



Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: DURACELL SILVER OXIDE BATTERIES

Product Identification: Silver Oxide Button Cells –

Duracell Designations: D301/386B; D303/357B; D309/393B; D361/362B; D364B; D370/371B; D377B; C379B; D381/391; D384/392B; D389/390B; D395/399B; D396/397B; D317B; D319B; D376B; MS76B; MS76BMS

Product Use: Energy Source

MSDS Date of Preparation: July 1, 2008

Company Identification

US Office

Duracell, a division of P&G
Berkshire Industrial Park
14 Research Drive
Bethel, CT USA 06401
(203) 796-4000

Canadian Office

Duracell, a division of P&G
4711 Yonge Street
Toronto, Ontario
Canada M2N 6K8
(416) 730-4711

Emergency Phone Number: INFOTRAC Emergency Response Hotline 1-800-535-5053 (US & Canada)

SECTION 2: HAZARDS IDENTIFICATION

Physical Appearance: Button cells

EMERGENCY OVERVIEW

CAUTION: Do not recharge or dispose of batteries in fire. Do not carry batteries loose in your pocket or purse. Keep batteries away from children. If swallowed, consult a physician at once. For information on treatment, call the NATIONAL BUTTON BATTERY INGESTION HOTLINE, collect day or night, at (202) 625-3333.

Potential Health Effects:

The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures, is accidentally swallowed, or is mechanically, physically, or electrically abused. Damaged battery will release potassium hydroxide and sodium hydroxide, which are caustic. Anticipated potential leakage of potassium hydroxide/sodium hydroxide is 0.05 to 0.5 mL, depending on battery size.

Eye Contact: Contact with battery contents may cause severe irritation and burns. Eye damage is possible.

Skin Contact: Contact with battery contents may cause severe irritation and burns.

Inhalation: Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.

Ingestion: If battery is swallowed, seek medical attention. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. Irritation, including caustic burns to the internal/external mouth areas, may occur following exposure to a leaking battery.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Amount
Silver Oxide	20667-12-3	27-40%
Zinc	7440-66-6	7-11%
Potassium Hydroxide (35%)	1310-58-3	0-10%
Sodium Hydroxide	1310-73-2	0-10%
Manganese Dioxide	1313-13-9	0-3%
Mercuric Oxide	21908-53-2	<1%

SECTION 4: FIRST AID MEASURES

Eye Contact: If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical attention.

Skin Contact: If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical attention.

Inhaled: If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical attention.

Swallowed: Seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. If mouth area irritation or burning has occurred, rinse the mouth and surrounding area with tepid water for at least 15 minutes. Do not give ipecac.

Note to Physician: Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up x-rays are necessary only to confirm the passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. For information on treatment, telephone (202) 625-3333, collect, day or night. The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide and/or (20-30%) sodium hydroxide. Mercury toxicity is unlikely, but physician's discretion is advised. Anticipated potential leakage volume of potassium hydroxide/sodium hydroxide is 0.05 to 0.5 mL. Do not give ipecac.

SECTION 5: FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Extinguishing Media: Use any extinguishing media that is appropriate for the surrounding fire.

Special Fire Fighting Procedures: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing if large quantities are involved. Fight fire from a distance or protected area. Cool and use caution when handling fire-exposed containers (containers may explode in heat of fire).

Hazardous Combustion Products: Thermal degradation may produce hazardous fumes of mercury, zinc, silver and manganese; hydrogen gas, caustic vapors of potassium hydroxide, sodium hydroxide and other toxic by-products.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Notify safety personnel of large spills. Caustic potassium hydroxide and sodium hydroxide may be released from leaking or ruptured batteries. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal.

SECTION 7: HANDLING AND STORAGE

Avoid mechanical or electrical abuse. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time. Do not carry batteries loose in a pocket or bag.

Storage: Store batteries in a dry place at normal room temperature. Do not refrigerate – this will not make them last longer.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

The following occupational exposure limits are provided for informational purposes. No exposure to the battery components should occur during normal consumer use.

Chemical Name	Exposure Limits
Silver Oxide	0.01 mg/m ³ TWA OSHA OEL (as Ag) 0.1 mg/m ³ TWA ACGIH TLV (as Ag)
Zinc	None established
Potassium Hydroxide	2 mg/m ³ Ceiling ACGIH TLV
Sodium Hydroxide	2 mg/m ³ TWA OSHA PEL 2 mg/m ³ Ceiling ACGIH TLV
Manganese Dioxide	5 mg/m ³ Ceiling OSHA PEL 0.2 mg/m ³ TWA ACGIH TLV
Mercuric Oxide	0.1 mg/m ³ Ceiling OSHA PEL 0.025 mg/m ³ TWA skin ACGIH TLV

Ventilation: No special ventilation is needed for normal use.

