

Safety Data Sheet

EnergyCell PLR Batteries

	Chemical Trade Name (as used on battery) Maintenance Free Sealed Lead Batteries			
ynonym Sealed Lead Acid Battery, VRLA Battery				
Manufacturer's Name EnerSys Energy Products Inc.				
Address and Telephone 617 N. Ridgeview Drive Telephone: +660.429.2165 Warrensburg, MO 64093-9301				
	EnerSys Energy Products Inc. 617 N. Ridgeview Drive			

HEALTH		ENVIRONMENTAL	PHYSICAL

· ·	•	*	•
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4		*
Acute Toxicity (Oral/Dermal/Inhalation) Skin Corrosion/Irritation	Category 4 Category 1A		*
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Skin Corrosion/Irritation	Category 1A	Aquatic Chronic 1	Explosive Chemical,
Skin Corrosion/Irritation Eye Damage	Category 1A Category 1	Aquatic Chronic 1 Aquatic Acute 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation Eye Damage Reproductive	Category 1A Category 1 Category 1A	•	
Skin Corrosion/Irritation Eye Damage Reproductive Carcinogenicity (lead compounds)	Category 1A Category 1 Category 1A Category 1B	•	

Hazard Statements

DANGER

- Causes severe skin burns and eye damage.
- May damage fertility or the unborn child if ingested or inhaled.
- May cause cancer if ingested or inhaled.
- Causes damage to central nervous system, blood, and kidneys through prolonged or repeated exposure.
- May form explosive air/gas mixture during charging.
- Extremely flammable gas (hydrogen).
- Explosive, fire, blast, or projection hazard.
- May cause harm to breast-fed children
- Harmful if swallowed, inhaled, or contact with skin
- Causes skin irritation, serious eye damage

Precautionary Statements

- Wash thoroughly after handling.
- Do not eat, drink, or smoke when using this product.
- Wear protective gloves/protective clothing, eye protection/ face protection.
- Avoid breathing dust/fume/gas/mist/vapors/spray.
- Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
- Irritating to eyes, respiratory system, and skin.
- Use only outdoors or in a well-ventilated area.
- · Obtain special instructions before use.
- Avoid contact during pregnancy/while nursing.
- Keep away from heat./ sparks/ open flames/hot surfaces.
- Do not handle until all safety precautions have been read and understood.

Section III: Composition / Information on Ingredients						
Material	CAS Number	% By Weight	Material	CAS Number	% By Weight	
Inorganic Lead Compound		Case Material		5 to 10		
Lead	7439-92-1	45 to 60	Polypropylene	9003-07-0		
Lead Dioxide	1309-60-0	15 to 25	Polystyrene	9003-53-6		
Tin	7440-31-5	0.1 to 0.2	Styrene Acrylonitrile	9003-54-7		
			Acrylonitrile Butadiene Styrene	9003-56-9		
Other			Styrene Butadiene	9003-55-8		
Absorbent Glass Mat	_	1 to 2	Polyvinylchloride	9002-86-2		
			Polyphenylene Oxide	25134-01-4		
Electrolyte			Polycarbonate/Polyester Alloy	_		
Sulfuric Acid (Sulfuric Acid/Water)	7664-93-9	10-30	Polycarbonate, Hard Rubber, Polyethylene	9002-88-4		

NOTE: Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery sold by OutBack. There are no mercury or cadmium containing products present in batteries manufactured by OutBack.

Section IV:	First Aid Me	asures	
Inhalation	Sulfuric Acid Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician.		
	Lead	Remove from exposure, gargle, wash nose and lips; consult physician.	
Ingestion	Sulfuric Acid	Give large quantities of water; do not induce vomiting, or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.	
	Lead	Consult physician immediately.	
Skin Exposure	Sulfuric Acid	Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.	
	Lead	Wash immediately with soap and water.	
Eye Exposure	Sulfuric Acid and Lead	Flush immediately with large amounts of water for at least 15 minutes while lifting lids. Seek immediate medical attention if eyes have been exposed directly to acid.	

Section V: Firefighting Measures

Hydrogen Flammable Limits (% by Volume):

Lower Explosion Limit (LEL): 4.1% (Hydrogen gas)

Upper Explosion Limit (UEL): 74.2% (Hydrogen gas)

Flash Point: N/A

Extinguishing Media

Carbon dioxide; foam; dry chemical. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Firefighting Procedures

Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Hazardous Combustion Products

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.

