Batteries are considered as articles under REACH regulation 1907/2006/EC and, as such, do not require the publication of a safety data sheet. However, there is a requirement to provide safety information on products. This document, which fulfils this requirement, is commonly called an SDS, but, in Europe, is more correctly referred to as 'Information for the Safe Handling of Lead-Acid Batteries'**.** This leaflet was prepared by the Committee of Environmental Affairs of EUROBAT (May 2003), reviewed by EUROBAT TC members (September 2003) and CEM (October – November 2003). Revision: July 2018.

EUROBAT CUSTOMER CARE PROGRAM

INFORMATION FOR THE SAFE HANDLING OF LEAD-ACID BATTERIES

1. Identification of Product and Company

Product: Reserve Power (RP) Lead Acid battery

Trade name: PowerSafe, DataSafe, SuperSafe, Odyssey, Genesis, Cyclon

Manufacturer: EH Europe GmbH

Address: Baarerstrasse 18, 6300 Zug, Switzerland

Phone: Emergency tel. no. +1 703 527 3887

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. However, 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 may have to be marked with the symbols listed under section 15.

3. Composition and Information on the main Ingredients

CAS no.	Index Numbers	Description	Content [1] [% of weight]	Hazards Category and Statement Code, GHS pictograms
7439-92-1	082-014-00-7	Lead Grid (Lead massive*, lead alloys)	~ 32	 Repr. 1A - H360FD Lact– H362 STOT RE 1 – H372
7439-92-1	082-001-00-6	Active Mass** (Lead dioxide, inorganic lead compounds, with possible traces of additives)	~ 32	 Repr. 1A - H360Df Acute Tox. 4 - H332, Acute Tox. 4 - H302 STOT RE 1 - H372 Lact – H362 Carc.2 – H351 Aquatic Acute 1 - H400, Aquatic Chronic 1 H410
7664-93-9	016-020-00- 8	Electrolyte [2] (diluted sulphuric acid with additives)	~ 29	 SkinCorr.1A - H 314
		Plastic Container / Plastic Parts [3]	~ 7	

[1] Contents may vary due to performance data and/or application of the Battery
[2] Density of the electrolyte varies in accordance to the state of charge
[3] Composition of the plastic may vary due to different customer requirements

* Lead metal (CAS 7439-92-1) is classified as a substance of very high concern under REACH

** Dry Batteries/dry cells contain more than 0,1 % of Lead Monoxide. Lead Monoxide (CAS No.: 1317-36-8) is listed as a substance of very high concern under EU REACH Regulation. Once the batteries / cells are filled with electrolyte all Lead Monoxide is transformed and the presence of any SVHC has ended.

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

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 a lot of water immediately, swallow activated carbon, do not induce vomiting, and 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:

CO_2, dry powder extinguishing agents or Water.

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 neutralisation; 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 a roof in cool ambiance - 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 information for use is observed.

8. Exposure limits and personal protective equipment

8.1 Lead and Lead compounds

No exposure to lead and lead compounds 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	corrosive	
Personal protective equipment:	Protective goggles, rubber or PVC gloves, acid-resistant clothing, safety boots.	
CAS-No:	7664-93-9	
Hazard statements:	H314	Causes severe burns and eye damage.
Precautionary Statements:	P102	Keep out of reach of children.
	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
	P305+P351+ 315	IF in eyes. Rinse cautiously with water for several minutes. Get immediate medical advice/attention.
	P309+315	IF exposed or if you feel unwell. Get immediate medical advice/attention.

9. Physical and Chemical properties

	Lead and Lead compounds	Electrolyte (Diluted sulphuric acid, 30 to 38.5%)
Appearance		
form:	solid	liquid
colour:	grey	colourless
odour:	odourless	odourless
Safety-related data		
solidification point:	327°C	-35 to -60°C
boiling point:	1740°C	approx. 108 to 114°C
solubility in water:	very low (0.15 mg/l)	complete
density (20°C):	11.35g/cm³	1.2 to 1.3g/cm³
vapour pressure (20°C):	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 (sulphuric acid, 30 – 38.5 %)

- Corrosive, non-flammable 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:

- $LD_{50\ (oral,\ rat)}$ = 2140 mg/kg
- $LC_{50\ (inhalation,\ rat)}$ = 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.

