### Material Safety Data Sheet

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**Manufacturer's Name:** RAMCAR BATTERIES, INC.  
**Telephone No.:** (323) 726-1212  
**Internet Address:** Ramcar@worldnet.att.net  
**Address:** 2700 Carrier Ave., Commerce, CA 90040  
**Emergency Telephone No.:** INFO TRACK (800) 535-5053  
**Signature of Person Responsible for Preparation:**  
**Date Prepared:** 09/01/2011

### SECTION 1 – IDENTITY

- **Common Name:** (used on label) Lead/Acid Storage Battery  
- **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

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

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 Approx. 275°F**  
- **Vapor Pressure 1 mm Hg @ 145.8°F**  
- **Electrolyte Liquid, colorless, oily fluid, acid odor when hot or charging battery**  
- **Specific Gravity 1.080-1.400**  
- **Electrolyte<1**

- **Percent Volatile by volume (%)**  
- **Density Electrolyte (Air = 1): 3.4**  
- **Evaporation Rate Not applicable**

- **Solubility In Water** 100% soluble  
- **Reactivity in Water** None  
- **Melting Point** Polypropylene >320°F  
- **Appearance and Odor:** Battery: Polypropylene or hard rubber case, solid.  
- **Flash Point Applicable**

- **Flammable Limits in Air % by Volume** (H2) 4.1% 74.2%  
- **Lower Upper Extinguisher Halon, Auto-Ignition Polypropylene Media dry chemical Temperature 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 May occur ☐
Polymerization Will not occur ☒

SECTION 5 -- HEALTH HAZARDS

Threshold
Limit Value 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 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 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 No. Info. National Toxicology Yes ☒ I.A.R.C. Yes ☒ OSHA Yes ☒ EPA Yes ☒
Or Potential Carcinogen Found Program No ☒ Monographs No ☒ CAG 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 Change air every 15 min. Local Mechanical No. Information
Exhaust No. (General) Found

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

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

SECTION 7 -- SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURE

Precautions To Be Taken 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.
In Handling and Storage

Steps To Be Taken In Case Material Is Release or Spilled Waste Disposal Methods
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.
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 environmental officials for proper disposal requirements.
VIII. CONTROL MEASURES

Engineering Controls and Work Practices:
Store and handle in well-ventilated areas. If mechanical ventilation is used, components must be acid-resistant.
Handle batteries cautiously, do not 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

NFFA 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
Packaging 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”