Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

*

SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**

· **Application of the substance / the preparation:** Batteries

· **Uses advised against:** No further relevant information available.

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**
CSB Energy Technology Co., Ltd.
No. 16 Gongye W. Rd.
Erzhen Village, Guantian District
Tainan City 72048
Taiwan (R.O.C.)
Phone: +886-6-698-7600
Fax: +886-6-698-7605
E-mail: service@csb-battery.com.tw

· **1.4 Emergency telephone number:**
Taiwan Office: +886-2-2880-5600 (Business hour in Taiwan)
Europe Office: +31 (0) 180 418 140 (Keurmeesterstraat 28-30, 2984 BA Ridderkerk, The Netherlands)
Chemtrec: (800) 424-9300 / +1 703 527-3887

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

Acute Tox. 4	H302	Harmful if swallowed.
Acute Tox. 4	H332	Harmful if inhaled.
Skin Corr. 1A	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.
Carc. 2	H351	Suspected of causing cancer.
Repr. 1A	H360FD-H362	May damage fertility. May damage the unborn child. May cause harm to breast-fed children.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.
Aquatic Acute 1	H400	Very toxic to aquatic life.
Aquatic Chronic 1	H410	Very toxic to aquatic life with long lasting effects.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**



GHS05 GHS07 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**
lead dioxide
sulphuric acid
lead
lead sulphate

(Contd. on page 2)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 1)

· ***Hazard statements***
H302+H332 Harmful if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.
H360FD-H362 May damage fertility. May damage the unborn child. May cause harm to breast-fed children.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

· ***Precautionary statements***
P260 Do not breathe dusts or mists.
P263 Avoid contact during pregnancy and while nursing.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***Additional information:***
EUH201 Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.

· ***2.3 Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not determined.*
· ***vPvB:*** *Not determined.*

*
SECTION 3: Composition/information on ingredients

· ***3.2 Chemical characterisation: Mixtures***

· ***Description:***		
CAS: 9003-56-9	*ABS*	*5 - 9%*
CAS: 65997-17-3 *EC number: 266-046-0*	*Fibrous Glass*	*1 - 2%*

· ***Dangerous components:***		
CAS: 7439-92-1 *EC number: 231-100-4*	*lead* *Repr. 1A, H360FD-H362; STOT RE 1, H372*	*40 - 60%*
CAS: 1309-60-0 *EC number: 215-174-5* *Index number: 082-001-00-6*	*lead dioxide* *Repr. 1A, H360Df; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332*	*15 - 30%*
CAS: 7664-93-9 *EC number: 231-639-5* *Index number: 016-020-00-8*	*sulphuric acid* *Skin Corr. 1A, H314*	*20 - 30%*
CAS: 7446-14-2 *EC number: 231-198-9* *Index number: 082-001-00-6*	*lead sulphate* *Repr. 1A, H360Df; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332*	*1 - 10%*

· ***SVHC***	
CAS: 7439-92-1	*lead*

· ***Additional information:*** *For the wording of the listed hazard phrases refer to section 16.*

(Contd. on page 3)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 2)

SECTION 4: First aid measures

· ***4.1 Description of first aid measures***
· ***General information:***
Take affected persons out of danger area and lay down.
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· ***After inhalation:***
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· ***After skin contact:***
Immediately rinse with water.
Call a doctor immediately.
· ***After eye contact:***
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a doctor immediately.
· ***After swallowing:***
Rinse out mouth and then drink plenty of water.
Do NOT induce vomiting.
Call for a doctor immediately.
· ***4.2 Most important symptoms and effects, both acute and delayed*** *No further relevant information available.*
· ***4.3 Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

SECTION 5: Firefighting measures

· ***5.1 Extinguishing media***
· ***Suitable extinguishing agents:***
CO_2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire extinguishing methods suitable to surrounding conditions.
· ***For safety reasons unsuitable extinguishing agents:*** *Water with full jet*
· ***5.2 Special hazards arising from the substance or mixture***
There is a possibility of explosion of the product by heat.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Carbon monoxide
Carbon dioxide
Sulphur oxides (SOx)
· ***5.3 Advice for firefighters***
· ***Protective equipment:*** *Wear self-contained respiratory protective device.*
· ***Additional information***
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

SECTION 6: Accidental release measures

· ***6.1 Personal precautions, protective equipment and emergency procedures***
Do not touch or walk through the leakage.
Ensure adequate ventilation.
Wear protective equipment. Keep unprotected persons away.
Avoid formation of dust.
Keep away from ignition sources.
· ***6.2 Environmental precautions:*** *Do not allow to enter sewers/ surface or ground water.*

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 3)

· ***6.3 Methods and material for containment and cleaning up:***
Absorb spillage with dry earth, sand or other fire retardant material or covered by, put into sealed container for waste disposal. And then, neutralize the spillage with sodium bicarbonate or slaked lime, and wash off with plenty of water.
Use neutralising agent.
Pick up mechanically.
Dispose of the material collected according to regulations.
· ***6.4 Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· ***7.1 Precautions for safe handling***
Do not dismantle or modify the product.
Do not do short-circuit between the terminals.
Ensure good ventilation/exhaustion at the workplace.
· ***Information about fire and explosion protection:***
Hydrogen emission will occur during charging which will form explosive air mixture.
Keep ignition sources away - Do not smoke.

· ***7.2 Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and receptacles:*** *Store only in the original receptacle.*
· ***Information about storage in one common storage facility:*** *Store away from oxidising agents.*
· ***Further information about storage conditions:***
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.

· ***7.3 Specific end use(s)*** *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

· ***8.1 Control parameters***

· ***Ingredients with limit values that require monitoring at the workplace:***	
CAS: 7439-92-1 lead	
BOELV (EU)	*Long-term value: 0.15 mg/m³* *as Pb*
CAS: 1309-60-0 lead dioxide	
BOELV (EU)	*Long-term value: 0.15 mg/m³* *as Pb*
CAS: 7664-93-9 sulphuric acid	
WEL (Great Britain)	*Long-term value: 0.05* mg/m³* **mist: defined as thoracic fraction*
IOELV (EU)	*Long-term value: 0.05 mg/m³*
CAS: 7446-14-2 lead sulphate	
BOELV (EU)	*Long-term value: 0.15 mg/m³* *as Pb*

(Contd. on page 5)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 4)

· ***8.2 Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Do not eat, drink, smoke or sniff while working.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Store protective clothing separately.
Avoid contact with the eyes and skin.
The usual precautionary measures are to be adhered to when handling chemicals.
· ***Respiratory protection:***
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· ***Protection of hands:***



Protective gloves

Only use chemical-protective gloves with CE-labelling of category III.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.
· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:*** *Safety glasses*
· ***Body protection:*** *Protective work clothing*

SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
Form:	*Solid*
Colour:	*Not determined.*
· ***Odour:***	*Not determined.*
· ***Odour threshold:***	*Not determined.*
· ***pH-value:***	*≤ 1*
· ***Change in condition***	
Melting point/freezing point:	*Not determined.*
Initial boiling point and boiling range:	*Not determined.*
· ***Flash point:***	*Non-flammable.*
· ***Flammability (solid, gas):***	*Not applicable.*
· ***Ignition temperature:***	*Not combustible.*

(Contd. on page 6)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 5)

· **Decomposition temperature:**	Not determined.
· **Explosive properties:**	Product does not present an explosion hazard. Hydrogen generated during charing may form explosive air mixture.
· **Explosion limits:**	
Lower:	4 Vol % (Hydrogen)
Upper:	75 Vol % (Hydrogen)
· **Oxidising properties**	No
· **Vapour pressure:**	Not determined.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability** No decomposition if used and stored according to specifications.
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions**
May produce violent reactions with bases.
Reacts with metals forming hydrogen.
· **10.4 Conditions to avoid** Keep away from heat and direct sunlight.
· **10.5 Incompatible materials:**
Strong oxidizing agents
Reducing agent
Alkaline materials (bases)
· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
Harmful if swallowed or if inhaled.

· **LD/LC50 values relevant for classification:**		
CAS: 7439-92-1 lead		
Inhalative	LC50 (4h)	11 mg/L (vapour)
CAS: 7664-93-9 sulphuric acid		
Oral	LD50	2140 mg/kg (Rat)
Inhalative	LC50 (4h)	0.375 mg/L (Rat) (OECD Guideline 403, inhalation:aerosol)

(Contd. on page 7)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 6)

· ***Primary irritant effect:***
· ***Skin corrosion/irritation***
Causes severe skin burns and eye damage.
· ***Serious eye damage/irritation***
Causes serious eye damage.
· ***Respiratory or skin sensitisation*** *Based on available data, the classification criteria are not met.*
· ***CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)***
· ***Germ cell mutagenicity*** *Based on available data, the classification criteria are not met.*
· ***Carcinogenicity***
Suspected of causing cancer.
· ***Reproductive toxicity***
May damage fertility. May damage the unborn child. May cause harm to breast-fed children.
· ***STOT-single exposure*** *Based on available data, the classification criteria are not met.*
· ***STOT-repeated exposure***
Causes damage to organs through prolonged or repeated exposure.
· ***Aspiration hazard*** *Based on available data, the classification criteria are not met.*

