Safety Data Sheet

Issue Date: 01-Jan-2013 **Revision Date:** 20-Aug-2020 **Version** 2

1. IDENTIFICATION

Product identifier

Product Name Lead Acid Batteries

Other means of identification

SDS # BB-001

Product Code UN2794
UN/ID No UN2794

Recommended use of the chemical and restrictions on use

Recommended Use Batteries, wet, filled with acid.

Details of the supplier of the safety data sheet

Manufacturer Address
Battery Builders Inc.
31 W238 91st St
Naperville, IL 60564
PO Box 5005
Naperville, IL 60567

Emergency telephone number

Company Phone Number Phone: 630-851-5800
Fax: 630-851-1040
Emergency Telephone INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Industrial/commercial lead acid battery **Physical state** Sulfuric acid: Liquid
Lead: Solid **Odor** Odorless

Classification

This product is a battery. The classification below is based on the battery acid contained in the battery, which would only be released during an incident.

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1 Sub-category C
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 2

Signal Word

Danger

Hazard statements

Harmful if swallowed
Harmful if inhaled
Causes severe skin burns and eye damage
May cause cancer
May damage fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response
If exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a poison center or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a poison center or doctor/physician if you feel unwell
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other hazards
Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula $PbO_2 + Pb + 2H_2SO_4 = 2PbSO_4 + 2H_2O$

Chemical name	CAS No	Weight-%
Water	7732-18-5	19.2
Lead	7439-92-1	25.5
Lead Sulfate	7446-14-2	18.2
Lead Oxide	1309-60-0	18
Sulfuric acid	7664-93-9	5.2
Antimony	7440-36-0	<1

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General Advice If exposed or concerned: Get medical advice/attention. If the battery is compromised, the most probably routes of entry would include eyes, skin, mouth, and inhalation. Lead compounds: Hazardous exposure can occur only when product is heated above melting point, oxidized or otherwise processed or damaged to create dust, vapor or fume.

Eye Contact In case of exposure to electrolyte and lead compounds: Flush immediately with large amounts of clean water or saline for at least 15 minutes. Call a physician immediately.

Skin Contact In case of exposure to electrolyte, flush with large amounts of water for at least 15 minutes. In case of contact with lead compounds: wash immediately with soap and water. Remove contaminated clothing and shoes.

Inhalation In case of exposure to electrolyte, remove to fresh air. If breathing is difficult, give oxygen. In case of exposure to lead compounds, remove from exposure, gargle, wash nose and lips. Call a physician.

Ingestion Rinse mouth. In case of exposure to electrolyte, give large quantities of water. Do NOT induce vomiting. Call a physician. In case of ingestion of lead compounds: consult physician immediately.

Most important symptoms and effects, both acute and delayed

Symptoms Prolonged contact may even cause severe skin irritation or mild burn. Ingestion may cause severe burns to mouth, throat or stomach. Inhalation of sulfuric acid vapors or mists may cause severe respiratory irritation. In severe cases, burns, corneal damage, and blindness may occur.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide (CO2). Dry chemical.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

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. D not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. If batteries are on charge, shut off power. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Wear acid-resistant clothing, boots, gloves, and face shield.

Environmental precautions

Environmental precautions Do not allow discharge of unneutralized acid to sewer.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up 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.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protection recommended in Section 8. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Use only in well-ventilated areas. Handle carefully and avoid tipping, which may allow electrolyte leakage. Single batteries pose no risk of electric shock, but there may be increased risk of electric shock from strings of connected batteries exceeding three 12-volt units.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store locked up. Store batteries under roof in cool, dry, well-ventilated areas that are separated from incompatible materials and from activities that may create flames, spark or heat. Store on smooth, impervious surfaces that are provided with measures for liquid containment in the event of electrolyte spills. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short-circuit.

Incompatible Materials Electrolyte: Contact with combustibles and organic material may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, and reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
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
Lead Sulfate 7446-14-2	TWA: 0.05 mg/m^3 Pb	TWA: 50 µg/m^3 Pb	IDLH: 100 mg/m^3 Pb TWA: 0.050 mg/m^3 Pb
Lead Oxide 1309-60-0	TWA: 0.05 mg/m^3 Pb	TWA: 50 µg/m^3 Pb	IDLH: 100 mg/m^3 Pb 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
Antimony 7440-36-0	TWA: 0.5 mg/m^3 TWA: 0.5 mg/m^3 Sb	TWA: 0.5 mg/m^3 TWA: 0.5 mg/m^3 Sb (vacated) TWA: 0.5 mg/m^3 (vacated) TWA: 0.5 mg/m^3 Sb	IDLH: 50 mg/m^3 IDLH: 50 mg/m^3 Sb TWA: 0.5 mg/m^3 TWA: 0.5 mg/m^3 Sb

Appropriate engineering controls

Engineering Controls None under normal use conditions. Use engineering controls (work station design and ventilation) to reduce exposure below OSHA PEL when potential exposure to battery contents exists. Eyewash stations. Showers.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear safety glasses when handling sealed batteries as a general precaution. If topping is off of a battery or if potential exposure to battery contents exists, wear splash goggles and/or a full face shield.

