

AXION POWER BATTERY MFG, INC.

MATERIAL SAFETY DATA SHEET

08/02

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SECTION 1 PRODUCT IDENTIFICATION

Chemical/ Trade Name

Lead-Acid Battery

Chemical Family

Electric Storage Battery

Manufacturer's Name/Address

Axion Power Battery Mfg. Inc.
3601 Clover Lane
New Castle Pa. 16105

**Emergency 800 number
is not active for ABP.**

Telephone

24 hrs. 800-535-5053
(352) 323-3500
8am - 5pm 724-654-9300

SECTION 2 HAZARDOUS INGREDIENTS/IDENTITY

<u>Components</u>	<u>CAS Number</u>	<u>Appx. wt. percent</u>	<u>OSHA PEL</u>
Inorganic lead compounds			
Lead	7439-92-1	75	50 ug/m ³
Antimony	7440-35-0	.2	500
Arsenic	7440-38-2	.003	10
Calcium	7440-70-2	.03	-----
Tin	7440-31-5	.06	2000
Electrolyte (Sulfuric Acid)	7664-93-9	35	1000
Case/Cover			
Polypropylene	9003-07-0	5	n/a
Hard Rubber	---	5	---

SECTION 3 PHYSICAL & CHEMICAL CHARACTERISTICS

Electrolyte:

<u>Boiling Point</u>	203-240 degrees F	<u>Specific Gravity</u>	1.250-1.300
<u>Melting Point</u>	n/a	<u>Vapor Pressure</u>	13-15 (mm Hg)
<u>Solubility (H2O)</u>	100%	<u>Vapor Density</u>	>1
<u>Evaporation Rate</u>	<1	<u>% Volatile by wt.</u>	n/a

Appearance and Odor The manufactured article has no apparent odor. The electrolyte is a clear liquid with a sharp, pungent odor while charging.

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SECTION 4 FIRE AND EXPLOSION DATA

Flash Point n/a Method Used non-flammable

Flammable Limits LEL = 4.1% (Hydrogen gas) UEL=74.2%

Extinguishing media CO2, Foam, Dry Chemical

Special Fire Fighting Procedures If batteries are charging, remove from power source. Cool the outside of the batteries to prevent rupture. Acid mist and vapors are corrosive. Protective clothing should be acid resistant. Positive pressure self contained breathing apparatus should be used.

Unusual Fire and Explosion Hazards Hydrogen gas is produced while charging. Ventilate charging area and remove open flames, sparks or other ignition sources that may cause an explosion.

Avoid contact of metallic materials simultaneously with the positive and negative terminals of the battery.

SECTION 5 REACTIVITY DATA

Stability Stable Conditions to Avoid Prolonged overcharge: sources of ignition

Incompatibility (materials to avoid)

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 fumes or flammable hydrogen gas.

Lead compounds Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, and reducing agents.

Hazardous Decomposition Products

Sulfuric Acid Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen

Lead compounds High temperature is likely to produce toxic metal fumes, vapor or dust; Hazardous polymerization will not occur

SECTION 6 HEALTH HAZARD DATA

Routes of Entry

Inhalation Sulfuric acid: Breathing of 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.

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SECTION 6 HEALTH HAZARD DATA (continued)

Ingestion Sulfuric acid: May cause 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 systematic toxicity and must be treated 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, blindness.

Lead compounds: May cause irritation

Acute Overexposure Sulfuric acid: Severe skin irritation, cornea damage, upper respiratory irritation.

Lead compounds: headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Chronic Overexposure Sulfuric acid: possible erosion of tooth enamel, inflammation of nose, throat, and bronchial tubing.

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

Medical Conditions Aggravated by Exposure Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate dermatitis. Lead may aggravate some forms of kidney, liver and neurologic diseases.

Emergency and First Aid Procedures

Inhalation Sulfuric acid: Remove to fresh air immediately. If difficulty breathing, give oxygen.

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

Ingestion Sulfuric acid: give large amounts of water: Do Not induce vomiting; consult physician.

Skin Sulfuric acid: flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely.

Lead compounds: Wash immediately with soap and water.

Eyes
least

Sulfuric acid and lead: flush immediately with large amounts of water for at least 15 minutes and consult physician.

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SECTION 7 PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or leak procedures: Stop flow of material, contain/absorb small spills with dry sand, earth, 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 unneutralized acid to the sewer.

Waste Disposal Methods: Spent batteries: Send to secondary lead smelter for recycling.

Place neutralized slurry into sealed containers and dispose of as a hazardous waste.

Handling and Storage: Store batteries in cool, dry, well ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should be stored under roof 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.

Precautionary Labeling:

POISON--CAUSES SEVERE BURNS
DANGER--CONTAINS SULFURIC ACID

SECTION 8 CONTROL MEASURES

Engineering Controls: Store and handle in well-ventilated area. 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 concentration of sulfuric acid mist exceeds the PEL use NIOSH approved respiratory protection.

Protective equipment: rubber gloves, chemical goggles or face shield, acid resistant apron. In areas where sulfuric acid is handled, eye wash stations and showers should be provided, with unlimited water supply.

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SECTION 9 TRANSPORTATION DATA

U.S. DOT Wet (filled with electrolyte) batteries are regulated by U.S. DOT as hazardous materials.

Proper shipping name : Battery, wet, filled with acid
Hazard class/division: 8
ID number: UN 2794
Packing group: III
Label required: Corrosive
Vessel stowage: A

SECTION 10 NFPA HAZARD RATINGS

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

Sulfuric acid is water reactive when concentrated.

SECTION 11 REGULATORY INFORMATION

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosive)

CERCLA: Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA and EPCRA is 1,000 pounds. State and local RQ's may vary.

Sulfuric acid is a listed "extremely hazardous substance" under EPCRA, with a Threshold Planning Quantity of 1,000 pounds.

An average automotive battery contains 5-10% (by weight) of 100% sulfuric acid.

Tier 2 reporting is required for 10,000 pound of lead compounds or 500 pounds of 100% sulfuric acid.

Supplier Notification: If this product is sent to a manufacturer in SIC Codes 20-39, information containing the amount of lead and sulfuric acid must be sent along with the first shipment of each calendar year.

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SECTION 12 TOXICOLOGICAL DATA

TSCA Ingredients listed below are in the TSCA registry as follows

	CAS NO.	TSCA Status
<u>Electrolyte</u>		
Sulfuric acid	7664-93-9	Listed
<u>Inorganic Lead Compound</u>		
Lead (Pb)	7439-92-1	Listed
Lead Oxide (PbO)	1317-36-8	Listed
Lead Sulfate (PbSO ₄)	7446-14-2	Listed
Antimony (Sb)	7440-35-0	Listed
Arsenic (As)	7440-38-2	Listed
Calcium (Ca)	7440-70-2	Listed

DO NOT DISTRIBUTE