Centennial Battery Systems

Lead Acid Battery MSDS

Material Safety Data Sheet

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Signature of Person Responsible for Preparation:	Date Prepared: 09/01/2011

SECTION 1 – IDENTITY

Common Name: (used on label)
(Trade Name & Synonyms) Lead/Acid Storage Battery

Chemical Name: Lead/Acid Storage Battery — Chemical Family: Toxic and Corrosive Material Mixture

DOT Proper Shipping Name: Battery, Wet, Filled with Acid, 8, UN 2794, PG III

SECTION 2 – HAZARDOUS INGREDIENTS

C.A.S.	Principal Hazardous Component(s) (chemical & common name(s).	Hazard Category	%	ACGIH TLV	OSHA PEL/TWA
7439-92-1	Lead/Lead Oxide/Lead Sulfate	Acute-Chronic	60%	0.15 mg/m³	0.05 mg/m³
7440-36-0	Antimony	Chronic	0.5 - 2.5%	0.5 mg/m³	0.5 mg/m³
7440-38-2	Arsenic	Acute-Chronic	<0.1	0.2 mg/m	0.01 mg/m³
7664-93-9	Sulfuric Acid (Battery Electrolyte)	Reactive-Oxidizer Acute-Chronic	10 - 38%	1.0 mg/m³	100 mg/m³
7440-70-2	Calcium	Reactive	<0.15%	Not Applicable	Not Applicable

This product description or trade name contains toxic chemicals subject to reporting requirements under Section 313 of Title III the "Superfund Amendments and Reauthorization Act" of 1986 and 40 CFR 372 and California Proposition 65.

SECTION 3 – PHYSICAL & CHEMICAL CHARACTERISTICS (Fire & Explosion Data)

Boiling Point	Electrolyte Approx. 275° F	Vapor Pressure	Electrolyte 1 mm Hg @ 145.8° F	Specific Gravity	Electrolyte (H2O = 1) 1.080-1.400	pH	Electrolyte<1
Percent Volatile By volume (%)	Not Applicable	Vapor Density	Hydrogen (Air = 1) : 0.069 Electrolyte (Air = 1): 3.4	Evaporation Rate			Not applicable

Solubility In Water Electrolyte: 100% soluble — Reactivity in Water None — Melting Point Polypropylene >320° F

Appearance and Odor : Battery: Polypropylene or hard rubber case, solid.
Lead: Gray, metallic, Solid
Electrolyte: Liquid, colorless, oily fluid, acid odor when hot or charging battery

Flash Point	Flammable Limits in Air % by Volume	Hydrogen (H2)	Lower	Upper	Extinguisher Media	Halon, dry chemical	Auto-Ignition Temperature	Polypropylene
Not Applicable			4.1%	74.2%				675° F

Special Fire Fighting Procedures: Lead/acid batteries do not burn, or burn with difficulty. Extinguish fire with agent suitable for surrounding combustible materials. Cool exterior of battery if exposed to fire to prevent rupture. The acid mist and vapors generated by heat or fire are corrosive. Wear respiratory protection (SCBA) and protective clothing.

Usual Fire and Explosion Hazards: Hydrogen gas and sulfuric acid vapors are generated upon overcharging. Hydrogen gas may be flammable or explosive when mixed with air, oxygen, or chlorine. Ensure adequate ventilation of charging areas consistent with OSHA (29 CFR 1910 & 1926), National Fire Code, ACGIH and other relevant standards.

SECTION 4 – PHYSICAL HAZARDS

Stability: Unstable ☐ Stable ☒

Incompatibility (Materials to Avoid): Keep battery case away from strong oxidizers.

Hazardous Decomposition Products: An explosive hydrogen/oxygen mixture within the battery may occur during charging.

Hazardous Polymerization: May occur ☐ Will not occur ☒

SECTION 5 – HEALTH HAZARDS

Threshold Limit Value		TLV	PEL
	Permissible exposure limit – Sulfuric Acid, 1.0 mg/m³ (milligram per cu. meter) Lead	0.15 mg/m³	0.05 mg/m³

Signs and Symptoms of Exposure

1. Chronic Overexposure: Acid can cause irritation of eyes, nose, throat. Breathing mist produces respiratory difficulty, contact with skin and eyes causes irritation and skin burn

2. Acute Exposure: Repeated contact with sulfuric acid battery electrolyte fluid may cause drying of the skin which may result in irritation and dermatitis. Prolonged inhalation of a mist of sulfuric acid can cause inflammation of the upper respiratory tract leading to chronic bronchitis. Short term liquid or vapor may result in eye irritation and acid burns. Prolonged contact to strong acid fumes may result in erosion of tooth enamel.

