



DOUGLAS BATTERY
Connect with a leader.

Material Safety Data Sheet

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

HMIS Hazard Rating

Health	3
Flammability	0
Reactivity	2

Safeguard Flooded Stationary Battery Flatplate (Sb,Sn,Se alloy grid) Product Line

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Product Information (800) 368-4527

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SECTION 1 – IDENTITY

Common Name: LEAD/ACID BATTERY
Common Synonyms: Flooded lead/acid battery;
Standby flooded lead/acid battery

Chemical Name: Lead/Acid Storage Battery
Chemical Family: Electric Storage Battery

DOT Shipping Name: UN 2794, Battery, Wet, Filled With Acid, 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 & Lead Compounds	7439-92-1	Acute-Chronic	65-75%	0.15 mg/m ³	0.05 mg/m ³
Antimony/Tin/Selenium (Alloy Components)	7440-36-0	Chronic	3 -5%	0.5 mg/m ³	0.5 mg/m ³
Battery Electrolyte (Sulfuric acid) (% acid in electrolyte)	7664-93-9	Reactive-Oxidizer Acute-Chronic	20-30%	1.0 mg/m ³	100 mg/m ³
Styrene, Acrylonitrile (Case material)	9003-54-7	NA	100%	NA	NA
Acrylonitrile, Butadiene, Styrene (Lid material-ABS)	9003-56-9	NA	100%	NA	NA

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.

PROPOSITION 65 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.

SECTION 3 – PHYSICAL & CHEMICAL CHARACTERISTICS (Fire & Explosion Data)

Boiling Point: Electrolyte Approx. 227° F
Vapor Pressure: Electrolyte 10 mm Hg
Specific Gravity: Electrolyte (H₂O = 1) 1.245-1.255
pH Electrolyte: <1

Percent Volatile by Volume (%): Not Applicable
Vapor Density: Hydrogen (Air = 1):0.069
Electrolyte (Air = 1):3.4
Evaporation Rate: Not Applicable

Appearance and Odor: *Battery:* Solid, plastic case with metallic lead posts.
Lead: gray, metallic, solid.
Electrolyte: Liquid, colorless, oily fluid; pungent acid odor when warm or hot.

Flash Point: Not Applicable
Flammable Limits in Air% by Volume: Hydrogen (H₂) Lower 4.1% Upper 74.2%
Extinguisher Media: CO₂, foam, dry chemical

Special Fire Fighting Procedures: Lead/Acid batteries do not burn, or burn with difficulty. Extinguish fire with agent suitable for surrounding combustible materials. Cool exterior of battery if exposed to fire to prevent rupture. The acid mist and vapors generated by heat or fire are corrosive. Wear respiratory protection (SCBA) and protective clothing.

Unusual Fire and Explosion Hazards:

Hydrogen gas and sulfuric acid vapors are generated upon overcharging. Hydrogen gas may be flammable or explosive when mixed with air, oxygen, or chlorine. Ensure adequate ventilation of charging areas consistent with OSHA (29 CFR 1910 & 1926), National Fire Code, ACGIH and other relevant standards.

SECTION 4 – PHYSICAL HAZARDS

Stability: Stable **Conditions to Avoid:** Avoid overcharging. Do not allow smoking, sparks, or open flame near batteries while charging. Do not allow metallic contact between terminals of opposite polarity.

Incompatibility:
(Materials to Avoid)

Keep battery case away from strong oxidizers. Do not overcharge. Avoid contact between electrolyte and combustibles and organic materials. Contact of acid with metals may produce sulfur dioxide fumes and hydrogen gas. Avoid contact between lead compounds and strong acids, bases, halides, potassium nitrate, permanganate, peroxides and reducing agents.

Hazardous Decomposition Products: An explosive hydrogen/oxygen mixture may occur during charging. Sulfuric acid mist may be generated during overcharging or in fire. High temperatures or fire may produce toxic lead fumes, vapor or dust.