Respiratory Protection: None required for normal use.

Skin Protection: None required for normal use. Use neoprene, rubber or latex gloves when handling leaking batteries.

Eye Protection: None required for normal use. Wear safety goggles when handling leaking batteries.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Button cells.

Specific Gravity: Not applicable

Water Solubility: Insoluble

Vapor Pressure: Not applicable

Vapor Density: Not applicable

Boiling Point: Not applicable

Melting Point: Not applicable

Flash Point: Not applicable

Autoignition Point: Not applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: This product is stable.

Incompatibility/Conditions to Avoid: Contents are incompatible with strong oxidizing agents. Do not heat, crush, disassemble, short circuit or recharge.

Hazardous Decomposition Products: Thermal decomposition may produce hazardous fumes of mercury, zinc, silver and manganese; hydrogen gas, caustic vapors of potassium hydroxide, sodium hydroxide and other toxic by-products.

Hazardous Polymerization: Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity Data:

Silver Oxide: LD50 oral rat 2820 mg/kg

Potassium Hydroxide: LD50 oral rat 273 mg/kg

Sodium Hydroxide: LDLo oral rabbit 500 mg/kg

Manganese Dioxide: LD50 oral rat >3478 mg/kg

Mercuric Oxide: LD50 oral rat 18 mg/kg; LD50 dermal rat 315 mg/kg

Chronic Effects: The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.

Target Organs: Skin, eyes and respiratory system.

Carcinogenicity: None of the components of this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

SECTION 13: DISPOSAL INFORMATION

Disposal should be in accordance with Federal, state/provincial and local regulations. Large quantities of open batteries should be treated as hazardous waste. Do not incinerate for disposal except in a controlled incinerator.

Some communities offer recycling or collection of batteries – contact your local government for disposal practices in your area.

SECTION 14: TRANSPORT INFORMATION

Transportation Information – Products covered by this MSDS, in their original form, are considered “dry cell” batteries and are not regulated as “DANGEROUS GOODS” for transportation.

For finished packaged product transported by ground (US DOT): – not regulated

For finished packaged product transported by sea (IMDG) – not regulated

For finished packaged product transported by air (IATA): – not regulated

SECTION 15: REGULATORY INFORMATION

United States

OSHA Status: While the finished product(s) is considered an article and not covered by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, this MSDS contains valuable information critical to the safe handling and proper use of the product".

EPA TSCA Status: All intentionally-added components of this product are listed on the US TSCA Inventory.

SARA 313/302/304/311/312 chemicals: Silver Oxide (Silver compounds) 27-40%, Manganese compounds 0-3%, Zinc 7-11%, Mercuric Oxide <1%

California: This product has been evaluated and does not require warning labeling under California Proposition 65.

State Right-to-Know and CERCLA:

The following ingredients present in the finished product are listed on state right-to-know lists or state worker exposure lists

Ingredient	CAS #	Level	CERCLA RQ	State				
				IL	MA	NJ	PA	RI
Silver Oxide	20677-12-3	27-40%	None	N	N	N	N	N
Zinc	7440-66-6	7-11%	1000 lb	Y	Y	Y	Y	N
Potassium Hydroxide	1310-58-3	0-10%	1000 lb	Y	Y	Y	Y	Y
Sodium Hydroxide	1310-73-2	0-10%	1000 lb	Y	Y	Y	Y	Y
Manganese Dioxide	1313-13-9	0-3%	None	Y	Y	N	Y	Y
Mercuric Oxide	21908-53-2	<1%	500 lb	Y	Y	Y	Y	Y

Canada All intentionally-added components of this product are listed on the Canadian DSL. This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and this MSDS contains all information required by the Controlled Products Regulations.

SECTION 16: OTHER INFORMATION

P&G Hazard Rating: Health: 0 Fire: 0 Reactivity: 0

Data supplied is for use only in connection with occupational safety and health.

DISCLAIMER: This MSDS is intended to provide a brief summary of our knowledge and guidance regarding the use of this material. The information contained here has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. It is not meant to be an all-inclusive document on worldwide hazard communication regulations.

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