



# Valve Regulated Lead-acid (VRLA) Battery

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations ( According to HCS-2012 APPENDIX D TO §1910.1200 )  
Issue date: 6/1/2022 Revision date: 17/01/2024

### SECTION 1: Identification

#### 1.1. Identification

Product form	: Article
Trade name	: Valve Regulated Lead-acid (VRLA) Battery – Non-spillable, Maintenance-free Lead-acid Battery– Electrolyte Absorbed Glass Mat (AGM) –Battery, Electric Storage, Wet, Non-spillable, Not Regulated
Product Lines	LBTY, LBTY(S), MPS, DNTY, MRX, MRXF, MR, PLP, PLM, SMT, CPS, CPHS, UPS, TEL-TFA/FG/FNG/FGC/FNGC/FNSGC/FNSG/FHT/FGHT/FHTG/FGCHT/F, DCS, MSE, msEndurII, SHC, AES, TROJAN AGM

#### 1.2. Recommended use and restrictions on use

Recommended use	: Electric Storage Battery
Restrictions on use	: No information available

#### 1.3. Supplier

##### Supplier

C&D Trojan (Shanghai) Energy Technologies Co.,Ltd./C&D Trojan (Shanghai) Power Technologies Co.,Ltd.  
No.55,Liandu Road, Fengxian District, Shanghai China 201419  
T +86-2137 111222

##### Importer:

#### 1.4. Emergency telephone number

Emergency number	: 400-678-3721
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### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

This product belongs to the category of battery articles. It has no classification under normal use,.

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labelling

No labelling applicable

#### 2.3. Other hazards which do not result in classification

No additional information available

#### 2.4. Unknown acute toxicity (GHS US)

Not applicable.

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Not applicable.

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### 3.2. Mixtures

This product is belonging to an article, the main contents of this article is shown above:

Full text of hazard classes and H-statements : see section 16

Name	Product identifier	%
Lead	CAS-No.: 7439-92-1	69
Sulfuric acid	CAS-No.: 7664-93-9	22.5
Tin	CAS-No.: 7440-31-5	0.4

Case and separators:

Name	Product identifier	%
Polypropylene	CAS-No.: 9003-07-0	5.6
glass fibre	-	2.5

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.

### 4.2. Most important symptoms and effects (acute and delayed)

No information available.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam.
Unsuitable extinguishing media	: No information available.

### 5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	: Highly flammable hydrogen gas is generated during charging and operation of batteries. If ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery. Follow manufacturer's instructions for installation and service.
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### 5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Stop leak if safe to do so. Evacuate personnel to a safe area. Eliminate every possible source of ignition.
Firefighting instructions	: Eliminate all ignition sources if safe to do so. Stop leak if safe to do so. Keep upwind.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Eliminate every possible source of ignition. Use personal protective equipment as required. Avoid contact with eyes. Keep upwind.
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#### 6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Only qualified personnel equipped with suitable protective equipment may intervene.

#### 6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Stop leak if safe to do so. Evacuate personnel to a safe area.

### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

For containment	: Collect spillage.
Methods for cleaning up	: Stop flow of material, contain/absorb small spills with dry sand, earth or vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc
Other information	: Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling	: Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Wear personal protective equipment. Avoid contact during pregnancy/while nursing. Do not get in eyes, on skin, or on clothing.
Hygiene measures	: Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store batteries under roof in cool, dry, well-ventilated areas separated from incompatible materials and from activities that may create flames, spark, or heat. Store on smooth, impervious surfaces 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.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Lead (7439-92-1)	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
ACGIH OEL TWA	0.05 mg/m <sup>3</sup>
ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
<b>USA - ACGIH - Biological Exposure Indices</b>	
BEI	200 µg/l Parameter: Lead - Medium: blood - Sampling time: not critical (Note: Persons applying this BEI are encouraged to counsel female workers of child-bearing age about the risk of delivering a child with a PbB (lead in blood level) over the current CDC reference value.)
<b>USA - OSHA - Occupational Exposure Limits</b>	
OSHA PEL TWA [1]	50 µg/m <sup>3</sup>
<b>USA - IDLH - Occupational Exposure Limits</b>	
IDLH	100 mg/m <sup>3</sup>
<b>USA - NIOSH - Occupational Exposure Limits</b>	
NIOSH REL TWA	0.05 mg/m <sup>3</sup>
Sulfuric acid (7664-93-9)	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
ACGIH OEL TWA	0.2 mg/m <sup>3</sup> (thoracic particulate matter)
ACGIH chemical category	Suspected Human Carcinogen contained in strong inorganic acid mists
<b>USA - OSHA - Occupational Exposure Limits</b>	
OSHA PEL TWA [1]	1 mg/m <sup>3</sup>
<b>USA - IDLH - Occupational Exposure Limits</b>	
IDLH	15 mg/m <sup>3</sup>
<b>USA - NIOSH - Occupational Exposure Limits</b>	
NIOSH REL TWA	1 mg/m <sup>3</sup>
Tin (7440-31-5)	
<b>USA - ACGIH - Occupational Exposure Limits</b>	
ACGIH OEL TWA	2 mg/m <sup>3</sup> (inhalable particulate matter)
<b>USA - IDLH - Occupational Exposure Limits</b>	
IDLH	100 mg/m <sup>3</sup>
<b>USA - NIOSH - Occupational Exposure Limits</b>	
NIOSH REL TWA	2 mg/m <sup>3</sup>

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### Polypropylene (9003-07-0)

No additional information available

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously, do not tip to avoid spills. Make certain vent caps are on securely. If battery case is damaged, avoid bodily 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 batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Hand protection:

Protective gloves

#### Eye protection:

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

#### Skin and body protection:

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

#### Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: No data available
Odour	: Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.
Odour threshold	: No data available
pH	: 1 – 2 (Electrolyte)
Melting point	: No data available
Freezing point	: Not applicable.
Boiling point	: 110 – 112 °C (Electrolyte)
Flash point	: Below room temperature (as hydrogen gas)
Relative evaporation rate (butylacetate=1)	: < 1 (Electrolyte)
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: 10 mm Hg (Electrolyte)
Relative vapour density (Air=1)	: > 1 (Electrolyte)
Relative density	: 1 – 1.6 (Electrolyte)
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: No data available
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: No data available

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Explosive limits	: Lower explosion limit: 4.1 vol % (Hydrogen) Upper explosion limit: 74.2 vol % (Hydrogen)
Explosive properties	: No data available
Oxidising properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Prolonged overcharge at high current; sources of ignition.