Hazardous Polymerization: Will Not Occur

SECTION 5 – HEALTH HAZARDS

Threshold Limit Value (TLV) Permissible exposure limit (PEL) Sulfuric Acid TLV 1.0 mg/m³ (milligram per cu. meter)
Lead TLV 0.15 mg/m³ PEL 0.05 mg/m³

Signs and Symptoms of Exposure

- Acute Exposure Signs of exposure include prickling or burning sensation to skin, eyes or mucus membranes. Battery electrolyte can cause irritation of eyes, nose and throat. Short term liquid or vapor contact may result in contact dermatitis, irritation and acid burns to the exposed area. Ingestion of electrolyte may cause severe injury.
- Chronic Overexposure Repeated contact with battery electrolyte (sulfuric acid) may cause drying of the skin which may result in irritation and dermatitis. Prolonged inhalation of a mist of sulfuric acid can cause inflammation of the upper respiratory tract. Ingestion of lead can result in symptoms of lead toxicity including anemia, fatigue, loss of appetite, cramping, and affects to neurological system.

Medical Conditions Generally Aggravated by Exposure

Exposures to acid mist may irritate pre-existing respiratory diseases. Acid exposure may aggravate skin diseases. Chronic exposure to lead and its compounds may aggravate some forms of kidney, liver and neurological diseases or cause damage to the reproductive system and developing fetuses in pregnant women.

Routes of Entry

Electrolyte: ingestion, inhalation Lead: Ingestion; lead and compounds not absorbed through skin

Chemical Listed as carcinogen or Potential Carcinogen

No Info. Found	National Toxicology Program	Yes	<input type="checkbox"/>	I.A.R.C. Monographs	Yes	<input checked="" type="checkbox"/>	OSHA	Yes	<input type="checkbox"/>	EPA CAG	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
		No	<input checked="" type="checkbox"/>		No	<input type="checkbox"/>		No	<input checked="" type="checkbox"/>		No	<input type="checkbox"/>		

Human Health Effects

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 the battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist. Lead is listed as a 2B carcinogen.

Emergency and First Aid Procedures**Sulfuric Acid (Battery Electrolyte)**

- Inhalation Move to ventilated area. Obtain medical attention.
- Eyes Wash the eyes with large quantities of running water for 15 minutes. Obtain medical attention.
- Skin Flush area with large amounts of running water. Remove contaminated clothing and obtain medical attention.
- Ingestion Wash out mouth with running water. Do not induce vomiting. Call Physician.

SECTION 6 – SPECIAL PROTECTION INFORMATION**Respiratory Protection:**

(Special Type) Sulfuric Acid Mist – Full face or half mask respirator with acid mist filter or SCBA.

Ventilation: Change air every 15 min. during charge cycle. **Local Exhaust:** As needed. **Mechanical:** As needed for air changes.

Protective Gloves: Acid resistant rubber or plastic **Eye Protection:** Splash resistant goggles or safety glasses with face shield

Other Protective Clothing or Equipment: Acid resistant rubber or plastic apron, boots and protective clothing.

SECTION 7 – SPECIAL PRECAUTIONS AND SPILL / LEAK PROCEDURES

Precautions to Be Taken	Store batteries in a cool, dry, well-ventilated area. Do not short circuit battery terminals or remove vent caps during storage or charging. Avoid rough handling which could result in spills or leaks. Do not smoke or use open flames in charging areas. Wash thoroughly after handling product.
Other Precautions	Avoid prolonged overcharging or combustion which could liberate hazardous gases and liquids including hydrogen, sulfuric acid, sulfuric acid mist, sulfur dioxide, sulfur trioxide, arsine, or stibine gas. Materials should be kept on site for spill neutralization and containment.
Steps to Be Taken in Case Material Is Released or Spilled	Wear protective clothing. Ventilate enclosed areas. Dike to contain contaminated materials and liquids. Limit site access to qualified emergency responders. Neutralize acid spills with sodium bicarbonate (soda ash), calcium carbonate, agricultural lime or equivalent commercial product. Collect all material for proper disposal.
Waste Disposal Methods	Return whole scrap batteries to distributor, manufacturer, or lead smelter for recycling. For neutralized spills, place residue into plastic containers with sorbent material, sand, or earth for disposal. Contact local and/or state environmental officials for proper disposal requirements.