



US - OSHA SAFETY DATA SHEET

Issue Date 13-Feb-2014

Revision Date 10-Jul-2018

Version 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Valve Regulated Lead Battery

Other means of identification

Product Code 853023
UN/ID No. UN2800
Synonyms Not available.

Recommended use of the chemical and restrictions on use

Recommended Use Power sport batteries.
Uses Advised Against Any other not listed above

Details of the supplier of the safety data sheet

Supplier Address

Yuasa Battery, Inc.
2901 Montrose Avenue
Laureldale, PA 19605
United States
www.yuasabatteries.com

Emergency telephone number

Company Phone Number (610) 929-5781
24 Hour Emergency Phone Number CHEMTREC
Domestic (800) 424-9300
International 1(703) 527-3887

2. HAZARDS IDENTIFICATION

Classification

Health Hazards
Not classified.

Physical Hazards
Not classified.

OSHA Regulatory Status

Material is an article. No health effects are expected related to normal use of this product as sold. Hazardous exposure can occur only when the product is heated, oxidized or otherwise processed or damaged to create lead dust, vapor or fume. Refer to the Material Safety Data Sheet for Lead Acid Battery when battery is filled with electrolyte/battery acid.

Label elements

Emergency Overview

Appearance Not available. **Physical State** Solid. **Odor** Odorless.

Hazards not otherwise classified (HNOC)

Not available.

Other information

Not available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common name Valve Regulated Lead Battery.
Synonyms Not available.

Chemical Name	CAS No.	Weight-%
Powdered Lead	7439-92-1	63-78
Tin	7440-31-5	0.006
Antimony	7440-36-0	0.2
Arsenic	7440-38-2	0.003
Calcium	7440-70-2	0.002
Sulfuric Acid	7664-93-9	10-30

*Note: Non-hazardous chemical ingredients are not listed

4. FIRST AID MEASURES**First aid measures**

- Eye Contact** First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If contact with material occurs flush eyes with water. If signs/symptoms develop, get medical attention.
- Skin Contact** First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Wash skin with soap and water. If signs/symptoms develop, get medical attention. If exposure to electrolyte (sulfuric acid) occurs, flush with large quantities of water for 15 minutes. Immediately remove contaminated clothing and shoes. If exposure to lead component occurs, wash contaminated skin with plenty of soap and water.
- Inhalation** First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If signs/symptoms develop, move person to fresh air.
- Ingestion** First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If electrolyte (sulfuric acid) portion of battery is ingested give large quantities, DO NOT induce vomiting. Get medical attention immediately. If lead portion of battery is ingested get medical attention immediately.
- Self-Protection of the First Aider** Do not use mouth-to-mouth methods if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or another proper respiratory medical device.

Most important symptoms and effects, both acute and delayed

- Symptoms** Symptoms of lead toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability. Lead absorption may cause nausea, weight loss, abdominal spasms, and pain in arms, legs and joints. Effects of chronic lead exposure may include central nervous system (CNS) damage, kidney dysfunction, anemia, neuropathy particularly of the motor nerves with wrist drop, and potential reproductive effects.

Indication of any immediate medical attention and special treatment needed

- Note to Physicians** Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

CO₂, dry chemical or foam.

Unsuitable Extinguishing Media Avoid using water.

Specific hazards arising from the chemical

Sulfuric acid in the electrolyte is corrosive to skin and eyes.

Hazardous Combustion Products Lead portion of battery will likely produce toxic metal fume, vapor or dust.

Explosion data

Sensitivity to Mechanical Impact Not applicable.

Sensitivity to Static Discharge None known.

Protective equipment and precautions for firefighters

If batteries are on charge, shut off power. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Wear a positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions No special precautions expected to be necessary if material is used under ordinary conditions and as recommended. Avoid contact of lead with skin.

Other information Non-emergency personnel should utilize chemical gloves.

For emergency responders Wear chemical gloves, goggles, acid resistant clothing and boots, respirator if insufficient ventilation.

Environmental precautions

Environmental Precautions Prevent entry into waterways, sewers, basements or confined areas. Runoff from fire control and dilution water may be toxic and corrosive and may cause adverse environmental impacts. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for Containment In event of a battery rupturing; stop the leak if you can do it without risk. Absorb with earth, sand, or other non-combustible material. Cautiously neutralize spilled liquid.

