

**SALICRU**

VALVE REGULATED RECHARGEABLE BATTERY



Version: 2 Revision: 17/04/2018

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This product is a sealed lead acid battery and does not contain substances intended to be released under normal or reasonably foreseeable conditions of use. The information below is intended for repeated and prolonged contact with the battery contents in an occupational setting. In the absence of an incident or accident, is not likely to apply to normal product use. Inappropriate use of the product, as in the case of overcharging, may lead to the formation of sulfuric acid mists. Hazardous exposure to lead can only occur when the product is heated, oxidized, damaged or handled in a way that can produce dust, smoke or vapours. However, this Safety Data Sheet (SDS) contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product.

**SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

- 1.1 **PRODUCT IDENTIFIER:** VALVE REGULATED RECHARGEABLE BATTERY
- 1.2 **RELEVANT IDENTIFIED USES AND USES ADVISED AGAINST:**  
Intended uses (main technical functions): [X] Industrial [X] Professional  
 Battery.  
Relevant product types:  
 # Industrial product (others), industrial, professional.  
Sectors of use:  
 # Industrial manufacturing (SU3).  
 # Professional uses (SU22).  
Uses advised against:  
 This product is not recommended for any use or sector of use (industrial, professional or consume) other than those previously listed as 'Intended or identified uses'. For professional use only.  
Restrictions on manufacture, placing on market and use, according to Annex XVII of Regulation (EC) No. 1907/2006:  
 Contains: Contains CMR substances, categories 1 or 2: Restricted to professional users. Forbidden to the general public. See entry 28 and/or 29 and/or 30 in the Annex of the Regulation (EC) No. 552/2009~276/2010.
- 1.3 **DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET:**  
 SALICRU, S.A.  
 Avda. de la Serra 100 - E-08460 - Santa María de Palautordera (Barcelona)  
 Phone: +34 93 8482400 - Fax: +34 93 8482739  
E-mail address of the person responsible for the Safety Data Sheet:  
 salicru@salicru.com
- 1.4 **EMERGENCY TELEPHONE NUMBER:** +34 93 8482400 (8:00-18:00 h.) (working hours)

**SECTION 2 : HAZARDS IDENTIFICATION**

- 2.1 **CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:**  
Classification in accordance with Regulation (EU) No. 1272/2008~2017/776 (CLP):  
 DANGER: Skin Corr. 1A:H314 | Repr. 1A:H360FD | Lact.:H362 | STOT RE 1:H372 | Aquatic Chronic 2:H411

Danger class	Classification of the mixture	Cat.	Routes of exposure	Target organs	Effects
<u>Physicochemical:</u> Not classified	Skin Corr. 1A:H314 Repr. 1A:H360FD Lact.:H362 STOT RE 1:H372 Aquatic Chronic 2:H411	Cat. 1A Cat. 1A - Cat. 1 Cat. 2	Skin, Eyes . Ingestion . -	Skin, Eyes Reproductive system - Systemic -	Burns Fertility, Foetus - Damage -
<u>Human health:</u> 					
<u>Environment:</u> 					

Full text of hazard statements mentioned is indicated in section 16.

Note: When in section 3 a range of percentages is used, the health and environmental hazards describe the effects of the highest concentration of each component, but below the maximum value.

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

- 2.2 **LABEL ELEMENTS:**  
  
 This product is labelled with the signal word DANGER in accordance with Regulation (EU) No. 1272/2008~2017/776 (CLP)
- Hazard statements:  
 H362  
 H360FD  
 H372  
 H314  
 H411  
Precautionary statements:  
 P102-P405  
 P201-P202  
 P280F  
 P363  
 P301+P330+P331-P310  
 P303+P361+P353-P352-P312
- May cause harm to breast-fed children.  
 May damage fertility. May damage the unborn child.  
 Causes damage to organs through prolonged or repeated exposure.  
 Causes severe skin burns and eye damage.  
 Toxic to aquatic life with long lasting effects.
- Keep out of reach of children. Store locked up.  
 Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.  
 Wear protective gloves, clothing and eye protection. In case of inadequate ventilation wear respiratory protection.  
 Wash contaminated clothing before reuse.  
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 Wash with plenty of soap and water. Call a POISON CENTER or doctor if you feel unwell.

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P305+P351+P338-P310

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.

P273-P391-P501a

Avoid release to the environment. Collect spillage. Dispose of contents/container in accordance with local regulations.

Supplementary statements:

EUC028

Restricted to professional users.

Substances that contribute to classification:

Lead

Sulphuric acid

Lead dioxide

Lead sulphate

2.3

OTHER HAZARDS:

Hazards which do not result in classification but which may contribute to the overall hazards of the mixture:

Other physicochemical hazards: Under abnormal use in not ventilated rooms may form explosive air/gas mixture during charging or when extreme overcharging (extremely flammable hydrogen gas, with explosion, fire, blast or projection hazard).

Other adverse human health effects: No other relevant adverse effects are known.

Other negative environmental effects: Does not contain substances that fulfil the PBT/vPvB criteria.

**SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS**

3.1

SUBSTANCES:

Not applicable (mixture).

3.2

MIXTURES:

This product is an article.

