IDEALPOWER

MATERIAL SAFETY DATA SHEET

MANUFACTURER IDENTIFICATION

Trade Name :	ELS	Fax Number:	1-416-749-8042
Brand:	IDEALPOWER	Email:	els@els-batteries.com
Telephone Number:	1(800) 267-2623	Web site:	www.emergencylighting.ca

HAZARDOUS COMPONENTS

Component	% Weight	TLV (mg/M^3)	Ld50 Oral (mg/Kg)	Lc50 Inhalation	Ld50 Contact
Lead (Pb, PbO_2 ,$PbSO_4$)	~70	None	500	N/A	N/A
Sulfuric acid (H_2SO_4)	~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 ($PbSO_4$)	6.2	1070	40	None	White powder
Lead Oxi de (PbO)	9.4	290	Insoluble	None	Brown
Sulfuric Acid (H_2SO_4)	~1.3	(114)	100	Acrid	Colorless

FLAMMABILITY

Component	Flash point	Explosive limits (%)	Comments
Lead (Pb)	None	None	DANGER: SLA battery can generate hydrogen (H_2) gas under prolong overcharge conditions .
Sulfuric acid (H_2SO_4)	None	None	
Hydrogen (H_2)	N/A	4-74.2	

REACTIVITY DATA

Component	Sulfuric acid (H_2SO_4)
Stability	Stable under normal temperature and conditions
Polymerization	Will not polymerize
Incompatibility	Reacts with most metals, all alkali, and most organic compounds
Decomposition products	Sulfur Dioxide (SO_2), Trioxide (SO_3), Hydrogen sulfide(H_2S),and Hydrogen(H_2)
Conditions to avoid	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 fairy 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, nauseates 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 tempered 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.

FIRSTAID

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

This is to certify that the Idealpower Brand Valve Regulated Lead Acid (VRLA) batteries manufactured by V-Cell Enertech Technology Co., Ltd. (UN 2800, Batteries, wet, non-spillable, electric storage) conform to and meet the requirements of the International Maritime Dangerous Goods Code (IMDG code) technical Instructions for the Safe Transport of Dangerous Goods by Ocean, UN No.2800 Special Provision 238 and of Safe Transport of Dangerous Goods by Air, Special Provision A67 and Packing Instruction 806. Under such provisions, all Intepower Co. batteries which are certified by UL and ISO 9001 batteries are exempt from the provisions of IMDG Code and are, therefore, transportable by container ship as non dangerous cargo and transportable by either cargo or passenger aircraft.

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