Methods for Cleaning Up Dispose of in accordance with local, state, and national regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Handle batteries cautiously. Do not tip to avoid spills (if filled with electrolyte). Avoid contact with internal components. Wear protective clothing when filling or handling batteries. Follow manufacturer's instructions for installation and service. Do not allow conductive material to touch the battery terminals. Short circuit may occur and cause battery failure and fire. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Eyewash stations and safety showers should be provided with unlimited water supply. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Store in a cool/low-temperature, well-ventilated place away from heat and ignition sources. Batteries should be stored under roof for protection against adverse weather conditions. Place cardboard between layers of stacked batteries to avoid damage and short circuits. Store batteries on an impervious surface. Storage class: Class 8B: Non-flammable corrosive materials.
Incompatible materials	Sulfuric acid: Contact with combustible and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide, strong oxidizers and water. Contact with metals may product toxic sulfur dioxide fumes and may release flammable hydrogen gas. Lead compounds: Avoid contact with strong bases, acids, combustible organic materials, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, reducing agents and water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters**

Exposure Guidelines This product, as supplied, contains the following hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Powdered Lead 7439-92-1	TWA: 0.05 mg/m ³ TWA: 0.05 mg/m ³ Pb	TWA: 50 µg/m ³ TWA: 50 µg/m ³ Pb	IDLH: 100 mg/m ³ IDLH: 100 mg/m ³ Pb TWA: 0.050 mg/m ³ TWA: 0.050 mg/m ³ Pb
Sulfuric Acid 7664-93-9	TWA: 0.2 mg/m ³ thoracic particulate matter	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 15 mg/m ³ TWA: 1 mg/m ³

Appropriate engineering controls

Engineering Controls The health hazard risks of handling this material are dependent on factors, such as physical form and quantity. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels as low as reasonably achievable.

Individual protection measures, such as personal protective equipment

Eye/Face Protection	In laboratory, medical or industrial settings, safety glasses with side shields are highly recommended. The use of goggles or full face protection may be required depending on the industrial exposure setting. Contact a health and safety professional for specific information.
Skin and Body Protection	Wear appropriate gloves. No skin protection is ordinarily required under normal conditions of use. In accordance with industrial hygiene practices, if contact with leaking battery is expected precautions should be taken to avoid skin contact. Under severe exposure or emergency conditions, wear acid-resistant clothing and boots.
Respiratory Protection	In case of insufficient ventilation, wear suitable respiratory equipment.
General Hygiene Considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Solid.	Odor	Odorless.
Appearance	Not available.	Odor Threshold	Not available.
Color	Clear (electrolyte)		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH	Not available.	
Melting Point/Freezing Point	Not available.	
Boiling Point/Boiling Range	95 °C - 95.555 °C	
Flash Point	Not available.	
Evaporation Rate	Not available.	
Flammability (solid, gas)	Not available.	
Flammability Limit in Air		
Upper Flammability Limit:	Not available.	
Lower Flammability Limit:	Not available.	
Vapor Pressure	10 mmHg	
Vapor Density	1	
Specific Gravity	Not available.	
Water Solubility	100%	
Solubility in Other Solvents	Not available.	
Partition Coefficient	Not available.	
Autoignition Temperature	Not available.	
Decomposition Temperature	Not available.	
Kinematic Viscosity	Not available.	
Dynamic Viscosity	Not available.	
Explosive Properties	Not available.	
Oxidizing Properties	Not available.	

Other information

Softening Point	Not available.
Molecular Weight	Not available.
VOC Content (%)	Not available.
Density	75.8523-84.2803 lbs/ft ³
Bulk Density	Not available.

10. STABILITY AND REACTIVITY

Reactivity

Not reactive.

Chemical stability

Stable at normal temperatures and pressures.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Prolonged overcharge, sources of ignition.

Incompatible materials

Sulfuric acid: Contact with combustible and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide, strong oxidizers and water. Contact with metals may product toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead compounds: Avoid contact with strong bases, acids, combustible organic materials, halides, halogenates, potassium nitrate,

permanganate, peroxides, nascent hydrogen, reducing agents and water.

Hazardous decomposition products

Lead compounds exposed to high temperatures will likely produce toxic metal fume, vapor or dust; contact with strong acid/base or presence of nascent hydrogen may generate highly toxic arsine gas.