Section VI: Accidental Release Measures

Spill or Leak Procedures

Stop flow of material. Contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of non-neutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

Section VII: Handling and Storage

Handling

- Always follow warning information and instructions provided with the batteries and any device connected to them.
- Unless involved in recycling operations, do not breach the casing or empty the contents of the battery.
- There may be increased risk of electric shock from strings of connected batteries.
- Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
- Cover terminals to prevent short circuits. Do not stack batteries.
- Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers, and water. Use banding or stretch wrap to secure items for shipping.

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.
- · Avoid damage to containers.
- Store and handle only in areas with adequate water supply and spill control.
- Keep away from fire, sparks, and heat.
- Keep away from metallic objects which could bridge the terminals on a battery and create a dangerous short circuit.

Charging

- Shut off power to chargers whenever not in use and before detachment of any circuit connections.
- There is a possible risk of electric shock from charging equipment and from strings of series-connected batteries, whether or not being charged.
- Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.
- Wear face and eye protection when near batteries being charged.

	Exposure limits are measured in mg/m ³					
INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Tin	2	2	2	2	2	N.E
Electrolyte (Sulfuric Acid)	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Polyphenylene Oxide	N.E	N.E	N.E	N.E	N.E	N.E
Polycarbonate/Polyester Alloy Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Absorbent Glass Mat	N.E	N.E	N.E	N.E	N.E	N.E
ABBREVIATIONS N.E.= Not Established OEL = Occupational Exposure Limit	NOTES (b) As inhalable ae (c) Thoracic fractio					

Engineering Controls (ventilation)

- . Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.
- Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components.
 Wear protective clothing, eye, and face protection when filling, charging, or handling batteries.
- Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries.
- Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved)

None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL (Permissible Exposure Limit), use NIOSH or MSHA-approved respiratory protection.

Skin Protection

• If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing, and boots.

Eye Protection

• If battery case is damaged, use chemical goggles or face shield.

Other Protection

Under severe exposure emergency conditions, wear acid-resistant clothing and boots.

Section IX: Physical and Chemical Properties			
Properties Listed Below are for Electrolyte:			
Boiling Point:	203 to 240 °F	Specific Gravity (H₂O = 1):	1.215 to 1.350
Melting Point:	N/A	Vapor Pressure (mm Hg):	10
Solubility in Water:	100%	Vapor Density (AIR = 1):	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	% Volatile by Weight:	N/A
рН:	~1 to 2	Flash Point:	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit):	4.1% (Hydrogen)	UEL (Upper Explosive Limit):	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

Section X: Stability and Reactivity			
	Stability		
	Thi	s product is stable under normal conditions at ambient temperature.	
Conditions To Av	void: Prolonged	overcharge at high current; sources of ignition	
Incompatibility (Materials to Avoid)	Sulfuric Acid	cid Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.	
Avoidy	Lead Compounds		
Hazardous	Electrolyte	Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide.	
Decomposition Products	Lead Compounds	Temperatures above the melting point are 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.	
Hazardous Polyn	nerization: Wi	Il not occur.	

Section XI: To	xicological Inforn	nation
Non-human Toxio	cological Data: Not a	vailable
	Sulfuric Acid	Harmful by all routes of entry.
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. The presence of nascent hydrogen may generate highly toxic arsine gas.
Labadada	Sulfuric Acid	Breathing of sulfuric acid vapors or mists may cause irritation of upper respiratory and lungs.
Inhalation	Lead Compounds	Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.
	Sulfuric Acid	May cause severe irritation of mouth, throat, esophagus, and stomach.
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	Sulfuric Acid	Severe irritation, burns and ulceration.
Skin Contact	Lead Compounds	Not absorbed through the skin.
Eve Contact	Sulfuric Acid	Severe irritation, burns, cornea damage, and blindness.
Eye Contact	Lead Compounds	May cause eye irritation.
Effects of	Sulfuric Acid	Severe skin irritation, damage to cornea, upper respiratory irritation.
Overexposure (Acute)	Lead Compounds	Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.
	Sulfuric Acid	Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.
Effects of Overexposure (Chronic)	Lead Compounds	Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg / 100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy, and damage to the blood-forming (hematopoietic) tissues.
Carcinogenicity	Sulfuric Acid	The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does 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.
	Lead Compounds	Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. 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.

