US - OSHA SAFETY DATA SHEET

Revision Date Jan 01-2024
Version 1

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

Product identifier

Product Name Valve Regulated Sealed Lead -Acid Battery

Recommended use of the chemical and restrictions on use

Application of the substance /the preparation :UPS use

Details of the supplier of the safety data sheet
Manufacturer Address

ELK Products, Inc.
3266 US Hwy 70 W
Connelly Springs, NC 28612 USA

Emergency telephone number

Company Phone Number (828) 397-4200
24 Hour Emergency Phone Number **(800) 424-9300 (North America) 1-703-527-3887 (International)**

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. Follow manufacturer's instructions for installation, service and use.

Label elements

Emergency Overview

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

3.COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Not available.

Chemical	CAS	Weight-%
Arsenic	7440-38-2	0.003
Powdered	7439-92-1	63-78
Sulfuric Acid	7664-93-9	10-30
Tin	7440-31-5	0.006

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, 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 method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other 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.

Acute exposure to sulfuric acid causes severe irritation, burns and permanent tissue damage to all routes of exposure. Chronic exposure to sulfuric acid may cause erosion of tooth enamel, inflammation of nose, throat and respiratory system.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5.FIRE-FIGHTING MEASURES

Suitable extinguishing media
CO_2, dry chemical or foam.

Unsuitable extinguishing media Avoid using water.

Specific hazards arising from the chemical

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

Explosion data
Sensitivity to Mechanical Impact Not available.
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

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Arsenic 7440-	TWA: 0.01 mg/m^3 As	TWA: 10 $\mu g/m^3$ As	IDLH: 5 mg/m^3 As Ceiling: 0.002 mg/m^3 As 15
Powdered Lead 7439-92-1	TWA: 0.05 mg/m^3 Pb	TWA: 50 $\mu g/m^3$ TWA: 50 $\mu g/m^3$ Pb	IDLH: 100 mg/m^3 TWA: 0.050 mg/m^3
Sulfuric Acid 7664-93-9	TWA: 0.2 mg/m^3 thoracic fraction	TWA: 1 mg/m^3	IDLH: 15 mg/m^3 TWA: 1 mg/m^3
Tin 7440-31-5	TWA: 2 mg/m^3 Sn except Tin hydride	TWA: 2 mg/m^3 Sn except oxides	IDLH: 100 mg/m^3 Sn TWA: 2 mg/m^3 except Tin oxides

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 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 to remove contaminants.

9.PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	No	**Odor**	Odorl
Color	Data	**Odor threshold**	ess
	Clear (electrolyte)		No

Property	**Valu**	**Remarks • Method**
pH	No Data	
Melting point/freezing point	No Data	
Boiling point / boiling range	95 °C - 95.555 °C	
Flash point	No Data	
Evaporation	No Data	
Flammability (solid, gas)	No Data	
Flammability Limit in Air		
Upper flammability limit:	No Data	
Lower flammability limit:	No Data	
Vapor	10 mmHg	
Vapor density	1	
Specific	No Data	
Water	100	
Solubility in other solvents	No Data	
Partition coefficient	No Data	
Autoignition temperature	No Data	
Decomposition temperature	No Data	
Kinematic viscosity	No Data	
Dynamic viscosity	No Data	
Explosive properties	No Data	
Oxidizing properties	No Data	

Other Information

Softening	No Data
Molecular	No Data
VOC Content	No Data
(%)	75.8523-84.2803 lbs/ft^3
Bulk density	No Data

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 trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen.

11.TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation (Acute): Under normal conditions of use, no health effects are expected. Contents of an open battery can cause respiratory irritation.
(Chronic): Repeated and prolonged exposure may cause irritation.

Eye contact (Acute): Under normal conditions of use, no health effects are expected. Exposure to dust may cause irritation.
(Chronic): No data available.

Skin Contact (Acute): Under normal conditions of use, no health effects are expected.
(Chronic): No data available.