Chemical description:

The lead and acid battery consists of a sealed case made of plastic material acrylonitrile-butadiene-styrene (ABS) containing dilute sulphuric acid and inside it a set of lead plates, parallel to one another and arranged alternately in terms of their polarity positive (+) and negative (-). To prevent bending of the positive plates, an additional negative plate is provided, so that there is always an outer negative plate. Generally, in their manufacture, the positive plates are coated or impregnated with lead dioxide (PbO<sub>2</sub>), and the negative ones are formed by spongy lead. This initial state corresponds to the charged battery, so the initially added electrolyte must correspond to the battery with full charge (density 1.280 g/ml). In order to avoid direct electrical contact between positive and negative plates, there are acid-resistant glass fibre insulating separators which allow the free circulation of the electrolyte.

HAZARDOUS INGREDIENTS:

Substances taking part in a percentage higher than the exemption limit:

50 &lt; 60 %

Lead

CAS: 7439-92-1, EC: 231-100-4

CLP: Danger: Repr. 1A:H360FD | Lact.: H362 | STOT RE 1:H372

Index No. 082-014-00-7  
< Autoclassified

15 &lt; 20 %

Sulphuric acid

CAS: 7664-93-9, EC: 231-639-5

CLP: Danger: Skin Corr. 1A:H314

Index No. 016-020-00-8  
< CLP00

15 &lt; 20 %

Lead dioxide

CAS: 1309-60-0, EC: 215-174-5

CLP: Danger: Ox. Sol. 3:H272 | Acute Tox. (inh.) 4:H332 | Acute Tox. (oral) 4:H302 | Repr. 1A:H360FD | STOT RE 2:H373 | Aquatic Chronic 1:H410

(Note 1) Index No. 082-001-00-6  
< Autoclassified

1 &lt; 2,5 %

Lead sulphate

CAS: 7446-14-2, EC: 231-198-9

CLP: Danger: Acute Tox. (inh.) 4:H332 | Acute Tox. (oral) 4:H302 | Repr. 1A:H360Df | STOT RE 2:H373 | Aquatic Acute 1:H400 | Aquatic Chronic 1:H410

(Note 1) Index No. 082-001-00-6  
< CLP00Impurities:

Content of arsenic < 1%, tin < 0.5%, calcium < 0.1% (as alloy with Pb). May contain other impurities that do not influence the classification of the product.

Stabilizers:

None

Reference to other sections:

For more information on hazardous ingredients, see sections 8, 11, 12 and 16.

SUBSTANCES OF VERY HIGH CONCERN (SVHC):

List updated by ECHA on 15/01/2018.

Substances SVHC subject to authorisation, included in Annex XIV of Regulation (EC) no. 1907/2006:

None

Substances SVHC candidate to be included in Annex XIV of Regulation (EC) no. 1907/2006:

None




PERSISTENT, BIOACCUMULABLE AND TOXIC PBT, OR VERY PERSISTENT AND VERY BIOACCUMULABLE VPVB SUBSTANCES:

Does not contain substances that fulfil the PBT/vPvB criteria.

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**SECTION 4 : FIRST AID MEASURES**

4.1	<b>DESCRIPTION OF FIRST-AID MEASURES:</b>  <i># In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Never give anything by mouth to an unconscious person. Lifeguards should pay attention to self-protection and use the recommended protective equipment if there is a possibility of exposure. Wear protective gloves when administering first aid.</i>		
	Route of exposure	Symptoms and effects, acute and delayed	Description of first-aid measures
	<u>Inhalation:</u>	Inhalation produces burning sensation, coughing, breathlessness and sore throat.	Should there be any symptoms, transfer the person affected to the open air.
	<u>Skin:</u> 	Skin contact causes redness, burns and pain.	Remove immediately contaminated clothing. Wash thoroughly the affected area with plenty of cold or lukewarm water and a solution of 5% sodium bicarbonate. Finally, rewash the affected area with soap and water.
	<u>Eyes:</u> 	Contact with the eyes produces redness, pain, serious burns and loss of vision.	Rinse eyes copiously by irrigation with plenty of clean, fresh water for at least 15 minutes, holding the eyelids apart, until the irritation is reduced. Remove contact lenses after the first 1-2 minutes and continue washing for a few minutes. Contact immediately with an occupational medicine specialist or an ophthalmologist.
	<u>Ingestion:</u>	If swallowed, causes severe burns on the lips, mouth, throat and oesophagus, with gastric disorders and abdominal pain.	If swallowed, seek immediate medical attention. Drink large quantities of water. Do not induce vomiting. Keep the patient at rest.
4.2	<b>MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:</b> The main symptoms and effects are indicated in sections 4.1 and 11		
4.3	<b>INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:</b> <u>Notes to physician:</u> Treatment should be directed at the control of symptoms and the clinical condition of the patient. The presence of lead in the organism may be detected determining the amount of metal in the blood and the urine. <u>Antidotes and contraindications:</u> Specific antidote not known.		

**SECTION 5 : FIRE-FIGHTING MEASURES**

5.1	<b>EXTINGUISHING MEDIA:</b> In case of fire in the surroundings, all extinguishing agents are allowed.
5.2	<b>SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE :</b> During a fire, carbon oxides, sulfur trioxide, sulfur dioxide, sulfuric acid mist, hydrogen sulfide, nitrogen oxides and toxic lead metal fumes may be formed. Exposure to combustion or decomposition products may be a hazard to health. Carbon monoxide is very toxic by inhalation. Carbon dioxide, in sufficient concentrations, may behave as a suffocating gas. Nitrogen oxides are toxic gases. Sulphur oxides are toxic gases.
5.3	<b>ADVICE FOR FIREFIGHTERS:</b> <u>Special protective equipment:</u> Depending on magnitude of fire, heat-proof protective clothing may be required, appropriate independent breathing apparatus, gloves, protective glasses or face masks and boots. If the fire-proof protective equipment is not available or is not being used, combat fire from a sheltered position or from a safe distance. The standard EN469 provides a basic level of protection for chemical incidents. <u>Other recommendations:</u> Cool with water the tanks, cisterns or containers close to sources of heat or fire. Bear in mind the direction of the wind. Do not allow fire-fighting residue to enter drains, sewers or water courses.

**SECTION 6 : ACCIDENTAL RELEASE MEASURES**

6.1	<b>PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:</b> Avoid contact with skin and eyes. Use gloves, goggles and adequate protection clothing.
6.2	<b>ENVIRONMENTAL PRECAUTIONS:</b> Avoid contamination of drains, surface or subterranean water and soil. In the case of large scale spills or when the product contaminates lakes, rivers or sewages, inform the appropriate authorities in accordance with local regulations.
6.3	<b>METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:</b> There is no release of material unless the case is damaged or battery is misused/overcharged. If release occurs stop flow of material, contain/absorb all spills with dry sand, earth, or vermiculite. Do not use combustible materials. Neutralize spilled material with soda ash, sodium bicarbonate, lime, etc. Dispose as hazardous waste. Do not discharge acid to sewer.
6.4	<b>REFERENCE TO OTHER SECTIONS:</b> For contact information in case of emergency, see section 1. For information on safe handling, see section 7. For exposure controls and personal protection measures, see section 8. For waste disposal, follow the recommendations in section 13.

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**SECTION 7 : HANDLING AND STORAGE**

7.1

**PRECAUTIONS FOR SAFE HANDLING:**

Comply with the existing legislation on health and safety at work.

**General recommendations:**

Handle batteries carefully to avoid damaging the case. Do not allow metallic articles to contact the battery terminals during handling. Do not open the battery. Avoid contact with the internal components of the battery.

**Recommendations for the prevention of fire and explosion risks:**

Always be aware of the risk of fire, explosion, or burns. Keep away from fire or open flame. Due to the battery's low internal resistance and high power density, high levels of short circuit current can be developed across the battery terminals. Do not short circuit the (+) and (-) terminals with any other metals. Do not disassemble or modify the battery. Do not solder a battery directly. Do not rest tools or cables on the battery. Use insulated tools only. Follow all installation instructions and diagrams when installing or maintaining battery systems.

**Recommendations for the prevention of toxicological risks:**

Pregnant women should not be employed in any process in which this product is used. Do not eat, drink or smoke while handling. After handling, wash hands with soap and water. For exposure controls and personal protection measures, see section 8.

**Recommendations for the prevention of environmental contamination:**

Product dangerous to the environment. Avoid any spillage in the environment. Pay special attention to the cleaning water. In the case of accidental spillage, follow the instructions indicated in section 6.

7.2

**CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:**

Forbid the entry to unauthorized persons. Keep out of reach of children. Store the batteries in a cool, dry and well-ventilated area, separated from incompatible materials and away from any activity that could generate flames, sparks or heat. Keep them separated from metallic articles that could contact the positive and negative terminals of the battery and create a short circuit situation. For more information, see section 10.

**Class of storage**

: According to current legislation.

**Maximum storage period**

: 24 months (recharge the battery every 6 months).

**Temperature interval**

: min: 5. °C, max: 40. °C (recommended).

**Incompatible materials:**

Keep away from water, reducing agents, oxidizing agents, acids, alkalis, combustible materials.

**Type of packaging:**

According to current legislation.

**Limit quantity (Seveso III): Directive 2012/18/EU:**

Not applicable.

7.3

**SPECIFIC END USES:**

For the use of this product do not exist particular recommendations apart from that already indicated.

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**SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION**

8.1

**CONTROL PARAMETERS:**

If a product contains ingredients with exposure limits, may be necessary a personnel monitoring, work place or biological, to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to EN689, EN14042 and EN482 standard concerning methods for assessing the exposure by inhalation to chemical agents, and exposure to chemical and biological agents. Reference should be also made to national guidance documents for methods for the determination of dangerous substances.

**OCCUPATIONAL EXPOSURE LIMIT VALUES (TLV)**

AGCIH 2017	Year	TLV-TWA		TLV-STEL		Remarks
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
Sulphuric acid	2004	-	0.20	-	-	Thoracic fraction A2
Lead dioxide	1995	-	0.050	-	-	As Pb A3 , BEI
Lead sulphate	1995	-	0.050	-	-	As Pb A3 , BEI

TLV - Threshold Limit Value, TWA - Time Weighted Average, STEL - Short Term Exposure Limit.

A2 - Suspected carcinogenic in humans.

A3 - Carcinogenic in animals.

BEI - Biological exposure index (biological monitoring).

It is applicable the Directive 82/605/EEC, on the protection of workers from the risks related to exposure to metallic lead and its ionic compounds at work.

**BIOLOGICAL LIMIT VALUES:**

This preparation contains the following substances that have established a biological limit value:

- Lead dioxide (lead inorganic compounds) (2016): Biological determinant: lead in blood, BEI: 200 µg/dl, Sampling time: not critical (3), Notes: (Pb).

