



August 30, 2002

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MSDS NO. L83

SECTION I: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical/Trade Name (Identity used on label): Gelled Electrolyte Battery/Dynasty	Chemical Family/Classification: Electric Storage Battery
Synonyms/Common Name: Lead Acid Battery	Shipping Regulations: See Section IX
HMIS Rating for Sulfuric Acid: 302X	
COMPANY NAME: C&D Technologies, Inc.	DATE ISSUED: Sept. 28, 1986
DIVISION OR DEPARTMENT: Dynasty Division	DATE REVISED: July 1, 1999
ADDRESS: 900 E. Keefe Ave. Milwaukee, WI 53212	
CONTACT:	TELEPHONE NUMBER:
Question Concerning MSDS: Industrial Hygiene & Safety Department	Day: (800) 365-7777
Transportation Emergencies: CHEMTREC	24 Hours: (800) 424-9300

SECTION II: HAZARDOUS INGREDIENTS

MATERIAL:	% by Wt.	CAS Number	EIGHT HOUR EXPOSURE LIMITS		
			OSHA PEL	ACGIH TLV	OTHER NIOSH REL
Specific Chemical Identity: LEAD					
Common Name: GRID	50	7439-92-1	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity: LEAD DIOXIDE					
Common Name: LEAD OXIDE	21	1309-60-0	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity: LEAD SULFATE					
Common Name: ANGLESITE	<1	7446-14-2	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity: SULFURIC ACID (40%)				1 mg/m ³ STEL	
Common Name: BATTERY ELECTROLYTE (ACID)	22	7664-93-9	1mg/m ³	3mg/m ³ (15 min. max./8 hr.shift)	1mg/m ³

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 1986 (40CFR 355 and 372).

SECTION III: Physical Data	
Material is (at normal temperatures): X SOLID _ LIQUID	Appearance and Odor: 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.
Boiling Point (at 760 mm Hg) Lead 1755°C Battery Electrolyte (Acid) 110-112°C	Melting Point: Lead 327.4°C
Specific Gravity: (H ₂ O =1) Battery Electrolyte (Acid) 1.280 - 1.320)	Vapor Pressure: X (mm Hg at 20°C) (PSIG) Not Determined
Vapor Density (Air = 1) Not Determined	Solubility is H ₂ O Lead-Lead Dioxide and silica are not soluble. Battery electrolyte (acid) is 100% soluble in water
% Volatile By Weight Not Determined	Evaporation rate (Butyl Acetate =1) Not Determined

SECTION IV: Health Hazard Information
<p>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 breakage or under extreme heat conditions such as fire.</p> <p style="text-align: center;">ROUTES AND METHODS OF ENTRY</p> <p>Inhalation Acid mist generated during battery formation may cause respiratory irritation.</p> <p>Skin Contact Battery electrolyte (acid) may cause irritative contact dermatitis.</p> <p>Skin Absorption Skin absorption is not a significant route of entry.</p> <p>Eye Contact Battery electrolyte (acid) will irritate the eyes upon contact.</p> <p>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.</p> <p style="text-align: center;">SIGNS AND SYMPTOMS OF OVEREXPOSURE</p> <p>Acute Effects Acute effects of overexposure to lead compounds 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, corneal damage of the eyes if not washed immediately, and irritation of the mucous membranes of the eyes and upper respiratory system, including the lungs.</p> <p>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.</p> <p style="text-align: center;">POTENTIAL TO CAUSE CANCER</p> <p>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 carcinogen 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</p>

(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 AND 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 and discard. If acid is splashed in 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 neurologic diseases. Contact of battery electrolyte (acid) with the skin may aggravate skin diseases such as eczema and contact dermatitis.

SECTION V: FIRE AND EXPLOSION DATA

Flash Point (test method)	Autoignition Temperature	Flammable Limits in Air, % by 3/4 Vol. (Hydrogen)	
Hydrogen - 259°C	Hydrogen 580°C	Lower - 4.1	Upper - 74.2

Extinguishing Media

Dry chemical, foam, or CO₂

Special Fire Fighting Procedures

Use positive pressure, self-contained breathing apparatus.

Unusual Fire and Explosion Hazard

Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gases 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.

SECTION VI: REACTIVITY DATA

Stability	Conditions to Avoid
<u> </u> Unstable <u> X</u> Stable	Sparks and other sources of ignition.

Incompatibility (materials to avoid)

**Lead/lead compounds: Potassium, carbides, sulfides, peroxides, phosphorus, sulfur.
Battery electrolyte (acid): Combustible materials, strong reducing agents, most metals, carbides, organic materials, chlorates, nitrates, picrates, and fulminates.**

Hazardous Decomposition Products

**Lead/Lead compounds: Oxides of lead and sulfur
Battery electrolyte (acid): Hydrogen, sulfur dioxide, sulfur trioxide**

Hazardous Polymerization

<u> </u> May Occur <u> X</u> Will Not Occur	Conditions to Avoid
	High temperatures. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.

SECTION VII: CONTROL MEASURES

Engineering Controls

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.

Work Practices

Do not remove vent caps. Follow shipping and handling instructions which are applicable to the battery type. To avoid damage to terminals and seals, do not double-stack industrial batteries.

Personal Protective Equipment

Respiratory Protection

None required under normal handling conditions. During battery formation (high-rate charge conditions), 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.

Eyes and Face

Chemical splash goggles are preferred. Also acceptable are "visor-gogs" or a chemical face shield worn over safety glasses with solid side shields.

Hands, Arms, and Body

Vinyl-coated, PVC, gauntlet-type gloves with rough finish.

Other Special Clothing and Equipment

Safety shoes worn with rubber or neoprene boots or steel-toed rubber or 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.

SECTION VIII: SAFE HANDLING PRECAUTIONS

Hygiene Practices

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

Projective 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).

SPILL OR LEAK PROCEDURES

Protective Measures to be Taken if Material is Released or Spilled

Remove combustible materials and all sources of ignition. Contain 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 UNNEUTRALIZED 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.****SECTION IX: DEPARTMENT OF TRANSPORTATION AND INTERNATIONAL SHIPPING REGULATIONS**

DOT	Battery, wet, filled with acid, UN2794, Class 8
IATA	Battery, wet, filled with acid, UN2794, Class 8
IMO	Battery, wet, filled with acid, UN2794, Class 8

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