

# MATERIAL SAFETY DATA SHEET

**Product: VALVE REGULATED LEAD ACID BATTERY**

## SECTION 1-- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER'S NAME: Energon Solutions Private Limited	EMERGENCY TELEPHONE NO.: +91 9765403757
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## SECTION 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

C.A.S.	PRINCIPAL HAZARDOUS COMPONENT(S) (chemical & common name(s))	Hazard Category	% Weight	ACGIH TLV - mg/m <sup>3</sup>	OSHA PEL/TWA - mg/m <sup>3</sup>
7439-92-1	Lead/Lead Oxide (Litharge)/Lead Sulfate	Acute-Chronic	60-90	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
7440-70-2	Calcium (lead calcium alloy)	Reactive	<0.1	Not Established	Not Established
7440-31-5	Tin	Chronic	<0.5	2	Not Established
7440-38-2	Arsenic (inorganic)	Acute-Chronic	<0.1	0.01	0.01
7664-93-9	Sulfuric Acid (Battery Electrolyte)	Reactive-Oxidizer Acute -Chronic	10-30	1.0	1.0
Not applicable	Inert Ingredients	Not applicable	<6	Not Applicable	Not Applicable
Not applicable	Absorbent Glass mat	Not applicable	1.5 – 2.5 %	Not Applicable	Not Applicable

Note: PEL's for Individual states may differ from OSHA's PEL's. Check with local authorities for the applicable state PEL's.

OSHA – Occupational Safety and Health Administration; ACGIH – American Conference of Governmental Industrial Hygienists; NIOSH – National Institute for Occupational Safety and Health.

COMMON NAME: (Used on label)

(Trade Name & Synonyms) Battery, Valve Regulated Non-Spillable (VRLA) Chemical Family: Toxic and Corrosive Material Mixture

Chemical Formula: Lead/Acid

Name: Battery, Storage, Lead Acid, Valve Regulated

## SECTION 3 -- HAZARD IDENTIFICATION

Signs and Symptoms of Exposure	1. Acute Hazards	Do not open battery. Avoid contact with internal components. Internal components include lead and gelatinous electrolyte.  Electrolyte - Electrolyte is corrosive and contact may cause skin irritation and chemical burns. Electrolyte causes severe irritation and burns of eyes, nose, and throat. Ingestion can cause severe burns and vomiting.  Lead - Direct skin or eye contact may cause local irritation. Inhalation or ingestion of lead dust or fumes may result in headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm, and joint pain.
	2. Sub chronic and Chronic Health Effects	Electrolyte - Repeated contact with electrolyte causes irritation and skin burns. Repeated exposure to mist may cause erosion of teeth, chronic eye irritation and/or chronic inflammation of the nose, throat, and lungs.  Lead – Prolonged exposure may cause central nervous system damage, gastrointestinal disturbances, anemia, wrist-drop, and kidney dysfunction. Pregnant women should be protected from excessive exposure to prevent lead from crossing the placental barrier and causing infant neurological disorders.  <b>Proposition Warning:</b> Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to cause cancer and reproductive harm. Wash hands after handling.
Medical Conditions Generally Aggravated by Exposure	Contact with internal components if battery is broken or opened, then persons with the following medical conditions must take precautions: pulmonary edema, bronchitis, emphysema, dental erosion and tracheobronchitis.	
Routes of Entry	Inhalation - YES Ingestion – YES	Eye Contact- YES

Chemical(s) Listed as Carcinogen or potential Carcinogen	Proposition 65 - YES	National Toxicology Program - YES	I.A.R.C. Monographs - YES	O.S.H.A. - NO	E.P.A. CAG - YES	N.I.O.S.H. - YES
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## SECTION 4 -- FIRST AID MEASURES

Emergency and First Aid Procedures	Contact with internal components if battery is opened/broken.
1. Inhalation	Remove to fresh air and provide medical oxygen/CPR if needed. Obtain medical attention.
2. Eyes	Immediately flush with water for at least 15 minutes, hold eyelids open. Obtain medical attention.
3. Skin	Flush contacted the area with large amounts of water for at least 15 minutes. Remove contaminated clothing and obtain medical attention if necessary.
4. Ingestion	Do not induce vomiting. If conscious drink large amounts of water/milk. Obtain medical attention. Never give anything by mouth to an unconscious person.