- Lead sulphate (lead inorganic compounds) (2016): Biological determinant: lead in blood, BEI: 200 µg/dl, Sampling time: not critical (3), Notes: (Pb).

(3) Indicators with non-critical sampling moment have very long elimination half-lives, accumulate in the organism for years and some, throughout life. Once the steady state that depends on each biological indicator (weeks, months) has been reached, sampling of these can be done at any time. It is essential to consult the specific documentation in this regard.

(Pb) Persons applying this BEI are encouraged to counsel female workers of child-bearing age about the risk of delivering a child with a PbB over the current CDC reference value (CDC: Guidelines for the identification and management of lead exposure in pregnant and lactating women, 2010).

**DERIVED NO-EFFECT LEVEL (DNEL):**

Derived no-effect level (DNEL) is a level of exposure that is considered safe, derived from toxicity data according to specific guidances included in REACH. DNEL values may differ from an occupational exposure limit (OEL) for the same chemical. OEL values may come recommended by a particular company, a government regulatory agency or an organization of experts. Although considered protective of health, the OEL values are derived by a process different of REACH.

**Derived no-effect level, workers:**

- Systemic effects, acute and chronic:

Not available (without data of registration REACH).

DNEL Inhalation  
mg/m<sup>3</sup>

-

DNEL Cutaneous  
mg/kg bw/d

-

DNEL Oral  
mg/kg bw/d

-

**Derived no-effect level, workers:**

- Local effects, acute and chronic:

Not available (without data of registration REACH).

DNEL Inhalation  
mg/m<sup>3</sup>

-

DNEL Cutaneous  
mg/cm<sup>2</sup>

-

DNEL Eyes  
mg/cm<sup>2</sup>

-

**Derived no-effect level, general population:**

Not applicable (product for professional or industrial use).

**PREDICTED NO-EFFECT CONCENTRATION (PNEC):****Predicted no-effect concentration, aquatic organisms:**

- Fresh water, marine water and intermittent release:

Not available (without data of registration REACH).

PNEC Fresh water  
mg/l

-

PNEC Marine  
mg/l

-

PNEC Intermittent  
mg/l

-

- Wastewater treatment plants (STP) and sediments in fresh- and marine water:

Not available (without data of registration REACH).

PNEC STP  
mg/l

-

PNEC Sediments  
mg/kg dry weight

-

PNEC Sediments  
mg/kg dry weight

-

**Predicted no-effect concentration, terrestrial organisms:**

- Air, soil and effects for predators and humans:

Not available (without data of registration REACH).

PNEC Air  
mg/m<sup>3</sup>

-

PNEC Soil  
mg/kg dry weight

-

PNEC Oral  
mg/kg bw/d

-

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8.2 EXPOSURE CONTROLS:ENGINEERING MEASURES:

Store and handle the batteries in a well-ventilated area. If mechanical ventilation is used, the components should be resistant to acids.

Protection of respiratory system: Avoid the inhalation of product.

Protection of eyes and face: Install water taps, sources or eyewash bottles with clean water close to the working area.

Protection of hands and skin: Install water taps or sources with clean water close to the working area. Barrier creams may help to protect the exposed areas of the skin. Barrier creams should not be applied once exposure has occurred.

OCCUPATIONAL EXPOSURE CONTROLS: Directive 89/686/EEC~96/58/EC:

As a general measure on prevention and safety in the work place, we recommend the use of a basic personal protection equipment (PPE), with the corresponding EC marking. For more information on personal protective equipment (storage, use, cleaning, maintenance, type and characteristics of the PPE, protection class, marking, category, CEN norm, etc.), you should consult the informative brochures provided by the manufacturers of PPE.

Mask:

Under normal conditions of use, no protection is required, but if the battery is overcharged and the concentration of sulfuric acid in the air is known to exceed the occupational exposure limits, use an E-type filter mask (yellow) for acidic gases and vapours (EN14387). In order to obtain a suitable protection level, the filter class must be selected depending on the type and concentration of the contaminating agents present, in accordance with the specifications supplied by the filter producers.

Safety goggles:

Under normal conditions of use, no protection is required, but if damaged or broken batteries are handled, use safety goggles designed to protect against liquid splashes (EN166). Clean daily and disinfect at regular intervals in accordance with the instructions of the manufacturer.

Face shield:

Under normal conditions of use, no protection is required, but if damaged or broken batteries are handled, use a face shield against liquid splashes (EN166), advisable when there is a risk of spillage, diffusion or atomization of the liquid.

Gloves:

Use suitable protective rubber or PVC gloves (EN374), when the product is handled for prolonged periods. When repeated or prolonged contact with the product is expected, gloves of protection level 5 or higher should be used, with a breakthrough time of >240 min. When short contact with the product is expected, use gloves with a protection level 2 or higher should be used, with a breakthrough time >30 min. The breakthrough time of the selected glove material should be in accordance with the pretended period of use. There are several factors (for example, temperature), they do in practice the period of use of a protective gloves resistant against chemicals is clearly lower than the established standard EN374. Due to the wide variety of circumstances and possibilities, the instructions/specifications provided by the glove supplier should be taken into account. Use the proper technique of removing gloves (without touching glove's outer surface) to avoid contact of the product with the skin. The gloves should be immediately replaced when any sign of degradation is noted.