*
SECTION 12: Ecological information

· ***12.1 Toxicity***

· ***Aquatic toxicity:***	
CAS: 7664-93-9 sulphuric acid	
LC50 (96h) (static)	*> 16 - < 28 mg/L (Fish) (Lepomis macrochirus) nominal*
ErC50 (72h) (static)	*> 100 mg/L (Algae) (OECD Guideline 201, Desmodesmus subspicatus) nominal*
EC50 (48h) (static)	*> 100 mg/L (Daphnia) (OECD Guideline 202, Daphnia magna) nominal*
CAS: 7446-14-2 lead sulphate	
IC50	*0.5 mg/L (Daphnia) (48h, Daphnia magna)*

· ***12.2 Persistence and degradability*** *No further relevant information available.*

· ***12.3 Bioaccumulative potential*** *No further relevant information available.*

· ***12.4 Mobility in soil*** *No further relevant information available.*

· ***12.5 Results of PBT and vPvB assessment***
This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

· ***12.6 Other adverse effects*** *No further relevant information available.*

SECTION 13: Disposal considerations

· ***13.1 Waste treatment methods***
· ***Recommendation:*** *Must be specially treated adhering to official regulations.*

· ***Uncleaned packaging***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

(Contd. on page 8)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 7)

*
SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR/RID/ADN, IMDG, IATA**	UN2800
· **14.2 UN proper shipping name**	
· **ADR/RID/ADN**	BATTERIES, WET, NON-SPILLABLE, electric storage
· **IMDG, IATA**	BATTERIES, WET, NON-SPILLABLE, electric storage
· **14.3 Transport hazard class(es)**	
· **ADR/RID/ADN, IMDG, IATA**	
· **Class**	8 Corrosive substances.
· **Label**	8
· **14.4 Packing group**	
· **ADR/RID/ADN, IMDG, IATA**	Not applicable.
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	
· **Hazard identification number (Kemler code):**	Not applicable.
· **EMS Number:**	Not applicable.
· **Stowage Category**	Not applicable.
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:**	Not applicable.
· **Transport/Additional information:**	

· **Remarks:**

Special Provision:
ADR/RID:
New and spent (used) batteries are exempted from all ADR/RID (special provision 598)
SEA transport:
non-Spillable batteries meet the requirements of Special Provision 238, they are exempted from all IMDG codes and are not subject to special regulation for sea transport.
Air transport:
Special Provision A67: CSB's VRLA batteries meet the requirements of Packing Instruction 872.

The battery has been prepared for transport so as to prevent:

a) A short circuit by the effective insulation of exposed terminals; and
b) Unintentional activation.

Remarks:
All batteries are identified as “Battery, Electric Storage, Wet, Non-spillable" when transported by air, sea or by land transportation.

(Contd. on page 9)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 8)

.

The battery(s) must be identified as above on the Bill of Lading and properly packed with their terminals protected from short circuit.

Our battery(s) warning label identifies each battery as NON SPILLABLE.

CSB VRLA-AGM batteries are classified as "Non spillable" for the purpose of transportation as result of passing the Vibration and Pressure Differential Test.

CSB VRLA-AGM batteries can be safely transported on deck, or under deck stored on either a passenger or cargo vessel as result of passing the Vibration and Pressure Differential Tests as described in the IMDG regulations (Special Provision 238).

*
SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category** E1 Hazardous to the Aquatic Environment
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 30, 63, 72

· **Regulation (EU) No 649/2012**		
CAS: 1309-60-0	lead dioxide	Annex I Part 1
CAS: 7446-14-2	lead sulphate	Annex I Part 1

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**	
CAS: 7439-92-1	lead

· **National regulations:**

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**	
CAS: 7439-92-1	lead

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.

(Contd. on page 10)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 20.07.2020 *Version No: 2.00* *Revision: 20.07.2020*

Trade name: Valve Regulated Lead-acid Battery (VRLA Battery)

(Contd. of page 9)

H360Df May damage the unborn child. Suspected of damaging fertility.
H360FD May damage fertility. May damage the unborn child.
H362 May cause harm to breast-fed children.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· ***Abbreviations and acronyms:***
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
MARPOL: (from Marine Pollutant) International Convention for the Prevention of Marine Pollution from Ships
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
UN: United Nations (also UNO: United Nations Organization)
NOEC: No Observed Effect Concentration
OECD: Organisation for Economic Co-operation and Development
ASTM: American Society for Testing and Materials
WAF: Water Accommodated Fraction
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity - oral – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Carc. 2: Carcinogenicity – Category 2
Repr. 1A: Reproductive toxicity – Category 1A
Repr. 1A: Reproductive toxicity – Category 1A
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

· **** Data compared to the previous version altered.***