



MATERIAL SAFETY DATA SHEET

WET-CHARGED LEAD-ACID BATTERY

SECTION 1: MATERIAL IDENTIFICATION

Product Name : Wet-charged Lead-Acid Battery
Description : Wet and moist charged batteries, Filled with acid
Chemical Family : Electric Storage Battery
UN Identification Number : UN2794 **Packing Group** : III
Hazardous Class : 8 **Hazchem Code** : 2W
Label/Placard required : Corrosive

Company Name : **SUPERCHARGE BATTERIES PTY. LTD**
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SECTION 2: HAZARD IDENTIFICATION

Material	%by Wt.	CAS Number	Eight Hour Exposure Limits		
			OSHA PEL	ACGIH TLV	Other
Chemical Name Lead	~ 60	7439-92-1	0.05 mg/m ³	0.05 mg/m ³	NIOSH PEL 0.1 mg/m ³
Trade Name Lead					
Chemical Name Sulfuric Acid (35%)	~ 30	7664-93-9	1 mg/m ³	1 ug/m ³ (STEL) 50 ug/m ³ (15 min. max./ 8 hr. shift)	NIOSH PEL 1 mg/m ³
Trade Name Battery Electrolyte (Acid)					
Chemical Name Polypropylene	~ 10	9003-07-0	None listed		
Trade Name PP					

SECTION 3: PHYSICAL DATA

COMPONENTS	DENSITY g/cm ³	MELTING/BOILING (M/B) POINT	SOLUBILITY (H2O)	ODOR	APPEARANCE
Lead	11.34	327.46 °C, 621.43 °F (M)	None	None	Sliver-Gray Metal
Lead Sulfate	6.20	1170 °C, 2138 °F (B)	40 mg/l (15 °C, 59 °F)	None	White crystals or powder
Lead Dioxide	9.40	290 °C, 554 °F (M)	None	None	Dark brown Powder
Sulfuric Acid	~1.295	95°C -115°C , 203°F - 240°F (B)	100%	Sharp, penetrating, pungent odor	Clear to cloudy liquid
Case Material: Polypropylene (PP)	~ 0.946	130-171°C 266°F -340°F (M)	None	None	Solid



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SECTION 4: FLAMMABILITY DATA

Extinguishing Media Dry Chemical, foam, or CO ₂	Unusual Fire and Explosion Hazard: Hydrogen and oxygen gases are produced in the cells during normal battery operations; hydrogen is flammable and oxygen supports combustion. These gases enter the air through the vent caps / holes. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.
Flammable Limits in Air, % by Vol. LEL - 4.1 UEL -74.2 (Hydrogen)	
Flash point 253°C (Hydrogen)	
Special Fire Fighting Procedures Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on-charge, shut-off power to the charging equipment but note that strings of series connected batteries, may still pose risk of electric shock even when charging equipment is shutdown.	

SECTION 5: REACTIVITY DATA

COMPONENT	Lead/lead compounds
Stability	Stable
Incompatibility	Potassium, carbides, sulfides, peroxides, phosphorus, sulfurs, ketone, ester, petrolatum
Decomposition products	Oxides of lead and sulfur.
Condition to avoid	High temperature, Sparks and other sources of ignition
COMPONENT	Sulfuric Acid
Stability	Stable
Incompatibility	Reactive metals, strong bases, most organic compounds
Decomposition products	Sulfuric dioxide, trioxide, hydrogen sulfide, hydrogen
Condition to avoid	Prohibit smoking, sparks, etc. from battery charging area. Avoid mixing acid with other chemicals.
POLYMERIZATION	Sulfuric acid will not polymerize

SECTION 6: HEALTH HAZARD DATA

Under normal conditions of battery use, internal components should not be hazardous to people's health. The following information is provided for battery electrolyte (acid) and lead for exposure that may occur during battery production or under container/case breakage or under extreme heat conditions such as fire.

<p>Routes of Entry: <u>Sulfuric Acid:</u> Harmful by all routes of entry. <u>Lead Compounds:</u> Hazardous exposure can occur only when product is heated, oxidized, or otherwise processed or damaged to create dust, vapor or fume.</p>
<p>Inhalation: <u>Sulfuric Acid:</u> Breathing sulfuric acid vapors and mists may cause severe respiratory problems. <u>Lead Compounds:</u> Dust or fumes may cause irritation of upper respiratory tract or lungs.</p>
<p>Skin Contact: <u>Sulfuric Acid:</u> Severe irritation, burns and ulceration. <u>Lead Compounds:</u> Not absorbed through the skin.</p>
<p>Ingestion: <u>Sulfuric Acid:</u> May cause severe irritation of the mouth, throat, esophagus, and stomach. <u>Lead Compounds:</u> May cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. Acute ingestion should be treated by a physician</p>



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Acute Health Hazards:

Sulfuric Acid: Severe skin irritation, burns, damage to cornea may cause blindness, upper respiratory irritation.

