



**MATERIAL SAFETY
DATA SHEET**



I. Product Identification

Chemical/Trade Name (Identity used on label): 001FCLC - Lead Acid Cell (Calcium)	Chemical Family/Classification: Electric Storage Battery
Company Name: Exide Technologies	Address: 829 Parkview Boulevard
Division or Department: GNB Industrial Power	Lombard, Illinois 60148-3249 800-872-0471
Contact:	Telephone Number:
Questions concerning MSDS	Mr. Richard Thompson (972) 335-2121 x40
Transportation Emergencies: CHEMTREC Within the United States - Toll-free: Outside the United States - Call collect:	24 hours: (800) 424-9300 (703) 527-3887

II. Hazardous Ingredients

MATERIAL	% by Weight	CAS NUMBER	Exposure OSHA	Limits ACGIH
Lead	52.4	7439-92-1	0.05 mg/m ³	0.05 mg/m ³
Electrolyte (Sulfuric Acid)	19-44%	7664-93-9	1 mg/m ³	1 mg/m ³
Lead Dioxide (PbO ₂)	20.8	1309-60-0	0.05 mg/m ³	0.15 mg/m ³
Non-Hazardous Ingredients	8.2			
NOTE: Components are for a fully charged lead acid cell design				

III. Physical Data

Materials (at normal temperatures): Electrolyte Volume of Sulfuric Acid - 42 - 71%	Appearance and Odor: Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.
Boiling Point (at 760 MM Hg): 203° F	Melting Point: N/A
Specific Gravity (H ₂ O=1): 1.230-1.350	Vapor Pressure (mm Hg at 20° C): 10
Vapor Density (AIR=1): Greater than 1	Solubility in Water: 100%
% Volatiles by Weight: N/A	Evaporation Rate (Butyl Acetate=1): Less than 1

IV. Health Hazard Information

Routes of Entry:

Sulfuric Acid: Under normal conditions of use, sulfuric acid vapors and mist are not generated. Sulfuric acid vapors and mist may be generated when product is overheated, oxidized, or otherwise processed or damaged.

Lead Compounds: Under normal conditions of use, lead dust, vapors, and fumes are not generated. Hazardous exposure may occur when product is overheated, oxidized, or otherwise processed or damaged to create dust, vapor, or fumes.

Inhalation:

Sulfuric Acid vapors or mist may cause severe respiratory irritation. Lead dust or fumes may cause irritation of upper respiratory tract or lungs.

Skin Contact:

Sulfuric Acid may cause severe irritation, burns and ulceration. Lead Compounds are not readily absorbed through the skin.

Skin Absorption:

Sulfuric Acid is not readily absorbed through the skin. Lead Compounds are not readily absorbed through the skin.

Eye Contact:

Sulfuric Acid vapors or mist can cause severe irritation, burns, cornea damage and possible blindness. Lead Compounds may cause eye irritation.

Ingestion:

Sulfuric Acid may cause severe irritation of mouth, throat, esophagus and stomach. Lead Compounds may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. Acute ingestion should be treated by physician.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Acute Effects:

Sulfuric Acid may cause severe skin irritation, burns, damage to cornea and possible blindness and upper respiratory irritation. Lead Compounds may cause abdominal pain, nausea, headaches, vomiting, diarrhea, severe cramping and difficulty in sleeping.

Chronic Effects:

Sulfuric Acid may lead to scarring of the cornea, inflammation of the nose, throat and bronchial tubes and possible erosion of tooth enamel.

Lead Compounds may cause anemia, damage to the kidneys and nervous system. May cause reproductive harm in both males and females.

POTENTIAL TO CAUSE CANCER

Lead Compounds - Human studies are inconclusive regarding lead exposure and an increased cancer risk. The EPA and the International Agency for Research on Cancer (IARC) have categorized lead and inorganic lead compounds as a B2 classification (probable/possible human carcinogen) based on sufficient animal evidence and inadequate human evidence.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation:

Sulfuric Acid - Remove to fresh air immediately. If breathing is difficult, give oxygen.

Lead Compounds - Remove from exposure; gargle, wash nose and eyes and consult physician.

Skin:

Sulfuric Acid - flush with large amounts of water for at least 15 minutes, remove any contaminated clothing and do not wear again until cleaned. If acid is splashed on shoes, remove and discard if they contain leather. Lead Compounds are not readily absorbed through the skin.

Eyes:

Sulfuric Acid - flush immediately with cool water for at least 15 minutes, then consult physician.

Lead Compounds - flush immediately with cool water for at least 15 minutes, then consult physician.

Ingestion:

Sulfuric Acid - give large quantities of water; **DO NOT** induce vomiting, then consult physician.

Lead Compounds - consult a physician.

V. Fire and Explosion Data

Flash Point:

Not applicable.

