



MSDS No. L 8A
Date Issued Feb. 20, 1990
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Chemical/Trade Name (identity used on label) Sealed Lead Acid Battery/ OPTIMA BATTERY™	Chemical Family/Classification Electric Storage Battery	HMIS Rating for Sealed, Lead Acid Battery 0 0 0 ; For sulfuric acid 3 0 2
Synonyms/Common Name Sealed Lead Acid Battery	DOT, IATA and IMO Description Non-Spillable Battery , Exempt from UN2800 Classification	
Company Name OPTIMA Batteries, Inc.	Address 5757 N. Green Bay Avenue Milwaukee, WI 53209	
Division or Department Wholly- owned subsidiary of Johnson Controls Inc.		
CONTACT		TELEPHONE NUMBER
Questions Concerning MSDS Industrial Hygiene & Safety-Power Solutions	Day: (800) 333-2222, Ext.3138	
Transportation Emergencies CHEMTREC	24 Hours: (800) 424-9300 International: (703) 527-3887 (Collect)	

NOTE: The OPTIMA sealed lead acid battery is considered an article as defined by 29 CFR 1910.1200 © OSHA Hazard Communication Standard. The information on this MSDS is supplied at customer's request for information only.

II. Hazardous Ingredients

Material	% by Wt.	CAS Number	Eight Hour Exposure Limits		
			OSHA PEL	ACGIH TLV	NIOSH REL
Specific Chemical Identity Lead & lead compounds	63-81	7439-92-1	50 µg/m ³	150 µg/m ³	100 µg/m ³
Specific Chemical Identity Sulfuric Acid (35%) Common Name Battery Electrolyte (Acid)	17 - 25	7664-93-9	1mg/m ³	0.2 mg/m ³ (respirable thoracic fraction)	1 mg/m ³
Common Name Case Material Polypropylene Copolymer	2-6	9010-79-1	--	--	--
Common Name Separator/Paster Paper Fibrous Glass	1-4	65997-17-3	--	--	--

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 of 1986 (40CFR 355 and 372).

III. Physical Data

Material is (at normal temperatures) ☒ Solid ☒ Liquid		Appearance and Odor Battery Electrolyte (acid) is a clear to cloudy liquid with 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 Batt. Electrolyte (Acid) 110-112°C	Melting Point Lead 327.4°C	Vapor Pressure ☑(mm Hg at 20°C) ☐ (PSIG) Battery Electrolyte (Acid) 11.7
Specific Gravity (H ₂ O =1) Battery Electrolyte (Acid) 1.210 - 1.300		
Vapor Density (Air =1) Battery Electrolyte (Acid) 3.4		Solubility is H ₂ O Lead and Lead Dioxide are not soluble. Battery Electrolyte (acid) is 100% soluble in water.
% Volatile By Weight Not Determined		Evaporation rate (Butyl Acetate = 1) Not Determined

IV. Health Hazard Information

NOTE: Under normal conditions of use, this product does not present a health hazard. The following information 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
ROUTES AND METHODS OF ENTRY
Inhalation Acid mist may be generated during battery overcharging and may cause respiratory irritation. Seepage of acid from broken batteries may present inhalation exposure in a confined area.
Skin Contact Battery electrolyte (acid) can cause severe irritation, burns and ulceration.
Skin Absorption Skin absorption is not a significant route of entry.
Eye Contact Battery electrolyte (acid) can cause severe irritation, burns, and cornea damage 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 AND SYMPTOMS OF OVEREXPOSURE
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, and irritation of the mucous membranes of the eyes and upper respiratory system, including 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, chronic bronchitis, as well as erosion of tooth enamel in mouth breathers in repeated exposures.
POTENTIAL TO CAUSE CANCER
The National Toxicological Program (NTP) and The International Agency for Research on Cancer (IARC) have 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 result in the generation of sulfuric acid mist. The NTP and the IARC have 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, <i>1996 Threshold Limit Values and Biological Exposure Indices</i> .
EMERGENCY AND FIRST AID PROCEDURES
Inhalation Not expected for product under normal conditions of use. However, if acid vapor is released due to overcharging or abuse of the battery, remove exposed person to fresh air. If breathing is difficult, oxygen may be administered. If breathing has stopped, artificial respiration should be started immediately. Seek medical attention immediately.
Skin Exposure not expected for product under normal conditions of use. However, if acid contacts skin, flush with water and mild soap. If irritation develops, seek medical attention immediately.
Eyes Exposure not expected for product under normal conditions of use. However, if acid from broken battery case enters eyes, flush with water for at least 15 minutes. Seek medical attention immediately.
Ingestion Not expected due to physical form of finished product. However, if internal components are ingested: Lead/Lead compounds: Consult a physician immediately for medical attention. Battery Electrolyte (Acid): Do not induce vomiting. Refer to a physician immediately for medical attention.
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.

