

TROJAN BATTERY COMPANY LEAD / ACID BATTERY



MATERIAL SAFETY DATA SHEET

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION						
MANUFACTURER'S NAME	TROJAN BATTERY COMPANY	EMERGENCY TELEPHONE NO	CHEMTREC 800-424-9300			
ADDRESS;	380 CLARK ST., SANTA FE SPRINGS, CA 90670	OTHER INFORMATION CALLS:	562-236-3000 800-423-6569			
PERSON RESPONS	SIBLE FOR PREPARATION Ismael Pedroza Jr	Revision				

Date:

November 07, 2007

SECTION 2 -- COMPOSITION/INFORMATION ON 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 _ 97%	0,05 mg/m ³	0.05 mg/m ³
7440_36_0	Antimony	Chronic	1,5 - 4%	0,5 mg/m ³	0.5 mg/m ³
7440_38_2	Arsenic	Acute-Chronic	< 1%	0,01 mg/m ³	0.01mg/m ³
7664-93_9	Sulfuric Acid (Battery Electrolyte)	Reactive-Oxidizer Acute-Chronic	10 - 38%	1,0 mg/m ³	1 _. 0 mg/m ³
7440_70_2	Calcium	Reactive	< 0.15%	Not established	Not established
7440-31-5	Tin	Chronic	< 0,3%	2.0 mg/m ³	Not established

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,

COMMON NAME: (Used on label)

Chemical Family: Toxic and Corrosive Material Mixture (Trade Name & Synonyms) Lead/Acid Storage Battery

Lead/Acid Storage Battery Formula: Lead and Acid (electrolyte) Chemical Name:

SECTION 3 -- HAZARD IDENTIFICATION

Signs and Symptoms of Exposure	Acute Hazards	EI	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.						
		he	_ead _Direct skin or eye contact may cause local irritation. Inhalation or ingestion of lead dust or fumes may result in neadache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm and joint pain.						
2, Subchronic and Chronic Health Effects			ontact with sulfuric acid battery electrolyte fluid may cause drying of the skin which may result in irritation, dermatitis, and skin ure to sulfuric acid mist may cause erosion of teeth, chronic eye irritation and/or chronic inflammation of the nose, throat and						
	Lead - Prolonged exposi dysfunction. Pregnant w infant neurological disord	omen s							
	State of California to cau	ise can	5 Warning: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the e cancer and reproductive harm, and during charging, strong inorganic acid mists containing sulfuric acid are evolved, a late of California to cause cancer. Wash hands after handling.						
Medical Conditions Generally Aggravated by Exposure	If battery is broken or ma emphysema, dental eros		rial is spilled, then persons with the following medical conditions must take precautions: pulmonary edema, bronchitis, and tracheobronchitis,						
Routes of Entry	Inhalation - YES Ingestion - YES		Eye Contact - YES Skin Contact - YES						
Chemical(s) Listed as Carcinogen or potential Carcinogen	Proposition 65 - YES		onal Toxicology ram - YES	I,A,R,C, Monographs	- YES	OSHA - NO	EPA CAG - YES	NIOSH - YES	

SECTION 4 -- FIRST AID MEASURES

Emergency and First Aid Procedures	Contact with internal components if battery is opened, broken or spilled.						
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 Not Point Applicable	,	rogen Lower H ₂) 4.1%	Upper 74.2%	Extinguisher Media	Class ABC, CO _{2,} Halon	Auto-Ignition Temperature	Polypropylene 675° F
Special Fire Fighting Procedures Lead-acid batteries do not burn or burn with difficulty. Do not use water on fires where molten metal is procedures Lead-acid batteries do not burn or burn with difficulty. Do not use water on fires where molten metal is procedured suitable for surrounding combustible materials. Cool exterior of battery if exposed to fire to prevent rupture by heat or fire are corrosive. Use NIOSH approved self-contained breathing apparatus (SCBA) and full procedures.					ure. The acid mist a	and vapors generated	
Unusual Fire and Explosion Hazards	Hydrogen gas and sulfuric acid Industrial Ventilation: A Manual flammable or explosive when m fire or explosion, keep sparks or negative and positive terminals	of Recommended P xed with air, oxygen other sources of igr	ractice and Nation, chlorine. Avoid nation away from the contraction are recorded in the contr	onal Fire Code, 19 open flames/spar patteries and do n	80 Vol. 1, P. 12, ks/other sources ot allow metallic	B-9, 10. Hydrogen of ignition near bat materials to simultar	gas may be tery. To avoid risk of neously contact

