



# Safety Data Sheet

for Lead-acid Accumulators (Lead-acid Batteries)

Issue date: 15.02.2018 | Revision No. 3 | Document: SDS\_WET\_en | Page 1 of 6

The REACH regulation (1907/2006/EC) has replaced the directive on safety data sheets (91/155/EC). REACH describes the setting up and updating of safety data sheets for substances and preparations. For articles – like lead-acid batteries – safety data sheets are not required.

The notes are meant to help to comply with legal requirements but do not replace them.

## 1 – Substances / formulation and company name

<b>Trade Name</b>	<b>Lead acid battery, wet, filled with acid</b>
<b>Product Details</b>	<b>QUALITY-BATTERIES – SEM, TTB, DC, OGi, OPzS, PzS, SMF, YB</b>
<b>Usage / Applications</b>	<b>SEM – Semitraction:</b> Solar power, electric vehicles, sailing and electric boats, caravan, mobile homes, signal units, cleaning machines, wheelchairs, etc. <b>TTB – Tubular:</b> Cleaning machines, wheelchairs, mobile lifts, electric tractors, solar power, golf trolleys, transportation systems, etc. <b>DC – Deep Cycle:</b> Lifting devices, mobile lifts, cleaning machines, golf trolleys, commercial vehicles, wheelchairs, electric scooters, marine, caravan, regenerative energy, solar power, wind power, etc. <b>OGi:</b> Emergency lighting / safety lighting, railway and signal systems, starter batteries for diesel generators, DC power supply systems, UPS systems, Industry, etc. <b>OPzS:</b> Switching- and control units, emergency power supply, UPS und BFV units, solar energy storage, regenerative energy, etc. <b>PzS – forklift-batteries:</b> forklifts, pallet trucks, electric tractors, cleaning machines, scissor lifts, mobile lifts etc. <b>SMF:</b> automotiv battery-cars, delivery van, transporter, caravan / RV, <b>YB:</b> motorcycle batteries, lawn mowers, jet skies
<b>Manufacturer / Supplier</b>	<b>AKKU SYS Akkumulator- und Batterietechnik Nord GmbH</b> Verbindungsweg 48, 25469 Halstenbek, Germany
<b>Telephone</b>	+49 4101 3 76 76 0
<b>E-Mail</b>	info@akkusys.de
<b>Information/Emergency Contact</b>	<b>+49 4101 3 76 76 0</b>

## 2 – Hazardous substances

CAS-No.	Description	Content	R-phrases
7439-92-1	Blue lead	–	–
7439-92-1	Lead alloys with traces of As, Sb	34 weight %	
	Lead-containing battery paste	31 weight %	R 61; R 20/22; R 33; R 62; R 52/53
7664-93-9	Sulphuric acid	34 weight %	R 35

## 3 – Potential hazards

No hazards in case of an intact battery and observation of the instructions for use.

Lead-acid batteries have significant characteristics:

- They contain diluted sulphuric acid, which may cause severe acid burns.
  - During the charging process they develop hydrogen gas and oxygen, which under certain circumstances may turn into an explosive mixture.
  - They have an internal voltage, which – depending on their level – can be dangerous to the human body when touched.
- Standard EN 50272-2 includes safety requirements for batteries and battery installations and describes the basic precautions to protect against dangers caused by electric currents, leaking gasses or electrolytes.

Batteries are marked with the following hazard symbols:



No smoking, no naked flames, no sparks



Wear safety goggles



Battery acid



Note operating instructions



Explosive gas mixture

## 4 – First-aid measures

General information:

Component	Measures
<b>Sulphuric Acid</b>	Acts corrosive and damages tissue
	After contact with skin Rinse with water, remove and wash wetted clothing
	After inhalation of acid mist <sup>1)</sup> Inhale fresh air
	with the eyes <sup>1)</sup> Rinse under running water for several minutes
after swallowing <sup>1)</sup> Drink a lot of water immediately, and swallow activated carbon	
<b>Lead-containing Battery Paste</b>	Classified as toxic for reproduction
	After contact with skin Clean with water and soap

<sup>1)</sup> Consult a medical doctor!

