TROJAN BATTERY COMPANY
LEAD / ACID BATTERY

MATERIAL SAFETY DATA SHEET

SECTION 1-- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER'S NAME: TROJAN BATTERY COMPANY
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PERSON RESPONSIBLE FOR PREPARATION: Ismael Pedroza, Jr. – Director of EH&S

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OTHER INFORMATION CALLS: 562-236-3000 800-423-6569

SECTION 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>C.A.S.</th>
<th>PRINCIPAL HAZARDOUS COMPONENT(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 - 97%</td>
<td>0.05 mg/m³</td>
<td>0.05 mg/m³</td>
</tr>
<tr>
<td>7440-36-0</td>
<td>Antimony</td>
<td>Chronic</td>
<td>1.5 - 4%</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; 1%</td>
<td>0.01 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>1.0 mg/m³</td>
</tr>
<tr>
<td>7440-70-2</td>
<td>Calcium</td>
<td>Reactive</td>
<td>&lt; 0.15%</td>
<td>Not established</td>
<td>Not established</td>
</tr>
<tr>
<td>7440-31-5</td>
<td>Tin</td>
<td>Chronic</td>
<td>&lt; 0.3%</td>
<td>2.0 mg/m³</td>
<td>Not established</td>
</tr>
</tbody>
</table>

NOTE: PEL's for individual states may differ from OSHA PEL's. Check with local authorities for the applicable state PEL's.

OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. All Trojan Battery models do not contain cadmium. Trojan Battery Models:T-105, T-125, T-145, T-875, T-1260, T-1275 do not contain Mercury.

SECTION 3 -- HAZARD IDENTIFICATION

Signs and Symptoms of Exposure
1. Acute Hazards
Do not open battery. Avoid contact with internal components. Internal components include lead and liquid electrolyte. Electrolyte - Electrolyte is corrosive and contact may cause skin irritation and chemical burns. Electrolyte causes severe irritation and burns of eyes, nose and throat. Ingestion can cause severe burns and vomiting. Lead - Direct skin or eye contact may cause local irritation. Inhalation or ingestion of lead dust or fumes may result in headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm and joint pain.

2. Sub-chronic and Chronic Health Effects
Electrolyte - Repeated contact with sulfuric acid battery electrolyte fluid may cause drying of the skin which may result in irritation, dermatitis, and skin burns. Repeated exposure to sulfuric acid mist may cause erosion of teeth, chronic eye irritation and/or chronic inflammation of the nose, throat and lungs.
Lead - Prolonged exposure may cause central nervous system damage, gastrointestinal disturbances, anemia, and wrist-drop and kidney dysfunction. Pregnant women should be protected from excessive exposure to prevent lead from crossing the placental barrier and causing infant neurological disorders.

California Proposition 65 Warning: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm, and during charging, strong inorganic acid mists containing sulfuric acid are evolved, a chemical Known to the State of California to cause cancer. Wash hands after handling.

Medical Conditions Generally Aggravated by Exposure
If battery is broken or material is spilled, then persons with the following medical conditions must take precautions: pulmonary edema, bronchitis, emphysema, dental erosion and tracheobronchitis.

Routes of Entry
<table>
<thead>
<tr>
<th>Inhalation - YES</th>
<th>Ingestion - YES</th>
<th>Eye Contact - YES</th>
<th>Skin Contact - YES</th>
</tr>
</thead>
</table>

Chemical(s) Listed as Carcinogen or potential Carcinogen
Proposition 65 - YES
SECTION 4 -- FIRST AID MEASURES

Emergency and First Aid Procedures

1. Inhalation  
   Remove to fresh air and provide medical oxygen/CPR if needed. Obtain medical attention.

2. Eyes  
   Immediately flush with water for at least 15 minutes, hold eyelids open. Obtain medical attention.

3. Skin  
   Flush contacted area with large amounts of water for at least 15 minutes. Remove contaminated clothing and obtain medical attention if necessary.

4. Ingestion  
   Do not induce vomiting. If conscious drink large amounts of water/milk. Obtain medical attention. Never give anything by mouth to an unconscious person.

SECTION 5 - FIREFIGHTING MEASURES

Flash Point Not Applicable
Flammable Limits in Air % by Volume Hydrogen (H2) Lower 4.1% Upper 74.2%
Flame Temperature Polypropylene
Special Fire Fighting Procedures Lead-acid batteries do not burn or burn with difficulty. Do not use water on fires where molten metal is present. 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. Use NIOSH approved self-contained breathing apparatus (SCBA) and full protective equipment operated in positive-pressure mode.

Unusual Fire and Explosion Hazards Hydrogen gas and sulfuric acid vapors are generated upon overcharge and polypropylene case failure. Ventilate charging areas as per ACGIH Industrial Ventilation: A Manual of Recommended Practice and National Fire Code, 1980 Vol. 1, P. 12, B-9, 10. Hydrogen gas may be flammable or explosive when mixed with air, oxygen, chlorine. Avoid open flames/sparks/other sources of ignition near battery. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries and do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. SULFURIC ACID REACTS VIOLENTLY WITH WATER/ORGANICS.