Skin and Body Protection Wear acid resistant clothing such as apron or splash suit if handling damaged or leaking batteries. Wear chemical and acid resistant gloves when handling electrolyte.

Respiratory Protection No protective equipment is needed under normal use conditions. When responding to a spill involving damaged batteries or potential exposure to battery contents, use a NIOSH approved respirator with particulate and acid gas cartridges.

General Hygiene Considerations Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Sulfuric acid: Liquid Lead: Solid		
Appearance	Industrial/commercial lead acid battery	**Odor**	Odorless
Color	Not determined	**Odor Threshold**	Not applicable

Property	**Values**	**Remarks • Method**
pH	<1	
Melting point / freezing point	Not applicable	
Boiling point / boiling range	113-116°C / 235-240°F	
Flash point	Below room temperature	
Evaporation Rate	<1	N-butyl acetate
Flammability (Solid, Gas)	Not determined	
Flammability Limit in Air		
Upper flammability or explosive limits	74% (as hydrogen gas)	
Lower flammability or explosive limits	4% (as hydrogen gas)	
Vapor Pressure	10 mmHg	
Vapor Density	>1	.? (air = 1)
Relative Density	1.27-1.33	@ 60°F (ASTM D 1298)
Water Solubility	Completely soluble	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Autoignition temperature	Not applicable	
Decomposition temperature	Not determined	
Kinematic viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions.

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
None under normal processing.

Conditions to Avoid
Prolonged overcharge at high current. Ignition sources.

Incompatible materials
Electrolyte: Contact with combustibles and organic material may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, and reducing agents.

Hazardous decomposition products
Electrolyte: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide. 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.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact Causes severe eye damage.

Skin Contact Causes severe skin burns.

Inhalation Harmful if inhaled.

Ingestion Harmful if swallowed.

Component Information

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

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Please see section 4 of this SDS for symptoms.

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

Carcinogenicity IARC has classified "strong inorganic acid mist containing sulfuric acid" as a category 1 carcinogen, 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 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.

Chemical name	ACGIH	IARC	NTP	OSHA
Sulfuric acid 7664-93-9	A2	Group 1	Known	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
NTP (National Toxicology Program)
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive toxicity May damage fertility or the unborn child.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

Oral LD50 747.00
ATEmix (inhalation-dust/mist) 2.20
ATEmix (inhalation-vapor) 6,673.00

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Persistence/Degradability
Not determined.

Bioaccumulation
There is no data for this product.

Mobility
Not determined

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations. Spent batteries: Send to secondary lead smelter for recycling. 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.

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

US EPA Waste Number
Spent lead-acid batteries are not regulated as hazardous waste by the EPA when recycled; however, state and international regulations may vary

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
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	
Antimony 7440-36-0		Included in waste streams: F039, K021, K161, K177		

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Antimony 7440-36-0				Toxic waste waste number K021 Waste description: Aqueous spent antimony catalyst waste from fluoromethanes production.

California Hazardous Waste Status

Chemical name	California Hazardous Waste Status
Lead 7439-92-1	Toxic
Lead Sulfate 7446-14-2	Toxic
Lead Oxide 1309-60-0	Toxic

Sulfuric acid 7664-93-9	Toxic Corrosive
Antimony 7440-36-0	Toxic

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

UN/ID No UN2794
Proper Shipping Name Batteries, Wet, Filled with Acid
Hazard class 8
Packing Group III

IATA

UN number UN2794
Proper Shipping Name Batteries, Wet, Filled with Acid
Transport hazard class(es) 8
Packing Group III

IMDG

UN number UN2794
Proper Shipping Name Batteries, Wet, Filled with Acid
Transport hazard class(es) 8
Packing Group III

15. REGULATORY INFORMATION

International Inventories

Chemical name	TSCA	TSCA Inventory Status	DSL/NDSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Water	X	ACTIVE	X	X	X	X	X	X	X
Lead	X	ACTIVE	X	X	X	X	X	X	X
Lead Sulfate	X	ACTIVE	X	X	X	X	X	X	X
Lead Oxide	X	ACTIVE	X	X	X	X	X	X	X
Sulfuric acid	X	ACTIVE	X	X	X	X	X	X	X
Antimony	X	ACTIVE	X	X	X	X	X	X	X

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

CERCLA

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Lead 7439-92-1	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ
Lead Sulfate 7446-14-2	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

Antimony 7440-36-0	5000 lb 10 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ RQ 10 lb final RQ RQ 4.54 kg final RQ

SARA 311/312 Hazard Categories

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

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

CWA (Clean Water Act)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Lead		X	X	
Lead Sulfate		X		X
Lead Oxide		X		
Sulfuric acid	1000 lb			X
Antimony		X	X	

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Proposition 65
Lead - 7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive
Lead Sulfate - 7446-14-2	Carcinogen
Lead Oxide - 1309-60-0	Carcinogen
Sulfuric acid - 7664-93-9	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Lead 7439-92-1	X	X	X
Lead Sulfate 7446-14-2	X	X	X
Lead Oxide 1309-60-0	X	X	X
Sulfuric acid 7664-93-9	X	X	X
Antimony 7440-36-0	X	X	X

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	Not determined	Not determined	Not determined	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

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Revision Note: Regulatory review

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet