

LEAD ACID BATTERIES, VALVE REGULATED

MATERIAL SAFETY DATA SHEET

SECTION: 1 GENERAL INFORMATION

Product Name	:	Battery, Storage, Lead Acid, Industrial
Chemical Family	:	Toxic and Corrosive Material Mixture
Manufacturer's Name	:	Amara Raja Batteries Ltd.
Address	:	Karakambadi, Tirupati – 517 520 Andhra Pradesh, India
Person Responsible for Preparation	:	S. Jeyakumar, Engineer – RAD
Emergency Phone No.	:	0877 2285561-65, Extn.: 267
Other Information Calls	:	0877 2285561-65, Extn.: 289 / 310
MSDS Issued Date	:	30.10.2000
MSDS Revised Date	:	20.06.02 (Supersedes Oct 30, 2000)
MSDS Revision No.	:	1

SECTION: 2 COMPOSITION / INFORMATION ON INGREDIENTS

C.A.S. #	Principal Hazardous Components (Chemical & Common Name)	Hazard Category	% Weight	Exposure Limits OSHA PEL
7439-92-1	Lead / Lead Dioxide / Lead Sulphate (Grid / Active Material)	Acute-Chronic	60 – 70	0.05 mg/m ³
7664-93-9	Sulphuric Acid (Electrolyte)	Reactive – Oxidizer Acute-Chronic	25 – 30	1.0 mg/m ³
9003-07-0	Inert Ingredients like Battery Case (Polypropylene)	N/A	04 – 08	N/A
65997-17-3	Glass Micro Fiber Separator	N/A	01 – 02	N/A

SECTION: 3	PHYSICAL AND CHEMICAL PROPERTIES
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Properties	Finished Battery	Lead	Sulphuric Acid
Appearance	NA	Bluish Grey, Heavy metal	Clear liquid
Odor	NA	Odorless	Odorless
Specific Gravity	NA	11.34 gm / cc	1.84 gm/cc (99.99%) 1.40 gm/cc (50.0%)
Melting Point	NA	327°C	03°C (99.99%), -32°C (93%), -64°C (65%)
Boiling Point	NA	1740°C	290°C
Solubility	NA	Insoluble in water	100% miscible in water, liberates heat

Note : The above properties cannot be determined for a finished battery since it is a mixture of chemicals.

SECTION: 4	STABILITY & REACTIVITY
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Stability	: Stable
Conditions to Avoid	: Avoid Overcharging & Shorting. Use only approved charging methods. Do not puncture battery case.
Materials to Avoid:	: Sparks, Open Flames, Strong Oxidizers etc., shall be kept away from the battery (s).
Hazardous Decomposition	: Combustion can produce CO ₂ & CO
Hazardous Polymerization	: Will not occur

SECTION: 5	HAZARD IDENTIFICATION
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Hazardous rating for Sealed Lead Acid Battery is Zero.

Potential Health Effect: None expected for finished product under normal conditions of use.

Signs and Symptoms of Exposure

Acute Hazard

Do not open Battery

Avoid contact with internal components. Internal components included lead and Sulphuric Acid.

- **Lead**
Direct skin or eye contact may cause local irritation.
Inhalation or ingestion of lead dust or fumes may result in head ache, vomiting, fatigue, sleep disturbance, weight loss, anemia and leg arm and joint pain.
- **Sulphuric Acid:**
 H_2SO_4 is corrosive and contact may cause skin irritation and burns.

Chronic Health Effects

- **Lead**
Prolonged exposure may cause central nervous system damage, gastro intestinal disturbances, anemia, wrist drop and kidney disinfection. Battery posts, terminals and other related accessories containing lead and lead compounds may cause cancer and reproductive harm. Wash hands after handling lead components.
- **H_2SO_4**
Repeated contact with H_2SO_4 causes skin burns, erosion of teeth, irritation / inflammation of nose, throat and lungs.

Routes of Entry:

- Inhalation : Yes
- Ingestion : Yes
- Eye Contact : Yes
- Skin Contact : Yes

SECTION: 6 First Aid Measures

- Emergency & First Aid Procedures** :
- **Inhalation:**
Not expected for product under normal conditions of use. However acid vapours can be released due to overcharging or abuse of the battery. In such cases move exposed person to fresh air if he finds inconvenient or becomes fatigue. If needed oxygen may be administered. Seek medical attention.
 - **Eyes**
Immediately flush with water for atleast 15 minutes. If irritation develops, seek prompt medical attention.
 - **Skin**
Flush the contacted area with large amount of water and mild soap. If irritation develops, seek medical attention.
 - **Ingestion**
Do not induce vomiting. If conscious drink large amount of water/milk. Obtain medical attention.