SECTION 6 -- ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Stop release, if possible. Avoid contact with any spilled material. Contain spill, isolate hazard area, and deny entry. Limit site access to emergency responders. Neutralize with sodium bicarbonate, soda ash, lime or other neutralizing agent. Place battery in suitable container for disposal. Dispose of contaminated material in accordance with applicable local, state and federal regulations. Sodium bicarbonate, soda ash, sand, lime or other neutralizing agent should be kept on-site for spill remediation.

Personal Precautions: Acid resistant aprons, boots and protective clothing. ANSI approved safety glasses with side shields/face shield recommended. Ventilate enclosed areas.

Environmental Precautions: Lead and its compounds and sulfuric acid can pose a severe threat to the environment. Contamination of water, soil, and air should be prevented.

SECTION 7 -- HANDLING AND STORAGE

Precautions to be Taken in Handling and Storage  
Keep away from flames during and immediately after charging. Combustion or overcharging may create or liberate toxic and hazardous gases and liquids including hydrogen, sulfuric acid mist, sulfur dioxide, sulfur trioxide, stibine, arsine and sulfuric acid. Store batteries in cool, dry, well ventilated area. Do not short circuit battery terminals, or remove vent caps during storage or recharging. Protect battery from physical damage.

Other Precautions  
GOOD PERSONAL HYGIENE AND WORK PRACTICES ARE MANDATORY. Refrain from eating, drinking or smoking in work areas. Thoroughly wash hands, face, neck, and arms before eating, drinking or smoking. Launder soiled clothing before reuse. Empty batteries contain hazardous sulfuric acid residue.

SECTION 8 -- EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection (Specify Type)  
Acid/gas NIOSH approved respirator is required when the PEL is exceeded or employee experiences respiratory irritation. When exposure levels are unknown or when firefighting, wear a self-contained breathing apparatus with a full face piece operated in a positive pressure mode.

Ventilation  
Must be provided when charging in an enclosed area. Change air every 15 min.

Protective Gloves  
Wear rubber or plastic acid resistant gloves with elbow length gauntlet when filling batteries. Eye Protection  
ANSI approved safety glasses with side shields/face shield recommended. Safety goggles.

Other Protective Clothing or Equipment  
Ventilation as described in the Industrial Ventilation Manual produced by the American Conference of Governmental Industrial Hygienists, shall be provided in areas where exposures are above the PEL or TLV specified by OSHA or other local, state and federal regulations. Acid-resistant rubber or plastic apron, boots and protective clothing. Safety shower and eyewash.

SECTION 9 -- PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>255°F</td>
</tr>
<tr>
<td>Electrolyte</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>Electrolyte Electrolyte 1 mm</td>
<td>145.8°F</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.250 - 1.320 pH ≤ 2</td>
</tr>
<tr>
<td>Electrolyte (H20 = 1)</td>
<td>0.069</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>320°F</td>
</tr>
<tr>
<td>Percent Volatile by Volume (%)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Hydrogen (Air = 1) : 0.069</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Electrolyte (Air = 1) : 3.4</td>
</tr>
<tr>
<td>Reactivity in Water</td>
<td>Electrolyte - water reactive (1)</td>
</tr>
<tr>
<td>Appearance and Odor</td>
<td>Battery: Polypropylene or hard rubber case, solid. Lead: Gray, metallic, solid Electrolyte: Liquid, colorless, oily fluid; nuisance odor when hot or charging battery.</td>
</tr>
</tbody>
</table>
SECTION 10 -- STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Stability</th>
<th>Unstable</th>
<th>Stable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatibility (Materials to Avoid)</td>
<td>Sparks, Open flames, Keep battery case away from strong oxidizers.</td>
<td></td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>An explosive hydrogen/oxygen mixture within the battery may occur during charging. Combustion can produce carbon dioxide (CO₂) and carbon monoxide (CO). Molten metals produce fumes and/or vapor that may be toxic or respiratory irritants.</td>
<td></td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>May Occur</td>
<td>Will Not Occur</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>High temperatures - cases decompose at &lt;320°F. Avoid overcharging and smoking, or sparks near battery surface and rapid overcharge.</td>
<td></td>
</tr>
</tbody>
</table>
Antimony - YES  RQ: 5000 pounds
Arsenic – YES  RQ: 1 pound

*Reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers.

EPCRA Section 302 Extremely Hazardous Substance:  Sulfuric acid - YES

EPCRA Section 313 Toxic Release Inventory:
- Lead - CAS NO: 7439-92-1
- Sulfuric Acid - CAS NO: 7664-93-9
- Antimony - CAS NO: 7440-36-0
- Arsenic - CAS NO: 7440-38-2

SECTION 16 -- OTHER INFORMATION
THE INFORMATION ABOVE IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, TROJAN BATTERY COMPANY MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES. ALTHOUGH REASONABLE PRECAUTIONS HAVE BEEN TAKEN IN THE PREPARATION OF THE DATA CONTAINED HEREIN, IT IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION. THIS MATERIAL SAFETY DATA SHEET PROVIDES GUIDELINES FOR THE SAFE HANDLING AND USE OF THIS PRODUCT; IT DOES NOT AND CANNOT ADVISE ON ALL POSSIBLE SITUATIONS, THEREFORE, YOUR SPECIFIC USE OF THIS PRODUCT SHOULD BE EVALUATED TO DETERMINE IF ADDITIONAL PRECAUTIONS ARE REQUIRED.

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