

## MATERIAL SAFETY DATA SHEET

**NAME:** DURACELL ZINC AIR BATTERIES

**CAS NO:** Not applicable

**Effective Date:** 3/11/02 **Rev:** 4

### A. — IDENTIFICATION

Zinc (7440-66-6) Potassium Hydroxide (35%) (1310-58-3) Manganese Dioxide (1313-13-9) Mercury (7439-97-6)	%	Formula: Mixture    Mixture
	30-50	Molecular Weight: NA
	8-13	Synonyms: Zinc Air Button Cells/Small Cylindrical Batteries: 1.4V- DA5; DA10; DA13; DA146; DA230; DA312; DA675
	<.5	
<1.5		

### 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	Button cells and small cylindrical batteries. Contents dark in color.	
Flash Point and Test Method(s)	NA	
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> Do not heat, crush, disassemble, short circuit or recharge.		<u>Conditions to Avoid</u> Not applicable	
<u>Incompatible Materials</u> Contents incompatible with strong oxidizing agents.		<u>Hazardous Decomposition Products</u> Thermal degradation may produce hazardous fumes of mercury, zinc and 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  
Not applicable

**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 - 0.1 mg/ m<sup>3</sup> (Ceiling) (OSHA); 0.025 mg/m<sup>3</sup> (ACGIH, Skin)

These levels are not anticipated under normal consumer use conditions.

Warning Signals

Not applicable

Routes/Effects of Exposure

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 hydroxide is 0.01 to 2.5 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  
Please note: These batteries are not regulated by U. S. DOT or international agencies as hazardous materials or dangerous good when shipped.

Environmental Effects

These batteries pass the U. S. EPA's Toxicity Characteristic Leaching Procedure and therefore, may be disposed of with normal waste.

**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 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. 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 pocket or bag.

## Normal Clean Up

Not applicable

## Waste Disposal Methods

No special precautions are required for small quantities. Large quantities of open batteries should be treated as hazardous waste. 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

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 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**

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. If mouth area irritation/burning has occurred, rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes.

**Notes to Physician**

- 1) For information on treatment, telephone (202) 625-3333 collect.
- 2) The primary acutely toxic ingredient concentrated (~35%) potassium hydroxide. Mercury toxicity is unlikely, but physician's discretion is advised.
- 3) Anticipated potential leakage volume of potassium hydroxide is 0.01 to 2.5 ml.

Replaces #1893. Revision: Composition to reflect % wt.; potential leakage KOH, removal of Product Number DA630 and DA164 (obsolete).

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.