

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION					
MANUFACTURER	PRODUCT FAMILY	Monbat batteries series MVR, MVR-TA			
Monbat Plc. 4 "Golo Bardo" str. 1407 Sofia BULGARIA	CHEMICAL FAMILY/ CLASSIFICATION	Electrical Storage Battery Monoblock type			
	DATE ISSUED:	October 28, 2013			
	Emergency Telephone Number + 359 2 962 11 50				
2. COMPOSITION / INFORMATION ON INGREDIENTS					
			Approximate Air Exposure Limits (Dg/m)		
Components	CAS Number	%byWt.	OSHA	ACGffl	NIOSH
Inorganic components of:					
Lead	7439-92-1	71-76	50	50	50
Antimony Oxide	7440-36-0	<0.6	500	500	500
Calcinated Clay	N/A	<1.2	N/A	N/A	N/A
Tin	7440-31-5	0.4-0.6	2000	2000	2000
Copper	7440-50-8	<0.1	1000	1000	1000
Electrolyte (sulfuric acid)	7664-93-9	18-20	1000	200	1000
Case Material:					
ABS f.r.	9003-07-0	4-5	N/A	N/A	N/A
Plate separator material:					
Glass	N/A	2-3	N/A	N/A	N/A
Organic components:	None				
3. HAZARDS IDENTIFICATION					
<p>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.</p> <p>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.</p> <p>Other: May form explosive air/gas mixture during charging.</p> <p>Routes of entry and potential health effects:</p> <p>Inhalation: Sulfuric Acid vapors or mist may cause severe respiratory irritation. Lead dust or fumes may cause irritation of upper respiratory tract or lungs</p> <p>Skin contact: Sulfuric Acid may cause severe irritation, burns and ulceration. Lead Compounds are not readily absorbed through the skin.</p> <p>Eye contact: Sulfuric Acid may cause severe irritation, burns and cornea damage and possible blindness. Lead Compounds may cause eye irritation.</p> <p>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.</p>					
4. FIRST AID MEASURES					
<p>Inhalation: If breathing difficulties develop, remove person from exposure. If symptoms persist, seek medical attention</p> <p>Skin contact: Flush the exposed skin with large amounts of water for 15 minutes, using deluge emergency shower. Remove contaminated clothing. If symptoms persist, seek medical attention</p> <p>Eye contact: Force eyes open and rinse with clean, cool, running water for 15 minutes. Do not use eye drops or other medication unless advised to do so by a doctor. Seek immediate medical attention after rinsing.</p> <p>Ingestion: Do not induce vomiting. If conscious, drink large quantities of milk or water. Follow with milk of magnesia, beaten egg, egg whites or vegetable oil. Seek medical attention immediately.</p>					

5. FIRE FIGHTING MEASURES

Flash point: N/A
Auto Ignition Temperature: N/A
Fire Point: N/A
Flammable limits: 4.1% LEL, 74.2% UEL
(Hydrogen Gas)
Extinguishing Media: Class ABC extinguisher, Dry Chemical, Foam or Carbon Dioxide

Special Fire Fighting Procedures:

If batteries are on charge, turn off power. Use positive pressure, self-contained breathing apparatus (SCBA) 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 produced during normal battery operation and charging. These gases escape through the battery vents and may form an explosive atmosphere around the battery if ventilation is poor. Avoid open flame, sparks and other ignition sources in areas where batteries are used or stored.
 - Sulfuric acid is an oxidizer and can ignite combustibles upon contact.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES:

Small spill: Neutralize the spill with baking soda, household ammonia and/or water. Rinse clean.

Large spill: Remove combustible materials and all sources of ignition. Contain spill by diking with soda ash (sodium carbonate) or quicklime (calcium oxide). Cover spill with neutralizing agent such as soda ash or quicklime. Mix well. When mixture is neutral collect the residue in a suitable container and dispose of per local, state and federal waste regulations. Wear acid resistant boots, face shield, chemical splash goggles, and acid resistant gloves. Do not release unneutralized acid.

7. HANDLING AND STORAGE

Precautions to be taken in handling and storage:

Store away from reactive materials, open flames and sources of ignition as defined. Store batteries in cool, dry well-ventilated areas. Batteries should be stored under roof for protection against adverse weather conditions. Avoid damage to containers.

Other Precautions:

GOOD PERSONAL HYGIENE AND WORK PRACTICES ARE MANDATORY.

Refrain from eating, drinking or smoking in work areas. Thoroughly wash hands, face, neck and arms, before eating, drinking and smoking. Work clothes and equipment should remain in designated lead contaminated areas, and never taken home or laundered with personal clothing. Wash soiled clothing, work clothes and equipment before reuse

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls/system design information: Charge in area's with adequate ventilation. Do not install these batteries in sealed, unventilated area's.

