

Safety Data Sheet

1. Identification

Manufacturer:

TAB d.d.
Polena 6
2392 Mezica

Chemical / Trade Name (as used on label):

TAB_Motion_VRLA_Gel
Maintenance Free Battery
Valve Regulated Battery
Sealed Lead-Acid Battery

Distributed By:

Phaesun GmbH
Brühlweg 9
87700 Memmingen

Chemical Family / Classification: Electric Storage Battery

For Information:

Environmental Resources Dept.
Ask for Environmental Coordinator

Date Issued: June 2011 – **Revised;** February 2016

For Emergency: Phaesun GmbH

+49 (163) 1468930

2. Hazards identification

Note: Under normal condition of battery use, internal components will not present a health hazard. The following information is provided for battery electrolyte and lead for exposure that may occur during battery production or container breakage or under extreme heat conditions such as fire.

Classification

STOT RE 2; H373 - May cause damage to organs through prolonged or repeated exposure.
Acute Tox. 4; H332 - Harmful if inhaled.
Repr. 1A; H360 - May damage fertility or the unborn child.
Carcinogenicity (lead and acid mist) 2A and 1A; H351 – Suspected of causing cancer.
Skin Corr. 1A; H314 - Causes severe skin burns and eye damage.
Flamm Gas 1; H220 - Extremely flammable gas (hydrogen)
Aquatic Acute 1, H400 - Very toxic to aquatic life.
Aquatic Chronic 1; H410 - Very toxic to aquatic life with long lasting effects.

Label elements

Hazard pictograms:



Signal word:

DANGER

Hazard statements:

H302 - Harmful if swallowed.
H314 - Causes severe skin burns and eye damage.
H332 - Harmful if inhaled.
H360 - May damage fertility or the unborn child.
H351 – Suspected of causing cancer.
H373 - May cause damage to organs through prolonged or repeated exposure.
H220 - Extremely flammable gas (hydrogen)
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements:

P210 - Keep away from heat/sparks/open flames/hot surfaces.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P264 - Wash thoroughly after handling.
P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301/330/331 - IF SWALLOWED: rinse mouth. Do not induce vomiting.
P303/361/353 - IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing.
Rinse skin with water/shower.
P304/340 - IF INHALED: Removed victim to fresh air and keep at rest in a position comfortable for breathing.
P305/351/338 - IF IN EYES. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 - Store locked up.
P501 - Dispose of contents / container in accordance with local/ regional/ national/international regulation.

3. Composition/information on ingredients

Components	CAS Number	% by Weight	Approximate Air Exposure Limits ($\mu\text{g}/\text{m}^3$)		
			OSHA	ACGIH	NIOSH
Inorganic compounds of:					
Lead	7439-92-1	50-60	50	150	100
Calcium	7440-70-2	0,02	--	--	--
Tin	7440-31-5	0,06	2000	2000	--
Electrolyte:					
Sulfuric Acid	7664-93-9	28-35	1000	1000	1000
Silicon Dioxide (Diluted sulfuric acid in SiO_2 Percentage acid: 38.5%; distilled water: 61.5%).	60676-86-0	4-6	N/A	N/A	N/A
Case Material:					
Polypropylene	9003-07-0	5-6	N/A	N/A	N/A

NOTE: Inorganic lead and electrolyte are the primary components of every EcoStore battery manufactured by Phaesun GmbH. Other ingredients may be present dependent upon battery type.

4. First aid measures

Inhalation:

Electrolyte: Remove to fresh air immediately. If breathing is difficult, give oxygen.
Lead Compounds: Remove from exposure, gargle, wash nose and lips; consult physician

Ingestion:

Electrolyte: Give large quantities of water; **DO NOT** induce vomiting; consult physician.
Lead Compounds: Consult physician immediately.

Skin:

Electrolyte: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes.
Lead Compounds: Wash immediately with soap and water.