Ingestion (Acute): Under normal conditions of use, no health effects are expected. Lead ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping.
(Chronic): No data available.

Acute Effects

Chemical Name	Oral	Dermal LD50	Inhalation LC50
Arsenic 7440-38-2	= 15 mg/kg (Rat)	-	-
Sulfuric Acid 7664-93-9	= 2140 mg/kg (Rat)	-	= 510 mg/m^3 (Rat) 2 h
Tin 7440-31-5	= 700 mg/kg (Rat)	-	-

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.

Acute exposure to sulfuric acid causes severe irritation, burns and permanent tissue damage to all routes of exposure. Chronic exposure to sulfuric acid may cause erosion of tooth enamel, inflammation of nose, throat and respiratory system.

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

Skin corrosion/irritation Not available.
Serious eye damage/eye irritation Not available.
Irritation Severe burns.
Corrosivity Not available.
Sensitization Not 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

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.

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).

Chemical Name	ACGI	IARC	NTP	OSHA
Arsenic 7440-38-2	A1	Group 1	Known	X
Sulfuric Acid 7664-93-9	A2	Group 1	–	X
Powdered Lead 7439-92-1	A3	Group 2A	Reasonably Anticipated	X

Reproductive toxicity Not available.

STOT - single exposure Not classified.

STOT - repeated exposure Not classified.

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

Target Organ Effects Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the haemotopoetic (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.

Numerical measures of toxicity - Product Information

12.ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Sulfuric Acid	–	500: 96 h Brachydanio rerio mg/L LC50	–	29: 24 h Daphnia magna mg/L
Powdered Lead 7439-92-1	–	0.44: 96 h Cyprinus carpio mg/L LC50 semi-static 1.32: 96 h Oncorhynchus mykiss mg/L LC50 static 1.17: 96 h Oncorhynchus	–	600: 48 h water flea µg/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 Not available.

Chemical Name	RCRA	RCRA - Basis for	RCRA - D Series	RCRA - U Series
Arsenic 7440-38-2	–	Included in waste streams: F032, F034, F035, F039, K031, K060, K084, K101, K102, K161, K171,	5.0 mg/L regulatory level	–
Powdered Lead 7439-92-1	–	Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062,	5.0 mg/L regulatory level	–

California Hazardous Waste Codes Not available

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

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

14.TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail.

1. Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated.
2. 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

MEX Not regulated

ICAO (air) Elk Products VRLA batteries have been tested and meet the non-spillable criteria listed in IATA Packing Instruction 872 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.

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

IATA Elk Products VRLA batteries have been tested and meet the non-spillable criteria listed in IATA Packing Instruction 872 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.

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

IMDG 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

RID 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

ADR 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

International Inventories

TSCA	Does not comply
DSL/NDSL	Does not comply
EINECS/ELINCS	Does not comply
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US 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 %
Arsenic - 7440-38-2	7440-38-2	0.003	0.1
Sulfuric Acid - 7664-93-9	7664-93-9	10-30	1.0
Powdered Lead - 7439-92-1	7439-92-1	63-78	0.1

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
Arsenic 7440-38-	–	X	X	–
Sulfuric Acid	1000 lb	–	–	X
Powdered Lead 7439-92-1	–	X	X	–

CERCLA

This material, as supplied, contains one or more 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	Reportable Quantity (RQ)
Arsenic 7440-	1 lb	–	RQ 1 lb final RQ RQ 0.454 kg final
Sulfuric Acid 7664-93-9	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg
Powdered Lead 7439-92-1	10 lb	–	RQ 10 lb final RQ RQ 4.54 kg final

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

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

U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Tin 7440-31-5	X	X	X
Arsenic 7440-	X	X	X
Calcium 7440-	X	X	X
Sulfuric Acid 7664-93-9	X	X	X
Powdered Lead 7439-92-1	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not available.

16.OTHER INFORMATION

Issue Date
Revision Date **01/01/2024**
Revision Note
Not available.

End of Safety Data Sheet