Boots:

No.

Apron:

Under normal conditions of use, no protection is required, but if damaged or broken batteries are handled, it is recommended to use an apron resistant against corrosive products.

Clothing:

Under severe exposure or emergency conditions wear acid resistant clothing. Put away work clothes under control and separately from the rest. Wash contaminated workclothes before wearing them again.

Thermal hazards:

Not applicable (the product is handled at room temperature).

ENVIRONMENTAL EXPOSURE CONTROLS:

Avoid any spillage in the environment.

Spills on the soil: Prevent contamination of soil.

Spills in water: # Toxic to aquatic organisms. May cause long-term adverse effects on the aquatic environment. Do not allow to escape into drains, sewers or water courses.

- Water Management Act: This product contains the following substances included in the list of priority substances in the field of water policy under Directive 2000/60/EC~2013/39/EU: Lead (lead and its compounds), Lead dioxide (lead and its compounds), Lead sulphate (lead and its compounds).

Emissions to the atmosphere: Not applicable.



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**SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES****9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:**Appearance

- Physical state : Solid containing liquid.
- Colour : Brown.
- Odour : Characteristic.
- Odour threshold : Not available (mixture).

pH-value

- pH : 1. ± 0.5 at 20°C

Change of state

- Melting point : Not available
- Initial boiling point : Not applicable

Density

- Vapour density : Not applicable (solid).
- Relative density : 1.25 ± 0.05 at 20/4°C Relative water

Stability

- Decomposition temperature : 290\* °C

Viscosity:

- Dynamic viscosity : Not applicable (solid).

Volatility:

- Evaporation rate : Not applicable
- Vapour pressure : Not available

Solubility(ies)

- Solubility in water : Not applicable
- Liposolubility : # Not applicable
- Partition coefficient: n-octanol/water : # Not applicable (mixture).

Flammability:

- Flash point : Not flammable
- Autoignition temperature : # Not applicable (do not sustain combustion).

Explosive properties:

Under abnormal use in not ventilated rooms may form explosive air/gas mixture during charging or when extreme overcharging (extremely flammable hydrogen gas, with explosion, fire, blast or projection hazard).

Oxidizing properties:

Not classified as oxidizing product.

\*Estimated values based on the substances composing the mixture.

**9.2 OTHER INFORMATION:**

The values indicated do not always coincide with product specifications. The data for the product specifications can be found in the corresponding technical data sheet. For additional information concerning physical and chemical properties related to safety and environment, see sections 7 and 12.

**SECTION 10 : STABILITY AND REACTIVITY****10.1 REACTIVITY:**

During the initial charge process, the lead(II) sulfate is reduced to lead metal in the negative plates, while in the positive lead(IV) oxide is formed. Therefore it is a dismutation process. Hydrogen is not released, since the reduction of protons to elemental hydrogen is kinetically prevented on a lead surface, a favorable feature that is reinforced by incorporating small amounts of tin and calcium into the electrodes. The release of hydrogen would cause the slow degradation of the electrode, helping to mechanically crumble parts of it, irreversible alterations that shorten the life of the accumulator. Only if the recommended charging voltage is exceeded, hydrogen will be released, the water in the electrolyte will be consumed and the life of the plates shortened, with the consequent danger of explosion due to the combustibility of hydrogen. During the discharge the charge processes are reversed. Lead(IV) dioxide is reduced to lead(II) sulfate while elemental lead is oxidized to also give lead(II) sulfate. The exchanged electrons are used as an electric current by an external circuit. The elementary processes that take place are as follows:  $PbO_2 + 2H_2SO_4 + 2e^- \rightarrow 2H_2O + PbSO_4 + SO_4^{2-}$  and  $Pb + SO_4^{2-} \rightarrow PbSO_4 + 2e^-$ . At discharge the sulfuric acid concentration is lowered because lead sulfate is created and increases the amount of water released in the reaction. As concentrated sulfuric acid has a higher density than dilute sulfuric acid, the density of the electrolyte, between 1.3 and 1.1, can serve as an indicator for the state of charge of the device. However, this process can not be repeated indefinitely because, when lead sulphate forms very large crystals, they no longer respond well to the indicated processes, thereby losing the essential characteristic of reversibility. It is then said that the accumulator has been sulphated and it is necessary to replace it with a new one. Large crystals are also formed if the voltage of each cell is dropped below 1.8 V. Many of the batteries of this type that are sold today use a paste electrolyte, which does not evaporate and makes it much safer and more comfortable to use.

Corrosivity to metals: May be corrosive to iron.

Pyrophorical properties: It is not pyrophoric.

**10.2 CHEMICAL STABILITY:**

Stable under recommended storage and handling conditions. Does not polymerize.

**10.3 POSSIBILITY OF HAZARDOUS REACTIONS:**

Contact of sulfuric acid with organic and combustible materials may cause fire and explosion. It also reacts violently with strong reducing agents, metals, gaseous sulfur trioxide, strong oxidants and water. Contact with metals may produce toxic fumes of sulfur dioxide and may release flammable hydrogen gas. Avoid the contact of lead compounds with strong acids, bases, halides, halogenated compounds, potassium nitrate, permanganates, peroxides, nascent hydrogen and reducing agents. At very high temperatures, in contact with strong acids or bases or in the presence of nascent hydrogen arsenamine  $AsH_3$  (very toxic gas) may be formed.