Ventilation: General dilution ventilation is acceptable

Respiratory Protection: Not required for normal conditions of use.

Eye Protection: Safety glasses with side shields or goggles.

Skin Protection: Wear chemical resistant gloves as a standard procedure to avoid skin contact. Wash hands after handling.

Other: None required under normal use conditions for gel/absorbed electrolyte type batteries.

Exposure Limits	Lead, Lead Compounds	Sulfuric Acid
OSHA	PEL 0.05mg/m3	PEL 1mg/m3 TWA
ACGIH	TLV 0.05mg/m3	TLV 1mg/m3 TWA, 3mg/m3 (STEL)
NIOSH	Rel<0.10 mg/m3	Rel<1.0 mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	Not Applicable
Vapour Pressure:	Not Applicable
Specific Gravity:	1.250-1.320 pH <2
Melting Point:	Not Applicable
Percent Volatile by Volume:	Not Applicable
Vapour Hydrogen:	0.069 (Air =1)
Evaporation rate:	Not applicable
Solubility in water:	100% soluble (electrolyte)
Reactivity in Water:	Electrolyte – Water Reactive (1)
Appearance and Odour:	Battery: Co-polymer, solid; may be contained within an outer casing of aluminum or steel. Case has metal terminals. Lead: Gray, metallic, solid; brown/grey oxide
Electrolyte:	Odourless, liquid absorbed in glass mat material. No apparent odour.

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal conditions at ambient temperature

Incompatibility (materials to avoid): Heat, open flames, sparks, strong oxidizing or reducing agents.

Hazardous decomposition or by-products:

Can emit toxic fumes when heated. Combustion can produce carbon dioxide and carbon monoxide. Will release an explosive hydrogen/oxygen gas mixture. Oxides of lead, lead and/or lead compounds may be released. Sulfuric Acid may release Sulfur Dioxide and/or Sulfur Trioxide.

Hazardous polymerization: Will not occur.

Conditions to avoid: Prolonged overcharge, sparks and other sources of ignition.

11. TOXICOLOGICAL INFORMATION

General:

The primary routes of exposure to lead are ingestion or inhalation of dust and fumes.

Acute Inhalation / Ingestion:

Exposure to lead and its compounds may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in the legs, arms and joints. Kidney damage, as well as anemia, can occur from acute exposure.

Chronic Inhalation / Ingestion:

Prolonged exposure to lead and its compounds may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and wrist drop. Symptoms of central nervous system damage include fatigue, headaches, tremors, hypertension, hallucination, convulsions and delirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity, but there is at present, no substantiation of the implication. Pregnant women should be protected from excessive exposure. Lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due to excessive lead exposure in pregnant women.

12. ECOLOGICAL INFORMATION

In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates, and phosphates, and precipitates out of the water column. Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil. Lead (dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

13. DISPOSAL CONSIDERATIONS

Lead-acid batteries are completely recyclable. Return whole scrap batteries to distributor, manufacturer or lead smelter for recycling. For neutralized spills, place residue in acid-resistant containers with sorbent material, sand or earth and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.

14. TRANSPORT INFORMATION

All Monbat MVR and MVR-TA range batteries are valve regulated lead acid (VRLA) batteries.

They have passed vibration, pressure differential and free flowing acid tests under CFR 49 173.159(d) and meet IATA Special Provisions A48 and A67. The batteries are securely packaged, protected from short circuits and labelled "Non-Spillable."

The Monbat VRLA batteries are exempt from DOT Hazardous Material Regulations and IATA Dangerous Goods Regulations.

Land Transport: Land Transport (ADR/RID, U.S. DOT)

UN N°: UN2800, Classification ADR/RID: Class 8

Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage

Packing Group ADR: not assigned

Label required: Corrosive

ADR/RID: New and spent batteries are exempt from all ADR/RID (special provision 598).

Sea Transport: Sea Transport (IMDG Code)

UN N°: UN2800, Classification: Class 8

Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage

Packing Group: III

EmS: FA, SB

Label required: Corrosive

If nonspillable batteries meet the Special Provision 238, they are exempted from all IMDG codes provided that the batteries' terminals are protected against short circuits.

Air Transport: Air Transport (IATADGR)

UN N°: UN2800, Classification: Class 8

Proper Shipping Name: BATTERIES, WET, NON SPILLABLE electric storage

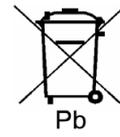
Packing Group: III

Label required: Corrosive

If nonspillable batteries meet the Special Provision A67, they are exempted from all IATA DGR codes provided that the batteries' terminals are protected against short circuits.

15. REGULATORY INFORMATION

In accordance with the EU Battery Directive and the respective national legislation, Lead-Acid batteries have to be marked by a crossed out dustbin with the chemical symbol for lead below, together with the ISO return / recycling symbol.



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. 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.