

# Material Safety Data Sheet for Lead Acid Storage Batteries

Date Issued  
**January 01, 2013**

Chemical/Trade Name (identity used on label) <b>Lead Acid Storage Batteries</b>		Chemical Family/Classification <b>Electric Storage Battery</b>	HMIS Rating for Sulfuric Acid <b>3 0 2 X</b>
Synonyms/Common Name <b>Batteries, automotive, tubular and industrial</b>		DOT, IATA and IMO Description <b>Battery, Wet, Filled with Acid, UN 2794, Class 8</b>	
Company Name <b>MARATHON BATTERIES (P) LTD</b>		Address <b>S-10-11, Dwarika Towers, Central Spine</b>	
Division or Department <b>Sales Department</b>		<b>Vidyadhar Nagar. Jaipur. 302023. North India</b>	
CONTACT		TELEPHONE NUMBER	
Questions Concerning MSDS <b>Industrial Hygiene, Safety &amp; Security - Automotive Systems, Battery</b>		<b>+91-9214210543</b>	
Transportation Emergencies <b>service@marathonbatteries.com</b>		<b>Email: sales@marathonbatteries.com</b>	

## 1. Hazardous Ingredients

Material	% by Wt.	CAS Number	Eight Hour Exposure Limits		
			OSHA PEL	ACGIH TLV	Other
Specific Chemical Identity <b>Lead</b>	34	7439-92-1	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	NIOSH REL
Common Name <b>Grid</b>					100 µg/m <sup>3</sup>
Specific Chemical Identity <b>Lead Dioxide</b>	31	1309-60-0	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	NIOSH REL
Common Name <b>Lead Oxide</b>					100 µg/m <sup>3</sup>
Specific Chemical Identity <b>Lead Sulfate</b>	<1	7446-14-2	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	NIOSH REL
Common Name <b>Anglesite</b>					100 µg/m <sup>3</sup>
Specific Chemical Identity <b>Sulfuric Acid (35%)</b>	34	7664-93-9	1mg/m <sup>3</sup>	1 mg/m <sup>3</sup> STEL	NIOSH REL
Common Name <b>Battery Electrolyte (Acid)</b>				3 mg/m <sup>3</sup> (15 min. max./8 hr. shift)	1 mg/m <sup>3</sup>

**NOTE: The contents of this product are toxic chemicals that are subject to the reporting requirements.**

## 2. Physical Data

Material is (at normal temperatures) <input checked="" type="checkbox"/> Solid <input checked="" type="checkbox"/> Liquid		Appearance and Odor <b>Battery Electrolyte (acid) is a clear to cloudy liquid with slight acidic odor. Acid saturated lead oxide is a dark reddish-brown to gray solid with slight acidic odor.</b>
Boiling Point (at 760 mm Hg) <b>Lead 1755°C Batt. Electrolyte (Acid) 110-112°C</b>	Melting Point <b>Lead 327.4°C</b>	Vapor Pressure <input checked="" type="checkbox"/> (mm Hg at 20°C) ?(PSIG) <b>Battery Electrolyte (Acid) 11.7</b>
Specific Gravity (H <sub>2</sub> O =1) <b>Battery Electrolyte (Acid) 1.210 - 1.300</b>		
Vapor Density (Air =1) <b>Battery Electrolyte (Acid) 3.4</b>		Solubility is H <sub>2</sub> O <b>Lead and Lead Dioxide are not soluble. Battery Electrolyte (acid) is 100% soluble in water.</b>
% Volatile By Weight <b>Not Determined</b>		Evaporation rate (Butyl Acetate = 1) <b>Not Determined</b>

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## 3. Health Hazard Information

**NOTE: Under normal conditions of battery use, internal components will not present a health hazard. The following information is provided for battery electrolyte (acid) and lead for exposure that may occur during battery production or container breakage or under extreme heat conditions such as fire**

### ROUTES AND METHODS OF ENTRY

#### Inhalation

**Acid mist generated during battery formation may cause respiratory irritation. Spillage of acid from batteries in confined areas may also lead to exposure to sulfuric acid mist.**

#### Skin Contact

**Battery electrolyte (acid) may cause irritative contact dermatitis.**

#### Skin Absorption

**Skin absorption is not a significant route of entry.**

#### Eye Contact

**Battery electrolyte (acid) will irritate the eyes upon contact.**

#### Ingestion

**Hands contaminated by contact with internal components of a battery can cause ingestion of lead/lead compounds. Hands should be washed prior to eating, drinking, or smoking.**

### SIGNS AND SYMPTOMS OF OVEREXPOSURE

#### Acute Effects

**Acute effects of overexposure to lead compounds are GI (gastrointestinal) upset, loss of appetite, diarrhea, constipation with cramping, difficulty in sleeping, and fatigue. Exposure and/or contact with battery electrolyte (acid) may lead to acute irritation of the skin, corneal damage of the eyes, and irritation of the mucous membranes of the eyes and upper respiratory system, including lungs.**

