Gillette Medical Evaluation Laboratories

37 A Street
Needham, MA 02492
Tel 781.292.8151

MATERIAL SAFETY DATA SHEET

NAME: **DURACELL ULTRA ALKALINE BATTERIES**

CAS NO: Not applicable **Effective Date:** 3/4/2001 **Rev:** 3

A. — IDENTIFICATION

	%
Manganese Dioxide (1313-13-9)	35-40
Zinc (7440-66-6)	10-15
Potassium Hydroxide (35%) (1310-58-3)	5-10
Graphite, natural (7782-42-5) or synthetic (7440-44-0)	1-5
Zinc Oxide (1314-13-2)	<1
See 'Footnotes' below	

Formula: Mixture

Molecular Weight: NA

Synonyms: Alkaline Manganese Dioxide
Cell: MX1300 (D); MX1400 (C); MX1604 (9V); MX1500 (AA); MX2400 (AAA); MX2500 (AAAA)

B. — PHYSICAL DATA

Boiling Point	Melting Point	Freezing Point
NA °F NA °C	NA °F NA °C	NA °F NA °C
Specific Gravity (H_2O=1)	**Vapor Density (air=1)**	**Vapor Pressure @ ____ °F**
NA	NA	NA mm Hg
Evaporation	**Saturation in Air**	**Autoignition Temperature**
(Ether =1)	(by volume@ ____ °F)	____ °F ____ °C
NA	NA	NA
% Volatiles	**Solubility in Water**	
NA	NA	pH NA

Appearance/Color: Copper top battery. 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		Polymerization		
[X] stable	[ ] Unstable	[ ] may occur	[X] will not occur	

Conditions to Avoid	Conditions to Avoid
Do not heat, crush, disassemble, short circuit or recharge.	Not applicable
Incompatible Materials	**Hazardous Decomposition Products**
Contents incompatible with strong oxidizing agents.	Thermal degradation may produce hazardous fumes of 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

Please note: Some Duracell alkaline batteries contain the Duracell Power Check™ battery energy gauge which is a small conductive strip located underneath the PVC battery label that indicates the amount of charge in the battery. It is composed of minute quantities of conductive materials. Due to the small quantity of materials and their solid form, a health or environmental risk is unlikely.

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D. — HEALTH HAZARD DATA

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

8-Hour TWAs: Manganese Dioxide (as Mn) - 5 mg/m^3 (Ceiling) (OSHA); 0.2 mg/m^3 (ACGIH/Duracell)
Potassium Hydroxide - 2 mg/m^3 (Ceiling) (ACGIH)
Graphite (all kinds except fibrous)-2 mg/ m^3 (ACGIH); (synthetic)-15 mg/m^3 (total, OSHA); 5 mg/m^3 (respirable, OSHA)
Zinc Oxide (dust) -10 mg/m^3 (ACGIH),15 mg/m^3 (total, OSHA); 5 mg/m^3 (respirable, OSHA)

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 or is mechanically, physically, or electrically abused. Contains concentrated (35%) potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 1 to 3 ml, depending on battery size. A similar amount of zinc/zinc oxide may also leak.

1. Inhalation	Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.
2. Ingestion	Not anticipated due to size of batteries; choking may occur with the smaller AAA battery. Irritation, including caustic burns/injury, 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 goods when shipped. Duracell uses the article name 'Alkaline Batteries - Non-hazardous' on all domestic and international bills of lading.

Environmental Effects

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

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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. **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. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag. Do not remove battery tester or battery label.

Normal Clean Up

Not applicable

Waste Disposal Methods

Individual consumers may dispose of spent (used) batteries with household trash. Duracell does not recommend that spent batteries be accumulated (quantities of five gallons or more should be disposed of in a secure landfill), in accordance with appropriate federal, state and local regulations. Do not incinerate, since batteries may explode at excessive temperatures.

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

Not anticipated. Rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. Consult a physician immediately for treatment and to rule out involvement of the esophagus and other tissues.

Notes to Physician

1) The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide.
2) Anticipated potential leakage of potassium hydroxide is 1-3 ml, depending on battery size.
3) This MSDS does not include or address the small button cell batteries, which can be ingested.

Replaces #1878, change of MSDS date only.