



MATERIAL SAFETY DATA SHEET

1. We would like to inform our customers that these batteries are exempt articles and are not subject to the 29 CFR 1910.1200 OSHA requirement, or to the Canadian WHMIS requirements and the sheets are supplied as a service to you. For other MSDSs and related information, visit: <http://www.rayovac.com/technical/msds.htm>.

2. THESE BATTERIES MAY NOT BE SUITABLE FOR LANDFILL DISPOSAL (SEE SECTION 7).

1. IDENTIFICATION

PRODUCT NAME: Magnesium Carbon Batteries (BA4386, BA4590)

SIZES: All

EMERGENCY TELEPHONE NUMBER: 800-424-9300 (24 hr, Chemtrec)

Environmental Health & Safety: 608-275-2482

EDITION DATE: 07/19/2010

APPROVED BY: Kevin J. Domack

2. INGREDIENTS

INGREDIENT NAME	CAS #	%	TLV*
Manganese Dioxide	1313-13-9	25-35	C5.0 mg/m ³
Magnesium Aluminum Alloy	7439-95-4	10-15	15 mg/m ³ (Oxide, Fume)
Magnesium Perchlorate	10034-81-8	5-10	None Established
Barium Chromate	10294-40-3	< 5.0	*0.01 mg/m ³ (Cr VI, Compound,)
Carbon Black	7440-44-0	0.5-1.5	3.5 mg/m ³ (TWA)
Lithium Chromate	14307-35-8	< 0.01	*0.05 mg/m ³ (Cr VI, Compound,)
Paper, Plastic, Other	--	Balance	---

*Source: OSHA 29 CFR 1910.1000 Table Z-1 and 29 CFR 1910.1026 3-01-2010

3. PHYSICAL DATA

Boiling Point @ 760 mm Hg (°C):	NA
Vapor Pressure (mm Hg @ 25°C):	NA
Vapor Density (Air = 1):	NA
Density (grams/cc):	NA
Percent Volatile by Volume (%):	NA
Evaporation Rate (Butyl Acetate = 1):	NA
Physical State:	NA
Solubility in Water (% by Weight):	NA
pH:	NA
Appearance and Odor:	geometric solid object

4. FIRE & EXPLOSION HAZARD DATA

<u>FLASH POINT:</u>	NA	<u>LOWER (LEL):</u>	NA
<u>FLAMMABLE LIMITS IN AIR (%):</u>	NA	<u>UPPER (UEL):</u>	NA
<u>EXTINGUISHING MEDIA:</u>	Use water, foam, dry powder, sand or dirt as appropriate. See section 7 below for disposal precautions.		
<u>AUTO-IGNITION:</u>	NA		

SPECIAL FIRE FIGHTING PROCEDURES FOR NORMAL USE, SMALL QUANTITIES OF LESS THAN 100 BATTERIES (including disposal): As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products (See section 2). If in a landfill situation (small quantities), extinguish using water, foam or dry powder.

SPECIAL FIRE FIGHTING PROCEDURES FOR LARGE OR BULK QUANTITIES OF MORE THAN 100 BATTERIES (including disposal): As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products (See section 2). When large amounts of this product are involved, the fire may become extremely hot, fueled by asphalt, paper and other battery components. Additional hydrogen may be released from fully involved fires, adding a further consideration in firefighting. Smother the fire by covering it with 4" to 6" of dry sand or dirt. Allow 24 hours for the fire to cease and the material to cool.

SPECIAL FIRE OR EXPLOSION HAZARDS: (1) Battery/cells may rupture when exposed to excessive heat; this could result in the release of corrosive materials. Crushed or damaged batteries may allow internal wires to short causing the batteries to start on fire. (2) Do not place batteries/cells in sealed drums for shipment. A minor amount of hydrogen, a normal result of discharge, may build up causing overpressure or burst hazards.

5. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (TLV) AND SOURCE: NA

EFFECTS OF OVEREXPOSURE: None. (In fire or rupture situation see section 2 and section 4)

EMERGENCY FIRST AID PROCEDURES:

Skin and Eyes:

In the event that battery ruptures, flush exposed skin with copious quantities of flowing lukewarm water for a minimum of 15 minutes. Get immediate medical attention for eyes. Wash skin with soap and water.

For more information, visit: <http://www.nema.org/gov/ehs/committees/drybat/>.

6. REACTIVITY DATA

<u>STABLE OR UNSTABLE:</u>	Stable
<u>INCOMPATIBILITY (MATERIALS TO AVOID):</u>	NA
<u>HAZARDOUS DECOMPOSITION PRODUCTS:</u>	NA
<u>DECOMPOSITION TEMPERATURE (0°F):</u>	NA
<u>HAZARDOUS POLYMERIZATION:</u>	Will Not Occur
<u>CONDITIONS TO AVOID:</u>	Avoid electrical shorting.

7. SPILL OR LEAK PROCEDURES

PROCEDURES TO CONTAIN AND CLEAN UP LEAKS OR SPILLS: In the event of a battery rupture, prevent skin contact and collect all released material in a plastic lined metal container. If battery is shorting (wires broken) or internal components are crushed, place in a metal container and watch for signs of burning.

REPORTING PROCEDURE: Report all spills in accordance with Federal, State and Local reporting requirements.

WASTE DISPOSAL METHOD: (1) Avoid placing this product in a sealed drum (see section 5 warning). (2) Do not crush. (3) Do not short in any manner. Discharge fully before disposal. When shredded per Toxicity Characteristic Leachate Procedure (TCLP) parameters and tested per SW 846, 3rd Edition, Test Methods for Evaluating Solid Waste, independent certified laboratory analyses have indicated these Rayovac battery types to have no hazardous waste characteristics (per 40 CFR, Part 261.24) WHEN THEY ARE AT LEAST 25% DISCHARGED and can be landfilled if all other Federal, State and Local regulations are complied with. TCLP data is available on request; call 608-275-4859. NON-DISCHARGED BATTERIES WILL TEST HAZARDOUS FOR CHROMIUM (D007).

Special Note for landfills: This product should be fully discharged before disposal. When disposing in a landfill, this product should remain on its shipping pallet with packaging material, and trench-landfilled without damage. Compacting units, such as a sheepsfoot compactor, will break wires and cause the batteries to short. Fire may result.

Note: Fires due to shorting or damaged batteries will begin by burning the paper and asphalt components, and if not extinguished quickly by foam or dry powder, can become “hot” enough to involve the magnesium/zinc/aluminum alloy component. The result will be a very hot fire, difficult to extinguish without a significant dry sand or dirt cover (see section 5 warning).

For additional information on disposal or recycling options, visit:
<http://www.nema.org/gov/ehs/committees/drybat/>.

8. PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): NA

VENTILATION: Local Exhaust: NA
Mechanical (General): NA
Special: NA
Other: NA

PROTECTIVE GLOVES: NA

EYE PROTECTION: NA

OTHER PROTECTIVE CLOTHING: NA

9. SPECIAL PRECAUTIONS

HANDLING AND STORAGE: Store in a dry place.

TRANSPORTATION-SHIPPING: These are "batteries, dry" and are not considered to be a "hazardous material" per the Dept. of Transportation (USDOT) regulations or "dangerous goods" per the International Air Transport Association (IATA) regulations. If waste batteries are shipped as hazardous waste, use proper hazardous waste manifest procedures. Shipments must comply with the general duty clause of USDOT 49 CFR 172.102 (a) (1) special provision 130, "to prevent shorting potential while transporting."

10. SARA 313

Notification is not required because these products are article(s) that do not release a covered toxic chemical under the normal conditions of processing or use.

NOTICE: The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Rayovac Corporation makes no warranty expressed or implied.