Acute	Inhalation LD50		Oral LD50	
Toxicity	Electrolyte	LC50 rat: 375 mg/m ³	Electrolyte	Rat: 2140 mg/kg
		LC50 guinea pig: 510 mg/m³		
	Elemental Lead	Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)	Elemental Lead	Acute Toxicity Estimate = 500 mg/kg body weight
		(Succession Succession)		(based on lead bullion)

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as the ventilation and respiratory protection covered in Section 8. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck, and arms thoroughly before eating, smoking, or leaving the worksite. Keep contaminated clothing out of non-contaminated areas or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco, and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never be taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.

Risk phrase 61: May cause harm to the unborn child; applies to lead compounds, especially soluble forms.

Section XII: E	cological Infor	mation			
Environmental Fate	Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.				
Environmental		Aquatic Toxicity			
Toxicity	Sulfuric Acid	24 hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L			
loxioity		96 hr LOEC, freshwater fish (Cyprinus carpio): 22 mg/L			
	Lead	Lead 48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion			
	Additional	No known effects on stratospheric ozone depletion			
	information:				
		Water Endangering Class (WGK): NA			

Section XIII:	Disposal Considerations (United States)
Spent batteries	Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.
Electrolyte	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.
NOTE: Following loca	al, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end use

U.S. DOT Excepted from the hazardous materials regulations (HMR) because the batteries meet the requirements of 49 CFR 173.159(f) and 49 CFR 173.159a of the U.S. Department of Transportation's HMR. Battery and outer package must be marked "NONSPILLABLE" or "NONSPILLABLE BATTERY" Battery terminals must be protected against short circuits. IATA Dangerous Goods Regulations DGR Excepted from the dangerous goods regulations because the batteries meet the requirements of Packing Instruction 872 and Special Provisions A67 of the International Air Transportation (ICAO) Technical Instructions. Battery terminals must be protected against short circuits. The words "NOT RESTRICTED, SPECIAL PROVISION A67" must be provided on an air waybill when air waybill is issued. IMDG Excepted from the dangerous goods regulations for transport by sea because the batteries meet the requirements of Special Provision 238 of the International Maritime Dangerous Goods (IMDG CODE). Battery terminals must be protected against short circuits. 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 wwww.gpoaccess.gov. Requirements for Shipping Cyclon Product Assembled Not Maritime Dangerous doods terminals, connectors, or lead wires 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.		
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Section XV: Regulatory Information				
United States EPA SARA Title III	Section 302 EPCRA Extremely Hazardous Substances (EHS)	Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1,000 lbs. or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your OutBack representative for additional information.		
	Section 304 CERCLA Hazardous Substances	Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.		
	Section 311/312 Hazard Categorization	EPCRA Section 312 Tier Two reporting is required for non-automotive 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. For more information consult 40 CFR 370.10 and 40 CFR 370.40.		
	Section 313 EPCRA Toxic Substances	40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.		
	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 Ch	emical	CAS Number	Approximate % by Weight
	Lead		7439-92-1	45 to 60
	Electrolyte (Sulfur	ic Acid / Water)	7664-93-9	15 to 20
	Tin	ı	7440-31-5	0.1 to 0.2
	See 40 CFR Part 370 for more details.			
	 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".			
TSCA	Section 8b Inventory Status	All chemicals comprising this product are either exempt or listed on the TSCA Inventory		
	Section 12b (40 CFR Part 707.60(b))	No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.		
	Section 13 (40 CFR Part 707.20)	No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).		
RCRA	 Spent lead-acid batteries are subject to streamlined handling requirements when managed in compl with 40 CFR section 266.80 or 40 CFR part 273. 			
	 Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead). 			
CAA	EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFCs and other ozone depleting chemicals (ODCs), defined by the USEPA as Class I substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODCs prior to the May 15, 1993 deadline.			
STATE REGULATIONS (U.S.)	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.		
INTERNATIONAL REGULATIONS	 Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2). Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as sold. 			

^{*}The reporting threshold for sulfuric acid is ≥ the designated TPQ or 500 lbs., whichever is less

Section XVI: Other Information

Revised: AA (06-16-16)

NFPA Hazard Rating for Flammability (Red) = 0 Reactivity (Yellow) = 2

Sulfuric Acid

Health (Blue) = 3 X= Acid

Sulfuric acid is water-reactive if concentrated.

DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.

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