## 5 – Fire-fighting measures

**Suitable Extinguishing Agents** When electrical devices are set in fire in general water is the suitable extinguishing agent. For incipient fires CO<sub>2</sub> is the most effective agent. Fire brigades are trained to keep a distance of 1 m when extinguishing an electrical fire (up to 1 kV) with spray jet and a distance of 5 m with full jet. For electrical fires in electrical installations with voltages > 1 kV other distances are applicable depending on the respective voltage. For fires in photovoltaic installations other rules apply.

**Unsuitable Extinguishing Agents** Powder fire extinguishers are not suitable, amongst others because of only minor efficiency, possible risks or collateral damages.

**Special Protective Equipment** For larger stationary battery installations or larger stored quantities: protective goggles, respiratory and acid protective equipment, acid-proof clothing.

## 6 – Measures to be taken in case of unintentional release

Cleaning / take-up procedures:

- Use a bonding agent, such as sand, to absorb split acid
- Use lime / sodium carbonate for neutralisation, dispose with due regard to the official local regulations
- Do not permit penetration into the sewage system, the earth or water bodies

## 7 – Handling and storage

### Storage

- Frost-free under roof
- Prevent short circuits
- Protect plastic housings against exposition to direct sun radiation
- Seek agreement with local water authorities in case of larger quantities
- If batteries have to be stored in storage rooms, it is imperative that the instructions for use are observed

### Working on Batteries

Wear protective goggles and electrostatic clothing and protective shoes

## 8 – Exposure limits and personal protective equipment

### 8.1 No exposure caused by lead and lead-containing battery paste

### 8.2 Possible exposure caused by sulphuric acid and acid mist during filling and charging

CAS-No.	7664-93-9
R-phrases	
R 35	Causes serious chemical burns
S-phrases	
S 1/2	Keep locked up and out of reach of children
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S 30	Never add water to this product (applies for concentrated acid only)
S 45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
Threshold value on workplace	0,1 mg/m <sup>3</sup>
Hazard symbol	C, corrosive
Personal protective equipment	Rubber or PVC gloves, acid-proof goggles, acid-proof clothing, safety boots.

## 9 – Physical and chemical properties

Component	Appearance	Safety-related data
<b>Lead</b>	Form solid	Solidification point 327 °C
	Colour grey	Boiling point 1740 °C
	Odour odourless	Solubility in water (25 °C) low (0.15 mg/l)
		Density (at 20 °C) 11,35 g/cm <sup>3</sup>
<b>Sulphuric Acid (30 – 38,5%)</b>	Form liquid	Solidification point -35 to -60 °C
	Colour Colourless	Boiling point ca. 108 to 114 °C
	Odour odourless	Solubility in water (25 °C) complete
		Density (at 20 °C) 1,2 to 1,3 g/cm <sup>3</sup>

## 10 – Stability and reactivity

### Component

<b>Sulphuric Acid (30 – 38,5%)</b>	<p>Corrosive, inflammable liquid</p> <ul style="list-style-type: none"> <li>• Thermal decomposition at 338 °C</li> <li>• Destroys organic materials such as cardboard, wood, textiles</li> <li>• Reacts with metals producing hydrogen</li> <li>• Vigorous reaction with lyes and alkalis</li> </ul>
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## 11 – Data on toxicology of the constituents

### Component

<b>Sulphuric Acid (30 – 38,5%)</b>	<ul style="list-style-type: none"> <li>• Acts intensely corrosive on skin and mucous membranes</li> <li>• The inhalation of mists may cause damage to the respiratory tract</li> </ul>
<b>Lead-containing Battery Paste</b>	<ul style="list-style-type: none"> <li>• May cause damage to the blood, nerves, and kidneys when taken in</li> <li>• Lead-containing battery paste is classified as toxic for reproduction</li> </ul>