Lead Compounds: May cause abdominal pain, nausea, headaches, vomiting, loss of appetite, severe cramping, muscular aches and weakness, and difficulty sleeping. The toxic effects of lead are cumulative and slow to appear. It affects the kidneys, reproductive and central nervous systems. The symptoms of lead overexposure are listed above. Exposure to lead from a battery most often occurs during lead reclamation operations through the breathing or ingestion of lead dust or fumes.

Chronic Health Hazards:

Sulfuric acid: Possible scarring of the cornea, inflammation of the nose, throat and bronchial tubes, possible erosion of tooth enamel.

Lead Compounds: May cause anemia, damage to kidneys and nervous system, and damage to reproductive system in both males and females.

Medical Conditions Generally Aggravated by Exposure

Inorganic lead and its compounds can aggravate chronic forms of kidney, liver, and neurological diseases. Contact of battery electrolyte (acid) with the skin may aggravate skin diseases such as eczema and contact dermatitis. Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions.

Emergency and First Aid Procedures Inhalation

Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen

Lead Compounds: Remove from exposure, gargle, wash nose and lips, consult physician

Ingestion

Sulfuric Acid: Do not induce vomiting, consult a physician immediately.

Lead Compounds: Consult a physician immediately

Eyes

Sulfuric Acid: Flush immediately with water for 15 minutes, consult a physician.

Lead Compounds: Flush immediately with water for 15 minutes, consult a physician

Skin

Sulfuric Acid: Flush with large amounts of water for at least 15 minutes, remove any contaminated clothing. If irritation develops seek medical attention.

Lead Compounds: Wash with soap and water.

Proposition 65

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemical known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

SECTION 7: CARCINOGENICITY

Carcinogenicity

Sulfuric Acid: The National Toxicological Program (NTP) and The International Agency for Research on Cancer (IARC) have classified strong inorganic acid mist containing sulfuric acid as a Category 1 carcinogen, a substance that is carcinogenic to humans. The ACGIH has classified strong inorganic acid mist containing sulfuric acid as an A2 carcinogen (suspected human carcinogen). These classifications do not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Human studies are inconclusive regarding lead exposure and an increased cancer risk. The EPA and the International Agency for Research on Cancer (IARC) have categorized lead and inorganic lead compounds as a B2 classification (probable/possible human carcinogen) based on sufficient animal evidence and inadequate human evidence.



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SECTION 8: PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures

In case the release occurs, stop flow of material: contain/absorb small spills with dry sand, earth, and vermiculite. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of un-neutralized acid to sewer.

Waste Disposal Method

Spent Batteries - send to secondary lead smelter for recycling. Follow applicable federal, state and local regulations Neutralize as in preceding step. Collect neutralized material in sealed container and handle as hazardous waste as applicable. DO NOT FLUSH

A copy of this MSDS must be supplied to any scrap dealer or secondary lead smelter with the battery. Or, consult state environment agency and/ or federal EPA.

Handling and Storing

Store batteries in a cool, dry, well-ventilated area that are separated from incompatible materials and any activities which may generate flames, sparks, or heat. Keep all metallic articles that could contact the negative and positive terminals on a battery and create a short circuit condition. Battery should be stored under roof for protection against adverse weather conditions. Store and handle only in areas with adequate water supply and spill control. Avoid damage to battery case.

Electrical Safety

Due to the battery's low internal resistance and high power density, high levels of short circuit current can be developed across the battery terminals. Do not rest tools or cables on the battery. Use insulated tools only. Follow all installation instructions and diagrams when installing or maintaining battery systems.

Charging

There is possible risk of or electrical shock from charging equipment and from strings of connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate flammable hydrogen gas. Prohibit smoking and avoid creation of flames and sparks nearby.

SECTION 9: ECOLOGICAL INFORMATION

Persistent and Degradability

Lead is very persistent in soils and sediments. No data on biodegradation.

Bio accumulative potential (including mobility)

Mobility of lead between ecological compartments is low. Bio accumulation of lead occurs in aquatic and terrestrial animals and plants but very little bioaccumulation occurs through the food chain. Most studies have included lead compounds not solid inorganic lead.

