



**MATERIAL SAFETY DATA SHEET**

MSDS No. <b>A 1</b>
Date Issued <b>Jan. 24, 2013</b>
Date Revised <b>Feb. 8, 2013</b>

Chemical/Trade Name (identity used on label) <b>Absorptive Glass-fiber Material Lead Acid Battery</b>	Chemical Family/Classification <b>Electric Storage Battery</b>	HMIS Rating for Sulfuric Acid <b>302X</b>
Synonyms/Common Name <b>AGM Battery</b>	IMDG – Code and IATA <b>BATTERIES (Accumulators), WET, NON-SPILLABLE, electric storage UN 2800, Class 8</b>	
Company Name <b>Johnson Controls Battery Group Inc.</b>	Address <b>P.O. Box 591 Milwaukee, WI 53201</b>	
Division or Department <b>Power Solutions</b>		
CONTACT		TELEPHONE NUMBER
Questions Concerning MSDS <b>Health &amp; Safety</b>	<b>Day:</b> <b>SLI: (800) 333-2222 ext. 3138</b>	
Transportation Emergencies <b>CHEMTREC</b>	<b>24 Hours: (800) 424-9300</b>	

**II. Hazardous Ingredients**

Material	% by Wt.	CAS Number
Specific Chemical Identity <b>Blue Lead</b>		
Common Name		7439-92-1
Specific Chemical Identity <b>Lead Alloys with Traces of As, Sb</b>		
Common Name	34	7439-92-1
Specific Chemical Identity <b>Inorganic Lead Compounds</b>		
Common Name	31	7439-92-1
Specific Chemical Identity <b>Sulfuric Acid Absorbed in Glass-fiber Material</b>		
Common Name	28	7664-93-9

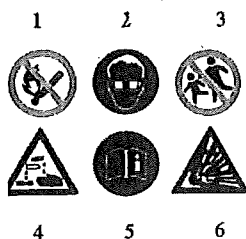
### III. Potential Hazards

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

Lead-acid batteries have two significant characteristics:

- They contain diluted sulphuric acid, which may cause severe acid burns.
- Even the diluted sulphuric acid is absorbed in glass-fiber material, it could flow out under condition of a destruction of the battery
- During the charging process they develop hydrogen gas and oxygen, which under certain circumstances may turn into an explosive mixture.

For this reason, the batteries have been marked with the following hazard symbols:



The significance of the hazard symbols is:

1. No smoking, no open flames, no sparks.
2. Wear safety goggles.
3. Keep away from children.
4. Sulphuric acid.
5. Observe operating instructions.
6. Explosive gas mixture.

Or the recommended BCI label.



Additionally: Do not clean batteries with dry washers, use only wet washers.

### IV. First Aid

#### GENERAL INFORMATION

Sulphuric Acid	Acts as a corrosive and damages tissue.
Lead Compounds	Have been classified as being hazardous to reproduction. Ingestion of lead occurs by hand to mouth contamination. After handling lead or its compounds, hands must be washed prior to eating or drinking. Metallic lead cannot be absorbed through the skin.
FIRST AID	
Lead after contact to skin	Clean with water and soap
Sulfuric Acid after contact to skin	Rinse with water; remove and wash wetted clothing
Sulfuric Acid after inhalation of acid mist	Inhale fresh air and seek advice from a doctor
Sulfuric Acid after contact with eyes	Rinse under running water for several minutes and seek advice from a doctor
Sulfuric Acid after swallowing	drink a lot of water immediately, and swallow activated carbon and seek advice from a doctor

### V. Fire Fighting Measures

Suitable extinguishing agents:	CO <sub>2</sub> and solid extinguishing agent
Unsuitable extinguishing agents:	Water in case of battery voltages of over 120V
Special protective equipment:	Protective goggles, respiratory protective equipment, acid protective equipment, acid-equipment, acid protective equipment, acid- battery plants of larger quantities stored

### VI. Measures to be taken in case of unintentional release

#### Cleaning / take up procedures

Use a bonding agent, such as sand, to absorb spilled acid; use lime/sodium carbonate for neutralisation; dispose with regard to the official local regulations; do not permit penetration into the sewage system, the earth or bodies of water.