Flammable Limits:

Lower 4.1% (Hydrogen gas) Upper 74.1%

Extinguishing Media:

Carbon dioxide (CO₂); foam; dry chemical.

Special Fire Fighting Procedures:

If batteries on charge, turn off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to splatter. Wear acid resistant clothing.

Unusual Fire and Explosion Hazard:

Hydrogen and oxygen gases are produced in the cells during normal battery operation or when on charge (hydrogen is highly flammable and oxygen supports combustion). These gases enter the air through the vent caps. To avoid risk of fire or explosion, keep sparks and other sources of ignition away from the battery, and ensure that adequate ventilation is provided. Do not allow metallic material to simultaneously contact both the positive and negative terminal of batteries. Follow manufacturers' instructions for installation and operation.

VI. Reactivity Data**Stability:**

= Unstable

= Stable

Conditions to Avoid:

Sparks and other sources of ignition.
Prolonged overcharge and overheating.

Incompatibility (Material to Avoid):

Combination of sulfuric acid with combustibles, and organic materials may cause fire and explosion. Also avoid strong reducing agents, most metals, carbides, chlorates, nitrates, and picrate.

Lead Compound: Potassium, carbides, sulfides, peroxides, phosphorus and sulfur.

Hazardous Decomposition Products:

Sulfuric Acid: Hydrogen, sulfur dioxide, sulfur trioxide, hydrogen sulfide, and sulfuric acid mist.

Hazardous Polymerization:

= May Occur = Will Not Occur

VII: Control Measures**Engineering Controls:**

Store and handle lead acid batteries in well ventilated areas.

Work Practices:

Make certain vent caps are on tightly. Follow all manufacturers' recommendations when stacking or palletizing. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Use a battery carrier to lift a battery or place hands at opposite corners to avoid spilling acid through the vents. Avoid contact with internal components of the batteries.

PERSONAL PROTECTIVE EQUIPMENT**Respiratory Protection:**

None are required under normal conditions. If an overcharge or overheating condition exists and concentrations of sulfuric acid mist are known or suspected to exceed PEL, use NIOSH or MSHA approved respiratory protection.

Eyes and Face:

Chemical splash goggles or face shield.

Hands, Arm, Body:

Rubber or plastic acid resistant gloves with elbow length gauntlet.

Other Special Clothing and Equipment:

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

VIII. Safe Handling Precautions**Hygiene Practices:**

Wash hands thoroughly before eating, drinking or smoking after handling batteries.

Protective Measures to be taken during non-routine tasks including equipment maintenance:

Charged batteries can present an electrical hazard. Take all appropriate precautions.

SPILL OR LEAK PROCEDURES**Protective measures to be taken if material is released or spilled:**

Remove combustible materials and all sources of ignition. Stop flow of material and contain spill by diking with soda ash (sodium carbonate) or quick lime (calcium oxide). Carefully neutralize spill with soda ash, etc. Make certain mixture is neutral then collect residue and place in a drum or other suitable container with a label specifying "contains hazardous waste" or (if uncertain call distributor regarding proper labeling procedures). Dispose of as hazardous waste. If battery is leaking, place battery in a heavy duty plastic bag. Wear acid resistant boots, faceshield, chemical splash goggles and acid resistant gloves. **DO NOT RELEASE UNNEUTRALIZED ACID.**

Waste Disposal Methods:

Sulfuric Acid: Neutralize as described above for a spill, collect residue and place in a container labeled as containing hazardous waste. Dispose of as a hazardous waste. If uncertain about labeling procedures, call your local battery distributor or contact listed at beginning.

DO NOT FLUSH LEAD CONTAMINATED ACID TO SEWER.

Batteries: Send to lead smelter following applicable federal, state and local regulations.

IX. Other

REGULATORY INFORMATION:

NFPA Hazard rating for Sulfuric Acid:

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

US DOT identification and description for this battery is:

Batteries, wet, filled with acid, Class 8, UN 2794, PG III,

Label: Corrosive

For air shipment, see International Air Transportation Association (IATA) Dangerous Goods Regulations Manual, Packing Instruction 800. For ocean shipment, see International Maritime Dangerous Goods Code, P. 8120.

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.

The National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) have classified "strong inorganic acid mist containing sulfuric acid" as 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. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.

This product contains sulfuric acid (CAS #7664-93-9), an extremely hazardous substance (40 CFR 355.30), that may be subject to the reporting requirements of Sections 302/304, 311/312 and Section 313 (only acid aerosols including mists, vapors, gas, fog, and other airborne forms) of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and 40 CFR Parts 355, 370 and 372 (Community Right-to-Know).

This product contains lead (CAS #7439-92-1) and lead compounds, chemicals that may be subject to the reporting requirements of Sections 311/312 and Section 313 of SARA, and 40 CFR Parts 370 and 372 (Community Right-to-Know).

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