

SAFETY DATA SHEET FOR A 4-WHEELER LEAD ACID BATTERY

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Section 1 – Chemical product and company identification

1.1	Product Name	:	4-Wheeler Lead Acid Battery
1.2	Name of the Supplier	:	Amara Raja Batteries Ltd.
	Address	:	Bangarupalem, Chittoor—517416, Andhra Pradesh, India
	Emergency Telephone Number	:	+91-877-2265 000 Extn : 7689
	Fax Number	:	+91-877-2285 600
	E-mail	:	mdr@amararaja.com
	Website	:	https://www.amararajabatteries.com/
1.3	Recommended Uses	:	Rechargeable Storage Batteries
1.4	Restrictions	:	NA

Section 2 – Hazards identification

No health effects are expected during normal use of this product as sold. Hazardous exposure may occur when the product is heated, oxidized or otherwise processed, damaged or subjected to misuse. Follow manufacturer's instructions for usage.

2.1 Health & Environment

GHS code	Hazard class/category		Hazard statement
H302	Acute Toxicity (Oral)	Category 4	Harmful if swallowed
H314	Skin corrosion	Category 1	Causes skin burns and eye damage
H335	Specific target organ toxicity, single exposure, Respiratory tract irritation	Category 3	Might cause respiratory irritation
H361	Reproductive toxicity	Category 2	Suspected damaging of fertility or the unborn child
H411	Hazardous to the aquatic environment, acute hazard	Category 2	Toxicity to aquatic life with long lasting effect

Single Word: Danger

2.2 Hazard Pictograms:

GHS Labels as applicable



Section 3 – Composition/information on ingredients

Principal Components (Chemical & Common Name)	C.A.S. #	% by Weight	Air Exposure Limits (µg/m3)		
			OSHA	ACGIH	NIOSH
Inorganic compounds of					
Lead	7439-92-1	55 - 65	50	150	100
Calcium	7440-70-2	0.02 max	--	--	--
Tin	7440-31-5	0.13 max	2000	2000	--
Antimony	7440-36-0	0.23 max	500	500	--
Arsenic	7440-38-2	0.01 max	10	200	--
Sulphuric Acid (Electrolyte)	7664-93-9	25 - 35	1000	1000	1000
Poly Propylene (Battery Case)	9003-07-0	8 - 9	NA	NA	NA
Poly Ethylene (Separator)	9002-88-4	1 - 2	NA	NA	NA

Note: Lead, Electrolyte (Sulphuric acid), Polypropylene and PE Separator are the primary components of every battery manufactured by Amara Raja Batteries Ltd. Other ingredients may be present depending upon Lead Acid Battery type. Polypropylene is the principal case material of batteries. **Contact your Amara Raja Batteries representative for additional information.**

Section 4 – First-aid measures

Note: Under normal conditions of battery use, internal components will not cause a health hazard. The following information is provided for battery electrolyte (acid) and lead for exposures that may occur during battery production or container breakage or under extreme heat conditions such as fire.

For anticipated effects, refer toxicological effects in Section 11.

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Exposure Route	Symptoms	Measures to be taken
Inhalation	Respiratory irritation	<ul style="list-style-type: none"> Acid vapors can be released due to overcharging or abuse of the battery. In such cases, move exposed person to fresh air if he/she finds inconvenient or becomes fatigue. Remove from lead exposure, gargle, wash nose and lips; consult physician.
Skin contact	Skin burns	<ul style="list-style-type: none"> Flush the contacted area with large amount of water and mild soap. If irritation develops, seek medical attention. Wash skin with running water. Continue flushing with water until advised to stop by the Health care Centre.
Eye contact	Eye irritation	<ul style="list-style-type: none"> Immediately flush with water for at least 15 minutes. If irritation develops, seek prompt medical attention Immediately hold eyelids apart and flush the eye continuously with running water.
Ingestion/ Swallowing	Irritation, vomiting	<ul style="list-style-type: none"> If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Urgent hospital treatment is likely to be needed. If swallowed do not induce vomiting.

