

**I. PRODUCT IDENTIFICATION**Chemical/Trade Name (as used on label):Chemical Family/Classification:**Dry Charge Battery****Electric Storage Battery**Manufacturer's Name/AddressTelephone

GS Battery (USA), Inc.
 1000 Mansell Exchange West
 Suite #350
 Alpharetta GA 30022

For information and emergencies, contact
 GS Battery
 (800) 472-2879

24-hour Emergency Response Contact
 CHEMTREC DOMESTICO: 800.424.9300
 CHEMTREC INTERNACIONAL: 1.703.527.3887

II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<u>Components</u>	<u>CAS Number</u>	<u>Approximate % by Weight or Volume</u>	<u>Air Exposure Limit OSHA (ug/m³)</u>	<u>Air Exposure Limit ACGIH (ug/m³)</u>	<u>Air Exposure Limit NIOSH (ug/m³)</u>
Inorganic Lead Compound:					
Lead	7439-92-1	53	50	150	100
*Antimony	7440-36-0	0.2	500	500	--
*Arsenic	7440-38-2	0.003	10	200	--
*Calcium	7440-70-2	0.002	--	--	--
*Tin	7440-31-5	0.006	2000	2000	--
Case Material:		5-6	N/A	N/A	N/A
Polypropylene	9003-07-0				
Polystyrene	9003-53-6				
Styrene Acrylonitrile	9003-54-7				
Acrylonitrile Butadiene Styrene	9003-56-9				
Styrene Butadiene	9003-55-8				
Polyvinylchloride	9002-86-2				
Polycarbonate	--				
Hard Rubber	--				
Polyethylene	--				

* Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by GS Battery, Inc. Other ingredients may be present dependent upon battery type. Contact your GS Battery representative for additional information.

**III. PHYSICAL DATA**

<u>Lead:</u>			
<u>Boiling Point:</u>	<u>Greater than 2516°F</u>	<u>Specific Gravity (H2O=1)</u>	<u>9.6 a 11.3</u>
<u>Melting Point:</u>	<u>486 to 680°F</u>	<u>Vapor/Density/Pressure</u>	<u>NA</u>
<u>Solubility in Water</u>	<u>Insignificant</u>	<u>Evaporation Rate/% Volatile:</u>	<u>NA</u>
<u>Appearance and Odor:</u>	Bluish gray metal, no apparent odor		

IV. FIRE AND EXPLOSION DATA

Inorganic lead compound is not a combustible material, nor will it explode under conditions of normal use.

Flash Point: NA

Flammable Limits: LEL=4.1% (Hydrogen Gas)

UEL=74.2%

Extinguishing media: CO2; foam; dry chemical

Special Fire Fighting Procedures: Wear full body protective clothing and self contained breathing apparatus with positive pressure and full-face piece.

Unusual Fire and Explosion hazards: Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

V. REACTIVITY DATA

Stability: Stable X
Unstable __

Conditions to Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (materials to avoid)

Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Hazardous Decomposition Products:

Lead compounds: High temperatures likely to produce toxic metal fume, vapor or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

**VI. HEALTH HAZARD DATA**Routes of Entry:

Lead compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume.

Inhalation:

Lead compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Lead compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Lead compounds: Not absorbed through the skin.

Eye Contact:

Lead compounds: May cause eye irritation.

Effects of Overexposure - Acute:

Lead compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Lead compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females.

Carcinogenicity:

Lead compounds: Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Medical Conditions Generally Aggravated by Exposure:

If batteries containing electrolyte are subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Emergency and First Aid Procedures:Inhalation:

Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:

Lead: Consult physician immediately.

Skin:

Lead: Wash immediately with soap and water.

**VI. HEALTH HAZARD DATA CONTINUED**Eyes:

Lead: Flush immediately with large amounts of water for at least 15 minutes; consult physician.

VII. PRECAUTIONS FOR SAFE HANDLING AND USESpill or Leak Procedures:

Lead dust should be vacuumed or wet-swept; use controls, which minimize fugitive emissions; do not use compressed air.

Waste Disposal Methods:

Spent batteries: Send to secondary lead smelter for recycling.

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations.

Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Handling and Storage:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat.

Precautionary Labeling:

POISON - CAUSES SEVERE BURNS

VIII. CONTROL MEASURESEngineering Controls:

Store and handle in well-ventilated area.

Work Practices:

Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing when filling or handling batteries.

Respiratory Protection:

None required under normal conditions.

Protective gloves:

Rubber or plastic acid-resistant gloves with elbow-length gauntlet for use when filling batteries.

**VIII. CONTROL MEASURES CONTINUED**Eye Protection:

Chemical goggles or face shield for use when filling batteries.