Sulfuric acid: Sulfur oxides (SO_x).

11. TOXICOLOGICAL INFORMATION

Product Information

Acute Toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	Intravenous LD50
Sulfuric Acid 7664-93-9	= 2140 mg/kg (Rat)	-	85 - 103 mg/m ³ (Rat) 1 h	-

Information on toxicological effects

Symptoms

Symptoms of lead toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability. Lead absorption may cause nausea, weight loss, abdominal spasms, and pain in arms, legs and joints. Effects of chronic lead exposure may include central nervous system (CNS) damage, kidney dysfunction, anemia, neuropathy particularly of the motor nerves with wrist drop, and potential reproductive effects.

Delayed and immediate effects as well as chronic effects from short- and long-term exposure

Skin Corrosion/Irritation No data available.

Serious Eye Damage/Eye Irritation No data available.

Sensitization No data available.

Germ Cell Mutagenicity The evidence for genotoxic effects of highly soluble inorganic lead compounds is contradictory, with numerous studies reporting both positive and negative effects. Responses appear to be induced by indirect mechanisms, mostly at very high concentrations that lack physiological relevance.

Carcinogenicity

Sulfuric acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category 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.** Batteries subjected to abusive charging at excessively high currents for prolonged periods without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Lead: There is evidence that soluble lead compounds may have a carcinogenic effect, particularly on the kidneys of rats. However, the mechanisms by which this effect occurs are still unclear. Epidemiology studies of workers exposed to inorganic lead compounds have found a limited association with stomach cancer. This has led to the classification by IARC that inorganic lead compounds are probably carcinogenic to humans (Group 2A).
Arsenic: An increased lung cancer mortality was observed in multiple human populations exposed to arsenic primarily through inhalation. Also, increased mortality from multiple internal organ cancers (liver, kidney, lung, and bladder) and an increased incidence of skin cancer were observed in populations consuming drinking water high in inorganic arsenic.

Chemical Name	ACGIH	IARC	NTP	OSHA
Powdered Lead 7439-92-1	A3	Group 2A	Reasonably Anticipated	X
Sulfuric Acid	A2	Group 1		X

7664-93-9				
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Reproductive Toxicity

Lead: Pregnancy exposure to lead might cause miscarriage or premature birth, but reports on these effects are old and might have involved higher lead exposures than are currently encountered. Maternal blood lead concentrations above 30 mcg/dL can be associated with detectable abnormalities in cognitive/behavioral testing in infants. Lower concentrations (less than 10 mcg/dL) might be associated with subtle neurobehavioral effects, but these effects might be transient. Breastfeeding is not recommended if the maternal blood lead concentration is 40 mcg/dL or hi

Teratogenicity

Lead is a teratogen. Overexposure of lead by either parent before pregnancy may increase the chances of miscarriage or birth defects.

STOT - Single Exposure

Not classified.

STOT - Repeated Exposure

Not classified.

Chronic Toxicity

Lead: Lead is a cumulative poison. Increasing amounts of lead can build up in the body and may reach a point where symptoms and disabilities occur. Continuous exposure may result in decreased fertility.

Antimony: Chronic effects due to antimony are alterations of the ECG, especially T-wave abnormalities, myocardial changes, pneumoconiosis, but also pneumonitis, tracheitis, laryngitis, bronchitis, pustular skin eruptions called antimony spots, and contact allergy to the metal.

Target Organ Effects

Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children.

Aspiration Hazard

Due to the physical form of the product, it is not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Powdered Lead 7439-92-1		1.17: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.44: 96 h Cyprinus carpio mg/L LC50 semi-static 1.32: 96 h Oncorhynchus mykiss mg/L LC50 static		600: 48 h water flea µg/L EC50
Sulfuric Acid 7664-93-9		500: 96 h Brachydanio rerio mg/L LC50 static		29: 24 h Daphnia magna mg/L EC50

Persistence and degradability

Lead is persistent in soils and sediments.

Bioaccumulation

Not available.

Mobility

Not available.

Other adverse effects

Not available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

US EPA Waste Number

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Powdered Lead 7439-92-1		Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K069, K086, K100, K176	5.0 mg/L regulatory level	

California Hazardous Waste Codes Not available.

