



Material Safety Data Sheet

VALVE-REGULATED LEAD/ACID BATTERY (GUARDIAN AND PLATINUM SERIES)

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Signature of Person Responsible for Preparation	<i>A. L. Coates</i>	Date Prepared	Rev. January, 2000

SECTION 1 – IDENTITY

Product Name	Valve-Regulated Lead/Acid Battery (VRLA)		
Common Synonyms	Recombinant Lead/Acid Battery, Non-spillable Lead/Acid Battery		
Chemical Name	Not Applicable	Chemical Family	Lead/Acid Storage Battery
Formula	Not Applicable		
Product Use	Electric storage battery for cyclic or standby power		

SECTION 2 – HAZARDOUS INGREDIENTS

Component	CAS No.	Hazard Category	Percent Weight	ACGIH TLV	OSHA PEL
Lead/Compounds	7439-92-1	Acute/Chronic	60-70%	0.15mg/m ³	0.05mg/m ³
Tin (Inorganic)	7440-31-5	Chronic	<2.0%	2.0mg/m ³	2.0mg/m ³
Calcium	7440-70-2	Reactive	<0.1%	Not Applicable	Not Applicable
Sulfuric Acid/Electrolyte	7664-93-9	Acute/Chronic Corrosive, Oxidizer	20-30%	1.0mg/m ³	1.0mg/m ³

NOTE: Exposure to these materials will not occur under normal conditions of use.

This product description or Tradename contains toxic chemicals subject to the reporting requirements under Section 313 of Title III "The Superfund Amendment and Reauthorization Act of 1986" and 40 CFR 372 and California Proposition 65.

SECTION 3 – PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling Point	Not Applicable	Melting Point	Polypropylene > 320°F.	Vapor Pressure (MMHG)	Not Applicable	Vapor Density (AIR=1)	Not Applicable
Specific Gravity	Electrolyte Approx. 1.300	Percent Volatile By Volume	None	Solubility In Water	Not Applicable	Reactivity In Water	Not Applicable
Appearance Battery: Rectangular polypropylene, polystyrene or ABS case with lead terminals.							
Physical State	Solid, Non-Spillable	PH	Not Applicable	Flash Point (Closed Cup)	Polypropylene case 675°F	Autoignition Temperature	Not Applicable
Flammable Limits in Air (Percent by Volume)				Fire Extinguisher Media			
Lower	Not Applicable	Upper	Not Applicable	Halon, dry chemical			
Special Fire Fighting Procedures	Extinguish fire with agent suitable for surrounding combustible materials. Cool exterior of battery if exposed to fire to prevent or mitigate release of lead compounds and fumes.						
Unusual Fire and Explosion Hazards	None						

SECTION 4 — PHYSICAL HAZARDS

Incompatibility (Materials to Avoid) Keep battery case away from strong oxidizers, solvents.

Stability Stable

Hazardous Decomposition Products None

Hazardous Polymerization Will not occur

SECTION 5 — HEALTH HAZARDS

Threshold Limit Value (TLV) Permissible exposure limits (TWA)	Lead	TLV 0.15 mg/m³	PEL 0.05mg/m³
	Sulfuric Acid	TLV 1 mg/m³	PEL 1 mg/m³

Signs and Symptoms of Exposure Exposures to sulfuric acid (battery electrolyte), lead, lead dioxide, or lead sulfate may occur if the sealed battery case is damaged.

Exposure to lead may include:

1. Chronic overexposure: Tire easily, loss of appetite, irritability, metallic taste, insomnia; toxic to nervous system, kidneys and reproductive system.
2. Acute overexposure: Constipation, vomiting, blue line on gums, weak wrists or ankles, weight loss, yellowish skin.

Exposure to sulfuric acid (battery electrolyte) may include:

1. Chronic over exposures: Inhalation – erosion of teeth, inflammation of nose, throat and bronchial tubes.
2. Acute overexposure: Eyes – severe burns, cornea damage, blindness. Skin – severe irritation, burns, ulceration. Inhalation-respiratory irritation, inflammation of bronchial membranes. Ingestion – severe burns and ulceration of mouth, throat, esophagus and stomach, damage to kidney and intestinal tract.

Medical Conditions Generally Aggravated by Exposure Respiratory exposure to airborne sulfuric acid will aggravate lung damage or other pulmonary conditions. Harmful effects of lead are increased for a person with dietary deficiencies in calcium, iron and zinc.

Routes of Entry Lead: ingestion, inhalation Sulfuric acid: skin, eyes, inhalation, ingestion

Carcinogenicity

National Toxicology	None Found	I.A.R.C. Monographs	None found	OSHA	None found	EPA CAG	Yes (Lead)
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Emergency and First Aid Procedures

- Lead/lead compounds exposure
1. **Inhalation:** Remove from exposure, see physician.
 2. **Eyes:** Wash eyes with copious quantities of running water for 15 minutes. Obtain medical attention.
 3. **Skin:** Not a direct route of entry.
 4. **Ingestion:** See physician.

Sulfuric acid exposure

1. **Inhalation:** Remove to fresh air, see physician immediately. If person is unconscious, perform CPR, keep victim warm and at rest, if breathing is difficult, give oxygen.
2. **Eyes:** Wash eyes with copious amount of water for 15 minutes or until acid is removed. Hold lids open while washing. See physician.
3. **Skin:** Remove all contaminated clothing, flush skin with copious quantities of water until free of acid.
4. **Ingestion:** Do not induce vomiting, do not give anything by mouth to an unconscious patient, see physician immediately.

SECTION 6 — SPECIAL PROTECTION INFORMATION

Respiratory Protection If product is involved in fire, release of dust or fumes from damaged cases may result. Use of SCBA, full face or half-mask respirator with HEPA cartridge would be recommended.

Protective Equipment Use leather or other protective gloves to minimize lead contamination if handling broken units. Use safety glasses, face shield or goggles for handling broken or damaged product.

SECTION 7 — SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions in Handling and Storage Exercise caution in normal handling and storage due to weight of units.

Other Precautions Do not allow metal or other conductive material to short circuit terminals. Heat, sparks, damage to electrical circuits, and fire potential may result from short circuiting. Practice good hygiene to minimize personal exposure. Battery may release hydrogen during charging or if exposed to high ambient temperatures. Do not store in air-tight container.

Material Spills or Release Will not occur unless sealed case is damaged. Pick up and containerize all battery parts and materials. Limit personal exposures with gloves, eye and face protection, as noted above. Neutralized sulfuric acid/electrolyte with lime, soda ash or sodium bicarbonate.

Waste Disposal Battery and parts may be recycled by EPA permitted secondary lead smelting facility or disposed of as hazardous waste pursuant to RCRA requirements.