#### Chronic Effects

**Lead and its compounds may cause chronic anemia, damage to the kidneys and nervous system. Lead may also cause reproductive system damage and can affect developing fetuses in pregnant women. Battery electrolyte (acid) may lead to scarring of the cornea, chronic bronchitis, as well as erosion of tooth enamel in mouth breathers in repeated exposures.**

### EMERGENCY AND FIRST AID PROCEDURES

#### Inhalation

**Remove from exposure and consult a physician if any of the acute effects listed above develop.**

#### Skin

**Wash thoroughly with soap and water. If acid is splashed on clothing, remove and discard. If acid is splashed in shoes, remove them immediately and discard. Acid cannot be removed from leather.**

#### Eyes

**Immediately rinse with cool running water for at least 15 minutes. Seek medical attention after rinsing.**

#### Ingestion

**Lead/Lead compounds: Consult a physician.  
Battery Electrolyte (Acid): Do not induce vomiting. Refer to a physician immediately.**

### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

**Inorganic lead and its compounds can aggravate chronic forms of kidney, liver, and neurologic diseases. Contact of battery electrolyte (acid) with the skin may aggravate skin diseases such as eczema and contact dermatitis.**

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## 4. Fire and Explosion Data

Flash Point (test method) <b>Hydrogen - 259°C</b>	Auto ignition Temperature <b>Hydrogen 580°C</b>	Flammable Limits in Air, % by Vol. <b>Hydrogen LEL - 4.1 UEL - 74.2</b>
Extinguishing Media <b>Dry chemical, foam, or CO<sub>2</sub></b>		
Special Fire Fighting Procedures <b>Use positive pressure, self-contained breathing apparatus.</b>		
Unusual Fire and Explosion Hazard <b>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. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.</b>		

## 5. Reactivity Data

Stability <input type="checkbox"/> Unstable <input checked="" type="checkbox"/> Stable	Conditions to Avoid <b>Sparks and other sources of ignition may ignite hydrogen gas.</b>
Incompatibility (materials to avoid) <b>Lead/lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur. Battery electrolyte (acid): Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.</b>	
Hazardous Decomposition Products <b>Lead/Lead compounds: Oxides of lead and sulfur Battery electrolyte (acid): Hydrogen, sulfur dioxide, sulfur trioxide</b>	
Hazardous Polymerization <input type="checkbox"/> May Occur <input checked="" type="checkbox"/> Will Not Occur	Conditions to Avoid <b>High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.</b>

## 6. Control Measures

Engineering Controls <b>Store lead acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space.</b>
Work Practices <b>Make certain vent caps are on tightly. Place a minimum of two layers of corrugated cardboard between layers of batteries. When stacking in trailer, stack no more than three layers high. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the batteries.</b>
<b>PERSONAL PROTECTIVE EQUIPMENT</b>
Respiratory Protection <b>None required under normal handling conditions. During battery formation (high-rate charge condition), acid mist can be generated, which may cause respiratory irritation. If irritation occurs, wear a respirator suitable for protection against acid mist.</b>
Eyes and Face <b>Chemical splash goggles are preferred. Also acceptable are "Visor-Gogs" or a chemical face shield worn over safety glasses with solid side shields.</b>
Hands, Arms, and Body <b>Vinyl-coated, PVC, gauntlet-type gloves with rough finish.</b>
Other Special Clothing and Equipment <b>Safety shoes worn with rubber or neoprene boots or steel-toed rubber or neoprene boots worn over socks. Place pant legs over boots to keep acid out of boots.</b>

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## 7. Safe Handling Precautions

### Hygiene Practices

**Wash hands thoroughly before eating, drinking, or smoking after handling batteries.**

### Protective Measures to be Taken During Non-Routine Tasks, Including Equipment Maintenance

**Wear recommended eye protection. If clothing becomes saturated with acid, remove and wash affected area with water for 15 minutes. Discard saturated clothing.**

### SPILL OR LEAK PROCEDURES

#### Protective Measures to be Taken if Material is Released or Spilled

**Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate) or quicklime (calcium oxide). Cover spill with either chemical. Mix well. Make certain the mixture is neutral, and then collect residue and place in a drum or other suitable container. Dispose of as a hazardous waste.**

**Wear acid-resistant boots, chemical face shield, chemical splash goggles, and acid-resistant gloves.**

**DO NOT RELEASE UNNEUTRALIZED ACID!**

### Waste Disposal Method

**Battery Electrolyte (Acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as a hazardous waste.**

**DO NOT FLUSH LEAD-CONTAMINATED ACID INTO SEWER.**

**Battery disposal is governed by the Batteries (Management and Handling) Rules, 2001, issued by the Ministry of Forest and Environment, Government of India.**

**As per rules, batteries should be sent approved lead smelters for reclamation following applicable central, state, and local regulations.**

