



# Material Safety Data Sheet

MSDS No.: **L 84**

Date Issued: **September 29, 1986**

Date Revised: **July 3, 2007**

<b>Chemical / Trade Name:</b> (Identity Used on Label) <b>Absorbed Electrolyte Battery / AlphaCell</b> Models: 135 AGM-P, 160 AGM, 170XLT		<b>Chemical Family / Classification:</b> <b>Electric Storage Battery</b>	<b>HMIS Rating for Sulfuric Acid:</b> <b>3 0 2 X</b>
<b>Synonyms / Common Name:</b> <b>Lead Acid Battery</b>		Shipping Regulations: <b>See Section IX</b>	
Company Name: C & D Technologies, Inc.	Division / Department: Dynasty Division	Address: P.O. Box 591, Milwaukee, WI 53201	

**Contacts:**

Questions Concerning MSDS: **Industrial Hygiene & Safety Department**      **Tel: 800-365-7777 (day)**

Transportation Emergencies: **CHEMTREC**      **Tel: 800-424-9300 (24 hrs)**

Material	% By Weight	CAS Number	Eight Hour Exposure Limits		
			OSHA PEL	ACGIH TLV	Other
Specific Chemical Identity: <b>LEAD</b>	50	7439-92-1	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	NIOSH REL 100 µg/m <sup>3</sup>
Common Name: <b>GRID</b>					
Specific Chemical Identity: <b>Lead Dioxide</b>	21	1309-60-0	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	NIOSH REL 100 µg/m <sup>3</sup>
Common Name: <b>Lead Oxide</b>					
Specific Chemical Identity: <b>Lead Sulfate</b>	<1	7446-14-2	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	NIOSH REL 100 µg/m <sup>3</sup>
Common Name: <b>Anglesite</b>					
Specific Chemical Identity: <b>Sulfuric Acid (40%)</b>	22	7664-93-9	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup> STEL	NIOSH REL 1 mg/m <sup>3</sup>
Common Name: <b>Battery Electrolyte (Acid)</b>				3 mg/m <sup>3</sup> (15 min max / 8 hr shift)	

*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.*

<b>III. Physical Data:</b>		Appearance and Odor: <b>Battery electrolyte (acid) is a grayish-white gelled solid with a slight acidic odor. Acid saturated lead oxide is a dark reddish-brown to gray solid with slight acidic odor.</b>
Material Is (@ Normal Temperature) <input checked="" type="checkbox"/> Solid <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Gas		
Boiling Point (@ 760 mm Hg) <b>Lead 1755°C Battery Electrolyte (Acid) 110° - 112°C</b>	Melting Point <b>Lead 327.4°C</b>	Vapor Pressure: <input checked="" type="checkbox"/> mm Hg @ 20°C <input type="checkbox"/> PSIG <b>Battery Electrolyte (Acid) 11.7</b>
Specific Gravity (H <sub>2</sub> O = 1) <b>Battery Electrolyte (Acid) 1.280 - 1.300</b>		Solubility Is (H <sub>2</sub> O) <b>Lead and Lead Dioxide are not soluble. Battery electrolyte (acid) is 100% soluble in water.</b>
Vapor Density (Air = 1) <b>Battery Electrolyte (Acid) 3.4</b>		
% Volatile By Weight <b>Not Determined</b>		Evaporation Rate (Butyl Acetate = 1) <b>Not Determined</b>

**IV. Health Hazard Information:**

Note: Under normal conditions of battery use, internal components will not present a health hazard. The following is provided for battery electrolyte (acid) and lead for exposure that may occur during battery production or container leakage or under extreme heat conditions such as fire.

**Routes & Methods of Entry:**

Inhalation:

Acid mist generated during battery formation may cause respiratory irritation.

Skin Contact:

Battery electrolyte (acid) may cause irritative contact dermatitis.

Skin Absorption:

Skin absorption is not a significant route of entry.

Eye Contact:

Battery electrolyte (acid) will irritate the eyes upon contact.

Ingestion:

Hands contaminated by contact with internal components of a battery can cause ingestion of lead/lead compounds. Hands should be washed prior to eating, drinking or smoking.

**Signs & Symptoms of Overexposure:**

Acute Effects:

Acute effects of overexposure to lead compounds of a battery are GI (gastrointestinal) upset, loss of appetite, diarrhea, constipation with cramping, difficulty in sleeping and fatigue. Exposure and/or contact with battery electrolyte (acid) may lead to acute irritation of the skin, cornea damage of the eyes if not washed immediately and irritation of the mucous membrane of the eyes and upper respiratory system, including the lungs.

Chronic Effects:

Lead and its compounds may cause chronic anemia, damage to the kidneys and nervous system. Lead may also cause reproductive system damage and can affect developing fetuses in pregnant women. Battery electrolyte (acid) may lead to scarring of the cornea and chronic bronchitis, as well as erosion of tooth enamel in mouth breathers in repeated exposures.

**Potential to Cause Cancer:**

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. The ACGIH has classified "strong inorganic acid mist containing sulfuric acid as an A2 carcinogen (suspected human carcinogen). These classifications do 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.

