



# Safety Data Sheet

for AGM and GEL Accumulators (Lead-acid Batteries)

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The REACH (1907/2006/EC) 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, non-spillable</b>
<b>Product Details</b>	<b>QUALITY-BATTERIES – LS, LSX, LFT, LH, LC, LCP, GEL, YT</b>
<b>Usage / Applications</b>	<b>LS / LSX / LFT / LH:</b> Emergency lighting, fire and smoke detectors, security systems, industry, telecommunication, uninterruptible power supply (UPS), utility switching, commercial and private use, etc. <b>LC / LCP:</b> Medical technic, wheelchairs, caravan, naval, cleaning machines, portable lifts, uninterruptible power supply (UPS), electric scooters, golf trolleys, etc. <b>GEL:</b> Cleaning vehicles, transportation systems, mobile lifts, electric vehicles, wheelchairs, electric scooters, electric tractors, etc. <b>YT:</b> motorcycle, jet skies, lawn mowers etc.

## 2 – Hazardous substances

CAS-No.	Description	Content	Phrases
7439-92-1	Blue lead Lead alloys with traces of As, Sb	32 weight %	H360; H362; H332; H302; H372; H351
	Lead-containing battery paste	32 weight %	H360D; H302; H332; H361f; H412
7664-93-9	Sulphuric acid	34 weight %	H290, H314

## 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



Keep away from children's reach

## 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

Substance	sulphuric acid
CAS-No.	7664-93-9
H-phrases	
H290	May be corrosive to metals
H314	Causes severe skin burns and eye Damage
P-phrases	
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
Threshold value on workplace	0,1 mg/m <sup>3</sup>
Hazard symbol	 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, non-spillable

#### Land Transport (ADR / RID)

- Class 8
- UN No: 2800
- Proper shipping name: BATTERIES, WET, NON-SPILLABLE
- Packing group: none
- Packing instruction: P 003, P801a
- Hazard label: 8
- Special provision 238 para. a) and b): **no transport as dangerous goods**

Non-spillable batteries are not subject to other requirements of ADR/RID when complying to the requirements according to special provision 238. An appropriate manufacturer's declaration is necessary.

#### Sea Transport (IMDG Code)

- Class 8
- UN No: 2800
- Proper shipping name: BATTERIES, WET, NON-SPILLABLE
- Packing group: none
- Packing instruction: P 003 and PP 16
- Hazard label: 8
- EmS: F-A, S-B
- Special provision 238 No. 1) and 2): **no transport as dangerous goods**

Non-spillable batteries are not subject to other requirements of IMDG Code when complying to the requirements according to special provision 238. An appropriate manufacturer's declaration is necessary.

#### Air Transport (IATA-DGR)

- Class 8
- UN No: 2800
- Proper shipping name: BATTERIES, WET, NON-SPILLABLE
- Packing group: none
- Packing instruction: 872
- Hazard label: 8
- Special provision A 67: no transport as dangerous goods

Non-spillable batteries are not subject to other requirements of IATA-DGR when complying to the requirements according to special provision A 67. An appropriate manufacturer's declaration is necessary.

### 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 VC1, VC2, AP8: 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 – Batteriegesetz, 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 or properties. Existing laws and regulations have to be observed by the recipient of the product in own responsibility.

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