Eyes:

Electrolyte and Lead: Flush immediately with large amounts of water for at least 15 minutes; consult physician immediately.

5. Firefighting measures

Flash Point:	N/A
Flammable Limits:	LEL = 4.1% (Hydrogen Gas in Air) UEL = 74.2%
Extinguishing Media:	CO ₂ ; foam; dry chemical
Special Fire Fighting Procedure:	Use positive pressure, self contained breathing apparatus. Beware of acid splatter during water application and wear acid resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, but, note that the strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.
Unusual Fire and Explosion Hazards:	In operation, batteries generate and release hydrogen. They must always be assumed to contain this gas which, if ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of case in 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.

6. Accidental release measures

Spill or Leak Procedures:

Stop flow of material, contain/absorb small spills with dry sand, earth, vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Neutralized acid must be managed in accordance with approved local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

Waste Disposal Methods:

Spent batteries: Send to secondary lead smelter for recycling.

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, state, and federal requirements. Consult state Environmental Agency and/or Federal EPA.

7. Handling and storage

Handling:

No hazards under normal usage as the sulfuric acid are immobilized in glass fibers structure.

Storage:

Store batteries under roof in cool, dry, well-ventilated areas which are separated from incompatible materials and from activities which may create flames, sparks, or heat. Keep away from metallic objects which could bridge the terminals on a battery and create a dangerous short circuit. Single batteries pose no risk of electric shock, but there may be increasing risk of electric shock from strings of connected batteries exceeding three 12-volt units.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether being charged or not. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable

hydrogen gas. Charging space should be ventilated. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

8. Exposure controls/personal protection

Engineering Controls:

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.

Work Practices:

If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye, and face protection.

Respiratory Protection:

None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed PEL, use NIOSH or MSHA-approved respiratory protection.

Protective Gloves:

None required under normal conditions.

Eye Protection:

None required under normal conditions.

Other Protection:

Under severe exposure or emergency conditions, wear acid-resistant clothing, gloves, and boots.

Emergency Flushing:

In areas where water and sulfuric acid solutions are handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

9. Physical and chemical properties - Electrolyte

Boiling Point:	112°C	Density:	1.30g/cm ³
Point of Solidification:	-69°C	Vapor Pressure (mm Hg) 25°C:	21 mbar
Solubility in Water:	100%	Vapor Density (AIR=1):	Greater Than 1
Evaporation Rate (Butyl acetate=1):	Less Than 1 %	Volatiles by Weight:	N/A
Appearance and Odor:	No apparent odor. A battery is a manufactured article; no apparent odor.		

10. Stability and reactivity

Stability: Stable

Conditions to Avoid: Prolonged overcharge at high current; sources of ignition.

Incompatibility:
(Materials to avoid) *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, halogenated, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Hazardous Decomposition Products:	<i>Electrolyte:</i> Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen. <i>Lead Compounds:</i> 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.
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11. Toxicological information

Routes of Entry:

Electrolyte: Harmful by all routes of entry.

Lead compounds: Hazardous exposure can occur only when product is heated above the melting point, oxidized, or otherwise processed or damaged to create dust, vapor, or fume.

Inhalation:

Electrolyte: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Electrolyte: May cause severe irritation of mouth, throat, esophagus, and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea, and severe cramping. This may lead rapidly to systemic toxicity.

Skin Contact:

Electrolyte: Severe irritation, burns, and ulceration.

Lead Compounds: Not absorbed through the skin.

Eye Contact:

Electrolyte: Severe irritation, burns, cornea damage, blindness.

Lead Compounds: May cause eye irritation.

Effects of Overexposure – Acute:

Electrolyte: Severe skin irritation, damage to cornea may cause blindness, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances, and irritability.

Effects of Overexposure – Chronic:

Electrolyte: Possible erosion of tooth enamel; inflammation of nose, throat, and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in both males and females.