Medical Conditions Generally Aggravated by Exposure: Sulfuric acid mist may irritate bronchial system, eyes and skin.

Routes of Entry: Inhalation – Eyes, Ingestion – Skin

Chemical Listed as Carcinogen Or Potential Carcinogen	No. Info. Found	National Toxicology Program	Yes ☐ No ☒	I.A.R.C. Monographs	Yes ☒ No ☐	OSHA	Yes ☐ No ☒	EPA CAG	Yes ☒ No ☐

Human health Affects: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. This classification does 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.

Emergency and First Aid Procedures: Sulfuric Acid

1. Inhalation: Move to ventilated area. Obtain medical attention
2. Eyes: Wash eyes with copious quantities of running water for 15 minutes. Obtain medical attention
3. Skin: Flush area with large amounts of running water. Remove contaminated clothing and obtain medical attention.
4. Ingestion: Wash out mouth with running water. Do not induce vomiting. Call Physician.

SECTION 6 – SPECIAL PROTECTION INFORMATION

Respiratory Protection (Special Type): Sulfuric Acid Mist – Full face or half mask respirator with acid mist filter or SCBA.

Ventilation	Local Exhaust	No.	Mechanical (General)	No. Information Found
Change air every 15 min.				

Protective Gloves: Acid resistant rubber or plastic.

Eye Protection: Splash resistant goggles or safety glasses with face shield.

Other Protective Clothing or Equipment: Acid resistant rubber or plastic apron, boots and protective clothing.

SECTION 7 – SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURE

Precautions To Be Taken In Handling and Storage: Store batteries in cool, dry, well-ventilated area. Do not short circuit battery terminals or remove vent caps during storage. Avoid rough handling which could result in spills or leaks. Wash thoroughly after handling product.

Steps To Be Taken In Case Material Is Release or Spilled: Wear protective clothing,. Ventilate enclosed areas. Dike to contain contaminated materials and liquids. Limit site access to qualified emergency responders. Neutralize acid spills with sodium bicarbonate (soda ash), calcium carbonate, agricultural lime or equivalent commercial product. Collect material for proper disposal.

Waste Disposal Methods: Return whole scrap batteries to lead smelter for recycling. For neutralized spills, place residue into plastic containers with absorbent material, sand or earth for disposal. Contact local and/or state enviromental officials for proper disposal requirements.

VIII. CONTROL MEASURES

Engineering Controls and Work Practices:

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously, do no tip to avoid spills. Make certain vents caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when filling, charging, or handling batteries.

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.

Protective Gloves:

Rubber or plastic acid-resistant gloves with elbow-length gauntlet.

Eye Protection:

Chemicals goggles or face shield.

Other Protection:

Acid-resistant apron. Under severe exposure or emergency conditions, wear acid-resistant clothing, gloves, and boots.

Emergency Flushing:

In areas where water and sulfuric acid solutions are handled in concentration greater than 1%, emergency eyewash stations and showers should be provided with unlimited water supply.

IX. OTHER REGULATORY INFORMATION

NFPA Hazard Rating for Sulfuric Acid:

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

Sulfuric acid is water-reactive if concentrated

TRANSPORTATION:

Wet (filled with electrolyte) batteries are regulated by U.S. DOT as a hazardous material, as provided in 49 CFR 173.159

Proper Shipping Name:	Battery, wet, filled with acid
Hazard Class/Division:	8
ID Number:	UN2794
Packing Group:	III
Label Required:	Corrosive

RCRA:

Spend lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity).

CERCLA (Superfund) and EPCRA:

a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is **1,000 lbs.** 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 **1,000 lbs.**

c) EPCRA Section 302 notification is required if **1,000 lbs.** or more of sulfuric acid is present at one site. An average automotive/commercial battery contains approximately 5 lbs. of sulfuric acid. Contact your Ramcar representative for additional information.

d) EPCRA Section 3 12 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of **500 lbs.** or more and/or if lead is present in quantities of **10,000 lbs.** or more.

CALIFORNIA PROPOSITION 65:

"**WARNING:** This product contains lead, a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm"