

MATERIAL SAFETY DATA SHEET

VRLA LEAD ACID STATIONARY BATTERY

0. GENERAL REMARK

This leaflet was prepared in according with the Committee of Environmental Affairs of EUROBAT (May 2003). Text revised and updated in July 2016.

Batteries are "articles" according to Regulation (EC) No 1907/2006 EC, they are not "substances" nor "mixtures", therefore there is no obligation to supply a safety data sheet (SDS) according to Regulation (EC) 1907/2006, and Regulation CLP (EC) 1272/2008.

Information on safe handling is provided as a service to our customers.

This product information sheet contains valuable information critical to the safe handling and proper use of the product. The details presented are in accordance with our present knowledge and experiences, they cannot advise all possible situation.

1. IDENTIFICATION OF PRODUCT AND COMPANY

Chemical/Trade name:	CAPTO Valve Regulated Lead Acid Battery for stationary application
Chemical Family / Classification:	Electric Storage Battery.
Manufacturer/Supplier:	F. P. T. Co, Ltd. SHENZHEN – P.R.C.
Brand owner:	TROLESE srl – VIA NONA STRADA 54/56 – PADOVA PD – ITALY
Telephone number:	+39 049 8641940

2. HAZARDS IDENTIFICATION

No hazards occur during the normal operation of a Lead Acid Battery as it is described in the instructions for use that are provided with the Battery. Lead acid Batteries have three significant characteristics:

- They contain an electrolyte which contains diluted sulphuric acid. Sulphuric acid may cause severe chemical burns.
- During the charging process or during operation they might develop hydrogen gas and oxygen, which under certain circumstances may result in an explosive mixture.
- They can contain a considerable amount of energy, which may be a source of high electrical current and a severe electrical shock in the event of a short circuit.

The Batteries have to be marked with the symbols listed under item 15.

3. COMPOSITION AND INFORMATION ON THE MAIN INGREDIENTS

Component	% Weight	SUBSTANCE# EINECS# CAS#	Hazard Category	Hazard statement Code
Metallic lead and lead compounds	60-70	082-001-00-6 - -	Acute Tox 4 Acute tox. 4 Repr. 1A Specific effect STOT RE 2	H302 H332 H360 H360Df H373
			(*) See in § 12.2 "Environmental information" hazards to the aquatic environment	
Electrolyte, Sulphuric Acid solution	20-30	016-020-00-8 231-639-5 7664-93-9	Skin Corr. 1A	H314
Polymer	6-9	-	-	-

- 1) Contents may vary due to performance data of the Battery
- 2) see chapter 12 – Ecological Information
- 3) Density of the electrolyte varies in accordance to the state of charge
- 4) Composition of the plastic may vary due to different customer requirements



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4. FIRST AID MEASURES

This information is of relevance only if the Battery is broken and this results in a direct contact with the ingredients.

4.1 General

Electrolyte (diluted sulphuric acid): sulphuric acid acts corrosively and damages skin
Lead compounds: lead compounds are classified as toxic for reproduction (if swallowed)

4.2 Electrolyte (Sulphuric acid)

after skin contact: rinse with water, remove and wash wetted clothing
after inhalation of acid mist: inhale fresh air, seek advice of a medical doctor
after contact with the eyes: rinse under running water for several minutes, seek advice of a medical doctor
after swallowing: drink lot of water immediately, swallow activated carbon, do not induce vomiting, seek advice of a medical doctor

4.3 Lead compounds

after skin contact: clean with water and soap
after inhalation: inhale fresh air, seek advice of a medical doctor
after contact with the eyes: rinse under running water for several minutes, seek advice of a medical doctor
after swallowing: wash mouth with water, seek advice of a medical doctor

5. FIRE FIGHTING MEASURES

Suitable fire extinguishing agents: CO₂ or dry powder extinguishing agents
Unsuitable fire extinguishing agents: Water, if the battery voltage is above 120 V
Special protective equipment:
Protective goggles, respiratory protective equipment, acid protective equipment, acid proof clothing in case of larger stationary battery plants or where larger quantities are stored.

6. MEASURES TO BE TAKEN IN CASE OF ACCIDENTAL RELEASE

This information is of relevance only if the battery is broken and the ingredients are released.

In the case of spillage, use a bonding agent, such as sand, to absorb spilt acid; use lime / sodium carbonate for neutralization; Dispose of with due regard to the official local regulations; do not allow penetration into the sewage system, into earth or water bodies.

7. HANDLING AND STORAGE

Store under roof in cool ambience charged lead acid batteries do not freeze up to 50°C; Prevent short circuits. Seek agreement with local water authorities in case of larger quantities of batteries to be stored. If batteries have to be stored, it is imperative that the instructions for use are observed.

