



PRODUCT SAFETY DATA SHEET

PRODUCT: ELECTROLYTE (ACID) BATTERY FLUID

Latest Revision:
September, 1985I. PRODUCT IDENTIFICATIONSUPPLIER: General Battery Corporation
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Our products are shipped to our customers as follows:

PRODUCT SHIPPED	NAMES		Federal Department of Transportation (DOT)		
	TRADE	COMMON	NAME	LABEL & CLASS	I.D. NUMBER
1. _____	Battery wet (with electrolyte)	Starter battery	Battery, wet, filled with acid	Corrosive Material (8)	UN 2794
2. _____	Battery, dry	Dry-charge starter battery	(Not subject to DOT hazardous materials regulations)		
3. _____	Battery, dry with containers of electrolyte	Dry-charge starter battery with battery fluid	Battery fluid, acid, with battery	Corrosive Material (8)	NA 2796
4. _____	Electrolyte in containers	Battery fluid; acid pak	Battery fluid, acid	Corrosive Material (8)	UN 2796
5. _____	Battery, industrial or mining	Motive power battery	Battery, wet, filled with acid	Corrosive Material (8)	UN 2794
6. _____	Battery, industrial or mining - cell	Battery cell; "jar"	Battery, wet, filled with acid	Corrosive Material (8)	UN 2794

General Battery Corporation, in keeping with the battery industry position, considers starter batteries (SLI-starter, lights, ignition) intended for retail sale to be "articles" as defined by the OSHA Hazard Communication Standard at 29 CFR 1910.1200, and therefore exempt from the provisions of the Standard "under normal conditions of use."

Industrial batteries and cells, plus electrolyte sold separately or with batteries, do not fit this definition. The following safety and health information is furnished to cover the hazards associated with exposure to electrolyte and its vapors, which may be emitted during charging procedures.

A further hazard exists because the operation of a battery can produce explosive hydrogen gas. An ignition source, such as an electrical spark from an improperly connected electrical booster or "jumper" cable, or from a damaged vehicle electrical system, may ignite/explode the hydrogen gas.

NOTE: DISTRIBUTORS

If you have purchased GBC batteries for any purpose other than immediate retail sale, you are advised to forward a copy of this Product Safety Data Sheet to any subsequent employer who purchases the batteries.

II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<u>Hazardous Components</u>	<u>Chemical Identity</u>	<u>Common Names</u>	<u>OSHA PEL</u>	<u>ACGIH Recommended TLV</u>	<u>% in Mixture</u>
Sulfuric Acid	Inorganic sulfuric acid, aqueous solution. H ₂ SO ₄	Electrolyte, battery acid, battery fluid	1 mg/M ³	None known	32-40 @ 60°F
			CAS No. 7664-93-9		

Other Limits: NIOSH 10-Hour TWA = 1 mg/M³; IDLH = 80 mg/M³

NIOSH Registry No. = WS 56000 Wiswesser Code = WSQQ

- NOTES: PEL = Permissible Exposure Limit for 8-hour day, 40 hours per week
 TLV = Threshold Limit Value, a guide for protection of most workers for a 40-hour
 TWA = Time Weighted Average exposure permitted for a specified time period
 IDLH = Concentration Immediately Dangerous to Life and Health
 OSHA = Occupational Safety and Health Act, or Administration
 ACGIH = American Conference of Governmental Industrial Hygienists
 NIOSH = National Institute for Occupational Safety and Health
 CAS = Chemical Abstracts Service Registry

III. PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point (@ 14.7 psia) Approx. 203°F Specific Gravity (H₂O = 1) = 1.245 to 1.295
 Vapor Pressure (mm Hg) = 10 @ 18°F Melting Point = -35°F to +10.6°F
 Vapor Density (Air = 1) = Greater than 1 Evaporation Rate (Ether = 1) = Less than 1
 % Volatile by Volume = 0 @ 70°F Solubility in Water = 100%
 Appearance and Odor = Clear liquid, with sharp, penetrating, pungent odor.
 Other - Gives off large amounts of heat when mixed with water.

IV. FIRE/EXPLOSION HAZARD DATA

- Flash Point - Not combustible* Flammable Limits - Not combustible*
 Extinguishing Media - For fires in area: Dry chemical, carbon dioxide, water fog, water.
 Special Procedures - Sulfuric acid fume, sulfur dioxide gas or carbon monoxide may be released when acid decomposes; wear NIOSH-approved self-contained breathing apparatus.
 - Water applied to sulfuric acid generates heat and causes acid to spatter; wear full-cover sulfuric acid resistant clothing.

