

# Material Safety Data Sheet

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## 1. Product and Company Identification

**Brand:** ACCURAT  
**Series name:** ACCURAT Garden (AGM batteries)  
**Manufacturer:** batterium GmbH  
Robert-Bosch-Straße 1, 71691 Freiberg am Neckar, Germany  
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**Models:**

Garden U1L AGM

Garden U1R AGM



## 2. Composition / Information on Ingredients

Component	Approx. percentage (weight)	OSHA PEL	ACGIH TLV	CAS No.
Lead (Pb)	48 to 53%	0.05 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	7439-92-1
Lead oxide (PbO)	23 to 26%	0.05 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	1317-36-8
Lead sulfate (PbSO <sub>4</sub> )	<1%	0.05 mg/m <sup>3</sup>	0.15 mg/m <sup>3</sup>	7446-14-2
Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )	7 to 10%	1.0 mg/m <sup>3</sup>	1.0 mg/m <sup>3</sup>	7664-93-9

Percentages of components are dependant both on the model of the battery and state of charge/discharge of the battery. Sulfuric Acid and Lead are reportable under Sections 302, 311, 312 and 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (40 CFR 355 and 372).

**Note:** Valve Regulated Lead Acid batteries are a non-spillable design. Under normal use and handling the customer has no contact with the internal components of the battery or the chemical hazards. Under normal use and handling these batteries do not emit regulated or hazardous substances.

Wash hands thoroughly after working with batteries and before eating, drinking or smoking.

## 3. Hazards Summary

- Sulfuric Acid:** Under normal conditions of use, Sulfuric Acid vapors and mist are not generated. Sulfuric Acid vapors may be generated when the product is overheated, oxidized or otherwise processed or damaged.
- Lead Compounds:** Under normal conditions of use, lead dust, vapors and fumes are not generated. Hazardous exposure may occur when the product is overheated, oxidized or otherwise processed or damaged to create dust, vapor or fumes.
- Other:** May form explosive air/gas mixture during charging.

### Routes of entry and potential health effects:

- Inhalation:** Sulfuric acid vapors or mist may cause severe respiratory irritation. Lead dust or fumes may cause irritation of upper respiratory tract or lungs.
- Skin contact:** Sulfuric acid may cause severe irritation, burns and ulceration. Lead Compounds are not readily absorbed through the skin.
- Eye contact:** Sulfuric acid may cause severe irritation, burns and cornea damage and possible blindness. Lead Compounds may cause eye irritation.
- Ingestion:** Sulfuric acid may cause severe irritation of mouth, throat, esophagus and stomach. Lead ingestion may cause nausea, vomiting, weight loss, abdominal spasms, fatigue and pain in the arms, legs and joints.

#### 4. First Aid Measures

<b>Inhalation:</b>	Move the affected person to fresh air. If they are not breathing, administer artificial respiration. Seek medical attention.
<b>Skin contact:</b>	Immediately remove contaminated clothing and shoes. Wash off affected area with plenty of water. Consult a physician.
<b>Eye contact:</b>	Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.
<b>Ingestion:</b>	Do not induce vomiting. Rinse mouth and drink plenty of water. Do not administer anything by mouth to an unconscious person. Consult a physician.

#### 5. Fire Fighting Measures

<b>Flash point:</b>	N/A
<b>Flammable limits:</b>	Lower 4.10% (Hydrogen gas) Upper 74.20%
<b>Extinguishing media:</b>	Dry chemical, foam, halon or CO <sub>2</sub>

##### Special Fire Fighting Procedures:

If batteries are charging, turn off power. Use positive pressure, self-contained breathing apparatus in fighting fire. Water applied to electrolyte generates heat and causes it to splatter. Wear acid resistant clothing. Ventilate area well.

##### Unusual Fire and Explosion Hazards:

Hydrogen and oxygen gases are generated in cells during normal battery operation or when charging. (Hydrogen is flammable and oxygen supports combustion). These gases enter the air through the vent caps during battery overcharging.

To avoid risk of fire or explosion, keep the battery away from sparks and other sources of ignition. Do not allow metal objects to simultaneously contact both positive and negative terminal of a battery.

Ventilate the area well.

#### 6. Accidental Release Measures

Neutralise any spilled or leaked acid using alkaline agents (lime, sodium carbonate, soda). Keep untrained personnel away from the broken battery and spilled electrolyte. Place the broken battery and collected materials in a plastic bag or other non-metallic container. Dispose of the collected materials as a hazardous waste. Ventilate area as hydrogen gas may be given off during neutralization. Always dispose of any neutralised acid in accordance with national, state and local regulations. In case any packaging materials are soiled with acid, neutralise the acid and rinse the materials before disposal.