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. Emptied 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 facepiece operated in a positive pressure mode.						
Ventilation	Must be provided when charging in an enclosed area. Change air every 15 min.	Local	Exhaust When PEL is exceeded		Mechanical (General)	Normal mechanical ventilation recommended for stationary applications.		
Protective Gloves	Wear rubber or plastic acid resistant gloves with elbow length gauntlet when filling batteries.				ANSI approved sa goggles	fety glasses with side shields/	face shield recommended Safety	
Other Protective Clothing or Equipment	Ventilation as described in the <u>Industrial Ventilation Manual</u> 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

Boiling Electrolyte Point Approx. 235°	Vapor F Pressure	Electrolyte 1 mm Hg @ 145 _. 8° F	Specific Electrolyte ($H_20 = 1$) Gravity 1.250 _ 1,320 pH < 2			Melting Point	Polypropylene < 320° F
Percent Volatile by Volume (%)	Not Applicable		sir = 1) : 0,069 Air = 1) : 3.4	At STP	Evapora Rate	tion	Not Applicable
Solubility in Water	Electrolyte 100% Solub	е	Reactivity in Water	Electrolyte - water	reactive (1)	
Appearance and Odor	Battery: Polypropylene or hard rubber case, solid. Lead: Gray, metallic, solid Electrolyte: Liquid, colorless, oily fluid; nuisance odor when hot or charging battery.						

SECTION 10 -- STABILITY AND REACTIVITY

Stability	Unstable Stable	e 🗆			Conditions to Avoid	High temperatures - cases decompose at <320°F. Avoid overcharging and smoking, or sparks near battery surface and rapid overcharge.			
Incompatibili (Materials to			Sparks,	Sparks, Open flames, Keep battery case away from strong oxidizers					
Hazardous Decompositi	on Produc	ts	An explosive hydrogen/oxygen mixture within the battery may occur during charging. Combustion can produce carbon dioxide (CO ₂) and carbon monoxide (CO). Molten metals produce fumes and/or vapor that may be toxic or respiratory irritants.						
Hazardous Polymerization	on	May O Will No	ccur ot Occur	□	Do not overcharge,				

SECTION 11 -- TOXICOLOGICAL INFORMATION

GENERAL: The primary routes of exposure to lead are ingestion or inhalation of dust and fumes

ACUTE

INGESTION/INHALATION: Exposure to lead and its compounds may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in the legs, arms and joints. Kidney damage, as well as anemia, can occur from acute exposure.

CHRONIC

INHALATION/INGESTION: Prolonged exposure to lead and its compounds may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and wrist drop. Symptoms of central nervous system damage include fatigue, headaches, tremors, hypertension, hallucinations, convulsions and delirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity, but there is, at present, no substantiation of the implication. Pregnant women should be protected from excessive exposure. Lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due to excessive lead exposure in pregnant women.

SECTION 12 -- ECOLOGICAL INFORMATION

In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates, and phosphates and precipitates out of the water column. Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil. Lead (when in the dissolved phase) is bio-accumulated by plants and animals, both aquatic and terrestrial.

SECTION 13 -- DISPOSAL CONSIDERATIONS

Waste	Disposal
Method	s

Lead-acid batteries are completely recyclable. Return whole scrap batteries to distributor, manufacturer or lead smelter for recycling. For information on returning batteries to Trojan Battery Company for recycling call 800-423-6569. For neutralized spills, place residue in acid-resistant containers with sorbent material, sand or earth and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.

SECTION 14 -- TRANSPORT INFORMATION

U.S. DOT PROPER SHIPPING NAME: Batteries, wet, filled with acid

U.S. DOT HAZARD CLASS: 8 U.S. DOT ID NUMBER: UN 2794 U.S. DOT PACKING GROUP: III U.S. DOT LABEL: Corrosive

IMO PROPER SHIPPING NAME: Batteries, wet, filled with acid

IMO REGULATION PAGE NUMBER: 8120

IMO U.N. CLASS: 8

IMO U.N. NUMBER: UN 2794 IMO PACKING GROUP: III IMO LABEL: Corrosive IMO VESSEL STOWAGE: A

IATA PROPER SHIPPING NAME: Batteries, wet, filled with acid

IATA U.N. CLASS: 8

IATA U.N. NUMBER: UN 2794 IATA PACKING GROUP: III IATA LABEL: Corrosive

SECTION 15 -- REGULATORY INFORMATION

U.S. Hazardous Under Hazard Communication Standard:

Lead - YES Sulfuric Acid - YES Antimony - YES Arsenic - YES CERCLA Section 304 Hazardous Substances

Lead – YES RQ: NA*

 Sulfuric Acid – YES
 RQ: 1000 pounds

 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.

Form MSDS Rev. 11/07/07