NOTE: Never give anything by mouth to an unconscious person.

SECTION: 7 Fire Fighting Measures

- Flash Point : Not Applicable
- Extinguishing Media : Multi Purpose Dry Chemical or Multi Purpose CO₂.
- Firefighting Procedure : Extinguish fire with the agent suitable for surrounding combustible materials. Use self-contained breathing apparatus to prevent possible inhalation of acid mists, smokes and decomposed products due to fire. Cool the exterior of the battery's to prevent rupture.
- Unusual Fire and Explosion Hazard :
- Sulphuric Acid vapors are generated upon overcharge and polypropylene case may burst in such cases.
 - Hydrogen gas may be produced and may explode if ignited.
 - Avoid open flames/sparks/other sources of ignition near battery and provide good ventilation to prevent the above two incidents.

SECTION : 8 ACCIDENTAL RELEASE MEASURES

- Spill or leak cleanup procedures : Avoid contact with spilled material. Neutralise with Soda Ash, Sodium Bicarbonate or lime. Dispose of contaminated material in accordance with applicable local, state and federal regulations
- Personal Precautions : Acid Resistant aprons, boots and protective clothing, ANSI approved safety glasses with side shields/face shield recommended
- Environmental Precautions : Lead and its compounds and Sulphuric Acid can pose a severe threat to the environment. Contamination of water, soil and air should be prevented.

SECTION : 9 HANDLING AND STORAGE

- Handling :
 - Do not carry batteries by terminal.
 - Do not drop battery, attempt to open or puncture battery case.
 - Avoid flames and sparks nearby during and immediately after charging of the battery.
 - Avoid prolonged overcharges in confined areas.
- Storage : Store batteries in cool, dry well-ventilated areas. Batteries should be stored under roof for protection against adverse weather conditions.
- Hygiene : Wash hands thoroughly before eating or drinking after handling batteries.
Work clothes and equipment should remain in designated lead contaminated areas, and never taken home or laundered with personal clothing.

SECTION: 10 TOXICOLOGICAL INFORMATION

- General : The primary routes and exposure to lead are ingestion or inhalation of lead dust and fumes. But this is not applicable for finished product under normal conditions of use.
- Acute : Exposure to lead and its compounds may cause Head Ache, Vomiting, Fatigue, Sleep Disturbances, Weight Loss, Kidney Damage, Anemia and Pain in Legs, Arms and Joints.
- Chronic : Exposure to lead and its compounds may cause Central Nervous System damage, Gastrointestinal disturbances, Anemia, Wrist drop etc.

SECTION: 11 DISPOSAL CONSIDERATIONS

- Lead Acid batteries are completely recyclable. Return the whole scrap battery(s) to the distributor, manufacturer or authorized lead smelter for recycling.
- For neutralized spills, place the residue in an acid resistant container with sorbent material like sand and dispose off in accordance with local, state and federal regulations for acid and lead compounds.
- Contact local and / or state environmental officials for a clear disposal information.

SECTION: 12 TRANSPORT INFORMATION

IMO Proper Shipping Name	:	Lead Acid Batteries, Wet, not spillable
IMO Regulation page No.	:	8120
IMO UN Class	:	8
IMO Packing Group	:	III
IMO Label	:	None Record
IATA Proper Shipping Name	:	Lead Acid Batteries, Wet, not spillable
IATA UN Class	:	8
IATA UN No.	:	UN 2800
IATA Packing Group	:	III
IATA Label	:	Corrosive

SECTION: 13 REGULATORY INFORMATION

Hazardous under Hazard Communication Standards.	:	Lead	:	Yes
	:	Sulphuric Acid	:	Yes

For Hazard Category & Exposure Limits, refer
Section-2

NOTE: According to the OSHA Hazard Communication Standard, Sealed Lead Acid Battery in its manufactured and supplied state is considered non-hazardous.

SECTION: 14 OTHER INFORMATION

The information and recommendations contained herein have been compiled from sources believed to be reliable and to represent current knowledge on the subject. No warranty, guarantee, or representation contained herein and Amara Raja Batteries Limited, its subsidiaries or affiliates assume no responsibility in connection therewith, nor can be assumed that all acceptable safety measures are contained herein, or that other or additional measures may not be required under particular or exceptional conditions or circumstances.