



**ETERNITY TECHNOLOGIES
LEAD ACID BATTERIES
(Filled with Battery Acid)**

MATERIAL SAFETY DATA SHEET

Date Prepared: September, 2011

Eternity Technologies FZ LLC. PO BOX 35102 AL JAZEERA / AL HAMRA; RAS AL KHAIMAH UAE. 00971-7-2433535	For Chemical Emergency: Spill, Leak, Fire, Exposure or Accident Call ETERNITY - Day or Night 00971-7-2433535
---	--

1. PRODUCT IDENTIFICATION:	UN# 2794 - Class 8 - Packaging Group III Corrosive
-----------------------------------	---

Chemical/Trade Name (as used on label): Chemical Family/Classification:

Lead Acid Battery

Electric Storage Battery

For information and emergencies contact
Eternity technologies FZ LLC,

24 hours Emergency Response Contact:

ETERNITY- day or night 00971-7-2433535

2. HAZARDOUS INGREDIENTS / IDENTITY INFORMATION:

<u>Components</u>	<u>CAS Number</u>	<u>Approx. % Wt or Vol</u>	<u>Air Exposure limits (micro-gram/m³)</u>		
			<u>OSHA</u>	<u>ACGIH</u>	<u>NIOSH</u>
Inorganic lead Compound					
*Lead	7439-92-1	60	50	150	100
Antimony	7440-36-0	1.8	500	500	----
Arsenic	7440-38-2	0.2	10	200	----
Calcium	7440-70-2	0.2	----	----	----
Tin	7440-31-5	0.2	2000	2000	----
Electrolyte (sulfuric acid)	7664-93-9	10-30	1000	1000	1000
Jar/Lid Materials:		5-10	NA	NA	NA
Polypropylene	9003-56-9				
Styrene Acrylonitrile	9003-56-9				
Hard Rubber	----				
Other:					
Silicon dioxide (gel cells only)	60676-86-0		NA	NA	NA

* Inorganic lead and sulfuric acid are primary components of every battery. Other ingredients may be present depending upon battery type.

CAUTION: NEVER ACTIVATE OR TOP OFF WITH ALKALINE

3. PHYSICAL DATA:

Electrolyte:

Boiling Point: 203-204 deg F Specific Gravity: 1.240 to 1.270Melting Point: NA Vapor Pressure (mm Hg): 10Solubility in water: 100% Vapor Density: Greater than 1Evaporation Rate: Less than 1% Volatility by Weight: NAAppearance and Odor: Manufactured. Clear liquid with sharp, penetrating, pungent odor.**4. FIRE AND EXPLOSION HAZARD DATA:**Flash Point: NA Flammable limits: LEL = 4%(Hydrogen gas) UEL = 74%Extinguishing media: CO₂; foam; dry chemical

Special Fire Fighting Procedures: If batteries are on charge, shut off power. Use positive pressure, self contained breathing apparatus. Water applied to electrolyte generates heat and causes it to splatter. Wear acid resistant clothing.

Unusual Fire and Explosion Hazards: Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. If cells are short-circuit, injuries or burns may occur. Follow manufacturer's instructions for installation and service.

Do not transport activated batteries without vent cap in place.

5. REACTIVITY DATA:Stability: Stable Conditions to Avoid: Prolonged overcharge; sources of ignitionIncompatibility:

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenated, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Hazardous Decomposition Products:

Sulfuric acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide and hydrogen.

Lead Compounds: High temperatures likely to produce toxic metal fumes, vapor or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

6. HEALTH HAZARD DATA:**Routes of Entry:**

Sulfuric Acid: Harmful by all routes of entry.

Lead compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fumes.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead to rapid systemic toxicity and must be treated immediately by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Eye Contact:

Sulfuric Acid: Severe irritation, burns, cornea damage and blindness

Lead Compounds: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headaches, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females.

6. HEALTH HAZARD DATA (continued)**Carcinogenicity:**

Sulfuric Acid: 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 is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Listed by National Toxicology Program (NTP), International Agency for Research on Cancer (IRAC), OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate skin diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases

Emergency and First Aid Procedures:**Inhalation:**

Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen.

Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:

Sulfuric Acid: Give large quantities of water; do not induce vomiting; consult physician.

Lead: Consult physician.

Skin Contact:

Sulfuric Acid: Flush with copious amounts of water for at least 15 minutes; remove contaminated clothing completely.

Lead: Wash affected area completely with soap and water.

Eye Contact: Sulfuric acid and Lead: Flush affected area immediately with copious amounts of water for at least 15 minutes; consult physician.

Proposition 65 (State of California):

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. Wash hands after handling.

7. PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures:

Stop flow of material, contain or absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves and face shield. Do not allow discharge of un-neutralized acid to sewer.

Waste Disposal Methods:

Spent batteries: Send to secondary lead smelter for recycling.

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and / or federal EPA.

Handling and Storage:

Store batteries in a cool dry, well ventilated areas with impervious surfaces and adequate containment in the event of a spill. Batteries should also be stored indoors for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Never transport activated batteries without vent caps in place. When removing battery from service visually inspect for leakage prior to handling. If leakage has occurred, follow spill/leak procedures.

Precautionary Labeling: (Packaging)

- CAUSES SEVERE BURNS
- CONTAINS SULFURIC ACID

8. CONTROL MEASURES

Engineering Controls:

Store and handle in well-ventilated areas. If mechanical ventilation is used, components must be acid resistant.

Work Practices:

Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing when filling 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 gauntlets. Eye

Protection:

Chemical goggles or face shield.

8. CONTROL MEASURES (continued)Other Protection:

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

Emergency Flushing:

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

9. OTHER REGULATORY INFORMATIONNFPA Hazard Rating for Sulfuric Acid:

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

Sulfuric Acid is water-reactive if concentrated

U.S. DOT:

The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U. S. DOT through the Code of Federal Regulations, Title 49 (CFR 49). These regulations classify these types of batteries as a hazardous material. Refer to CFR 49, 173.159 for more details pertaining to the transportation of wet and moist batteries. The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: III
Label / Placard Required: Corrosive

IATA:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Air Transport Association (IATA). These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 800. The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: III
Label / Placard Required: Corrosive

9. OTHER REGULATORY INFORMATION (continued)

IMDG:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify these types of batteries as a hazardous material. The batteries must be packaged according to IMDG code pages 8120 and 8121. The shipping information is as follows:

RCRA: Spent lead-acid batteries are not regulated as hazardous waste by the EPA when recycled, however state and international regulations may vary.

CERCLA (Superfund) and EPCRA:

- a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning 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. The quantity of sulfuric acid will vary by battery type. Contact your Eternity Technologies representative for additional information.
- d) EPCRA Section 312 Tier 2 reporting is required for 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.
- e) Supplier Notification: This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

<u>Toxic Chemical</u>	<u>CAS Number</u>	<u>Approximate % by Wt.</u>
Lead	7439-92-1	60
Sulfuric Acid	7664-93-9	10-30
Antimony*	7440-36-0	1.8
Arsenic*	7440-38-2	0.2

If you distribute this product to other manufacturer’s in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries which are “consumer products”

* Not present in all battery types.

9. OTHER REGULATORY INFORMATION (continued)TSCA:

Ingredients in Eternity Technologies batteries are listed in the TSCA Registry as follows:

Components:	CAS Number	TSCA Status
Electrolyte		
Sulfuric Acid	7664-93-9	Listed
Inorganic Lead Compounds:		
Lead	7439-92-1	Listed
Lead Oxide	1317-36-8	Listed
Lead Sulfate	7446-14-2	Listed
Antimony	7440-36-0	Listed
Arsenic	7440-36-2	Listed
Calcium	7440-70-2	Listed
Tin	7440-31-5	Listed

Disclaimer: This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use. We do not accept liability for any loss or damage that may occur, whether direct, indirect, incidental or consequential, from the use of this information, nor do we offer warranty against patent infringement. Additional information is available by calling the telephone number on page 1 designated for this purpose.