DOUGLAS BATTERY
Connect with a leader.

Material Safety Data Sheet

24-HOUR EMERGENCY CONTACT
(336) 650-7245/7257
CHEMTREC (800) 424-9300

HMIS Hazard Rating

HEALTH	3
FLAMMABILITY	0
REACTIVITY	2

0 Minimal Hazard
1 Slight Hazard
2 Moderate Hazard
3 Serious Hazard
4 Severe Hazard

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SECTION 1 – IDENTITY

Common Name: **BATTERY ELECTROLYTE**

Common Synonyms: Sulfuric Acid, Electrolyte, Battery acid, Battery Fluid

Chemical Name: Sulfuric Acid

Chemical Family: Inorganic acid, aqueous solution

Product Use: Electrolyte fluid for lead/acid batteries.

DOT Shipping Name: Battery Fluid, Acid, 8, UN 2796, PG II

Formula: $H_2SO_4 + H_2O$

SECTION 2 – HAZARDOUS INGREDIENTS

Principal Hazardous Component(s) (chemical & common name(s))	C.A.S.	Hazard Category	%	ACGIH TLV	OSHA PEL/TWA
Sulfuric Acid Dilutions: 1.080-1.400 Specific Gravity	7664-93-9	Corrosive Reactive,Oxidizer (Acute-Chronic)	10 - 40%	1.0 mg/m^3	1.0 mg/m^3

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 (Fire & Explosion Data)

Boiling Point: Approx. 235º F
Vapor Pressure: 10
Vapor Density: (Air = 1) >1
Specific Gravity: 1.080-1.400

Melting Point: NA

Percent Volatile *by Volume* (%): 0 at 70ºF

Reactivity in Water: Exothermic
Solubility in Water: 100%

Appearance and Odor: Clear liquid with sharp, pungent odor.

Physical State: Liquid
PH: Varies <1.0

Flash Point: NA
Flammable Limits in Air% *by Volume:* Lower NA Upper NA
Auto-Ignition Temperature: NA

Extinguisher Media: Acid liquid does not burn. If involved in fire use dry chemical, carbon dioxide.

Special Fire Fighting Procedures: Alcohol foam, carbon dioxide, dry chemical extinguisher.

Unusual Fire and Explosion Hazards: Use self-contained breathing apparatus (SCBA) for fire fighting, wear full cover sulfuric acid resistant clothing. May release sulfuric acid fumes, sulfur dioxide gas, carbon monoxide. Water mixed with acid may generate heat and possible splattering.

SECTION 4 – PHYSICAL HAZARDS

Stability: Stable

Incompatibility : *(Materials to Avoid)* Metals, nitrates, chlorates, fulminates, picrates, and other organic materials. Releases hydrogen gas and sulfur dioxide fumes when in contact with most metals.

Hazardous Decomposition Products: Sulfur trioxide, carbon monoxide, sulfuric acid fumes, sulfur dioxide (secondary: hydrogen cyanide and carbon monoxide).

Hazardous Polymerization: Will Not Occur

SECTION 5 – HEALTH HAZARDS

Threshold Limit Value (TLV) Permissible exposure limit (PEL): TLV 1.0 mg/m^3 (milligram per cu. meter)
NIOSH 1.0 mg/m^3 (10hr. TWA) PEL 0.05 mg/m^3

Signs and Symptoms of Exposure:

1. Chronic: Inhalation—Erosion of teeth, inflammation of nose, throat, and bronchial tubes.
2. Acute: Eyes—Mist may cause burning and stinging. Splashes to the eyes may cause severe burns, cornea damage, blindness.
   Skin—Contact may cause burning and stinging. Repeat exposure may develop into ulceration of the hands. Concentrated contact may cause severe burns due to exothermic reaction with moisture in skin.
   Ingestion—Severe burning in mouth throat esophagus, and stomach.
   Inhalation—Mist may cause nasal secretions, tickling sensation in nose or throat, followed by a cough.

Medical Conditions Generally Aggravated by Exposure: Respiratory exposure to airborne sulfuric acid may aggravate lung damage or other pulmonary conditions.

Routes of Entry: Inhalation, Ingestion, Eyes, Skin

Chemical Listed as carcinogen or Potential Carcinogen:
National Toxicology Program Yes ☐ No ■ | I.A.R.C. Monographs Yes ■ No ☐ | OSHA Yes ☐ No ■ | EPA CAG Yes ☐ No ■

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.

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

1. Inhalation: Remove to fresh air. If person is unconscious or experiencing difficulty, arrange for emergency transport to a hospital. Administer oxygen/CPR as appropriate.
2. Eyes: Wash eyes with copious amounts of water for 15 minutes or until acid is removed. Obtain medical attention.
3. Skin: Remove all contaminated clothing, flush skin with copious amounts 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. If conscious, wash out mouth, do not swallow.

SECTION 6 – SPECIAL PROTECTION INFORMATION

Respiratory Protection: Half-face or full face mask, or PAPR with acid mist filter or self contained breathing apparatus (SCBA) as may be appropriate depending on airborne concentration.

Ventilation: Local exhaust, general ventilation

Protective Gloves: Acid resistant rubber or plastic with elbow length gauntlet and rolled over cuff.

Eye Protection: Do not wear contact lenses. Use safety glasses with face shield or acid resistant/splash proof goggles.

Other Protective Equipment: For Spills: Use acid resistant apron, full body clothing and boots. Provide safety showers and eye wash station where appropriate.

SECTION 7 – SPECIAL PRECAUTIONS AND SPILL / LEAK PROCEDURES

Precautions to Be Taken: Store in cool, dry, well-ventilated area away from incompatible materials. When mixing with water, pour acid slowly into water. Keep acid away from fire, sparks, and heat. Wash thoroughly after handling product.

Other Precautions: Mark containers with appropriate hazard warning labels:
Poison-Causes Severe Burns
Danger-Contains Sulfuric Acid

Material Spills or Release: Stop leak and contain spill if possible without risk. Wear respiratory protection and acid-resistant clothing, including gloves and eye and face protection. Neutralize all spills promptly with mild alkaline material such as lime, sodium bicarbonate (soda ash) or suitable commercial product.

Waste Disposal Methods: Dispose of wastes in accordance with applicable local, state, and Federal regulations. Unneutralized electrolyte may require disposal as EPA corrosive waste – D002.