Section 5 - Fire-fighting measures

Suitable fire extinguishing agents	<ul style="list-style-type: none"> Foam/Dry chemical powder/BCF-Bromochlorodifluoromethane (where regulations permit)/Carbon dioxide
Unusual fire and explosion hazards	<ul style="list-style-type: none"> Sulphuric Acid vapors are generated upon overcharge and polypropylene case may burst in such cases. Hydrogen gas may be produced during overcharge 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.
Special protective equipment	<ul style="list-style-type: none"> Protective goggles, respiratory protective equipment, acid protective equipment, acid proof clothing in case of larger stationary battery plants or where larger quantities are stored
Special firefighting procedures	<ul style="list-style-type: none"> Alert fire brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or watercourse. Use firefighting procedures suitable for surrounding area. Do not approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.

Section 6 - Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Eye Protection	Protective goggles, safety glasses with side shields and or a full-face shield
Protective Gloves	Rubber, PVC or Neoprene
Respiratory Protection	NIOSH approved acid mist/organic vapor respirator, if OSHA PEL is exceeded
Other Protective Environment	Acid resistant apron or clothes
PPE	

6.2 Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Runoff from fire control and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

6.3 Methods and materials for containment and cleaning up

6.3.1 For Containment

In the event of a battery rupturing, stop the leak if you can do it without risk. Absorb with earth, dry sand or other non-combustible material. Cautiously neutralize spilled liquid.

6.3.2 For Cleaning up

Dispose of in accordance with local, State, and national regulations

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Section 7 – Handling and storage

7.1 Precautions for safe handling

- Keep away from heat and sources of ignition.
- Wash hands thoroughly after use.
- Do not use organic solvents; use only manufacturer recommended cleaners on the batteries.
- Avoid sparks.
- Do not remove vent cap

7.2 Conditions for safe storage

- Store batteries in a cool, dry area. Store batteries in a covered area that protects against adverse weather conditions.
- Protect batteries from coming into contact with conductive materials to prevent fire or battery failures.
- Do not store or charge batteries in temperatures under -40 °F.
- Keep away from fire, sparks and heat sources.
- Protect from damage to prevent possible leaks or spills. It is imperative that these instructions be followed if the batteries are being stored.

Section 8 – Exposure controls and Personal protection

8.1. Appropriate engineering controls

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously, do not tip to avoid spills. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when filling, charging, or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Component	Occupational Exposure Limit	Preventive measures from exposure	Recommended test method
Lead	0.15 mg/m ³ (8-hour time weighted average)	Section 6	NA
Sulfuric acid	1.00 mg/m ³ (8-hour time weighted average)	Section 6	NA

8.2. Personal protective equipment

During installation under normal conditions, there is no exposure to lead or sulphuric acid. In the event of battery breakage, exposure to sulphuric acid and lead may occur. During high rate charges or overcharging acid mist may occur. For PPE, follow the guidelines provided in Section 6.1

Section 9 – Physical and chemical properties

Component name		Lead and its compounds	Sulfuric acid
Appearance	Physical state/ Form	Solid	Liquid
	Color	Grey	Clear, colorless
Odor		Odorless	
pH		NA	2.75 (for 1 mM)
Melting point/freezing point		327.4 °C	10 °C (50 °F; 283 K)
Boiling point		1740 °C	337 °C (639 °F; 610 K) When sulfuric acid is above 300 °C (572 °F), it will decompose slowly
Vapor pressure		NA	0.001 mmHg (20 °C)
Density/relative density		11.35 g/cm ³	1.3 g/cm ³
Solubility in water		NA	Miscible, exothermic

Note: All units expressed in accordance with the SI system, as specified in ISO 1000 and ISO 80000-9. NA = Not Applicable

