

EUROBAT CUSTOMER CARE PROGRAM

INSTRUCTIONS FOR THE SAFE HANDLING OF LEAD-ACID BATTERIES

1. Identification of Product and Company

Trade name: Lead acid batteries filled with diluted sulphuric acid

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Manufacturer : TAB d.d.

Company: TAB d.d.

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2. Hazardous substances

| CAS no. | Description | Content [% of weight] | R-phrases |
|-----------|---|--------------------------|--------------------------|
| 7439-92-1 | Lead Grid (metallic lead, lead alloys with possible traces of additives) | ~ 33 | |
| 7439-92-1 | Active Mass (Battery Oxide, inorganic lead compounds) | ~ 32 | R61-20/22-33 62-52/53 |
| 7664-93-9 | Electrolyte (diluted sulphuric acid with additives) | ~ 33 | R35 |
| | | | |

3. Potential hazards

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.

Standard EN 50272-2 includes safety requirements for batteries.

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

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 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 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: C, corrosive

Personal protective equipment: Protective goggles, rubber or PVC gloves, acid-resistant clothing, safety boots.

CAS-No: 7664-93-9

R-phrases: R-35 Causes severe chemical burns

S-phrases: S-2 Keep out of reach of children
 S-16 Keep away from sparks or naked flame, No smoking
 S-26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice
 S-45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

9. Physical and Chemical properties

| | Lead and Lead compounds | Electrolyte (diluted sulphuric acid, 30 to 38.5%) |
|---------------------------------|-------------------------|---|
| Appearance | | |
| <i>form</i> : | solid | liquid |
| <i>colour</i> : | grey | colourless |
| <i>odour</i> : | odourless | odourless |
| Safety-related data | | |
| <i>solidification point</i> : | 327 °C | -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>vapour 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 (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. Data on the ecological of the constituents

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.

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. Data on the ecology of the constituents

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

Lead can be dissolved in an acidic or alkaline environment.

Chemical and physical treatment is required for the elimination from water. Waste water containing lead must not be disposed of in an untreated condition.

13. Recycling information

Spent lead-acid batteries 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 inexperienced manner. This process is to be carried out by the processing companies only.

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 ADR: not assigned - Label required: Corrosive - ADR/RID: New and spent batteries are exempt from all ADR/RID (special provision 598). |
| Sea Transport (on account of the differences between products supplied by various manufacturers, the supplier should be consulted.) | Sea Transport (IMDG Code) - Classification: Class 8 - UN N°: UN2794 - Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID electric storage - Packing Group: III - EmS: F-A, S-B - Label required: Corrosive |
| Air Transport | Air Transport (IATA-DGR) - Classification: Class 8 - UN N°: UN2794 - Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID electric storage - Packing Group: III - Label required: Corrosive |

14.2 VRLA batteries only :

| | |
|----------------|--|
| 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 ADR: not assigned - Label required: Corrosive - 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: III - EmS: F-A, S-B - Label required: Corrosive - 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: III - Label required: Corrosive - 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 2006/66/EC 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 have to be labelled with the hazard symbols described below:



No smoking, no open flames, no sparks



Corrosive



Wear Safety goggles



Observe operating instructions



Keep away from children



Explosive gas mixture

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

Products such as Batteries are not in the scope of regulation which require the publication of an EU REACH regulation (1907/2006/EC-Safety Data Sheet (91/155/EEC)).

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.

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