8. EXPOSURE LIMITS AND PERSONAL PROTECTIVE EQUIPMENT

8.1 Lead and Lead compounds

No exposure to lead and lead containing battery paste during normal conditions of use.

8.2 Electrolyte (Sulphuric Acid)

Exposure to sulphuric acid and acid mist might occur during filling and charging.
Threshold value in workplace: occupational exposure limits for sulphuric acid mist are regulated on a national basis.

Hazard symbol: Skin Corr. 1A, corrosive
Personal protective equipment: Protective goggles, rubber or PVC gloves, acid resistant clothing, safety boots.

CAS No: 7664-93-9
R-phrases: R35 causes severe chemical burns
S-phrases: S2 Keep out of reach of children
S16 Keep away from sparks or naked flame, No smoking
S26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

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Precautionary statements: P260 Do not breathe dust / fume / gas / mist / vapours / spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P405 Store locked up.
P501 Dispose of contents to authorized companies for recycling or disposal of waste.

9. PHYSICAL AND CHEMICAL PROPERTIES

		Lead and Lead compounds	Electrolyte (diluted sulphuric acid, 30 to 38.5%)
Appearance	<i>form</i> :	solid	liquid
	<i>color</i> :	grey	colorless
	<i>odor</i> :	odorless	odorless
Safety related data			
<i>solidification point</i> :		327 °C [melting point]	-35 to -60 °C
<i>boiling point</i> :		1740 °C	approx. 108 to 114 °C
<i>solubility in water</i> :		very low (0.15 mg/l)	complete
<i>density (20°C)</i> :		11.35 g/cm ³	1.2 to 1.3 g/cm ³
<i>vapor pressure (20°C)</i> :		N.A.	N.A.

Lead and Lead compounds used in Lead Acid batteries are poorly soluble in water; Lead can be dissolved in an acidic or alkaline environment only.

10. STABILITY AND REACTIVITY (referred to diluted sulphuric acid, density 1,2 – 1,35 kg/l)

- Corrosive, nonflammable liquid
- Thermal decomposition at 338° C.
- Destroys organic materials such as cardboard, wood, textiles.
- Reacts with metals, producing hydrogen
- Vigorous reactions on contact with sodium hydroxide and alkalis.

11. TOXICOLOGICAL INFORMATION

This information does not apply to the finished product "lead acid battery". This information only applies to its compounds in case of a broken product. Different exposure limits exist on a national level.

11.1 Electrolyte (diluted sulphuric acid):

Sulphuric Acid is intensely corrosive to skin and mucous membranes; The inhalation of mists may cause damage to the respiratory tract.

Acute toxicity data:

- LD₅₀ (oral, rat) = 2.140 mg/kg
- LC₅₀ (inhalation, rat) = 510 mg/m³/2h

11.2 Lead and Lead compounds

Lead and its compounds used in a Lead Acid Battery may cause damage to the blood, nerves and kidneys when ingested. The lead contained in the active material is classified as toxic for reproduction.

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12. ECOLOGICAL INFORMATION

This information is of relevance if the battery is broken and the ingredients are released to the environment.

12.1 Electrolyte (diluted sulphuric acid)

In order to avoid damage to the sewage system, the acid has to be neutralized by means of time or sodium carbonate before disposal. Ecological damage is possible by change of pH.

The electrolyte solution reacts with water and organic substances, causing damage to flora and fauna. The electrolyte may also contain soluble components of lead that can be toxic to aquatic environments.

12.2 Lead and Lead compounds

Chemical and physical treatment is required for the elimination from water. Waste water containing lead must not be disposed of in an untreated condition. The former classification of Lead compounds as toxic for the aquatic environment R50/53 had been triggered from test results generated in the 80's for soluble Lead compounds (Lead Acetate). The hardly soluble Lead compounds such as Battery Lead Oxide were not tested at this time. Tests on Battery Lead Oxide were carried out in 2001 and 2005. The respective test results conclude that Battery Lead Oxide is not toxic for the environment, neither R50 nor R50/53 nor R51/53. From this it follows that the general classification for Lead compounds (R50/53) does not apply to Battery Lead Oxide. As the result of this the Risk Phrase R52/53 (Harmful to aquatic organisms, may cause longterm adverse effects in the aquatic environment) applies to Battery Lead Oxide.

Effects of Battery Lead Oxide in the aquatic environment:

Toxicity for fish: 96 h LC 50 > 100 mg/l

Toxicity for daphnia: 48 h EC 50 > 100 mg/l

Toxicity for alga: 72 h IC 50 > 10 mg/l

The results demonstrate these Battery Lead Oxide compounds in a concentration of 100 mg/l have no adverse effect on fish and daphnia. A concentration of these Battery Lead Oxide of 10 mg/l has no adverse effect on the rate of growth and the biomass. For the classification according to Directive 67/548/EEC the most sensitive adverse effect has to be considered. As a result of the toxicity for alga at > 10 mg/l Battery Lead Oxide has to be classified according to the R-Phrases 52/53 (Harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment)

With the use of the CLP risk phrases become:

R50 -> Aquatic Acute 1 - H400 Very toxic to aquatic life.

