SAFETY DATA SHEET -
SEALED LEAD-ACID BATTERY

ZHANGZHOU HUAWEI POWER SUPPLY TECHNOLOGY CO.,LTD
MATERIAL SAFETY DATA SHEET
SEALED LEAD-ACID BATTERY

Section I: Chemical Products and Company Identification

Product Identity: SEALED LEAD-ACID BATTERY
Trade Name: SEALED LEAD-ACID BATTERY
Manufacturer:
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Section II : Hazardous Ingredients / Identity Information

Component	Common name	Chemical Name	Approximate % by wt. or vol.	OSHA PEL	ACGIH TLV	CAS#
Lead	Negative Electrode and Grid	Pb	48~53 wt%	0.05 mg/m^3	0.15 mg/m^3	7439-92-1
Lead Oxide	Positive Electrode	PbO	23~26 wt%	0.05 mg/m^3	0.15 mg/m^3	1317-36-8
Lead Sulfate	Positive and Negative Electrode	$PbSO_4$	< 1. wt%	0.05 mg/m^3	0.15 mg/m^3	7446-14-2
Sulfuric Acid	Electrolyte	H_2SO_4	7~10 wt%	1.0 mg/m^3	1.0 mg/m^3	7664-93-9

Percentages of components are dependant both on the model of the battery and state of charge/ discharge of the battery. Sulfuric Acid and Lead are reportable under Sections 302, 311, 312 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (40 CFR 355 and 372). Reportable Quantity: 500 lbs for sulfuric acid and 10,000 lbs of lead. See Section XII, Page 5 for more information.

Overall Chemical Reaction: $Pb02 + Pb + 2H_2SO_4 \rightleftharpoons 2PbSO_4 + 2H_20$

Note: Sealed lead-acid battery are a non -spillable design. Under normal use and handling the customer has no contact with the internal components of the battery or the chemical hazards. Under normal use and handling these batteries do not emit regulated or hazardous substances.
Warning : Battery terminals/ports and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. The only possible exposure could be the terminal posts on models 150, 200 and 300. Models 500 through 1440 do NOT have lead terminal posts, but are tin-plated brass terminal posts. Wash hands thoroughly after working with batteries and before eating, drinking or smoking.

Revised on 1 Jan 2026

Section III : Physical Chemical Characteristics

Boiling Point: Electrolyte 110°C - 121°C
Vapor Pressure: Electrolyte 11.7 mm Hg. at 120°C
Vapor Density (AIR = 1): Electrolyte 3.4
Solubility in Water: Lead, Lead Oxide and Lead Sulfate are insoluble in water. Sulfuric Acid is 100% soluble in water.
Appearance and Odor: The entire battery is a solid article consisting of an opaque plastic case with two protruding lead terminals of tin-plated brass terminals. The battery is odorless. Sulfuric Acid is a liquid.
Specific Gravity (H20 = 1) Electrolyte 1.300

Health Hazard Information (Acute and Chronic) - Sulfuric Acid only.

The International Agency for Research on Cancer (IARC) has classified «strang inorganic acid mist containing sulfuric acid as a Category 1 carcinogen, a substance that is cancinogenic to humans. This classification does not apply to liquid forms of sulfuric forms of sulfuric acid or sulfuric acid solutions contained within the battery. Inorganic acis mist (sulfuric 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 sulfuric acid mist.

Section IV : Identification of Dangers

Routes of Entry: By inhalation (mist), skin and eyes, ingestion.
Acute: Tissue destruction on contact. May cause 2nd and 3rd degree burns or blindness. Ingestion will cause corrosive burns on contact. May be fatal if swallowed.
Chronic: Inhalation of mists may cause upper respiratory irritation.
Signs ans Symptoms: Irritation and burning of exposed tissues.
Medical Conditions: Respiratory disorders may be aggravated by prolonged if inhalation of mists.

Section V : Emergency and First Aid Procedures

Battery Electrolyte
Inhalation: Remove to fresh air. Give oxygen or artificial respiration if needed. Get immediate medical attention.
Eye Contact: Flush with plenty of water for at least 15 minutes. Get immediate medical attention.
Skin contact: Remove contaminated clothing and flush affected areas with plenty of water for at least 15 minutes.
Ingestion: Do not induce vomiting. Dilute by giving large quantities of water. If available give several glasses of milk. Do not give anything by mouth to an uncouscious perosn.
Give CPR if breathing has stopped. Get immediate medical attention.

Section VI : Handling and Storage

Handling: Use the handle if any, otherwise xareflly light te container from unneath.
Précausions: The batteries contain dilute suphuric acid. Prevent any risk of short-circuit between the battery terminals.
Recommendations for use: Handle with care. Never lift batteries by their terninals.
Storage temperature: Min. -20°C Max. +40°C
Shelf life in normal storage conditions : 12 months at 20°C.