### 10.5. Incompatible materials

Electrolyte: 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. Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen, and reducing agents.

### 10.6. 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.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified pH: 1 – 2 (Electrolyte)
Serious eye damage/irritation	: Not classified pH: 1 – 2 (Electrolyte)
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

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Viscosity, kinematic : Not applicable.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : No additional information available

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

##### Sulfuric acid (7664-93-9)

BCF - Fish	(no bioaccumulation)
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#### 12.4. Mobility in soil

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.

#### 12.5. Other adverse effects

No known effects on stratospheric ozone depletion.

Volatile organic compounds: 0% (by Volume)

Water Endangering Class (WGK): NA

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Waste treatment methods : Electrolyte: Place neutralized slurry into sealed acid resistant containers and dispose of as hazardous waste, as applicable. Large water diluted spills, after neutralization and testing, should be managed in accordance with approved local, national regulation or standards requirements.

Sewage disposal recommendations : During the treatment of battery sewage, water pretreatment is required. Some visible and large particle suspended solids are filtered and selected. Generally, large particle pollutants can be filtered through strainers, filter cloths or grids.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

#### 14.1. UN number

Not regulated for transport.

The batteries are excepted from regulation if they have been tested in accordance with the vibration and pressure differential tests found in 49 CFR 173.159(f) and "rupture test" found at 49 CFR 173.159a;

The batteries are excepted from regulation if they have been tested in accordance with the vibration and pressure differential tests found in Packing Instruction 872 and "rupture test" found in Special Provision A67 of the International Air Transport Association (IATA) Dangerous Goods Regulations. The words "Not Restricted" and "Special Provision A67" must be included in the description of the substance on the Air Waybill when an Air Waybill is issued.

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The batteries are exempt from regulation since they have been tested and meet the IMDG Special Provision 238.

The special provision 239/A67 mainly describes as below contents:

Batteries can be considered as non-spillable provided that they are capable of withstanding the vibration and pressure differential tests, Non-spillable batteries are not subject to the requirements of relevant transportation regulations if, at a temperature of 55 ° C, 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.

### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Not applicable.  
Proper Shipping Name (TDG) : Not applicable.  
Proper Shipping Name (IMDG) : Not applicable.  
Proper Shipping Name (IATA) : Not applicable.

### 14.3. Transport hazard class(es)

**DOT**  
Transport hazard class(es) (DOT) : Not applicable.

**TDG**  
Transport hazard class(es) (TDG) : Not applicable.

**IMDG**  
Transport hazard class(es) (IMDG) : Not applicable.

**IATA**  
Transport hazard class(es) (IATA) : Not applicable.

### 14.4. Packing group

Packing group (DOT) : Not applicable.  
Packing group (TDG) : Not applicable.  
Packing group (IMDG) : Not applicable.  
Packing group (IATA) : Not applicable.

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

**DOT**  
No data available

**TDG**  
No data available

**IMDG**  
No data available

**IATA**  
No data available

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.



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### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Lead	7439-92-1	Present	Active	
Sulfuric acid	7664-93-9	Present	Active	
Tin	7440-31-5	Present	Active	
Polypropylene	9003-07-0	Present	Active	XU

#### Lead (7439-92-1)

Subject to reporting requirements of United States SARA Section 313

CERCLA RQ	10 lb no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm
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#### Sulfuric acid (7664-93-9)

Subject to reporting requirements of United States SARA Section 313

CERCLA RQ	1000 lb
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
Section 302 EPCRA Reportable Quantity (RQ)	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb

#### 15.2. International regulations

##### CANADA

#### Lead (7439-92-1)

Listed on the Canadian DSL (Domestic Substances List)

Toxic Substance (CEPA – Schedule I)	Yes
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#### Sulfuric acid (7664-93-9)

Listed on the Canadian DSL (Domestic Substances List)

#### Tin (7440-31-5)

Listed on the Canadian DSL (Domestic Substances List)

#### Polypropylene (9003-07-0)

Listed on the Canadian DSL (Domestic Substances List)

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### EU-Regulations

#### Lead (7439-92-1)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Sulfuric acid (7664-93-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Tin (7440-31-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### National regulations

#### Lead (7439-92-1)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Pollutant Release and Transfer Register Law (PRTR Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the Vietnam NCI (National Chemicals Inventory)

#### Sulfuric acid (7664-93-9)

Listed on IARC (International Agency for Research on Cancer)  
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Japanese Poisonous and Deleterious Substances Control Law  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the Vietnam NCI (National Chemicals Inventory)

#### Tin (7440-31-5)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
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### Polypropylene (9003-07-0)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the Vietnam NCI (National Chemicals Inventory)

### 15.3. US State regulations

#### Lead (7439-92-1)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes	15 µg/day (oral)	0.5 µg/day

### SECTION 16: Other information

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Revision date : 11/01/2022  
Data sources : LOLI. ECHA reference.  
Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

#### Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
EC50	Median effective concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.