## 12 – Data on the ecology of the constituents

Preliminary remark:

Relevant only if release is caused by destruction of the battery

### Component

<b>Sulphuric Acid (30 – 38,5%)</b>	<ul style="list-style-type: none"> <li>• Water-polluting liquid within the meaning of the German Water Resources Act (WHG). Water pollution class: 1 (slightly water polluting)</li> <li>• As described in section 6 use a bonding agent, such as sand, to absorb spilled acid or neutralise using lime /sodium carbonate</li> <li>• Dispose with due regard to official local regulations</li> <li>• Do not allow progression into the sewage system, soil or water bodies</li> </ul>
<b>Lead-containing Battery Paste</b>	<ul style="list-style-type: none"> <li>• Are hardly soluble in water</li> <li>• Lead can be dissolved in an acidic or alkaline environment</li> <li>• Chemical and physical treatment is required for elimination from water</li> <li>• Waste water containing lead must not be disposed in untreated conditions</li> </ul>

## 13 – Recycling information

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

Spent lead-acid batteries are not subject to accountability of the German Waste Prove Ordinance. They are marked with the recycling / return symbol and the WEEE symbol. (Refer to chapter 15. "Marking")

Spent lead-acid batteries are not allowed to be mixed with other batteries in order not to complicate the processing.

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

## 14 – Transport instructions

### 14.1 Batteries, wet, filled with acid

#### Land Transport (ADR / RID)

Special provision 598: **no transport as dangerous goods**

New and spent non-spillable batteries are not subject to other requirements of ADR/RID when complying to the requirements according to special provision 598. An appropriate manufacturer's declaration is necessary.

When the requirements of Special provision 598 are not fulfilled the transport of new and spent batteries has **to be declared as dangerous goods** as follows:

- Class 8
- UN No: 2794
- Proper shipping name: BATTERIES, WET, FILLED WITH ACID
- Packing group: none
- Hazard label: 8
- ADR tunnel restriction code: E

#### Sea Transport (IMDG Code)

- Class 8
- UN No: 2794
- Proper shipping name: BATTERIES, WET, FILLED WITH ACID
- Packing group: none
- Packing instruction: P 801
- Hazard label: 8
- EmS: F-A, S-B

#### Air Transport (IATA-DGR)

- Class 8
- UN No: 2794
- Proper shipping name: BATTERIES, WET, FILLED WITH ACID
- Packing group: none
- Packing instruction: 870
- Hazard label: 8

### 14.2 Damaged batteries:

#### Land Transport (ADR / RID)

- Class 8
- UN No: 2794
- Proper shipping name: BATTERIES, WET, FILLED WITH ACID
- Packing group: none
- Packing instruction P 801a: **transport as dangerous goods** (packing in accu boxes) or Special provision VV 14: **transport as dangerous goods** (in bulk)
- Hazard label: 8
- ADR tunnel restriction code: E
- Note: these references can be applied by transportation of lead-acid batteries of UN No: 2800 as well

## 15 – Marking

In accordance with the German law governing the sale, return and environmentally sound disposal of batteries (Batteries Act – Batteriegelgesetz, BattG) from 25 June 2009 (National transposition of the directive 2006/66/EC (battery directive) lead-acid batteries have to be marked with the WEEE symbol with the chemical symbol „Pb“.



In addition, the ISO-return / recycling symbol is rendered.



The manufacturer, respectively the importer of the batteries shall be responsible for the attachment of the symbols. In addition, a consumer / user information on the significance of the symbols has to be attached, which is required by the Germany Battery Ordinance quoted above as well as by the voluntary agreement of the battery manufacturers concluded with the German Federal Minister of Environment in September 1988.

The manufacturers and sellers of the batteries subject to identification requirements (packaging, technical instructions, leaflets) shall be responsible for this information.

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### 16 – Other information

The data rendered above are based on a today's knowledge, and do not constitute an assurance on properties. Existing laws and regulations have to be observed by the recipient of the product in own responsibility.

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