IV. FIRE/EXPLOSION HAZARD DATA (Continued)

- Unusual Hazards - Sulfuric acid is an electrolyte.
- Sulfuric acid reacts violently with metals, nitrates, chlorates, carbides, fulminates, picrates and other organic materials.
 - *Reacts with most metals to yield explosive/flammable hydrogen gas; this reaction is intensified when acid is diluted, as in electrolyte.

V. REACTIVITY DATASTABILITY - 100% StableHAZARDOUS POLYMERIZATION - Will not occur

INCOMPATIBILITY - Contact of sulfuric acid with combustibles, and organic materials such as: chlorates, carbides, fulminates, picrates, peroxides, nitrates, cyanides, carbides, etc., may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes, and may also release flammable hydrogen gas; this reaction is intensified when diluted.

HAZARDOUS DECOMPOSITION OR BY PRODUCTS - Decomposition of sulfuric acid releases sulfur trioxide, carbon monoxide, sulfuric acid fumes, and sulfur dioxide. Reaction with above may release other toxic gases, such as hydrogen cyanide or hydrogen sulfide. Decomposition also produces large quantities of heat.

OTHER - Sulfuric acid will attack some forms of plastic, rubber and coatings which are not acid-resistant.

VI. HEALTH HAZARD DATA

ROUTES OF ENTRY - Sulfuric acid is harmful by all routes of entry.

HEALTH HAZARDS - ACUTE

Eyes - Severe burns, cornea damage and blindness.

Skin - Severe irritation, burns and ulceration.

Inhalation - Breathing of vapors or mists may cause severe respiratory irritation at levels of 5 mg/M³. Inflammation of bronchial membranes may occur at 12-35 mg/M³.

Ingestion - Swallowing even diluted sulfuric acid, as in electrolyte, may cause severe burns and ulceration of mouth, throat, esophagus and stomach, as well as kidney and intestinal damage.

HEALTH HAZARDS - CHRONIC

While diluted sulfuric acid produces milder results than full strength acid, long term exposures may produce all hazards in some degree. Chronic exposures are known to cause erosion of the teeth, inflammation of nose, throat and bronchial tubes.

VI. HEALTH HAZARD DATA (Continued)SYMPTOMS/WARNING SIGNS

Concentrations as low as 5 mg/M³ are objectionable, causing cough, increased respiratory rate and impairment of ventilatory capacity. Droplets or mist on the skin causes an uncomfortable stinging, burning sensation. Eye irritation frequently occurs at concentrations of 1.1 to 2.4 mg/M³. Teeth may become discolored.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Exposure to mist may cause lung damage and aggravate pulmonary conditions.

CARCINOGENICITY

No data was found to indicate sulfuric acid related tumors or cancers.

VII. FIRST AID AND EMERGENCY CARE DATA

Begin first aid and send for medical assistance. ALL victims of sulfuric acid exposure are to be examined by a physician.

Eyes - Flush eyes immediately with large amounts of cool water holding both eyes (upper and lower eyelids) open. Continue for at least 15 minutes until all traces of acid are removed.

NOTE: Contact lenses are not to be worn when working with any corrosive material. If you suspect a victim is wearing contact lenses, either have the victim remove them or get professional assistance, then continue flushing.

Skin - Flush with large amounts of cool water. Remove contaminated clothing completely, including shoes. Continue for at least 15 minutes, until all traces of acid are removed.

Inhalation - Remove to fresh air immediately. If breathing has stopped begin artificial respiration. Keep victim warm and at rest. If breathing is difficult, give oxygen.

Ingestion - If victim is conscious, give large quantities of water. Do not try to get victim to vomit. Wash out mouth; gargle to wash throat. If available, give milk, preferably mixed with egg whites or vegetable oil.

Rescue - Do not become a casualty; summon assistance. If there is an air concentration or continuing spill of sulfuric acid, wear protective clothing covering all skin surfaces, and self-contained breathing apparatus. Remove the victim from the hazardous exposure as quickly as possible then begin emergency procedures listed above. If signs of shock appear - rapid pulse, collapse - place victim on his back and keep him warm.

NOTE: Contaminated clothing must not be reworn. Place in closed containers for storage until disposal or until acid can be removed. Person laundering such clothing should be warned of hazards.

VII. FIRST AID AND EMERGENCY CARE DATA (Continued)SPECIAL INSTRUCTIONS FOR PHYSICIAN

If gastric lavage is performed, endotracheal or esophagoscopy control is suggested. Oxygen, with use of intermittent positive-pressure breathing apparatus; 5% solution of sodium bicarbonate as aerosol may be used, and broncodilators and/or decongestants.