#### 7. Handling and Storage

<b>Handling:</b>	Use the attached handle if available; otherwise carefully lift the battery from underneath. Handle with care. Never lift a battery by its terminals.
<b>Storage:</b>	Store in cool, dry area away from combustible materials. Do not store in sealed, unventilated areas. Avoid overcharging. Store at temperatures between -20°C and +40°C.
<b>Shelf life:</b>	12 months at 20°C under normal storage conditions.

**Precautions:** The batteries contain diluted sulphuric acid. Prevent any risk of short circuits. Do not charge in unventilated areas. Do not use organic solvents or other than recommended chemical cleaners on battery.

## 8. Exposure Controls/Personal Protection

**General:** Normal room ventilation is sufficient during normal use and handling. Two to three room air changes per hour are recommended to prevent buildup of hydrogen gas.

**Respiratory protection:** Use a full-face, supplied air respirator.

**Eye protection:** Wear safety glasses with wide side shields.

**Hand protection:** Wear chemical resistant gloves.

**Body protection:** Protective work clothing and boots.

Remove jewelry, rings, watches and any other metallic objects while working on batteries. All tools should be adequately insulated to avoid any possibility of short circuits. Do not lay tools on top of the battery. Be sure of discharge static electricity from tools and individual persons by touching a grounded surface in the vicinity of the batteries.

Batteries are heavy. Serious injury can result from improper lifting or installation. Do not lift, carry, install or remove cells by lifting or pulling the terminal posts. Do not wear nylon clothes or overalls as they can create static electricity. Always keep a class C fire extinguisher and emergency communications device in the work area.

Wash hands thoroughly after working with batteries and before eating, drinking or smoking.

## 9. Physical and Chemical Properties

**Boiling point:** Electrolyte 110°C - 121°C

**Vapor pressure:** Electrolyte 11.7 mm Hg. at 120°C

**Vapor density:** Electrolyte 3.4 (air = 1.0)

**Solubility in water:** Lead, lead oxide and lead sulfate are insoluble in water.  
Sulfuric acid is 100% soluble in water.

**Appearance and odor:** The entire battery is a solid article consisting of an opaque plastic case with two protruding lead terminals of tin-plated brass terminals. The battery is odorless. Sulfuric acid is a liquid.

**Specific Gravity:** Electrolyte 1.300 (water = 1.0)

The International Agency for Research on Cancer (IARC) has classified strong inorganic acid mist containing sulfuric acid as a Category 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within the battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.

## 10. Stability and Reactivity

<b>Chemical stability:</b>	Stable under recommended conditions.
<b>Conditions to avoid:</b>	Sparks and other sources of ignition. Prolonged overcharge. Fire and explosion hazards due to possible hydrogen gas generation. Short circuits. Water.
<b>Incompatibilities:</b>	Combination of sulfuric acid with combustibles and organic materials may cause fire and explosions. Avoid strong reducing agents, most metals, carbides, chlorates, nitrates, picrate.
<b>Hazardous decomposition products:</b>	Hydrogen gas may be generated when the batterie is being overcharged, in fire or at very high temperatures. CO, CO <sub>2</sub> and sulfuric oxides may be emitted during a fire. Hazardous polymerization will not occur.

## 11. Toxicological Information

This product does not elicit toxicological properties during routine handling and use.

## 12. Ecological Information

N/A

## 13. Disposal Considerations

Always dispose of batteries in accordance with national, state and local regulations.

**Hazardous waste codes:** 0002, 0008

## 14. Transport Information

<b>DOT:</b>	Unregulated, meets the requirements of 49 CFR 173, 159 (d).
<b>IATA/ICAO:</b>	Unregulated, meets the requirements of Special Provision A67.
<b>IMO:</b>	Unregulated
<b>IMDG:</b>	Unregulated, meets the requirements of Special Provision 29&238.

## 15. Regulatory Information

Flammability (Red) = 0 Health (Blue) = 3 Reactivity (Yellow) = 2

## 16. Other Information

The information given above is provided in good faith based on present knowledge and does not constitute an assurance of safety under all conditions. It's the users responsibility to observe all laws and regulations applicable. We make no warranty of merchantability or any other warranty, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or expemplary damages, howsoever arising, even if we have been advised of the possibilty of such damages. 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.