Section 10 – Stability and reactivity

Chemical stability	Stable under normal conditions. If contact with alkaline material, liberates heat
Reactivity	Electrolyte may produce hydrogen as a reaction with some metals.
Possible hazardous reactions	Hazardous polymerization will not occur.
Conditions to avoid	<ul style="list-style-type: none"> • Avoid prolonged overcharging & sources of ignitions. • Use only approved charging methods. • Do not puncture battery case

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Incompatible materials (materials to avoid)	Sulphuric acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with reducing agents, metals SO ₃ gas, strong oxidizers and water. Contact with metals may produce toxic SO ₂ fumes and may release flammable hydrogen gas. Lead compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.
Anticipated hazardous decomposition products	Hydrogen gas may be generated in an overcharged condition, in fire or at very high temperatures. In fire, may emit CO, CO ₂ and Sulfur Oxides

Section 11 – Toxicological information

NOTE: Under normal conditions of use, this product does not cause a health hazard. The following information is provided for organic electrolyte and lead exposure that may occur due to container breakage or under extreme conditions such as fire.

Route of exposure	Toxicological effects
Inhalation	Sulfuric Acid/Mist: Breathing of sulfuric acid vapors or mists may cause respiratory irritation. Lead Compounds: Inhalation of lead dust may cause irritation of upper respiratory tract and lung
Skin contact	Sulfuric Acid/Mist: Irritation, burns and ulceration. Lead Compounds: Not absorbed through the skin.
Eye contact	Sulfuric Acid/Mist: Irritation, burns, cornea damage, and blindness. Lead Compounds: May cause eye irritation.
Ingestion	Sulfuric Acid/Mist: May cause irritation of mouth, throat, esophagus and stomach. Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and cramping. This may lead rapidly to systemic toxicity and must be treated by a physician
Acute effects	Sulfuric Acid/Mist: Skin irritation, damage to cornea, upper respiratory irritation. Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability
Chronic effects	Sulfuric Acid/Mist: Possible erosion of tooth enamel, inflammation of nose, throat & bronchial tubes. Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females.

Component	Toxicity level(Permissible Exposure Value)	Irritation
Lead	0.15 mg/m ³ (8-hour time weighted average)	Yes
Sulfuric acid	1.00 mg/m ³ (8-hour time weighted average)	Yes

Section 12 – Ecological information

Component	Environmental effects
Lead	Toxic to aquatic life
Sulfuric acid(electrolyte)	It has moderate acute (short-term) toxicity on aquatic life. Sulfuric acid is very corrosive and would badly burn any plants, birds or land animals exposed to it.

Eco toxicological properties

Toxicity

Persistence and degradability

Bio accumulative potential

Mobility in soil

Information

Given above in Section 11

Lead is very persistent in soils and sediments. No data is available on biodegradation

Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants, but very little bioaccumulation occurs through the food chain. Most studies have included lead compounds, not solid inorganic lead.

Mobility of metallic lead between ecological compartments is low.

Section 13 – Disposal considerations

13.1. Recommended methods for safe and environmentally preferred disposal

- Lead Acid batteries are completely recyclable. Return the whole scrap battery(s) to the distributor, manufacturer or authorized lead smelter for recycling.

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- For acid spills, neutralize with soda ash and place the residue in an acid/alkali resistant container with sorbent material like sand and dispose of in accordance with local, state and federal regulations.

13.2. Local disposal laws

- Disposal action will be taken as per the local regulations and action laws.

Section 14 – Transport information

UN number	UN 2794
UN proper shipping name	Batteries, Wet, filled with acid
Packing Group	III
UN Classification	8

Transport Mode	Symbol
Sea transport	
Air transport	
Land transport	

Section 15 – Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture.

Regulatory information : Recommendations on the transport of dangerous goods-model regulations (15th revised), IATA dangerous goods regulations, International Maritime Dangerous Goods Code, U.S. Hazardous Material Regulations



Keep out of reach of children



Read Instructions



Section 16 – Other information

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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.

BIBLIOGRAPHY

- ISO 11014
- GHS : 2019