VIII. PRECAUTIONS FOR SAFE HANDLING AND USAGE

Handling and Storage - Store in well ventilated area that is cool, dry and protected from severe weather. Separate from incompatible materials. Store and handle only in areas with unlimited water supply and where spills can be controlled. Avoid spills, leaks or damage to containers. When diluting always pour acid slowly and carefully into water. Keep away from fire, sparks and heat. Keep containers tightly closed, with openings on top to prevent leakage. Loosen closures carefully. Never use air-pressure to force material out of container. Relieve internal pressure in containers when received and at least weekly afterward. Check closures before moving containers.

Precautionary Labeling

POISON - CAUSES SEVERE BURNS

DANGER - CONTAINS SULFURIC ACID

Spill/Leak Procedures

If possible, stop flow of material. Unless spill area is very well ventilated, do not permit anyone in area without respiratory protection. For large spills, wear acid-resistant clothing covering all skin surfaces.

Contain/absorb small spills using vermiculite, dry sand, earth or similar materials. Dike or dam-up large spills. Never use rags, sawdust or other combustible materials.

If possible, neutralize with lime, soda ash, sodium bicarbonate, etc. Otherwise dilute cautiously with large quantities of water. Do not permit excess to run into sewer system.

Waste Disposal Methods

Shovel neutralized slurry into sealed containers. Dispose of in a secured, sanitary landfill if permitted.

Large, water-diluted spills, after neutralization (and neutralization testing) may be handled in accordance with approved local, state or federal requirements.

Consult state environmental agency. Individual state regulations vary.

Reportable Spill-Quantity

Consult with local, state or federal regulatory agencies. Hazardous waste spill reporting quantities vary with location.

IX. CONTROL MEASURES

Respiratory Protection - Not required under normal conditions. When concentrations of sulfuric acid in an area are known to exceed PEL, use NIOSH-approved, fitted, full face respirator with:

<u>Concentration</u>	<u>Respirator Type</u>
A. 50 mg/M ³ or less	Acid gas canister and/or high efficiency particulate filter, any supplied-air respirator or self-contained breathing apparatus.
B. 100 mg/M ³ or less	A Type-C supplied-air respirator in positive-pressure mode.
C. Emergency	Self-contained breathing apparatus in positive-pressure mode.
D. Escape	Any self-contained units listed under A. above.

Ventilation - Use in well ventilated area with no cross drafts.

Local Exhaust - Preferred.

Mechanical (General) - Acceptable if concentration stays below PEL.

Special - Ventilation components must be acid- and explosive-resistant.

Other - None.

Protective Gloves - Use acid-resistant rubber or plastic (natural rubber, neoprene or nitrile) gloves, with elbow-length gauntlet and rolled-over cuff.

Eye Protection - Use approved safety glasses with side shields (or acid-resistant goggles) and face shield (8" minimum length) or other equivalent protection when handling this material.

Other Protection - Wear acid-resistant apron. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots; cover all skin surfaces.

Emergency Flushing - Wherever sulfuric acid is handled in concentrations greater than 1%, provide emergency eyewash and shower or similar facilities. Water supply should be at least 0.4 gal. per minute for eyewash and 30 gal. per minute for body flushing, and sufficient to continue flushing for at least 15 minutes.

X. OTHER REGULATORY DATA/REQUIREMENTS

A. Sulfuric acid is listed by the following agencies or regulations:

1. DOT Regulations (see above); corrosive material label required.
2. NIOSH - Criteria Document.
3. Environmental Protection Agency (EPA) (see below).
4. OSHA - Section 1910.1000; PEL = 1 mg/m³.
5. OSHA - Section 1910.1200 as a corrosive material.
6. NFPA - Acute Hazard Rating: Health - 3, Flammability - 0, Reactivity - 2.

X. OTHER REGULATORY DATA/REQUIREMENTS (Continued)

EPA (RCRA) or Appropriate Waste Classification -

"Characteristic" Waste; if spilled, EPA Hazardous Waste Number: D002. (Corrosivity Characteristic) (Note: Sulfuric acid waste may be a "listed" waste in some states). Empty containers are to be handled as directed by state environmental agency; regulations may vary.

EPA (Clean Water Act) Classification (for sulfuric acid) -

"Hazardous Substance" (Section 311); Reportable Quantity: 1000 lbs./454 kg.

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