



**DOUGLAS BATTERY**  
Connect with a leader.

# Material Safety Data Sheet

24-HOUR EMERGENCY CONTACT  
CHEMTREC: 800-424-9300

HMIS Hazard Rating

Health	3
Flammability	1
Reactivity	2

## VRLA Safeguard Stationary Battery Includes: DSV, Guardian, Premium, Monoblock, & Rackline Product Line

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PRODUCT INFORMATION (800) 368-4527

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### SECTION 1 – IDENTITY

**Common Name:** Valve-Regulated Lead/Acid Battery      **Common Synonyms:** Recombinant Lead/Acid Battery, High Tin Alloy Valve-Regulated Battery  
**Chemical Name:** Lead/Acid Storage Battery      **Chemical Family:** Lead/Acid Storage Battery  
**Product Use:** Electric storage battery for cyclic or standby power      **Formula:** NA  
**DOT Shipping Name:** UN 2800, Battery, Wet, Non-Spillable, 8, PG III

### SECTION 2 – HAZARDOUS INGREDIENTS

Principal Hazardous Component(s) (Chemical & common name(s))	C.A.S.	Hazard Category	%	ACGIH TLV	OSHA PEL/TWA
Lead (Metallic)/Lead Dioxide	7439-92-1	Acute-Chronic	70-80%	0.15 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Arsenic	7440-38-2	Acute-Chronic	<0.1%	0.2 mg/m <sup>3</sup>	0.01 mg/m <sup>3</sup>
Tin (Inorganic)	7440-31-5	Chronic	< 2.0%	2.0 mg/m <sup>3</sup>	2.0 mg/m <sup>3</sup>
Calcium	7440-70-2	Reactive	< 0.1%	NA	NA
Sulfuric Acid/Battery Electrolyte (% sulfuric acid in electrolyte by weight)	7664-93-9	Acute-Chronic Corrosive, Oxidizer	15-25%	1.0 mg/m <sup>3</sup>	1.0 mg/m <sup>3</sup>

NOTE: Exposure to these materials will not occur under normal conditions of use. This Product description or Tradename contains toxic chemicals subject to reporting requirements under Section 313 of Title III the "Superfund Amendments and Reauthorization Act" of 1986 and 40 CFR 372 and California Proposition 65.

### SECTION 3 – PHYSICAL & CHEMICAL CHARACTERISTICS

**Boiling Point:** Electrolyte Approx. 235<sup>0</sup>F      **Melting Point:** Polypropylene >320<sup>0</sup>F      **Vapor Pressure:** Electrolyte Approx. 10 mm Hg

**Specific Gravity:** Electrolyte Approx. 1.285      **Percent Volatile by Volume (%):** None      **Solubility in Water:** Lead & lead dioxide are not soluble in Water: Electrolyte is 100% soluble

**Appearance:** Battery: Rectangular batteries in plastic case, or polypropylene jars with or without steel case.

**Physical State:** Solid, Non-spillable      **pH:** Electrolyte <1      **Flash Point:** Polypropylene Case 675°F

**Flammable Limits In Air (% Hydrogen):** Lower: 4.1% Upper: 74.2%      **Extinguisher Media:** CO<sub>2</sub>, foam, 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:** Ensure adequate ventilation and proper charging rates to avoid damage to cells and excessive generation of potentially flammable or explosive amounts of hydrogen gas.

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## SECTION 4 – PHYSICAL HAZARDS

**Stability:** Stable

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

**Hazardous Decomposition Products:** None

**Hazardous Polymerization:** Will Not Occur

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## SECTION 5 – HEALTH HAZARDS

**Threshold Limit Value (TLV)** Permissible exposure limit (PEL) Sulfuric Acid TLV 1.0 mg/m<sup>3</sup> (milligram per cu. meter) PEL 1.0 mg/m<sup>3</sup>  
Lead TLV 0.15 mg/m<sup>3</sup> PEL 0.05 mg/m<sup>3</sup>

### 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 and lead compounds 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 gum line, weakness of wrists and ankles, weight loss, yellowish skin.

Exposure to sulfuric acid (battery electrolyte) may produce:

1. Chronic overexposure: 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: contact with skin, eyes; inhalation, ingestion

#### Cancer Potential:

The International Agency for Research on Cancer (IARC) gas classified “strong inorganic acid mist containing sulfuric acid” as a Category 1 carcinogen, a substance that is carcinogenic to humans. The ACGIH has classified “strong inorganic acid mist containing sulfuric acid” as an A2 carcinogen or suspected human carcinogen. These classifications do not apply to liquid forms of sulfuric acid. Sulfuric acid mist is not generated under normal use of this battery product. Overcharging may result in the generation of sulfuric acid mist. Lead and inorganic lead compounds are classified by the IARC in Group 2B as possible carcinogenic to humans on the basis of animal studies.

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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 large 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 large quantities of water until free of acid.
  4. Ingestion Do not induce vomiting, do not give anything by mouth to an unconscious person, see physician immediately.
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## SECTION 6 – SPECIAL PROTECTION INFORMATION

**Respiratory Protection:** Under normal handling conditions respiratory protection is not required. If product is involved in fire or damaged, release of dust, fumes or electrolyte may result. Use of SCBA, full face or half-mask respirator with HEPA cartridge would be recommended.

**Protective Equipment:** Use leather or other acid resistant gloves to minimize lead contamination if handling broken units. Use safety glasses and face shield or goggles for handling broken or damaged product.

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## SECTION 7 – SPECIAL PRECAUTIONS AND SPILL / LEAK PROCEDURES

**Precautions to Be Taken:** Exercise caution in handling and storage due to weight of units. Store batteries with adequate ventilation. Do not charge batteries in an unventilated, enclosed space. Do not remove vent caps; to avoid damage to terminals and seals do not double stack or store materials on top of industrial batteries.

**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. Wash hands thoroughly after handling product. Battery may release hydrogen during charging if exposed to high ambient temperatures. Do not store in air-tight container.

**Steps to Be Taken in Case Material Release or Spill:** Internal materials will not be released unless sealed case is damaged. Pick up and containerize all battery parts and residues. Limit personal exposures with gloves, eye, and face protection, as noted above. Neutralize sulfuric acid/electrolyte with lime, soda ash (sodium bicarbonate) or suitable commercial spill containment product. Wash exposed skin areas thoroughly following spill cleanup.

**Waste Disposal:** Battery and battery parts should be returned to the distributor, manufacturer or permitted recycling facility for recycling. Follow state and federal regulations for packaging and transporting used batteries.