

MATERIAL SAFETY DATA SHEET

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HEALTH EMERGENCIES:
Call POISON CONTROL CENTER
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Product Name: See Section I
Issue Date: 1/30/92

I. MATERIAL IDENTIFICATION

Name: Battery, Battery Acid
Synonyms: Dilute Sulfuric Acid, Electrolyte (acid) Battery Fluid, Battery Containing Acid
Chemical Family: Mineral Acid, Oxidizing
DOT Shipping Name: Battery, Electric Storage, Wet, Filled with Acid
DOT Hazard Classification: Corrosive

II. HAZARDOUS INGREDIENTS

<u>MATERIAL</u>	<u>% BY WT. OR VOL.</u>	<u>CAS NO.</u>	<u>EXPOSURE LIMITS OSHA/ACGIH/OTHER</u>
Sulfuric Acid (Dilute)	35	7664-93-9	1 mg/1 mg/1 mg m m m

Common Name: Battery Acid

NOTE: The contents of this product are toxic chemicals that are subject to the reporting requirements of Section 302 and 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 355 and 372.

III. PHYSICAL DATA

Material is (at normal temperature): Liquid
Appearance and Color: Colorless to cloudy liquid with slight acidic odor.
Boiling Point (at 760° MMHG): 230° F/110° C
Melting Point (at 760° MMHG): -79.6° F/-62° C
Specific Gravity: 1.265 Vapor Pressure: 11.7
Vapor Density: 3.4 Solubility in Water: 100%
% Volatile by Weight: 0 Evaporation Rate: N/A
Stability: Stable
Conditions to Avoid: Prevent smoking, fires and other sources of ignition around lead/acid batteries and/or containers.
Incompatibility (materials to avoid): Combustible materials (especially finely divided), strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.

IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: None Autoignition Temperature: N/A
Flammability Limits: In Air % by Vol.: Lower: N/A Upper: N/A
Extinguishing Media: Use dry chemical, foam or carbon dioxide (CO₂).
Special Firefighting Procedures: Avoid using water where there is a danger of acid spreading. Use pressure-demand, self-contained breathing apparatus where acid vapor or mist may be present. Charging and foaming batteries may generate hydrogen gas which is flammable and explosive. They also generate oxygen which supports combustion. Therefore, keep sparks and other sources of ignition away from them. Hydrogen may also be generated by the action of acid on organic materials, nitrates, carbides, and most metals.

V. HEALTH DATA

Inhalation: Sulfuric acid may be inhaled as a mist generated during formation or charging of lead/acid.
Skin Contact: The acid can contact the skin during handling of lead/acid batteries or containers of acid.
Skin Absorption: Sulfuric acid cannot be absorbed through unbroken skin.
Eye Contact: Sulfuric acid mist or liquid can contact unprotected eyes.
Ingestion: Ingestion is not expected to be a significant route of entry.
Signs and Symptoms of Overexposure:
Acute Effects: Inhalation of high concentrations of sulfuric acid mists may cause severe irritation of eyes, respiratory tract and skin. It may also cause tooth erosion, mouth soreness, or breathing difficulties. Contact with dilute sulfuric acid may irritate the skin and mucous membranes and may cause irreparable corneal damage and blindness as well as facial scarring which can include eyelids.

Chronic Effects: Repeated or prolonged exposure to dilute sulfuric acid may cause skin irritation. Repeated or prolonged exposure to sulfuric acid mist may erode the teeth, cause dermatitis, chronic irritation of eyes, mouth, and stomach, and chronic inflammation of the nose, throat and bronchial tubes.

Potential to Cause Cancer: Sulfuric acid has not been listed by the National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), or OSHA as a carcinogen.

VI. EMERGENCY AND FIRST AID PROCEDURES

Inhalation: Remove from exposure and consult physician if any acute effects above develop.

Skin: Wash thoroughly with soap and water. If acid is splashed on clothing, immediately remove them and do not wear again until cleaned. If acid is splashed on shoes, remove them immediately and discard. Acid cannot be removed from leather.

Eyes: Hold eyelids open and immediately rinse with cool, running water for at least 15 minutes. Seek medical attention after rinsing.

Ingestion: Do not induce vomiting. See physician immediately. Do not give anything by mouth to an unconscious victim.

Medical Conditions Which Can Be Aggravated by Exposure: Contact of dilute sulfuric acid with skin and eyes may aggravate chronic skin and eye diseases. Inhalation of sulfuric acid mist may aggravate chronic disease of the respiratory tract and stomach.

VII. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Use a NIOSH/MSHA approved respirator for sulfuric acid mist greater than the PEL of 1 mg/m³.

Eyes and Face: Chemical splash goggles in combination with a faceshield offer the best protection. Also acceptable are "Visor-Gogs" or a faceshield worn over safety glasses with solid side shields.

Hands, Arms, Body: Wear a long sleeved shirt and trousers made of synthetic material. Also use an impermeable, acid resistant apron and gauntlet type gloves.

Other Special Clothing and Equipment: Use safety boots with rubber/neoprene boots or steel-toed rubber/neoprene boots worn over socks. Place pants' legs over boots to keep acid out of boots. All footwear must meet requirements of ANSI Z41.1 - Rev. 1972.

VIII. ENVIRONMENTAL DATA

Engineering Controls: Use general dilution ventilation to maintain concentrations of sulfuric acid mists below the OSHA PEL of 1 mg/m³ when forming or charging batteries.

Work Practices: Handle lead/acid batteries and containers of acid carefully to avoid spilling the acid.

Hazardous Decomposition Products: Hydrogen, sulfur dioxide, sulfur trioxide.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: None

IX. STORAGE AND SPECIAL HANDLING

Hygiene Practices: Remove splashes of acid immediately from the skin with large amounts of cool, running water followed by washing with soap and water.

Protective Measures to be Taken During Non Routine Tasks Including Equipment Maintenance: Not applicable

Spill or Leak Procedures: Ventilate area. Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate) or lime (calcium oxide). Cover the spill with either chemical. Mix well. Make certain mixture is neutral (check pH paper). Collect residue and place in drum or other suitable container. Dispose of hazardous waste.

Wear acid resistant boots, faceshield, chemical splash goggles and acid resistant gloves.

DO NOT RELEASE UNNEUTRALIZED ACID!!

Waste Disposal Method: Neutralize as above for spill, collect residue, and place in a drum or suitable container. Dispose of hazardous waste. Do not flush lead contaminated acid to a sewer.

Other Handling and Storage Precautions: To dilute acid, add acid to water (not water to acid). Do not stack acid containers more than four high, and store in cool, dry place, and protect them from damage.

An eye fountain and safety shower should be located in or near the storage area(s) used for lead/acid batteries and/or acid containers. Such storage areas should be equipped with a drain which capture spills of acid so that they may be neutralized, collected and disposed of properly.

X. DISCLAIMER

The information contained within this document is believed to be accurate as of the date issued. Because product use is beyond our control, no warranty is given, expressed or implied. The information is furnished on the condition that the person(s) receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assumes the risk of his use thereof. To determine applicability or effect of any law or regulation with respect to the product, users should consult a legal advisor or appropriate governmental agency.