The IARC study classified lead as an A3 carcinogen (animal carcinogen). While the agent is carcinogenic in experimental animals at relatively high doses, the agent is unlikely to cause cancer in humans except under uncommonly high levels of exposure. For further information, see the ACGIH's pamphlet, *1996 Threshold Limit Values and Biological Exposure Indices*.

**Emergency & First Aid Procedures:**

Inhalation:

Remove from exposure and consult a physician if any of the acute effects listed above develop.

Skin:

Wash thoroughly with soap and water. If acid is splashed on clothing, remove & discard. If acid is splashed on shoes, remove them immediately and discard. Acid cannot be removed from leather.

Eyes:

IMMEDIATELY rinse with cool running water for at least 15 minutes. Seek medical attention after rinsing.

Ingestion:

Lead/Lead compounds: Consult a physician.

Battery Electrolyte (Acid): Do Not induce vomiting. Refer to a physician immediately.

**Medical Conditions Aggravated by Exposure:**

Inorganic lead and its compounds can aggravate chronic forms of kidney, liver, and diseases. Contact of battery electrolyte (acid) with the skin may aggravate skin diseases such as eczema and contact dermatitis.

<b>V. Fire and Explosion Data</b>		
Flash Point (test method): <b>Hydrogen - 259°C</b>	Auto Ignition Temperature: <b>Hydrogen - 580°C</b>	Flammable Limits in Air, % by 3/4 Vol. (Hydrogen): <b>Lower - 4.1      Upper - 74.2</b>
Extinguishing Media: <b>Dry Chemical, foam, or CO<sub>2</sub></b>		
Special Fire Fighting Procedures: <b>Use positive pressure, self-contained breathing apparatus.</b>		
Unusual Fire and Explosion Hazard: <b>Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gasses enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.</b>		
<b>VI. Reactivity Data:</b>		
Stability: <input type="checkbox"/> Unstable <input checked="" type="checkbox"/> Stable	Conditions to Avoid:	<b>Sparks and other sources of ignition.</b>
Incompatibility (materials to avoid): <b>Lead/Lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur. Battery electrolytes (acid): Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.</b>		
Hazardous Decomposition Products: <b>Lead/Lead compounds: Oxides of lead and sulfur. Battery electrolytes (acid): Hydrogen, sulfur dioxide, sulfur trioxide.</b>		
Hazardous Polymerization: <input type="checkbox"/> May occur <input checked="" type="checkbox"/> Will not occur	Conditions to Avoid:	<b>High Temperatures. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.</b>
<b>VII. Control Measures</b>		
Engineering Controls: <b>Store lead acid batteries with adequate ventilation. Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in an unventilated, enclosed space.</b>		
Work Practices: <b>Do not remove vent caps. Follow shipping and handling instructions where are applicable to the battery type. To avoid damage to terminals and seals, do not double-stack industrial batteries.</b>		
<b>Personal Protective Equipment:</b>		
Respiratory Protection: <b>None required under normal handling conditions. During battery formation (high-rate charge condition), acid mist can be generated, which may cause respiratory irritation. Also, if acid spillage occurs in a confined space, exposure may occur. If irritation occurs, wear a respirator suitable for protection against acid mist.</b>		
Eyes and Face: <b>Chemical splash goggles are preferred. Also acceptable are "visor-gogs" or a chemical face shield worn over safety glasses with solid side shields.</b>		
Hands, Arms, and Body: <b>Vinyl-coated, PVC, gauntlet-type gloves with rough finish.</b>		
Other Special Clothing and Equipment: <b>Safety shoes worn with rubber or neoprene boots or steel-toed rubber or neoprene boots worn over socks. Place pant legs over boots to keep acid out of boots. All footwear must meet requirements of ANSI Z41.1 - Rev. 1972.</b>		

**VIII. Safe Handling Precautions:**

Hygiene Practices:

**Following contact with internal battery components, wash hands thoroughly before eating, drinking, or smoking.**

Protective Measures to be Taken During Non-Routine Tasks, Including Equipment Maintenance:

**Wear recommended eye protection. If clothing becomes saturated with acid, remove and wash affected area with water for 15 minutes. Discard saturated clothing. Do not permit flames or sparks in the vicinity of battery(s).**

Protective Measure to be Taken if Material is Released or Spilled:

**Remove combustible materials and all sources of ignition. Coover spill with soda ash (sodium carbonate) or quicklime (calcium oxide). Mix well. Make certain mixture is neutral, then collect residue and place in a drum or other suitable container. Dispose of as a hazardous waste.****Wear acid-resistant boots, chemical face shield, chemical splash goggles, and acid-resistant gloves.****DO NOT RELEASE UN-NEUTRALIZED ACID!**

Waste Disposal Method:

**Battery Electrolyte (Acid): Neutralize as above for a spill, collect residue, and place in a drum or suitable container. Dispose of as a hazardous waste.****DO NOT FLUSH LEAD-CONTAMINATED ACID INTO SEWER.****Batteries: Send to lead smelter for reclamation following applicable Federal, State and local regulations. Product can be recycled along with automotive (SLI) lead acid batteries.**

Other Handling and Storage Precautions:

**None Required.****IX. Department of Transportation and International Shipping Regulations:**DOT: **Battery, wet non-spillable, not subject to regulations.**IATA: **Not restricted for air transport - compliance with IATA/ICAO Special Provision A67.**IMO: **Battery, Wet non-spillable, not subject to regulations.**