**10.4 CONDITIONS TO AVOID:**

Heat: Keep away from sources of heat.

Light: If possible, avoid direct contact with sunlight.

Air: Not relevant.

Humidity: Avoid extreme humidity conditions.

Pressure: Not relevant.

Shock: The product is not sensitive to shocks, but as a recommendation of a general nature should be avoided bumps and rough handling to avoid dents and breakage of packaging, especially when the product is handled in large quantities, and during loading and download operations.

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10.5 **INCOMPATIBLE MATERIALS:**  
Keep away from water, reducing agents, oxidizing agents, acids, alkalis, combustible materials.

10.6 **HAZARDOUS DECOMPOSITION PRODUCTS:**  
No product of decomposition is dangerous if stored and handled properly.

**SECTION 11 : TOXICOLOGICAL INFORMATION**

No experimental toxicological data on the preparation is available. The toxicological classification for these mixture has been carried out by using the conventional calculation method of the Regulation (EU) No. 1272/2008~2017/776 (CLP).

11.1 **INFORMATION ON TOXICOLOGICAL EFFECTS:****ACUTE TOXICITY:****Dose and lethal concentrations**

for individual ingredients :

Lead  
Sulphuric acid  
Lead dioxide

**DL50 (OECD 401)**

mg/kg oral

> 2000. Rat  
2140. Rat  
> 2000. Rat

**DL50 (OECD 402)**

mg/kg cutaneous

&gt; 2000. Rat

**CL50 (OECD 403)**mg/m<sup>3</sup> 3h inhalation

&gt; 375. Rat

**No observed adverse effect level**

Not available





**Lowest observed adverse effect level**

Not available

**INFORMATION ON LIKELY ROUTES OF EXPOSURE: Acute toxicity:**

Routes of exposure	Acute toxicity	Cat.	Main effects, acute and/or delayed
<b>Inhalation:</b> Not classified	ATE > 20000 mg/m <sup>3</sup>	-	Not classified as a product with acute toxicity if inhaled (based on available data, the classification criteria are not met).
<b>Skin:</b> Not classified	ATE > 2000 mg/kg	-	Not classified as a product with acute toxicity in contact with skin (based on available data, the classification criteria are not met).
<b>Eyes:</b> Not classified	Not available	-	Not classified as a product with acute toxicity by eye contact (lack of data).
<b>Ingestion:</b> Not classified	ATE > 2000 mg/kg	-	Not classified as a product with acute toxicity if swallowed (based on available data, the classification criteria are not met).

**CORROSION / IRRITATION / SENSITISATION :**

Danger class	Target organs	Cat.	Main effects, acute and/or delayed
<b>Respiratory corrosion/irritation:</b> Not classified	-	-	Not classified as a product corrosive or irritant by inhalation (based on available data, the classification criteria are not met).
<b>Skin corrosion/irritation:</b> 	Skin 	Cat. 1A	CORROSIVE: Causes severe skin burns.
<b>Serious eye damage/irritation:</b> 	Eyes 	Cat. 1	DAMAGE: Causes serious eye damage.
<b>Respiratory sensitisation:</b> Not classified	-	-	Not classified as a product sensitising by inhalation (based on available data, the classification criteria are not met).
<b>Skin sensitisation:</b> Not classified	-	-	Not classified as a product sensitising by skin contact (based on available data, the classification criteria are not met).

**ASPIRATION HAZARD:**

Danger class	Target organs	Cat.	Main effects, acute and/or delayed
<b>Aspiration hazard:</b> Not classified	-	-	<b># Not applicable.</b>



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SPECIFIC TARGET ORGANS TOXICITY (STOT): Single exposure (SE) and/or Repeated exposure (RE):

Effects	SE/RE	Target organs	Cat.	Main effects, acute and/or delayed
<u>Systemic:</u> 	RE	Systemic 	Cat. 1	# <b>TOXIC:</b> Causes damage to organs through prolonged or repeated exposure.

CMR EFFECTS:Carcinogenic effects: It is not considered as a carcinogenic product.Genotoxicity: It is not considered as a mutagenic product.Toxicity for reproduction:

This preparation contains the following ingredients which can be toxic for human reproduction: Lead (cat. 1A), Lead dioxide (cat. 1A), Lead sulphate (cat. 1A).

Effects via lactation: May cause harm to breast-fed children.DELAYED AND IMMEDIATE EFFECTS AS WELL AS CHRONIC EFFECTS FROM SHORT AND LONG-TERM EXPOSURE:Routes of exposure: May be absorbed through the skin and by ingestion.Short-term exposure: Causes burns to the skin or eyes by direct contact or to the digestive tract if swallowed. If swallowed, causes severe irritation or chemical burns to the mouth, throat, oesophagus and stomach.Long-term or repeated exposure: May have an adverse effect on the kidneys. May have an adverse effect on the blood. Also causes disturbances of the central nervous system.INTERACTIVE EFFECTS:

Not available.

INFORMATION ABOUT TOXICOKINETICS, METABOLISM AND DISTRIBUTION:Dermal absorption: Not available.Basic toxicokinetics: Not available.ADDITIONAL INFORMATION:

- Causes burns to the skin or eyes by direct contact or to the digestive tract if swallowed. The mists of fine particles are skin and respiratory tract irritants.
- The acute poisoning by inorganic lead compounds produces gastric and abdominal pain, vomiting, diarrhoea, anaemia, renal insufficiency and saturnism; the chronic poisoning can also affect the central nervous system in form of headache, insomnia and alterations of the character and memory.