Other Protection:

Wear coveralls or full-body covering during use. When filling batteries use acid-resistant apron. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.

IX. OTHER REGULATORY INFORMATIONU.S DOT

The transportation of dry batteries (those batteries that contain no electrolyte or residue) are not regulated by the U.S. DOT as a hazardous material.

IATA

The international transportation of dry batteries is not regulated by the International Air Transport Association (IATA) as a hazardous material.

IMDG

The international transportation of dry batteries is not regulated by the International Maritime Dangerous Goods code (IMDG) as a hazardous material.

RCRA: Spent lead-acid batteries are not regulated as hazardous waste by the EPA when recycled, however state and international regulations may vary.

Additional Data: Refer to the latest revision of the OSHA general Industry Standards, 29 CFR 1910. Information about the hazardous ingredients contained in lead compounds are shown in Subpart Z – Toxic and Hazardous Substances: antimony is discussed in 1910.1000, air contaminants; inorganic arsenic is covered in the Inorganic Arsenic Standard, 1910.1018; and inorganic lead is covered in the Inorganic Lead Standard, 1910.1025.

CERCLA (Superfund) and EPCRA:

(a) EPCRA Section 312 Tier 2 reporting is required for batteries if sulfuric acid is present in quantities of 500 lbs. or more and/or if lead is present in quantities of 10,000 lbs. or more.

(b) Supplier Notification: This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

<u>Toxic Chemical</u>	<u>CAS Number</u>	<u>Approximate % by Wt.</u>
Lead	7439-92-1	53
* Antimony	7440-36-0	0.2
* Arsenic	7440-38-2	0.003

**IX. OTHER REGULATORY INFORMATION CONTINUED**

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

- Not present in all battery types. Contact your GS Battery representative for additional information.

TSCA

Ingredients in GS Battery's batteries are listed in the TSCA Registry as follows:

Components	CAS Number	TSCA Status
Inorganic Lead Compound:		
Lead (Pb)	7439-92-1	Listed
Lead Oxide (PBO)	1917-36-8	Listed
Lead Sulfate (PbSO ₄)	7446-14-2	Listed
Antimony (Sb)	7440-36-0	Listed
Arsenic (As)	7440-38-2	Listed
Calcium (Ca)	7440-70-2	Listed
Tin (Sn)	7440-31-5	Listed

CAA

GS Battery, Inc. supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, GS, established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

Proposition 65:**WARNING:**

- This product contains lead, a chemical known to the state of California to cause cancer and reproductive harm.
- Batteries also contain other chemicals known to the state of California to cause cancer.
- Wash hands after handling.

**IV. FIRE AND EXPLOSION HAZARD DATA**

Flash Point: Not Applicable Flammable Limits: LEL=Non Applicable UEL=Non Applicable

Extinguishing Media: CO2; foam; dry chemical; water; water fog

Special Fire Fighting Procedures: Water applied to sulfuric acid generates heat and causes acid to splatter. Wear full-cover sulfuric acid resistant clothing.

Unusual Fire and Explosion hazards: Reacts violently with metals, nitrates, chlorates, carbides and other organic materials. Reacts with most metals to yield explosive and flammable hydrogen gas.

V. REACTIVITY DATA

<u>Stability:</u>	100% Stable
<u>Conditions to Avoid:</u>	Contact with organic materials, combustibles, strong reducing agents, metals, strong oxidizers, water.
<u>Incompatibility:</u>	Contact with metals may produce toxic sulfur dioxide fumes and/or hydrogen gas.
<u>Hazardous Decomposition Products:</u>	Sulfur trioxide, carbon monoxide, sulfuric acid fumes, sulfur dioxide
<u>Hazardous Polymerization:</u>	Will not occur

VI. HEALTH HAZARD DATA

Routes of Entry: Sulfuric acid is harmful by all routes of entry.

Inhalation: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Ingestion: May cause severe irritation of mouth, throat, esophagus and stomach.

Skin Contact: Severe irritation, burns and ulceration.

Eye Contact: Severe irritation, burns, cornea damage, blindness.

Effects of Overexposure - Acute: Severe skin irritation, damage to cornea, upper respiratory irritation.

Effects of Overexposure - Chronic: Erosion of tooth enamel; inflammation of nose, throat and bronchial tubes.

**VI. HEALTH HAZARD DATA CONTINUED**

Carcinogenicity: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category I 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 a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Batteries subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Symptoms of Exposure: Cough; increased respiratory rate; stinging, burning sensation on skin; eye irritation; discoloration of teeth.