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 neutralised by means of lime 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.

Lead metal grids are not classified as eco-toxic.

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 re-processed.

At the points of sale, the manufacturers and importers of batteries, respectively the metal dealers take back spent batteries, and render them to the secondary lead smelters for processing.

To simplify the collection and recycling or re-processing 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 inexpert manner. This process is to be carried out by the processing companies only.

*200133 EWC may be used for municipal collected batteries.

14. Transport Regulation

14.1 Flooded Lead-Acid batteries*:

Land Transport	Land Transport (ADR/RID) - UN N°: UN2794 - Classification ADR/RID: Class 8 - Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID electric storage - Packing Group: not assigned - Packaging instruction: P 801 - ADR/RID: New and spent batteries are exempt from all ADR/RID (special provision 598).
Sea Transport	Sea Transport (IMDG Code) - Classification: Class 8 - UN N°: UN2794 - Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID electric storage - Packing Group: Not assigned - EmS: F-A, S-B - Packaging instruction: P 801
Air Transport	Air Transport (IATA-DGR) - Classification: Class 8 - UN N°: UN2794 - Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID electric storage - Packing Group: Not assigned - Packaging instruction: P 870

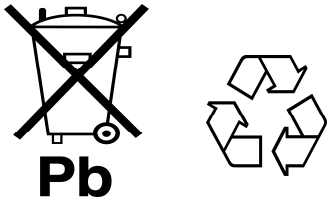
Note: * The above requirements relate to flooded lead-acid batteries supplied in filled and charged condition as well as in moist charged condition. Flooded lead-acid batteries supplied in dry charged condition are classified as “Non-Dangerous goods” and therefore the above table does not apply.

14.2 Valve Regulated Lead Acid batteries (VRLA):

Land Transport	Land Transport (ADR/RID, U.S. DOT) - UN N°: UN2800 - Classification ADR/RID: Class 8 - Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage - Packing Group: not assigned - Packaging instruction: P 801 - ADR/RID: New and spent batteries are exempt from all ADR/RID (special provision 598).
Sea Transport	Sea Transport (IMDG Code) - UN N°: UN2800 - Classification: Class 8 - Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage - Packing Group: Not assigned. - EmS: F-A, S-B - Packaging instruction: P 003 - If non-spillable batteries meet the Special Provision 238, they are exempted from all IMDG codes provided that the batteries' terminals are protected against short circuits.
Air Transport	Air Transport (IATA-DGR) - UN N°: UN2800 - Classification: Class 8 - Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage - Packing Group: Not assigned - Packaging instruction: P 872 - If non-spillable batteries meet the Special Provision A67, they are exempted from all IATA DGR codes provided that the batteries' terminals are protected against short circuits.

15. Regulatory Information

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.



In addition Lead-Acid batteries may have to be labelled with the hazard symbols described below:



Labelling may 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.

Substances of Very High Concern (SVHC)

The publications of the European Chemicals Agency on substances of very high concern are monitored by EnerSys. As defined by REACH, customers will receive the required information if an updated publication may add a substance relevant for our products to the list of SVHC's. On 19 December 2012, four Lead compounds used in the process of battery manufacturing – **Lead Monoxide, Lead Tetroxide, Tetralead Trioxide Sulphate** and **Pentalead Tetraoxide Sulphate** – were added to the list of Substances of Very High Concern. As of June 27 2018, **Lead Metal** was added to the SVHC list as well.

Irrespective of the battery design (flooded, MHF, Gel, AGM) all lead based batteries contain Lead Metal (CAS Nr.: 7439-92-1). The content varies but exceeds the notification threshold of 0,1% w/w.

Batteries ready for use do not contain Oxides our Sulphates that are classified SVHC.

Dry Batteries/dry cells (dry charged plates, delivered without electrolyte) **contain more than 0,1 % of Lead Monoxide**. Lead Monoxide (CAS Nr.: 1317-36-8) is listed as a substance of very high concern. Once the batteries / cells are filled with electrolyte all Lead Monoxide is transformed and the presence of Lead Monoxide has ended.

16. Other Information

Products such as Batteries are not in the scope of regulation which require the publication of an EU Safety Data Sheet (Regulation (EC) 1907/2006, Article 31).

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.