### VII. Handling and Storage

Store frost-free under roof; prevent short circuits. Do not store in sealed, unventilated areas. Seek agreement with local water authorities in case of larger quantities. Avoid overheating and overcharging. Do not use organic solvents or other than manufacturers recommended cleaners on the batteries. If batteries have to be stored in storage rooms, it is imperative that the instructions for use are observed.

### VIII. Exposure Limits and Personal Protective Equipment

No exposure caused by lead and lead compounds (CAS 7439-92-1 when handled properly).		
Possible exposure caused by sulphuric acid and acid mist during filling and charging.		
CAS No.	7664-93-1	
R-Phases	R-35	Causes severe burns.
S-Phases	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, and not for refilling the battery with water).
	S-45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
TLV Value		1.0 mg/m <sup>3</sup>
Hazard symbol		C, corrosive
Personal protective equipment		Rubber, PVC gloves, acid-proof goggles, acid-proof clothing, safety boots.

### IX. Physical and Chemical Properties

<b>LEAD APPEARANCE</b>	
Form	Solid
Color	Grey
Odor	Odorless
<b>LEAD SAFETY RELATED DATA</b>	
Solidification Point	327 °C
Boiling Point	1.740 °C
Solubility in water (25 °C):	Low (0.15 mg/l)
Density (20 °C):	11.35 g/cm <sup>3</sup>
<b>SULFURIC ACID APPEARANCE</b>	
Form	Liquid
Color	Colorless
Odor	Odorless
<b>SULFURIC ACID SAFETY RELATED DATA</b>	
Solidification Point	- 35 to - 60 °C
Boiling Point	Approx. 108 to 144 °C
Solubility in water (25 °C):	Complete
Density (20 °C):	(1.2 to 1.3) g/cm <sup>3</sup>
Vapour pressure (20 °C):	14.6 mbar

### X. Stability and Reactivity of the Sulphuric Acid (30 to 38.5 %)

<ul style="list-style-type: none"> <li>• Corrosive, inflammable liquid (at AGM-Batteries adsorbed in glass-fibre material)</li> <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 reactions with lead and alkalis.</li> </ul>
---

### XI. Data on toxicology of the constituents

Lead and its inorganic compounds	May cause damage to the blood, nerves, and kidneys when ingested. Lead compounds are considered to be hazardous to reproduction.
Sulfuric Acid	Acts intensely corrosive on skin and mucous membranes, in low concentration. The inhalation of mists may cause damage to the respiratory tract.

### XII. Data on the Ecology of the Constituents (applies only to release caused by damage to the battery)

Lead and its inorganic compounds	Are poorly soluble in water. Lead can be dissolved in an acidic or alkaline environment. Chemical flocculation is required for elimination from water. Waste water containing lead must not be disposed of in untreated condition.
Sulfuric Acid	In order to avoid damage to the sewage system, the acid has to be neutralized by means of lime or sodium carbonate before disposal. Ecological damage is possible by change of pH.

### XIII. Recycling Information

Waste Disposal method. Send to lead smelter for reclamation following applicable Federal, State and Local regulations. Product can be recycled along with automotive (SLI) lead-acid batteries.

Dead lead-acid batteries should not 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.

### XIV. Transport Instructions

- Surface transport / air freight  
Batteries and outer packaging must be clearly marked "NON-SPILLABLE". NON-SPILLABLE BATTERIES are not subject to the ADR / RID / IATA, if the following conditions are adhered:
- For new batteries:
  - batteries must be protected against sliding, falling over and damages
  - install a carrying equipment, unless batteries are stored on pallets
  - batteries may not show any traces of lyes or acids outsides
  - batteries must be protected against short circuits
- For used batteries:
  - their chassis may not be damaged of any kind
  - batteries must be protected against sliding, falling over and damages
  - batteries may not show any traces of lyes or acids outsides
  - batteries must be protected against short circuits
- Sea transport
  - Not classified in IMDG Code, no hazardous good.

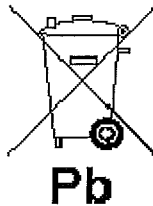
### XV. Regulatory Information

It is required that all lead batteries sold to be label with a universally accepted recycling symbol.

For a better understanding of the waste disposal method the batteries have been marked with these signs:



Lead return recycle



Battery contains lead, do not put to waste

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 EC Directives quoted above.

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

### XVI. Miscellaneous Data

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

**Disclaimer:** This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (either express or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use. We do not accept liability for any loss or damage that may occur, whether direct, indirect, incidental or consequential, from use of this information.