MATERIAL SAFETY DATA SHEET

Form #: MSDS 853021
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ECO #: 1001294

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Dry Charge Battery

Chemical Family/Classification:
Electric Storage Battery

Manufacturer's Name/Address
EnerSys
P.O. Box 14145
2366 Bernville Road
Reading, PA 19612-4145

Telephone
For information and emergencies, contact EnerSys'
Environmental, Health & Safety Dept. at (610) 208-1996

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300
CHEMTREC INTERNATIONAL: 703-527-3877

II. HAZARDOUS INGREDIENTS/IDENTIFY INFORMATION

			Air Exposure Limits (ug/m^3)		
Components	**CAS Number**	**Approximate % by Wt. Or Vol.**	**OSHA**	**ACGIH**	**NIOSH**
Inorganic Lead Compound:					
Lead	7439-92-1	53	50	150	100
* Antimony	7440-36-0	0.2	500	500	--
* Arsenic	7440-38-2	0.003	10	200	--
* Calcium	7440-70-2	0.2	--	--	--
* Tin	7440-31-5	0.06	2000	2000	--
Electrolyte (sulfuric acid):	7664-93-9	10-30	1000	1000	1000
Case Material:		5-6	N/A	N/A	N/A
Polypropylene	9003-07-0				
Polystyrene	9003-53-6				
Styrene Acrylonitrite	9003-54-7				
Acrylonitrite Butadiene Styrene	9003-56-9				
Styrene Butadiene	9003-55-8				
Polyvinylchloride	9002-86-2				
Polycarbonate, Hard Rubber, Polyethylene	--				

Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by EnerSys.
Other ingredients may be present dependent upon battery type. Contact your EnerSys representative for additional information.

III. PHYSICAL DATA

Lead:

Boiling Point:	Greater than 2516° F	**Specific Gravity (H2O = 1):**	9.6 to 11.3
Melting Point:	486 to 680° F	**Vapor Density / Pressure:**	N/A
Solubility in Water:	Negligible	**Evaporation Rate / % Volatile:**	N/A
Appearance and Odor:	Bluish gray metal, no apparent odor.		

IV. FIRE AND EXPLOSION HAZARD DATA

Inorganic lead compound is not a combustible material, nor will it explode under conditions of normal use.

Flash Point: N/A **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2%

Extinguishing Media: CO2; foam; dry chemical

Special Fire Fighting Procedures:
Wear full body protective clothing and self contained breathing apparatus with positive pressure and full-face piece.

Unusual Fire and Explosion Hazards:
Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

V. REACTIVITY DATA

Stability: Stable

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)
Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Hazardous Decomposition Products:
Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

VI. HEALTH HAZARD DATA

Routes of Entry:
Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume.

VI. HEALTH HAZARD DATA (Cont.)

Inhalation:

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Lead Compounds: Not absorbed through the skin.

Eye Contact:

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females.

Carcinogenicity:

Lead Compounds: Lead is listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation:

Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:

Lead: Consult physician immediately.

Skin:

Lead: Wash immediately with soap and water.

Eyes:

Lead: Flush immediately with large amounts of water for a least 15 minutes; consult physician.

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. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures:

Lead dust should be vacuumed or wet-swept; use controls, which minimize fugitive emissions; do not use compressed air.

Waste Disposal Methods:

Spent batteries: Send to secondary lead smelter for recycling.
Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Handling and Storage:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat.

Precautionary Labeling:

POISON - CAUSES SEVERE BURNS

VIII. CONTROL MEASURES

Engineering Controls:

Store and handle in well-ventilated area.

Work Practices:

Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing when filling or handling batteries.

Respiratory Protection:

None required under normal conditions.

Protective Gloves:

Rubber or plastic acid-resistant gloves with elbow-length gauntlet for use when filling batteries.

Eye Protection:

Chemical goggles or face shield for use when filling batteries.

Other Protection:

Wear coveralls or full-body covering during use. When filling batteries use acid-resistant apron. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.

IX. OTHER REGULATORY INFORMATION

U.S. DOT:

The transportation of dry batteries (those batteries that contain no electrolyte or residue) is not regulated by the U.S. DOT as a hazardous material.

IATA:

The international transportation of dry batteries is not regulated by the International Air Transport Association (IATA) as a hazardous material.

IMDG:

The international transporation of dry batteries is not regulated by the International Maritime Dangerous Goods code (IMDG) as a hazardous material.

RCRA:

Spent lead-acid batteries are not regulated as hazardous waste by the EPA when recycled, however state and international regulations may vary.

Additional Data:

Refer to the latest revision of the OSHA general Industry Standards, 29 CFR 1910. Information about the hazardous ingredients contained in lead compounds are shown in Subpart Z - Toxic and Hazardous Substances: antimony is discussed in 1910.1000, air contaminants; inorganic arsenic is covered in the Inorganic Arsenic Standard, 1910.1018; and inorganic lead is covered in the Inorganic Lead Standard, 1910.1025.

CERCLA (Superfund) and EPCRA:

(a) EPCRA Section 312 Tier 2 reporting is required for batteries if sulfuric acid is present in quantities of 500 lbs. or more and/or if lead is present in quantities of 10,000 lbs. or more.

(b) Supplier Notification: This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	53
* Antimony	7440-36-0	0.2
* Arsenic	7440-38-2	0.003

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

* Not present in all battery types. Contact your EnerSys representative for additional information.

TSCA:

Ingredients in EnerSys' batteries are listed in the TSCA Registry as follows:

Components	CAS Number	TSCA Status
Inorganic Lead Compound:		
Lead (Pb)	7439-92-1	Listed
Lead Oxide (PbO)	1317-36-8	Listed
Lead Sulfate ($PbSO_4$)	7446-14-2	Listed
Antimony Sb)	7440-36-0	Listed
Arsenic (As)	7440-38-2	Listed
Calcium (Ca)	7440-70-2	Listed
Tin (Sn)	7440-31-5	Listed

CAA:

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.