**SECTION 12 : ECOLOGICAL INFORMATION**

No experimental ecotoxicological data on the preparation as such is available. The ecotoxicological classification for the mixture has been carried out by using the conventional calculation method of the Regulation (EU) No. 1272/2008~2017/776 (CLP).

12.1 TOXICITY:Acute toxicity in aquatic environment for individual ingredients :Sulphuric acid  
Lead dioxideCL50 (OECD 203)  
mg/l.96hours

20. Fishes

CE50 (OECD 202)  
mg/l.48hours> 100. Daphnia  
0.47 DaphniaCE50 (OECD 201)  
mg/l.72hours

&gt; 100. Algae

No observed effect concentration

Not available

Lowest observed effect concentration

Not available

12.2 PERSISTENCE AND DEGRADABILITY:

Not applicable.

Aerobic biodegradation for individual ingredients :Lead dioxide  
Lead sulphateDQO  
mgO2/g%DBO/DQO  
5 days 14 days 28 days0.  
0.BiodegradabilityNot available  
Not available12.3 BIOACCUMULATION POTENTIAL:# *Not available.*Bioaccumulation for individual ingredients :

Sulphuric acid

logPow

-2.20

BCF  
L/kg

3.2 (calculated)

Potential

Not available

12.4 MOBILITY IN SOIL:

Not available.

12.5 RESULTS OF PBT AND VPVB ASSESSMENT: Annex XIII of Regulation (EC) no. 1907/2006:

Does not contain substances that fulfil the PBT/vPvB criteria.

12.6 OTHER ADVERSE EFFECTS:Ozone depletion potential: Not applicable.Photochemical ozone creation potential: Not available.Earth global warming potential: Not available.Endocrine disrupting potential: No.

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**SECTION 13 : DISPOSAL CONSIDERATIONS**

**13.1 WASTE TREATMENT METHODS:** Directive 2008/98/EC~Regulation (EU) no. 1357/2014, Directive 2006/66/EC~2013/56/EU:  
Take all necessary measures to prevent the production of waste whenever possible. Analyse possible methods for revaluation or recycling. To be disposed as hazardous waste. Waste should be handled and disposed in accordance with current local and national regulations. The treatment will comprise, at a minimum, the extraction of all fluids and acids. The treatment and any storage, including temporary storage, in treatment facilities will take place in water proofed and suitably covered places or in suitable containers. Recycling processes should achieve a level of efficiency of at least 65% by weight, on average, of lead acid batteries and accumulators, including lead recycling to the highest degree technically possible without excessive costs. The disposal of industrial and automotive batteries and accumulators in places of discharge or by incineration is prohibited. Only its waste, which has been subjected to both treatment and recycling, can be disposed of in landfills or by incineration. For exposure controls and personal protection measures, see section 8.

**ELW code:** Decision 2014/955/EU: 16 06 01 (\*): Lead batteries.

ELW (European list of waste) code, is provide only for orientation, in accordance with the product composition and intended uses. The end user is responsible for the correct classification of resulting waste, having in mind its use, contamination or modifications performed.

**Disposal of empty containers:** Directive 94/62/EC~2005/20/EC, Decision 2000/532/EC~2014/955/EU:

Emptied containers and packaging should be disposed in accordance with currently local and national regulations. The classification of packaging as hazardous waste will depend on the degree of emptying of the same, being the holder of the residue responsible for their classification, in accordance with Chapter 15 01 of Decision 2000/532/EC, and forwarding to the appropriate final destination.

**Procedures for neutralising or destroying the product:**

Send spent batteries to secondary lead smelter for recycling. Neutralize sulphuric acid with soda ash, sodium bicarbonate, lime, etc..

Collect neutralized material in sealed container and handle as hazardous waste as applicable. A copy of this SDS must be supplied to any scrap dealer or secondary lead smelter with the battery. Consult the operator of waste for clarification on the elimination of waste.

**SECTION 14 : TRANSPORT INFORMATION**

**14.1 UN NUMBER:** 2800

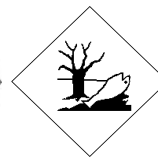
**14.2 UN PROPER SHIPPING NAME:**  
BATTERIES, WET, NON-SPILLABLE

**14.3 TRANSPORT HAZARD CLASS(ES) AND PACKING GROUP:**

**14.4** The batteries have been tested in accordance with the 'vibration test' and the 'pressure differential test' of ADR (Special provision 238a), IMDG (Special provision 238.1) and IATA (Packing instruction 872), and the 'crash test' of ADR (Special provision 238b), IMDG (Special provision 238.2) and IATA (Special provision A67), without loss of liquid. When delivered for transport, the batteries must be protected against short circuits and securely packed, and batteries and other packaging must be marked as NON-SPILLABLE BATTERIES.

