

MATERIAL SAFETY DATA SHEET

VALVE REGULATED LEAD ACID BATTERY

"Battery Non-Spillable 49CFR 173.159 (d), class 8 UN2800, PGIII"

SECTION I

Date: December 2004

Manufacturers Name: Sterling Batteries Inc., 11 Diesel Drive, Toronto, Ontario M8W 2T8

Telephone Number for Information: (866) 858-8752 ext. 549
Emergency Telephone Number: (613) 996-6666
Outside Continental US call : 1-416-201-7502
Trade Name: "H/HA" AGM, "LG/LGC" GEL

SECTION II

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components Specific Chemical Identity (Common Name(s))	OSHA PEL	ACGIH TLV	Range Percent By Weight	Average
Lead, CAS #7439921	0.05 mg/m3	0.05 mg/m3	60-75%	67%
Sulfuric Acid, CAS #7664939	1.00 mg/m3	1.00 mg/m3	5-15%	10%
Antimony, CAS #7440360	0.50 mg/m3	0.50 mg/m3	0-0.1%	<0.1%
Arsenic, CAS #7440382	0.01 mg/m3	0.01 mg/m3	0.01%	<0.1%
Polypropylene, CAS #9003070	N/A	N/A	2-10%	4%
Calcium, CAS #7440702	1.0 mg/m3	1.0 mg/m3	0-0.1%	<0.1%
Tin CAS #7440702	2.0 mg/m3	2.0 mg/m3	0-0.1%	<0.1%

SECTION III

PHYSICAL/CHEMICAL CHARACTERISTICS

Electrolyte (Sulfuric Acid): Appearance and Odour: Clear, Odourless, colourless liquid
Solubility in Water: 100% Specific Gravity (H₂O=1): 1.270-1.330
Boiling Point: 235-240° F Vapour Density (AIR=1): Greater than 1
Evaporation Rate (Butyl Acetate=1): less than 1.0 Vapour Pressure (mm Hg): 10
Melting Point: N/A

SECTION IV

FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): Non-Flammable Flammable Limits: *Hydrogen Gas
Extinguishing Media: Class ABC extinguisher LEL: 4% UEL: 74%
NOTE: CO₂ may be used, but not directly on the cell. The thermal shock may cause cracking of the battery case and/or cases.
*Hydrogen gas may be generated during battery charging.

SECTION V

REACTIVITY DATA

Stability: Stable

Condition to Avoid: Prolonged overcharging, 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, strong oxidizers and water. Contact with metals may produce toxic sulphur dioxide fumes and may release flammable hydrogen gas.

Hazardous Decomposition of By-Products:

Sulphuric Acid: Excessive overcharging or fire may create Sulphur trioxide, carbon monoxide, sulphuric acid mist, sulphur dioxide and hydrogen.

Lead Compounds: Contact with strong acid or base or presence of nascent may generate highly toxic arsine gas.

**SECTION IV
HEALTH HAZARD DATA**

Route(s) of Entry: Not applicable under normal use.

Carcinogenicity:

Sulphuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulphuric acid" as a Category 1 carcinogen, a substance that is carcinogenic to humans. This recharging, may result in the generation of sulphuric 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 the National Technology Program (NTP), IARC, OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels.

Signs and Symptoms of Exposure: Avoid contact with absorbed electrolyte (sulphuric acid) may cause irritation of eyes, nose and throat. Contact with eyes and skin causes irritation and skin burns. Absorbed electrolyte is corrosive.

Medical Conditions Generally Aggravated by Exposure: Pregnant women and children must be protected from lead exposure.

Health Hazards (Acute and Chronic): Do not open battery, avoid contact with internal components. Internal components include lead and absorbed electrolyte. Electrolyte is corrosive and contact may cause skin irritation and chemical burns.

SECTION IV HEALTH HAZARD DATA CONTINUED...

Emergency and First Aid Procedures: (contact with electrolyte):

- 1) Flush contacted area with large amounts of water for at least 15 minutes. Remove contaminated clothing and obtain medical attention if necessary. Eye wash and/or emergency shower should be readily available.
- 2) If swallowed, give large volumes of water. DO NOT induce vomiting, obtain medical treatment.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: Electrolyte material is corrosive. Contains sulphuric acid. Neutralize any spilled material. Reference 1996 North American Emergency Response Guidebook, #154.

Waste Disposal Method: Lead-acid batteries are completely recyclable. For information on returning batteries to Sterling for recycling, contact your Sterling representative. Dispose of any collected material in accordance with local, provincial or applicable federal regulations.

Other Precautions: If battery case is broken, avoid direct contact with internal components. Keep away from ignition sources during charging.

SECTION VIII CONTROL MEASURES

Respiratory Protection (Specific Type): N/A

Ventilation: Must be provided when charging in an enclosed area.

Protective Gloves: Recommended

Eye Protection: Recommended

Other Protective Clothing or Equipment: N/A

Work Hygienic Practices: Good personal hygiene and work practices are recommended.

SECTION IX OTHER REGULATORY INFORMATION

NFPA Hazard Rating	Sulfuric Acid	Lead
Health (Blue)	3	3
Flammability (Red)	0	0
Reactivity (Yellow)	2	0

Note: Sulphuric acid is water-reactive if concentrated.

SECTION IX OTHER REGULATORY INFORMATION CONTINUED...

U.S. DOT: The Non-Spillable lead acid battery complies with the provisions listed in 49CFR173.159(d) therefore must not be marked with an identification number, such as UN2800, or a hazard label, such as corrosive. Also, having passed IATA/ICAAO special provision A67, these batteries are not subject to the air dangerous goods regulations.

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

CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act)

- a) Reportable Quantity (RQ) for spilled 100% sulphuric acid is 1000 lbs.
- b) Sulphuric acid is a listed "Extremely Hazardous Substance" under EPCRA with a Threshold Planning Quantity (TPQ) of 1000 lbs.
- c) EPCRA Section 312 Tier II reporting required for batteries if sulphuric acid is present in quantities of 500 lbs or more and/or lead is present in quantities of 10,000 lbs or more.

California Prop 65: This product contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

For additional information concerning Sterling Batteries products or questions concerning the content of this MSDS, please contact your Sterling Batteries representative.

This information is accurate to the best of Sterling batteries knowledge or obtained from sources believed by IPS to be accurate. Before using any product, read all warnings and directions on the label.