MSDS No. L 8A
Date Issued **Feb. 20, 1990**
Date Revised **Jan 10, 2005**

Chemical/Trade Name (identity used on label) **Sealed Lead Acid Battery/ OPTIMA BATTERY TM**	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 **17500 E. 22nd Avenue** **Aurora, CO 80011**	
Division or Department **Wholly- owned subsidiary of Johnson Controls Inc.**		
CONTACT	TELEPHONE NUMBER	
Questions Concerning MSDS **OPTIMA Batteries, Environmental, Health & Safety Department**	**Day:** **(800) 292-4359, Ext. 462**	
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**	2-6	9003-07-0	--	--	--
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**	
Specific Gravity (H_2O =1) **Battery Electrolyte (Acid) 1.210 - 1.300**	Vapor Pressure ☑(mm Hg at 20°C) ☐(PSIG) **Battery Electrolyte (Acid) 11.7**
Vapor Density (Air =1) **Battery Electrolyte (Acid) 3.4**	Solubility is H_2O **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, *1996 Threshold Limit Values and Biological Exposure Indices.*

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)	Autoignition Temperature	Flammable Limits in Air, % by Vol.
Hydrogen - 259°C	**Hydrogen 580°C**	**Hydrogen LEL - 4.1 UEL - 74.2**

Extinguishing Media

Dry chemical, foam, or CO_2

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	Conditions to Avoid
☐ Unstable ☑ Stable	**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	Conditions to Avoid
☐ May Occur ☑ Will Not Occur	**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 NUMBERS

Model Number	CONUS	OCONUS
800U	6140-01-457-4339	6140-01-374-2243
800S	6140-01-457-5296	6140-01-378-8232
800R	6140-01-475-9357	
D750U	6140-01-457-4341	6140-01-441-4272
D750S	6140-01-457-5392	
1000M	6140-01-475-9416	6140-01-441-4280
D900M	6140-01-475-9355	
850/6 -1050 SLI	6140-01-475-9414	
850/6 - 950 (DC)		
75/35	6140-01-475-9361	
D1100T	6140-01-457-5469	6140-01-393-0253
D31A	Pending	
D31M	Pending	

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