V. Fire and Explosion Data

Flash Point (test method) Hydrogen - 259°C	Autoignition Temperature Hydrogen 580°C	Flammable Limits in Air, % by Vol. Hydrogen LEL - 4.1 UEL - 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 The sealed lead acid battery is not considered flammable, but it will burn if involved in a fire. A short circuit can also result in a fire. Acid mists, smoke and decomposition products may be produced. Remove all ignition sources. Cool battery(s) to prevent rupture.		

VI. Reactivity Data

Stability ☐ Unstable ☒ Stable	Conditions to Avoid Sparks and other sources of ignition may ignite hydrogen gas.
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 ☐ May Occur ☒ Will Not Occur	Conditions to Avoid High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.

VII. Control Measures

Engineering Controls Store sealed lead acid batteries at ambient temperature. Never recharge batteries in an unventilated, enclosed space. Do not subject product to open flame or fire. Avoid conditions that could cause arcing between terminals.
Work Practices Do not carry battery by terminals. Do not drop battery, puncture or attempt to open battery case. Avoid contact with the internal components of a battery.
PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection None required for normal handling of finished product.
Eyes and Face None required under for finished product under normal conditions of use. If necessary to handle broken product, chemical splash goggles are recommended.
Hands, Arms, and Body None required for normal handling of finished product. If necessary to handle broken product, Vinyl-coated, PVC, gauntlet-type gloves with rough finish are recommended.
Other Special Clothing and Equipment Safety footwear meeting the requirements of ANSI Z 41.1 – 1991 is recommended when it in necessary to handle the finished product.

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 Do not carry battery by terminals. Do not drop battery, puncture or attempt to open battery case. Do not subject product to open flame or fire and avoid situations that could cause arcing between terminals.

SPILL OR LEAK PROCEDURES

Protective Measures to be Taken if Material is Released or Spilled

Remove combustible materials and all sources of ignition. Avoid contact with acid materials. Use soda ash, baking soda or lime to neutralize any acid that may be released.

If battery is broken, wear chemical goggles and acid-resistant gloves for handling the parts.

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.

Send spent or broken batteries to a lead recycling facility or smelter that follows applicable Federal, State and Local regulations for routine disposition of spent or damaged batteries. The distributor / user is responsible for assuring that these "spent" or "damaged" batteries are disposed of in an environmentally sound way in accordance with all regulations. OPTIMA batteries are 100% recyclable by any licensed reclamation operation.



SUPPLEMENTAL INFORMATION

Proposition 65 Warning (California) Proposition 65 Warning: The state of California has listed lead as a material known to cause cancer or cause reproductive harm (July 9, 2004 California List of Chemicals Known to Cause Cancer or Reproductive Toxicity) Battery posts, terminals and related accessories contain lead and lead compounds. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

TSCA Registry: Ingredients listed in the TSCA Registry are lead, lead compounds, and sulfuric acid.

Transportation: Sealed Lead Acid Battery is not a DOT Hazardous Material.

Other: Per DOT, IATA, ICAO and IMDG rules and regulations, these batteries are exempt from "UN2800" classification as a result of successful completion of the following tests:

- 1) Vibration Tests
- 2) Pressure Differential Tests
- 3) Case Rupturing Tests (no free liquids)

NATIONAL STOCK NUMBER (NSN)

Original Military Model Number	Current Commercial Model Number	NSN
850/6-1050 SLI	6V	6140-01-475-9414
D51	D51	6140 01 523 6288
D51R	D51R	6140-01-529-7226
75/35	75/25	6140-01-475-9361
800S	34	6140-01-378-8232, 6140-01-493-1962
800 R	34R	6140-01-475-9357
1000M	34M	6140-01-441-4280, 6140-01-475-9416
800V	34VX	N/A
800U	34/78	6140-01-374-2243, 6140-01-457-4339
D750S	D34	6140 01 450 0141, 6140-01-457-5392
D900M	D34M	6140-01-475-9355
D750U	D34/78	6140-01-441-4272, 6140-01-457-4341
D27M	D27M	N/A
D31A	D31A	6140 01 502 4973
D31T	D31T	6140-01-457-5469
D31M	D31M	6140 01 502 4405

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