Medical Conditions Generally Aggravated by Exposure: Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate skin diseases such as eczema and contact dermatitis.

Emergency and First Aid Procedures:

Inhalation: Remove to fresh air immediately. If breathing is difficult, give oxygen.

Ingestion: Give large quantities of water; DO NOT INDUCE VOMITING; consult physician.

Skin: Flush with large amounts of cool water for at least 15 minutes; remove contaminated clothing, including shoes.

Eyes: Flush immediately with large amounts of cool water for at least 15 minutes; consult physician.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures: Stop flow of material, contain/absorb small spills with dry sand, earth, vermiculite. Do not use combustible materials. If possible, carefully neutralize the spill with soda ash, sodium bicarbonate, lime, etc. If used, cautiously dilute with water. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer.

Waste Disposal Methods: Place neutralized slurry in sealed containers and dispose of as hazardous waste, as applicable. Large water-diluted spills, after neutralization and testing, should be managed in accordance with local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Handling and Storage: Handle cautiously; avoid contact with skin and eyes. Storage and handling areas should be equipped with proper containment to capture and neutralize spills. In addition, these areas should be equipped with eyewash stations and safety showers.

Precautionary Labeling: POISON - CAUSES SEVERE BURNS
DANGER - CONTAINS SULFURIC ACID

**VIII. CONTROL MEASURES**

Engineering Controls: Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.

Respiratory Protection: None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed PEL, use NIOSH or MSHA-approved respiratory protection.

Protective gloves: Rubber or plastic acid-resistant gloves with elbow-length gauntlet.

Eye Protection: Chemical goggles or face shield.

Other Protection: Acid-resistant apron. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.

Emergency Flushing: In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

IX. OTHER REGULATORY INFORMATION

NFPA Hazard Rating for sulfuric acid:

Flammability (Red) = 0
Health (Blue) : = 3
Reactivity (Yellow): = 2

Sulfuric acid is water-reactive if concentrated.

U.S DOT

The transportation of electrolyte within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (CFR 49). These regulations classify electrolyte as a hazardous material. Electrolyte must be packed according to 173.154, 173.202 or 173.242 depending upon the nature of the shipment. The shipping information for electrolyte is as follows:

Proper Shipping Name: Battery Fluid, Acid
Hazard Class: 8
UN Identification: UN2796
Packing Group: II
Label/Placard Requirement: Corrosive

When battery fluid is shipped in a carton with a dry battery, CFR 49, 172.102 special provision N6 states that this combination packaging must conform either section 173.159 (g) or (h).

**IX. OTHER REGULATORY INFORMATION CONTINUED**IATA

The international transportation of electrolyte is regulated by the International Air Transport Association (IATA). These regulations also classify electrolyte as a hazardous material. Electrolyte must be packed according to IATA Packing Instruction Y809. The shipping information is as follows:

Proper Shipping Name: Battery Fluid, Acid
Hazardous Class: 8
UN Identification: UN2796
Packing Group: II
Label/Placard Required: Corrosive

IMDG

The international transportation of electrolyte is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify electrolyte as a hazardous material. Electrolyte must be packed according to IMDG code page 8230. The shipping information is as follows:

Proper Shipping Name: Battery Fluid, Acid
Hazard Class: 8
UN Identification: UN2796
Packing Class: II
Label/Placard Required: Corrosive

RCRA: Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number 002 (corrosivity).

CERCLA (Superfund) and EPCRA

(a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

(b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs.

(c) EPCRA Section 302 notification is required if 1,000 lbs. or more of sulfuric acid is present at one site. The quantity of sulfuric acid will vary by battery type. Contact your GS, Inc. representative for additional information.

(d) EPCRA Section 312 Tier 2 reporting is required for batteries if sulfuric acid is present in quantities of 500 lbs. or more and/or if lead is present in quantities of 10,000 lbs. or more.

**IX. OTHER REGULATORY INFORMATION CONTINUED**

(e) Supplier Notification: This product contains toxic chemicals which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

<u>Toxid Chemical</u>	<u>CAS Number</u>	<u>Approximate % by Wt.</u>
Sulfuric Acid	7664-93-9	30-40

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

TSCA

Ingredients in battery electrolyte are listed in the BCA Registry as follows:

<u>Components</u>	<u>CAS Number</u>	<u>BCA Status</u>
Sulfuric Acid (H ₂ SO ₄)	7664-93-9	Listed

CAA

GS Battery, Inc. supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, GS, established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

California Proposition 65:

- Electrolyte contains sulfuric acid, known to the State of California to cause cancer, or birth defects or other reproductive harm.
- Batteries also contain other chemicals known to the state of California to cause cancer.
- Wash hands after handling.