Section VII : Fire and Explosion Hazard Data

Flash Point: Not Applicable
Flammable Limits: Lower 4.10% (Hydrogen gas) Upper 74.20%
Extinguishing Media: Dry chemical, foam, halon or CO_2

Special Fire Fighting Procedures :
If batteries are on charge, turn off power. Use positive pressure, self-contained breathing apparratus in fighting fire. Water applied to electrolyte generates heat and causes it to splatter. Wear acid resistant clothing. Venlilate area well.
Unusual Fire and Explosion Hazards :

Hydrogen and oxygen gases are generated in cells during normal battery operation or when on charge. (Hydrogen is flammable and oxygen supports combustion). These gases enter the air throught the vent caps during battery overcharging.
To avoid risk of fire or explosion keeps sparks and other sources of ignition away from the battery. Do not allow metal objects simultaneously contact bolh positive and negative terminal of batteries. Venlilate area well.

Section VIII : Reactivity Data

Stability: Stable under normal conditions.
Conditions to Avoid: Sparks and other sources of ignition. Prolonged overcharge. Fire and explosion hazard due to possible hydrogen gas generation.
Incompatibitity: Combination of sulfuric acid with combustibles and organic materials may cause fire and explosion. Avoid strong reducing agents, most metals, carbides, chlorates, nitrates,picrate.
Hazardous Decomposition Products: Hydrogen gas may be generated in an overcharged condition, in fire or at very high temperatures. CO, CO2 and sulfuric oxides may emit in fire. Hazardous polymerization will not occur.
Steps to be taken In Case of Broken Battery Case or Electrolyte Leakage.

Section IX : Precautions for Safe Handling and Use

Neutralize any electrolyte or exposed internal battery parts with soda ash (sodium bicarbonate) until fizzing stops. Keep untrained personnel away from electrolyte and broken battery. Place broken battery and clean-up materials in a plastic bag or non-metallic container. Dispose of cleanup materials as a hazardous waste. Ventilate area as hydrogen gas may be given off during neutralization.
Waste Disposal Method:
Federal and State laws prohibit the improper disposal of all VRLA battery. The battery end user (owners) are responsible for their batteries from the date of purchase through their ultimate disposal. The only legally acceptable method of disposal of VRLA battery is to recycle them at a Resource Conversation and Recovery Act (RCRA) approved secondary lead smelter. The Huawei SAV-LEAO Recycling Program allows for the recycling of VRLA battery in an environmentally sound manner. These batteries are chemically identical to common automotive starter batteries and can be recycled with automotive VRLA battery.

Section IX : Precautions for Safe Handling and Use

HAZAROUS WASTE CODES: 0002, 0008.

Precautions to be Taken in Handling, Storing and Transportation:

Store in cool, dry area away from combustible materials. Do not store in sealed, unventilated areas. Avoid overcharging.

Other Precautions:

Do not charge in unventilated areas. Do not use organic solvents or other than recommended chemical cleaners on battery.

Section X : Control Measures / Personal Protection

General:

Normal room ventilation is sufficient during normal use and handllng. Recommend 2 to 3 room air changes per hour to prevent buildup of hydrogen gas.

Personal Protective Equipment (in the event of battery case Breakage).

Always wear safety glasses with side shields or full side shield.
Use rubber or neoprene gloves.
Wear acid resistant boots, apron or clothing.

Work/Hygienic Practices:

Remove jewelry, rings, watches and any other metaillic objets while working on batteries. All tools should be adequately insulated to avoid possibility of shorthing connections. DO NOT lay tools on top of battery. Be sure of discharge static electricity from tools and individual person by touching a grounded surface in the vicinity of the batteries, but away from cells. Batteries are heavy. Serious injury can result from improper lifting or installation. DO NOT lift, carry, install or remove cells by lifting or pulling the terminal posts for safely reasons and because terminal posts and post seals may be damaged. DO NOT wear nylon clothes or overalls as they can create static electricity. DO KEEP a class C fire extinguisher and emergency communications device in the work area.

IMPORTANT:

Wash hands thoroughly after working with batteries and before eating, drinking or smoking.

Section XI : Regulatory Information

NFPA Hazard Rating for Sulfuric Acid

Flammabilily (Red) = 0 Health (Blue) = 3 Reactivity (Yellow) = 2

Section XII : Elimination

Disposal:

Neutralise the acid using alkaline agents (lime, sodium carbonate, soda) Dispose of the neutralised acid, respecting current regulations. Batteires should be disposed off separately with view to recyling.

Soiled packaging materials/ Neutralise the acid and rise the materials before disposal.

Section XIII : Transportation Information

DOT· Unregulated meets the requirements of 49 CFR 173, 159 (d).
IATA/ICAO - Unregulated, meets the requirements of Special Provision A67.
IMO - Unregulated IMDG· Unregulated, meets the requirements of Special Provision 238.
IMPORTANT:

Batteries must be securely packed to prevent short circuiting.