R50/53 -> Aquatic Chronic 1 - H410 Very toxic to aquatic life with long lasting effects.

R51/53 -> Aquatic Chronic 2 - H411 Toxic to aquatic life with long lasting effects.

R52/53 -> Aquatic Chronic 3 -H412 Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Spent lead acid batteries (EWC 160601) are subject to regulation of the EU Battery Directive and its adoptions into national legislation on the composition and end of life management of batteries.

Spent Lead Acid batteries are recycled in lead refineries (secondary lead smelters). The components of a spent Lead Acid battery are recycled or reprocessed.

To simplify the collection and recycling or reprocessing process, spent Lead Acid batteries must not be mixed with other batteries.

By no means may the electrolyte (diluted sulphuric acid) be emptied in an inexperienced manner. This process is to be carried out by the processing companies only.

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14. TRANSPORT INFORMATION

Land transport	Land transport (ADR/RID/US DOT) • UN N° : UN2800 • Classification : Class 8 • Proper Shipping Name : BATTERIES, WET NON SPILLABLE • ADR packing group not assigned Label required : Corrosive • ADR/RID: Exemption of all ADR/RID (Special Provision 598)
Sea transport	Sea transport (Code IMDG) • UN N° : UN2800 • Classification : Class 8 • Proper Shipping Name : BATTERIES, WET NON SPILLABLE • Packaging group : III • EmS : FA, SB • Label : Corrosive • The batteries can be considered hermetically sealed because they are able to withstand the vibration and pressure differential tests laid down in the regulations, without leakage of battery fluid and they fulfil Special Provision 238 and are exempt from all IMDG codes as long as the terminals are protected against the short circuit.
Air transport	Air transport (IATA DGR) • UN N° : UN2800 • Classification : Class 8 • Proper Shipping Name : BATTERIES, WET NON SPILLABLE • Packaging group : III • Label : Corrosive • The batteries can be considered hermetically sealed because they are able to withstand the vibration and pressure differential tests laid down in the regulations, without leakage of battery fluid and they fulfil Special Provision A67 and are exempt from all IMDG codes as long as the terminals are protected against the short circuit.

BDS batteries are classified as "NON SPILLABLE" and considered "hermetic" for DOT and IATA/ICAO transport purposes, they have passed the vibration and pressure differential tests required by DOT 49CFR 173.159(d) and IATA/ICAO (Special Provision A67).

BDS batteries can be safely transported on both passenger and cargo ships and comply with the vibration and pressure tests as described in the IMDG regulation.

When transporting these batteries as 'NON SPILLABLE' they must be shipped in such a condition that they are protected against short-circuiting and packed according to normal transport conditions.

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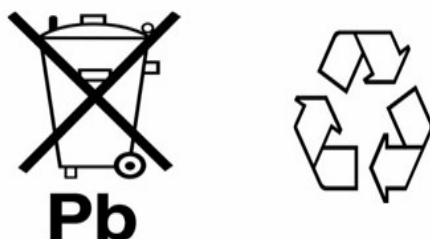
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15 REGULATORY REGULATION

The following legislation do not apply to lead-acid batteries:

- RoHS directive 2002/95/EC, updated by directive 2011/65/UE
- Low Voltage directive 73/23/EEC, updated by directive 2006/95/EC, if the voltage is < 75 V
- ELV directive 2000/53/EC
- EMC directive 89/336/EEC, updated by directive 2004/108/EC

In accordance with EU Battery Directive and the respective national legislation, Lead Acid batteries have to be marked by a crossed out dust bin with the chemical symbol for lead shown below, together with the ISO return/recycling symbol.



Labelling might vary due to application and dimension of the Battery. The manufacturer, respectively the importer of the batteries shall be responsible for placing the symbols (a minimum size is specified). In addition, consumer/user information on the significance of the symbols may be attached.



16. OTHER INFORMATION

Meaning of the hazard statement codes:

H302: Harmful if swallowed.

H332: Harmful if inhaled.

H360 May damage fertility or the unborn child

H360Df; May damage the unborn child. Suspected of damaging fertility.

H372: May cause damage to organs through prolonged or repeated exposure.

H413: Causes severe skin burns and eye damage.

The information given above is provided in good faith based on existing knowledge and does not constitute an assurance of safety under all conditions. It is the user's responsibility to observe all laws and regulations applicable for storage, use, maintenance or disposal of the product. If there are any queries, the supplier should be consulted. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.