## SECTION 5 -- FIREFIGHTING MEASURES

Flash Point – Not Applicable	Flammable Limits in Air % by Volume: Not Applicable	Extinguishing Media – Class ABC, CO <sub>2</sub> , Halon	Auto-Ignition Temperature 675°F (polypropylene)
Special Fire Fighting Procedures	Lead/acid batteries do not burn or burn with difficulty. Do not use water on fires where molten metal is present. Extinguish fire with an agent suitable for surrounding combustible materials. Cool exterior of battery if exposed to fire to prevent rupture. The acid mist and vapors generated by heat or fire are corrosive. Use NIOSH approved self-contained breathing apparatus (SCBA) and full protective equipment operated in positive-pressure mode.		
Unusual Fire and Explosion Hazards	Sulfuric acid vapors are generated upon overcharge and polypropylene case failure. Use adequate ventilation. Avoid open flames/sparks/other sources of ignition near battery.		

## SECTION 6 -- ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Avoid contact with any spilled material. Contain spill, isolate hazard area, and deny entry. Limit site access to emergency responders. Neutralize with sodium bicarbonate, soda ash, lime, or another neutralizing agent. Place battery in suitable container for disposal. Dispose of contaminated material in accordance with applicable local, state, and federal regulations. Sodium bicarbonate, soda ash, sand, lime, or other neutralizing agent should be kept on-site for spill remediation.

Personal Precautions: Acid resistant aprons, boots, and protective clothing. ANSI approved safety glasses with side shields/face shield recommended.

Environmental Precautions: Lead and its compounds and sulfuric acid can pose a severe threat to the environment. Contamination of water, soil and air should be prevented.

## SECTION 7 -- HANDLING AND STORAGE

Precautions to be Taken in Handling and Storage	Store away from reactive materials, open flames and sources of ignition as defined in Section 10 – Stability and Reactivity Data. Store batteries in cool, dry, well-ventilated areas. Batteries should be stored under the roof for protection against adverse weather conditions. Avoid damage to containers.
Other Precautions	GOOD PERSONAL HYGIENE AND WORK PRACTICES ARE MANDATORY. Refrain from eating, drinking, or smoking in work areas. Thoroughly wash hands, face, neck, and arms, before eating, drinking, and smoking. Work clothes and equipment should remain in designated lead contaminated areas, and never taken home or laundered with personal clothing. Wash soiled clothing, work clothes and equipment before reuse.

## SECTION 8 -- EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection (Specify Type)	None required under normal conditions. Acid/gas NIOSH approved respirator is required when the PEL is exceeded or employee experiences respiratory irritation.				
Ventilation	Store and handle in dry ventilated area.	Local Exhaust	When PEL (Permissible exposure limit) exceeded.	Mechanical (General)	Not Applicable
Protective Gloves	Wear rubber or plastic acid resistant gloves.		Eye Protection	ANSI approved safety glasses with side shields/face shield recommended	
Other Protective Clothing or Equipment	Safety shower and eyewash.				

## SECTION 9 -- PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not Applicable	Vapor Pressure	Not Applicable	Specific Gravity	1.250-1.320	pH	<2	Melting Point: <320°F (polypropylene)
Percent Volatile By Volume	Not Applicable	Vapor Density	Hydrogen: 0.069 (Air = 1) Electrolyte: 3.4 @ STP (Air = 1)			Evaporation Rate	Not applicable
Solubility In water	100% soluble (electrolyte)		Reactivity in Water	Electrolyte – Water Reactive (1)			
Appearance and Odor:	Battery: Polypropylene or ABS* case, solid. Lead: Gray, metallic, solid. Electrolyte: Odorless, white gelatinous semi-solid (absorbed). No apparent odor. (*ABS: ACRYLONITRILE BUTADIENE STYRENE)						

## SECTION 10 -- STABILITY AND REACTIVITY

Stability:	Stable	Conditions to Avoid: Avoid overcharging and smoking, or sparks near battery surface. High temperatures-cases decompose at <320°F.
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Incompatibility (Materials to Avoid)	Sparks, open flames, keep battery away from strong oxidizers.
Hazardous Decomposition Products	Combustion can produce carbon dioxide and carbon monoxide.
Hazardous Polymerization	Hazardous Polymerization has not been reported.

