hydrogen		4% - 74.2%	Sealed batteries can emit hydrogen only if over charged(float voltage 2.4VPC)
Fiberglass Sep.	N/A	N/A	Poisonous vapors may be released. Please wear self contained breathing apparatus in case of fire.
ABS	None	N/A	Temperatures over 300 °C (572°F) may release combustible gases. Wear positive pressure self contained breathing apparatus.

FIRST AID

SULFURIC ACID PRECAUTIONS

SKIN CONTACT: Flush with water, see doctor if it doesn't work.

EYE CONTACT: Flush with water and call doctor immediately.

Ingestion: Call the doctor and flush mouth with water, have the patient drink milk if patient is conscious. Do not give anything to the unconscious person.

REACTICITY DATA

COMPONENT	Sulfuric Acid
STABILITY	Stable at all temperatures
POLYMERIZATION	Will not polymarize
INCOMPATIBILITY	Reactive metals, strong bases, most organic compounds
DECOMPOSITION PRODUCTS	Sulfuric dioxide, trioxide, hydrogen sulfide, hydrogen
CONDITIONS TO AVOID	Prohibit smoking, sparks, etc. from battery charging area. Avoid mixing acid with other chemicals.

SPILL OR LEAK PROCEDURES, PROTECTION, ELECTRICAL SAFETY, HEALTH HAZARD DATA

SPILL OR LEAK PROCEDURES

ACTION TAKEN FOR THE LEAKAGE OR SPILLS

If sulfuric acid is spilled from a battery, neutralize the acid with sodium bicarbonate (baking soda), sodium carbon (soda ash), or calcium oxide (lime).

Flush the area with water discard to the sewage systems. Do not allow acid into the sewage system before it is neutralized.

WASTE DISPOSAL METHOD:

Neutralized acid may be flushed down the sewer. Used batteries must be treated as hazardous waste and disposed of according to local policy and National Laws. A copy of this material safety data must be supplied to any scrap dealer .

PROTECTION

EXPOSURE	PROTECTION	COMMENTS
SKIN	Rubber gloves, Apron	Protective equipment must be worn if battery is cracked or otherwise damaged.
RESPIRATORY	Respirator (for lead)	A respirator should be worn during reclaim operations if the TLV exceeded.
EYES	Safety goggles, Face Shield	

ELECTRICAL SAFETY

Due to the battery's low internal resistance and high power density. High levels of short circuit can be developed across the battery terminals. Do not put tools or cables on the battery. Use insulated tools only. Strictly follow all the instruction for installation and diagrams when installing or maintaining battery systems..

HEALTH HAZARD DATA

LEAD: The toxic effects of lead are accumulative and slow to appear. It affects the kidneys, reproductive, and central nervous system.

The symptoms of lead overexposure are anemia, vomiting, headache, stomach pain (lead colic), dizziness, loss of appetite, and muscle and joint pain. Exposure to lead from a battery most often occurs during lead reclaim operations through the breathing or ingestion of lead dusts and fumes.

SULFURIC ACID: Sulfuric acid is a strong corrosive. Contact with acid can cause severe burns on the skin and in the eyes.

Ingestion of sulfuric acid will cause GI tract burns. Acid can be release if the battery case is damaged or if the vents are tampered with.

FIBERGLASS SEPARATOR: Fibrous glass is an irritant of the upper respiratory tract, skin and eyes. Please use the relative protection gears if necessary.

Transportation information

Acceptable modes of transportation: air, rail, road and water. Air (in conformity to the IATA/ICAO special provision A67)