

INFORMATION ONLY - Please read Section X

SECTION I - Product and Manufacturer Identity

Product Identity:

Aerospace and Defense Applications - Sealed Lead Batteries



Aerospace and defense batteries manufactured using factory modified versions of Cyclon[®], Genesis[®], SBS, Hawker[®], Armasafe Plus[®] or Large TPPL.

Manufacturer's Name and Address:
EnerSys Energy Products Inc. (formerly Hawker Energy Products Inc.)
617 North Ridgeview Drive
Warrensburg, MO 64093-9301

Emergency Telephone Number:
(660) 429-2165
Customer Service Telephone Number:
800-964-2837

SECTION II - Ingredients

Hazardous Components	CAS #	OSHA PEL-TWA	% (By weight)
Lead	7439-92-1	50µg/m ³	45 - 60 %
Lead Dioxide	1309-60-0	50µg/m ³	15 - 25 %
Sulfuric Acid Electrolyte	7664-93-9	1.0 mg/m ³	15 - 20 %
Non-Hazardous Materials	N/A	N/A	5 - 10 %

SECTION III - Physical/Chemical Characteristics

Boiling Point - N/A	Specific Gravity (H ₂ O=1) - NA
Vapor Pressure (mm Hg.) - N/A	Melting Point - N/A
Solubility in Water - N/A	Appearance & Color - N/A

SECTION IV - Fire & Explosion Hazard Data

Flash Point (Method Used): N/A	Flammable Limits: N/A	LEL: N/A	UEL: N/A
Extinguishing Media: Multipurpose Dry chemical, CO ₂ or water spray.			
Special Fire Fighting Procedures: Cool battery exterior to prevent rupture. Acid mists and vapors in a fire are toxic and corrosive.			
Unusual Fire and Explosion Hazards: Hydrogen gas may be produced and may explode if ignited. Remove all sources of ignition.			

SECTION V- Reactivity Data and Shipping/Handling Electrical Safety

Stability: Stable

Conditions to Avoid: Avoid shorting, high levels of short circuit current can be developed across the battery terminals. Do not rest tools or cables on the battery. Avoid over-charging. Use only approved charging methods. Do not charge in gas tight containers.

Requirements for Safe Shipping and Handling of Cyclon[®] Cells:

Warning – Electrical Fire Hazard – Protect Against Shorting

- Terminals can short and cause a fire if not insulated during shipping.
- Cyclon[®] product must be labeled "NONSPILLABLE" during shipping. Follow all federal shipping regulations. See section IX of this sheet and CFR 49 Parts 171 through 180, available online at www.gpoaccess.gov.

Requirements for Shipping Cyclon[®] Product as Single Cells

- Protective caps or other durable inert material must be used to insulate each terminal of each cell unless cells are shipping in the original packaging from EnerSys, in full box quantities.
- Protective caps are available for all cell sizes by contacting EnerSys Customer Service at 1-800-964-2837.

Requirements for Shipping Cyclon[®] Product Assembled Into Multicell Batteries

- Assembled batteries must have short circuit protection during shipping.
- Exposed terminals, connectors, or lead wires must be insulated with a durable inert material to prevent exposure during shipping.

SECTION VI - Health Hazard Data

Routes of Entry: N/A	Health Hazards (Acute & Chronic): N/A
Emergency & First Aid Procedures:	Battery contains acid electrolyte, which is absorbed in the separator material. If battery case is punctured, completely flush any released material from skin or eyes with water.
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.

SECTION VII - Precautions for Safe Handling & Use

Steps to be taken in case material is released or spilled: Avoid contact with acid materials. Use soda ash or lime to neutralize. Flush with water.

Waste Disposal Method: Dispose of in accordance with Federal, State, & Local Regulations. Do not incinerate. Batteries should be shipped to a reclamation facility for recovery of the metal and plastic components as the proper method of waste management. Contact distributor for appropriate product return procedures.

SECTION VIII - Control Measures - Not Applicable

SECTION IX – Other Regulatory Information

EnerSys Energy Products Inc. batteries are starved electrolyte batteries, which means the electrolyte is absorbed in the separator material. The batteries are also sealed.

NFPA Hazard Rating for Sulfuric Acid:

Health (Blue) = 3 Flammability (Red) = 0 Reactivity (Yellow) = 2 Sulfuric Acid is Water Reactive if concentrated.

U.S. DOT: EnerSys Energy Products Inc. batteries are classified as Nonspillable. They have been tested and meet the nonspillable criteria listed in 49 CFR § 173.159(f) and 173.159a(d)(1).

Nonspillable batteries are excepted from 49 CFR Subchapter C requirements, provided that the following criteria are met:

1. The batteries must be securely packed in strong outer packagings and meet the requirements of 49 CFR § 173.159a.
2. The batteries' terminals must be protected against short circuit.
3. Each battery and their outer packaging must be plainly and durably marked "NONSPILLABLE" or "NONSPILLABLE BATTERY".

The exception from 49 CFR, Subchapter C means shipping papers need not show proper shipping name, hazard class, UN number and packing group. Hazardous labels are not required when transporting a nonspillable battery.

IATA: EnerSys Energy Products Inc. batteries have been tested and meet the nonspillable criteria listed in IATA Packing Instruction 872 and Special Provision A67. Nonspillable batteries must be packed according to IATA Packing Instruction 872. This means shipping papers need not show proper shipping name, hazard class, UN number and packing group. Hazardous labels are not required when transporting a nonspillable battery.

These batteries are excepted from all IATA regulations provided that the batteries are packed in a suitable outer packaging and their terminals are protected against short circuits.

IMDG: EnerSys Energy Products Inc. batteries have been tested and meet the nonspillable criteria listed in Special Provision 238. Non-spillable batteries must be packed according to IMDG Packing Instruction P003. This means shipping papers need not show proper shipping name, hazard class, UN number and packing group. Hazardous labels are not required when transporting a nonspillable battery. These batteries are excepted from all IMDG codes provided that the batteries are packed in a suitable outer packaging and their terminals are protected against short circuits per PP16.

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

CERCLA (Superfund) and EPCRA:

- (a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.
- (b) Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs.
- (c) EPCRA Section 302 notification is required if 1,000 lbs. or more of sulfuric acid is present at one site.
- (d) 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.
- (e) 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:

<u>Toxic Chemical</u>	<u>CAS Number</u>	<u>Approximate % by Wt.</u>
Lead	7439-92-1	45 - 60
Sulfuric Acid	7664-93-9	15 - 20

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".

SECTION X - Additional Information

The EnerSys Energy Products Inc. sealed lead acid battery is determined to be an "article" according to the OSHA Hazard Communication Standard and is thereby excluded from any requirements of the standard. The Material Safety Data Sheet is therefore supplied for informational purposes only.

The information and recommendations contained herein have been compiled from sources believed to be reliable and represent current opinion on the subject. No warranty, guarantee, or representation is made by EnerSys Energy Products Inc., as to the absolute correctness or sufficiency of any representation contained herein and EnerSys Energy Products Inc. assumes no responsibility in connection therewith, nor can it be assumed that all acceptable safety measures are contained herein, or that additional measures may not be required under particular or exceptional conditions or circumstances.

N/A or Not Applicable - Not applicable for finished product used in normal conditions.