## SECTION 11 -- TOXICOLOGICAL INFORMATION

GENERAL: The primary routes of exposure to lead are ingestion or inhalation of dust and fumes.

### ACUTE:

INHALATION/INGESTION: Exposure to lead and its compounds may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in the legs, arms, and joints. Kidney damage, as well as anemia, can occur from acute exposure.

### CHRONIC:

INHALATION/INGESTION: Prolonged exposure to lead and its compounds may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and wrist drop. Symptoms of central nervous system damage include fatigue, headaches, tremors, hypertension, hallucination, convulsions, and delirium. Kidney dysfunction and possible injury have also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity, but there is at present, no substantiation of the implication. Pregnant women should be protected from excessive exposure. Lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due to excessive lead exposure in pregnant women.

## SECTION 12 -- ECOLOGICAL INFORMATION

In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates, and phosphates, and precipitates out of the water column. Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil. Lead (dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

## SECTION 13 -- DISPOSAL CONSIDERATIONS

Lead-acid batteries are completely recyclable. Return whole scrap batteries to distributor, manufacturer, or lead smelter for recycling. For information on returning batteries to Trojan battery Company for recycling call 800-423-6569. For neutralized spills, place residue in acid-resistant containers with sorbent material, sand or earth and dispose of it in accordance with local, state, and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.

## SECTION 14 -- TRANSPORT INFORMATION

GROUND – US DOT: No proper shipping name; not regulated as hazardous material.

ENERGON, VRLA batteries have been tested and meet the non-spillable criteria listed in CFR 49, 173.159 (F) (1) and (2). Non-spillable batteries are excepted from CFR 49, Subchapter C requirements, provided the following criteria are met:

1. The batteries must be protected against short circuits and securely packaged.
2. The batteries and their outer package must be plainly and durably marked "NON-SPILLABLE" or "NONSPILLABLE BATTERY".
3. The batteries have met the conditions specified in SPECIAL provision 76 of the ICAO technical instructions.

AIRCRAFT – ICAO-IATA: No proper shipping name; not regulated as hazardous material.

ENERGON, VRLA batteries have been tested and meet the non-spillable criteria listed in IATA Packaging Instruction 806 and Special Provision A67. These Batteries are excepted from all IATA regulations provided that the battery terminals are protected against short circuits.

The words "Not Restricted, as per Special Provision A67" must be included in the description on the Air Waybill.

VESSEL – IMO-IMDG: No proper shipping name; not regulated as hazardous material.

ENERGON, VRLA batteries have been tested and meet the non-spillable criteria listed in IMDG Code Special Provision 238.1 and .2; therefore, are not subject to provisions of the IMDG Code provided that the battery terminals are protected against short circuits when packaged for transport.

### Additional Information:

- Each battery and outer packaging must be plainly and durably marked "Nonspillable" or "Nonspillable Battery".
- Transport requires proper packaging and paperwork, including nature and quantity of goods, per applicable origin/destination/customs points as shipped.

## SECTION 15 -- REGULATORY INFORMATION

U.S. HAZARDOUS UNDER HAZARD COMMUNICATION STANDARD:

LEAD	–YES
ANTIMONY	– YES
ARSENIC	- YES
SULFURIC ACID	– YES

INGREDIENTS LISTED ON TSCA INVENTORY: YES

CERCLA SECTION 304 HAZARDOUS SUBSTANCES:

LEAD – YES	RQ: N/A*
ANTIMONY – YES	RQ: 5000 POUNDS
ARSENIC – YES	RQ: 1 POUND
SULFURIC ACID – YES	RQ: 1000 POUNDS

\* RQ: REPORTING NOT REQUIRED WHEN DIAMETER OF THE PIECES OF SOLID METAL RELEASED IS EQUAL TO OR EXCEEDS 100 µm (micrometers).

EPCRA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE:

SULFURIC ACID – YES

EPCRA SECTION 313 TOXIC RELEASE INVENTORY:

LEAD	– CAS NO: 7439-92-1
ANTIMONY	– CAS NO: 7440-36-0
ARSENIC	– CAS NO: 7440-38-2
SULFURIC ACID	– CAS NO: 7664-93-9

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**SECTION 16 -- OTHER INFORMATION**

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