This product contains the following substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Powdered Lead 7439-92-1	Toxic
Sulfuric Acid 7664-93-9	Toxic Corrosive

14. TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail. Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated. Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars and aircrafts.

DOT These batteries have been tested and meet the non-spillable criteria listed in CFR49, 173.159 (d) (3) (i) and (ii). Non-spillable batteries are excepted from CFR 49, Subchapter C requirements, provided that the following criteria are met:

- 1.) The batteries must be protected against short circuits and securely packaged.
- 2.) The batteries and their outer packaging must be plainly and durably marked "NON-SPILLABLE" or "NONSPILLABLE BATTERY".

UN/ID No. UN2800
Proper shipping name Batteries, wet, non-spillable
Hazard Class 8
Subsidiary class 8
Packing Group III
Special Provisions 159a

TDG These batteries have been tested and meet the non-spillable criteria. Non-spillable batteries are excepted provided that the following criteria are met:

- 1.) The batteries must be protected against short circuits and securely packages.
- 2.) The batteries and their outer packaging must be plainly and durably marked "NON-SPILLABLE" or "NONSPILLABLE BATTERY".

UN/ID No. UN2800
Proper shipping name Batteries, Wet, Non-Spillable
Hazard Class 8
Subsidiary class 8

Packing Group	III
Special Provisions	39
<u>MEX</u>	Not regulated.
<u>ICAO (air)</u>	Yuasa VRLA batteries have been tested and meet the non-spillable criteria listed in IATA Packing Instruction 872 and Special Provision A67. These batteries are accepted 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.
UN/ID No.	UN2800
Proper shipping name	Batteries, Wet, Non-Spillable
Hazard Class	8
Subsidiary hazard class	8
Packing Group	III
Special Provisions	A48, A67, A164, A183
<u>IATA</u>	Yuasa VRLA batteries have been tested and meet the non-spillable criteria listed in IATA Packing Instruction 872 and Special Provision A67. These batteries are accepted 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.
UN/ID No.	UN2800
Proper shipping name	Batteries, Wet, Non-Spillable
Hazard Class	8
Subsidiary hazard class	8
Packing Group	III
Special Provisions	A48, A67, A164, A183
<u>IMDG</u>	These 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 the provisions of the IMDG Code provided that the battery terminals are protected against short circuits when packaged for transport.
UN/ID No.	UN2800
Proper shipping name	Batteries, Wet, Non-Spillable
Hazard Class	8
Subsidiary hazard class	8
Packing Group	III
Special Provisions	29, 238
Marine pollutant	No
<u>RID</u>	Non-spillable batteries are not subject to the requirements of ADR if, at a temperature of 55C, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, as packaged for carriage, the terminals are protected from short circuit.
UN/ID No.	UN2800
Proper shipping name	Batteries, Wet, Not-Spillable
Hazard Class	8
Classification code	C11
Special Provisions	238, 295, 598
<u>ADR</u>	Non-spillable batteries are not subject to the requirements of ADR if, at a temperature of 55C, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, as packaged for carriage, the terminals are protected from short circuit.
UN/ID No.	UN2800
Proper shipping name	Batteries, Wet, Not-Spillable
Hazard Class	8
Classification code	C11
Special Provisions	238, 295, 598

ADN

Not regulated.

15. REGULATORY INFORMATION**U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Powdered Lead - 7439-92-1	7439-92-1	63-78	0.1
Sulfuric Acid - 7664-93-9	7664-93-9	10-30	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Powdered Lead 7439-92-1		X	X	
Sulfuric Acid 7664-93-9	1000 lb			X

CERCLA

This material, as supplied, contains the following substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Powdered Lead 7439-92-1	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ
Sulfuric Acid 7664-93-9	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. State Regulations**California Proposition 65**

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.

Chemical Name	California Proposition 65
Powdered Lead - 7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive

U.S. State Right-to-Know Regulations

This product contains the following substances regulated by state right-to-know regulations.

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Powdered Lead 7439-92-1	X	X	X

Sulfuric Acid 7664-93-9	X	X	X
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U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable.

16. OTHER INFORMATION

Prepared By IES Engineers
Issue Date 13-Feb-2014
Revision Date 10-Jul-2018
Revision Note Changes in section 3 and 11.

Disclaimer

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. Yuasa, Inc. assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, Yuasa, Inc. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

End of Safety Data Sheet