**Transport by road (ADR 2017) and  
Transport by rail (RID 2017):**

- Class:	8
- Packaging group:	II
- Classification code:	C11
- Tunnel restriction code:	(E)
- Transport category:	3, max. ADR 1.1.3.6. 1000 kg
- Limited quantities:	0 (see total exemptions ADR 3.4)
- Transport document:	Consignment paper.
- Instructions in writing:	ADR 5.4.3.4



Non-spillable batteries are not subject to the provisions of ADR, IMDG or IATA, provided that, at a temperature of 55°C, the electrolyte does not flow from a ruptured or crashed case and there is no free liquid to flow and, on the other hand, the terminals are protected against short circuits when the batteries are packed for transport.

**Transport by sea (IMDG 38-16):**

- Class:	8
- Packaging group:	II
- Emergency Sheet (EmS):	F-A,S-B
- First Aid Guide (MFAG):	-
- Marine pollutant:	Yes.
- Transport document:	Shipping Bill of lading.

**Transport by air (ICAO/IATA 2017):**

- Class:	8
- Packaging group:	II
- Transport document:	Air Bill of lading.

**Transport by inland waterways (ADN):**

Not available.

**14.5 ENVIRONMENTAL HAZARDS:**  
Classified as hazardous for the environment.

**14.6 SPECIAL PRECAUTIONS FOR USER:**  
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

**14.7 TRANSPORT IN BULK ACCORDING TO AN NEX II OF MARPOL 73/78 AND THE IBC CODE:**  
# Not available.

**SECTION 15 : REGULATORY INFORMATION**

**15.1 EU SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC:**  
The regulations applicable to this product generally are listed throughout this Safety Data Sheet.

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Restrictions on manufacture, placing on market and use: See section 1.2

Tactile warning of danger: Not applicable (product for professional or industrial use).

Child safety protection: Not applicable (product for professional or industrial use).

OTHER REGULATIONS:

Control of the risks inherent in major accidents (Seveso III): See section 7.2

**# Other local legislations:**

The receiver should verify the possible existence of local regulations applicable to the chemical.

#### 15.2 CHEMICAL SAFETY ASSESSMENT:

A chemical safety assessment has not been carried out for this product .

### SECTION 16 : OTHER INFORMATION

#### 16.1 TEXT OF THE PHRASES AND NOTES REFERENCED IN SECTIONS 2 AND/OR 3:

Hazard statements according the Regulation (EU) No. 1272/2008~2017/776 (CLP), Annex III:

H272 May intensify fire: oxidiser. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H332 Harmful if inhaled. H362 May cause harm to breast-fed children. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H360D May damage the unborn child. H360FD May damage fertility. May damage the unborn child. H361f Suspected of damage fertility. H372 Causes damage to organs through prolonged or repeated exposure. H373 May cause damage to organs through prolonged or repeated exposure.

Notes related to the identification, classification and labelling of the mixtures:

Note 1 : The concentrations stated are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.

ADVICES ON ANY TRAINING APPROPRIATE FOR WORKERS:

It is recommended for all staff that will handle this product to carry out a basic training in occupational risk and prevention, in order to provide understanding and interpretation of Safety Data Sheets and labelling of products as well.

MAIN LITERATURE REFERENCES AND SOURCES FOR DATA:

- European Chemicals Agency: ECHA, <http://echa.europa.eu/>
- Access to European Union Law, <http://eur-lex.europa.eu/>
- Threshold Limit Values, (AGCIH, 2016).
- Plomo: Criterios toxicologicos para vigilancia medica de trabajadores, FMarques (INSHT, DT.71.92, 1992).
- European agreement on the international carriage of dangerous goods by road, (ADR 2017).
- International Maritime Dangerous Goods Code IMDG including Amendment 38-16 (IMO, 2016).

ABBREVIATIONS AND ACRONYMS:

List of abbreviations and acronyms that can be used (but not necessarily used) in this Safety Data Sheet:

- REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals of the United Nations.
- CLP: European regulation on Classification, Labelling and Packaging of substances and chemical mixtures.
- 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).
- UVCB: Substances of Unknown or Variable composition, complex reaction products or biological materials.
- SVHC: Substances of Very High Concern.
- PBT: Persistent, bioaccumulable and toxic substances .
- vPvB: Very persistent and very bioaccumulable substances .
- DNEL: Derived No-Effect Level (REACH).
- PNEC: Predicted No-Effect Concentration (REACH).
- LD50: Lethal dose, 50 percent.
- LC50: Lethal concentration, 50 percent.
- UN: United Nations Organisation.
- ADR: European agreement concerning the international carriage of dangerous goods by road.
- RID: Regulations concerning the international transport of dangerous goods by rail.
- IMDG: International Maritime code for Dangerous Goods.

SAFETY DATA SHEET REGULATIONS:

Safety Data Sheet in accordance with Article 31 of Regulation (EC) No. 1907/2006 (REACH) and Annex of Regulation (EU) No. 2015/830.

HISTORIC:

Version: 1	20/02/2017
Version: 2	17/04/2018

Revision:

Changes since previous Safety Data Sheet:

**# Legislative, contextual, numerical, methodological and normative changes since the previous version of the present Safety Data Sheet are identified by a red-italic hash (#).**

The information of this Safety Data Sheet, is based on the present state of knowledge and on current UE and national laws, as the users' working conditions are beyond our knowledge and control. The product is not to be used for other purposes than those specified, without first obtaining written handling instruction. It is always the responsibility of the user to take all necessary steps in order to fulfil the demand laid down in the local rules and legislation. The information in this Safety Data Sheet is meant as a description of the safety requirements of the product and it is not to be considered as a guarantee of the product's properties.