

## MATERIAL SAFETY DATA SHEET

**NAME:** DURACELL MERCURIC OXIDE BATTERIES\*

**CAS NO:** Not applicable

**Effective Date:** 8/26/99 **Rev:** 1

### A. — IDENTIFICATION

Mercuric Oxide (21908-53-2) Zinc (7440-66-6) Manganese Dioxide (1313-13-9) Potassium Hydroxide (35%) (1310-58-3) Mercury (7439-97-6)	%	Formula: Mixture
		Molecular Weight: NA
	35-45	Synonyms: Mercuric Oxide Cells: TR164R; TR165R; TR175; TR177; TR286; TR289; TR431B; ZM9; 303996; 304116B; RM13H6; RM13D; RM312H6; RM312D; MP675H6; MP401H2; RM41H6; RM41D; PX32B; PX625B; PX640B; PX675B; RM400RB; D343; MP401B; RM1R; RM12R;; RM601R; RM640R; RM640RB; TR132R; TR133R; TR134R; TR135R; TR136R; TR146X; PX21
	15	
5-10		
	5-10	
	<1	

### B. — PHYSICAL DATA

Boiling Point NA °F NA °C	Melting Point NA °F NA °C	Freezing Point NA °F NA °C
Specific Gravity (H <sub>2</sub> O=1) NA	Vapor Density (air=1) NA	Vapor Pressure @ _____ °F NA mm Hg
Evaporation ( _____ Ether =1) NA	Saturation in Air (by volume @ _____ °F) NA	Autoignition Temperature _____ °F _____ °C NA
% Volatiles NA	Solubility in Water NA	pH NA

Appearance/Color Various size batteries. Contents dark in color.

Flash Point and Test Method(s) Not applicable

Flammable Limits in Air (% by volume) Lower NA % Upper NA %

### C. — REACTIVITY

Stability	<input checked="" type="checkbox"/> stable	<input type="checkbox"/> unstable	Polymerization	<input type="checkbox"/> may occur	<input checked="" type="checkbox"/> will not occur
<u>Conditions to Avoid</u>			<u>Conditions to Avoid</u>		
Do not heat, crush, disassemble, short circuit or recharge.			Not applicable		
<u>Incompatible Materials</u>			<u>Hazardous Decomposition Products</u>		
Contents incompatible with strong oxidizing agents.			Thermal degradation may produce hazardous fumes of mercury, zinc, manganese; hydrogen gas; caustic vapors of potassium hydroxide and other toxic by-products.		

**\* IF MULTIPLE INGREDIENTS, INCLUDE CAS NUMBERS FOR EACH NA=NOT AVAILABLE**

Footnotes

\*Battery no longer made.

**D. — HEALTH HAZARD DATA**

Occupational Exposure Limits PEL's, TLV's, etc.)

8-Hour TWAs: Manganese Dioxide (as Mn) - 5 mg/m<sup>3</sup> (Ceiling) (OSHA); 0.2 mg/m<sup>3</sup> (ACGIH/Duracell)  
 Potassium Hydroxide - 2 mg/m<sup>3</sup> (Ceiling) (ACGIH)  
 Mercury; Mercuric Oxide (as Hg) - 0.1 mg/m<sup>3</sup> (Ceiling) (OSHA); 0.025 mg/m<sup>3</sup> (ACGIH)

These levels are not anticipated under normal consumer use conditions.

Warning Signals

Not applicable

Routes/Effects of Exposure

These chemicals and metals are contained in a sealed can. For consumer use, adequate hazard warnings are included on both the package and on the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures, is accidentally swallowed or is mechanically, physically, or electrically abused. Contains concentrated (~35%) potassium hydroxide, which is caustic. Anticipated potential leakage of potassium is 0.05 to 0.5 ml, depending on battery size. Less than 2% mercury is contained in the battery.

1. Inhalation      Not anticipated. Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.
2. Ingestion      An initial x-ray should be obtained promptly to determine battery location. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as 4-6 hours after ingestion. Irritation, including caustic burns to the internal/external mouth areas, may occur following exposure to a leaking battery.
3. Skin
  - a. Contact  
Irritation, including caustic burns/injury, may occur following exposure to a leaking battery.
  - b. Absorption  
Not anticipated.
4. Eye Contact    Irritation, including caustic burns/injury, may occur following exposure to a leaking battery.
5. Other            Not applicable

**E. — ENVIRONMENTAL IMPACT**

1. Applicable Regulations    All ingredients listed in TSCA inventory.

2. DOT Hazard Class -        Not applicable

3. DOT Shipping Name -      Not applicable

Environmental Effects

Recyclers are available.

**F. — EXPOSURE CONTROL METHODS**

## Engineering Controls

General ventilation under normal use conditions.

## Eye Protection

None under normal use conditions. Wear safety glasses when handling leaking batteries.

## Skin Protection

None under normal use conditions. Use neoprene, rubber or latex-nitrile gloves when handling leaking batteries.

## Respiratory Protection

None under normal use conditions.

## Other

Keep batteries away from small children.

**G. — WORK PRACTICES**

## Handling and Storage

Store at room temperature. Avoid mechanical or electrical abuse. **DO NOT** short or install incorrectly. Batteries may explode, pyrolize 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 pocket or bag.

## Normal Clean Up

Not applicable

## Waste Disposal Methods

Recycle batteries. Dispose of in accordance with federal, state and local regulations. Do not incinerate, since batteries may explode at excessive temperatures.

**H. — EMERGENCY PROCEDURES**

Steps to be taken if material is released to the environment or spilled in the work area

Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapors. Increase ventilation. Clean up personnel should wear appropriate protective gear.

**Fire and Explosion Hazard**

Batteries may burst and release hazardous decomposition products when exposed to a fire situation. See Sec. C.

**Extinguishing Media**

As appropriate for surrounding area.

**Firefighting Procedures**

Use self-contained breathing apparatus and full protective gear.

**I. — FIRST AID AND MEDICAL EMERGENCY PROCEDURES****Eyes**

Not anticipated. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for at least 30 minutes. Contact physician at once.

**Skin**

Not anticipated. If battery is leaking, irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

**Inhalation**

Not anticipated. If battery is leaking, contents may be irritating to respiratory passages. Remove to fresh air. Contact physician if irritation persists.

**Ingestion**

Not anticipated. Consult a physician. Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Buttons 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 passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. For mercuric oxide batteries, blood and urine mercury levels may be needed with follow-up chelation if symptoms are noted. If mouth area irritation/burning has occurred, rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. See a physician at once.

**Notes to Physician**

- 1) The primary acutely toxic ingredient is concentrated (~35%) potassium hydroxide. Mercury toxicity is unlikely, but physician's discretion is advised.
- 2) Anticipated potential leakage volume of potassium hydroxide is less than 0.5 ml.

Replaces #1224

The information contained in the Material Safety Data Sheet is based on data considered to be accurate, however, no warranty is expressed or implied regarding the accuracy of the data or the results to be obtained from the use thereof.