Aquatic Toxicity

Sulfuric acid: 24 hours LC50, fresh water fish (Brachydanio rerio): 82 mg/L
96-hour LOEC, fresh water fish (Cyprinus Carpio): 22 mg/L (lowest observable effect concentration)

Lead (metal): No data available

Additional Information

No known effects on stratospheric ozone depletion

Volatile organic compounds: 0% (by volume)

Water endangering class (WGK): NA



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SECTION 10: CONTROL MEASURES

Engineering Controls:

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid resistant.

Work Practices:

Handle batteries cautiously to avoid damaging the case. Avoid contact with battery's internal components. Wear protective clothing, eye and face protection, when charging or handling batteries. Follow all manufacturer's recommendations when stacking and palletizing. Do not allow metallic materials to contact the battery terminals during handling. Make certain vent caps (for accessible batteries) are on securely. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents.

Respiratory Protection:

None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed PEL, use NIOSH or MSHA-approved respiratory protection.

Personal Protection and Equipment: None needed under normal conditions. If battery case is damaged,

- Hands, Arms and Body protection: use acid-resistant - vinyl-coated or PVC with elbow-length gauntlet type gloves with round finish.
- Eye protection: chemical splash goggles are preferred. Also acceptable are "Visor-Gogs" or a chemical face shield worn over safety glasses with solid side shields.
- Other special clothing and equipment: Acid-resistant apron. Safety shoes worn with rubber or neoprene boots worn over socks. Place pants over boots to keep acid out of boots. All footwear must meet requirements of ANSI Z41.1.
- In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

SECTION 11: NFPA HAZARD RATING

A. Not applicable under normal conditions.

B. In case of damage resulting in breakage of the battery container, see section10, personal protection and equipment.

Sulfuric Acid		Lead and Lead Compounds	
Flammability (Red)	0	Flammability (Red)	0
Health (Blue)	3	Health (Blue)	3
Reactivity (Yellow)	2	Reactivity (Yellow)	0

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SECTION 12: TRANSPORT INFORMATION

U.S. DOT

The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (CFR 49). These regulations classify these types of batteries as a hazardous material. Refer to CFR 49, 173.159 for more details pertaining to the transportation of wet and moist batteries. The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid

Hazardous class: 8

UN Identification: UN 2794

Packing Group: III

Label / Placard required: Corrosive

IATA and IMDG

The international transportation of wet and moist charged (moist active) batteries are regulated by the International Air Transportation Association (IATA) and by the International Maritime Dangerous Goods (IMDG).

These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 800. The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid

Hazardous class: 8

UN Identification: UN 2794

Packing Group: III

Label / Placard required: Corrosive

SECTION 13: REGULATORY INFORMATION

RCRA

Spent lead acid batteries are not regulated as hazardous waste by the EPA when recycled, however state and international regulations may vary. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D2002 (corrosive).

CERCLA (superfund) and EPCRA

(a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (superfund) and EPCRA (Emergency Planning Community Right to Know Act) is 1,000lbs. State and local reportable quantities for spilled sulfuric acid may vary.

(b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA with a Threshold Planning Quantity (TPQ) of 1,000lbs.

(c) EPCRA Section 302 Notification is required if 1,000lbs. or more of sulfuric acid is present at one site. The quantity of sulfuric acid will vary by battery type. An average automotive/commercial battery contains approximately 5lbs of sulfuric acid.

(d) EPCRA Section 312 Tier 2 reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500lbs. or more and/or lead is present in quantities of 10,00lbs. or more.

(e) Supplier Notification: This product contains toxic chemicals which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39 the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate% by weight
Lead	7439-92-1	~ 60%
Sulfuric Acid	7664-93-9	~ 30%

If you distribute this product to other manufacturers in SIC codes 20 through 39, this information must be provided with the first shipment in a calendar year. The Section 313 supplier notification requirement does not apply to batteries which are "consumer products".



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TSCA

Each ingredient listed in Section 2 of this MSDS is also listed in TSCA registry

DISCLAIMER:

ALL PERSONS USING THIS PRODUCT, ALL PERSONS WORKING IN AN AREA WHERE THIS PRODUCT IS USED AND ALL PERSONS HANDLING THIS PRODUCT SHOULD BE FAMILIAR WITH THE CONTENTS OF THIS DATA SHEET. THIS INFORMATION SHOULD BE EFFECTIVELY COMMUNICATED TO EMPLOYEES AND OTHERS WHO MIGHT COME IN CONTACT WITH THE PRODUCT.

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