Section XIV : California Proposition of Information

The State of California has Determined that certain battery terminals contain lead and lead compounds, and handling this product may also expose you to sulfuric acid mist, chemicals known to the State of California to cause cancer and reproductive harm. The only possible exposure would be the terminal posts on models 150, 200 and 300. Models 500 through 1440 do NOT have lead terminal posts, but are tin-plated brass terminal posts. IMPORTANT: WASH HANDS THOROUGHLY AFTER WORKING WITH BATTERIES AND BEFORE EATING, DRINKING OR SMOKING.

Section XV : Other Information

VRLA Battery Electrolyte Data for Environmental Reporting
Purposes Emergency Planning and Communlty Right-to-Know Act of 1986 (EPCRA).
Batteries are manufactured using lead. CAS No. 7439-92-1 and electrolyte (sulfuric acid) CAS No. 7664-93-9. which are subject to the reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), EPCRA is intented to provide the public with information about hazardous substances in their communities and to assist in establishing emergency response plans for chemical accidents. Section 302 requires notification if you have more than 1,000 lbs. of sulfuric acid. Section 304 says that the Reportable Quantity for a spill is 1,000 lbs. for sulfuric acid. CERCLA, also has a 1,000 lb. spill reporting requirement. Section 312 requires Annual inventory Reporting on a Tier II form if you have 500 lbs. of sulfuric or 10,000 lbs of lead. Section 313 requires Toxic Chemical Release Inventory form R reporting if you have more than 10,000 lbs of sulfuric acid or 100 lbs of lead.
The quantity or electrolyte, sulfuric acid and lead will vary by battery model. Consult table on page 5 for model number and corresponding information.
NOTE: Battery electrolyte is a mixture of sulfuric acid and water. Only the amount of 100% sulfuric acid must be counted in the reportable quantity.

Section XVI : Sealed Lead-Acid Battery Range

4V4Ah,4V4.5Ah,6V1.3Ah,6V3.2Ah,6V4Ah,6V4.5Ah,6V6Ah,6V12Ah,12V0.8Ah, 12V1.3Ah, 12V2Ah, 12V2.2Ah, 12V2.3Ah, 12V2.5Ah, 12V3Ah, 12V3.3Ah, 12V3.5Ah, 12V4Ah, 12V4.5Ah, 12V5Ah, 12V5.5AH, 12V6Ah, 12V6.5Ah, 12V6.8Ah, 12V7Ah, 12V7.2Ah, 12V7.5Ah, 12V8Ah, 12V8.6Ah, 12V9Ah, 12V9.5Ah, 12V10Ah, 12V11Ah, 12V11.2Ah, 12V12Ah, 12V13Ah, 12V14Ah, 12V15Ah, 12V16Ah, 12V17Ah, 12V18Ah, 12V19Ah, 12V20Ah, 12V22Ah, 12V24Ah, 12V26Ah, 12V28Ah, 12V30Ah, 12V32Ah,12V33Ah, 12V38Ah, 12V40Ah, 12V42Ah, 12V45Ah. 12V52Ah. 12V65Ah,12V74Ah, 12V75Ah, 12V80Ah,12V85Ah, 12V90Ah, 12V100Ah, 12V105Ah, 12V110Ah,12V120Ah, 12V125Ah, 12V150Ah, 12V160Ah. 12V175Ah. 12V180Ah. 12V200Ah, 12V220Ah, 12V225Ah, 12V230Ah, 12V250Ah.

General Product Description - SEALED LEAD-ACID BATTERY

Batteries are valve regulated, non-spillables lead-acid batteries with pasted lead-calcium plates. The electrolyte in the battery is help captive in an Absorbent Glass Mat (AGM) separator between the plates that immobilizes the electrolyte in the cell. AGM separator materials a highly porous, absorbent micro fiberglass mat mixed with polymer fibers. There is NO «free» electrolyte to leak out if the cells tipped over (cell case and cover are sealed together) or if the cells punctured. The AGM separator material immobilizes the electrolyte and creates a situation where a spill of electrolyte is highly unlikely. Typical accidents where a VRLA battery case is punctured result in a slight or a slow ooze of material out of the cell that cannot be characterized as a spill.

VRLA batteries are also different from conventional vented (flooded cells) because they contain only a minimum amount of electrolyte. The largest size cell,1440, contains only 4.07 gallons of 1.310 specific gravity electrolyte.

Of those 4.07 gallons of electrolyte, only 1.209 gallons is 100% sulfuric acid. EPCRA reporting requires that only amount (gallons) of 100% sulfuric acid is reportable.

VRLA battery electrolyte is a dilute mixture or sulfuric acid in water, which typically has a specific gravity between 1.270 and 1.300. Specific Gravity (SpGr) is a measure of the density of a liquid as compared to that of water, which has Sp.Gr. of .1.000. Pure sulfuric acid has a specific gravity of 1.835.

During normal battery installation, operation and maintenance the user has NO contact with the internal components of the battery or its internal hazardous chemicals.

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