Carcinogenicity:

Electrolyte: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category I carcinogen, a substance that is carcinogenic to humans. This classification does not apply to sulfuric acid solutions in static liquid state or to the electrolyte in batteries. Batteries subjected to abusive charging at excessively high currents for prolonged periods of time without vent caps in place may create a surrounding atmosphere of the offensive strong inorganic acid mist containing sulfuric acid.

Lead Compounds: Listed as a 2B carcinogen, likely in animals at extreme doses. Proof of carcinogenicity in humans is lacking at present.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions.

Contact of electrolyte with skin may aggravate skin diseases such as eczema and contact dermatitis.

Contact of electrolyte with eyes may damage cornea and/or cause blindness. Lead and its compounds can aggravate some forms of kidney, liver, and neurologic diseases.

12. Ecological information

Environmental Fate: 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.

Environmental Toxicity: Aquatic Toxicity:

Sulphuric acid: 24-hr LC₅₀, freshwater fish (*Brachydanio rerio*): 82mg/L

96-hr- LOEC, freshwater fish (*Cyprinus carpio*): 22mg/L

Lead: 48-hr LC₅₀ (modelled for aquatic invertebrates): <1mg/L, based on lead bullion

13. Disposal considerations

Battery electrolyte (sulphuric acid in solid state SiO₂+acid): Neutralize as above for a spill, collect residue and place in a container labelled as containing hazardous waste. Dispose of as a hazardous waste. Do not flush lead contaminated acid to sewer.

Spent batteries: Send to secondary lead smelter for recycling.

14. Transport information

Transportation:

EcoStore battery is not a DOT Hazardous Material.

Other:

Per DOT, IATA, ICAO and IMDG rules and regulations, these batteries are exempt from "UN2800" classification as a result of successful completion of the following tests:

- 1) Vibration Tests
- 2) Pressure Differential Tests
- 3) Case Rupturing Tests (no free liquids)

United States DOT:

Not regulated as dangerous goods per 49 CFR 173.159a

IATA:

Not regulated as dangerous goods per Special Provision A67

IMDG:

Not regulated as dangerous goods per exception 238

15. Regulatory information

RCRA: Spent lead-acid batteries are not regulated as hazardous waste when recycled. Spilled sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosives). Call 1 954 525 5557 for assistance in safe recycling.

Cercla (Superfund) and EPCRA:

- a) Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.
- b) Sulfuric acid is listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs.
- c) EPCRA Section 302 notification is required if 1,000 lbs. or more of sulfuric acid is present at one site. An average battery contains approximately 5 lbs. of sulfuric acid. Contact your Phaesun representative for additional information.
- d) EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs. or more and/or if lead is present in quantities of 10,000 lbs. Or more.
- e) **Supplier Notification:** This product contains toxic chemicals which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. For a manufacturing facility under

SIC codes 20 through 39, the following information is provided to enable you to complete the required reports.

Toxic Chemical	CAS Number	Approximate % by Weight
Lead	7439-92-1	50-60
Sulfuric Acid/Water Solution	7664-93-9	30-40

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

Note: The Section 313 supplier notification requirement does not apply to batteries which are “consumer products”.

TSCA: Ingredients in Phaesun’s batteries are listed in the TSCA Registry as follows:

	CAS Number	TSCA Status
Electrolyte		
Sulfuric Acid	7664-93-9	Listed
SiO ₂	60676-86-0	
Inorganic Lead Compound		
Lead (Pb)	7439-92-1	Listed
Lead Oxide (PbO)	1317-36-8	Listed
Lead Sulfate (PbSO ₄)	7446-14-2	Listed
Calcium (Ca)	7440-70-2	Listed
Tin (Sn)	7440-31-5	Listed

16. Other information

Issue Date: June 2011

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Version: 4

Further information: NFPA Hazard Scale: 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

NFPA Hazard Rating for sulfuric acid:



Note: Sulfuric acid is water-reactive if concentrated.

Disclaimer:

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