

Gillette Medical Evaluation Laboratories

Duracell Alkaline Batteries

Manufacturer MSDS Number: MSDS-5; 2002

#### SECTION 1 : Chemical Product and Company Identification

MSDS Name: Duracell Alkaline Batteries

Manufacturer Name: Gillette Medical Evaluation Laboratories

Address:

37 A Street

Needham, MA 02492

Business Phone: 781.292.8151

For information in North America, call: 781.292.8151

Manufacturer MSDS Revision Date:

05/30/2001

Supersedes: 2/00

Rev: 5

Synonyms:

Alkaline Manganese Dioxide Batteries MN1300 (D); MN1400 (C); MN1500 (AA) MN2400 (AAA); MN908 (Lantern 6V); MN918 (Lantern 4.5V); MN1604 (9V); MN9100 (N), DAC100, 105, 110, 116-118, 123-124, 130, 200, 610, 810, 820, 918, 5K69 (Flatpack); 7K67 (Flatpack) (J) and batteries comprised of these cells.

CAS Number: Not Available

Chemical Formula: Mixture

Molecular Weight: Not Available

Product Codes:

## SECTION 2 : Hazardous Ingredients/Identity Information

Chemical Name

Manganese Dioxide CAS#

1313-13-9 Percent

35-40%

Chemical Name

Zinc CAS#

7440-66-6 Percent

10-15%

Chemical Name

Potassium Hydroxide (35%) CAS#

1310-58-3 Percent

5-10%

Chemical Name

Carbon Black CAS#

1333-86-4 Percent

1-5%

or

Chemical Name

Graphite, natural CAS#

7782-42-5 Percent

1-5%

or

Chemical Name

Synthetic CAS#

7440-44-0 Percent

1-5%

Chemical Name

Zinc Oxide CAS#

1314-13-2 Percent

0-1%

Composition/Information:

Composition\* (1% or greater)

Formula: Mixture

Molecular Weight: Not Available

Synonyms: Alkaline Manganese Dioxide Batteries MN1300 (D); MN1400 (C); MN1500 (AA) MN2400 (AAA); MN908 (Lantern 6V); MN918 (Lantern 4.5V); MN1604 (9V); MN9100 (N), DAC100, 105, 110, 116-118, 123-124, 130, 200, 610, 810, 820, 918, 5K69 (Flatpack); 7K67 (Flatpack) (J) and batteries comprised of these cells.

SECTION 3 : Physical And Chemical Characteristics

Physical State/Appearance:

Copper top battery.

Color:

Contents dark in color.

pH:

Not Available

Vapor Pressure:

@ Deg. F: Not Available (mmHg)

Vapor Density:

(Air = 1): Not Available

Boiling Point:

Deg F: Not Available

Deg C: Not Available

Freezing Point:

Deg F: Not Available

Deg C: Not Available

Melting Point:

Deg F: Not Available

Deg C: Not Available

Solubility:

In Water: Not Available

Specific Gravity:

(H<sub>2</sub>O = 1): Not Available

Evaporation Point:

(Ether = 1): Not Available

Saturated Vapor Concentration:

Saturation in air (by volume @ deg. F): Not Available

Percent Volatile:

Not Available

FlashPoint:

Not Available

Auto Ignition Temp:

Not Available

Upper Flammable Explosive Limit:

In Air (% by volume): % Not Available

Lower Flammable Explosive Limit:

In Air (% by volume): % Not Available

#### SECTION 4 : Fire And Explosion Hazards

Flash Point:

Not Available

Flash Point Method:

Not Available

Upper Flammable or Explosive Limit: In Air (% by volume): % Not Available

Lower Flammable or Explosive Limit: In Air (% by volume): % Not Available

Auto Ignition Temperature: Not Available

Extinguishing Media:

As appropriate for surrounding area.

Fire Fighting Instructions:

Use self-contained breathing apparatus and full protective gear.

Unusual Fire Hazards:

Batteries may burst and release hazardous decomposition products when exposed to a fire situation. See Sec. 7.

#### SECTION 5 : Health Hazards

Applies to All Ingredients:

Route of Exposure:

Inhalation, Ingestion, Skin, Eye Contact

Potential Health Effects:

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 2 to 20 ml, depending on battery size. A similar amount of zinc/zinc oxide may also leak.

Eye Contact:

Irritation, including caustic burns/injury, may occur following exposure to a leaking battery.

Skin Contact:

Irritation, including caustic burns/injury, may occur following exposure to a leaking battery.

Skin Absorption:

Not anticipated.

Inhalation:

Respiratory (and eye) irritation may occur if fumes are released due to heat or an abundance of leaking batteries.

Ingestion:

Not anticipated due to size of batteries; choking may occur with the smaller AAA and AAAA batteries. Irritation, including caustic burns/injury, may occur following exposure to a leaking battery.

Other Potential Health Effects:

Not applicable

## SECTION 6 : Emergency And First Aid Procedures

Emergency Overview:

Warning Signals: Not applicable

Occupational Exposure Limits (PELs, TLVs, 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)

Graphite (all kinds except fibrous) - 2 mg/ m<sup>3</sup> (ACGIH); (synthetic) - 15 mg/m<sup>3</sup> (total, OSHA); 5 mg/m<sup>3</sup> (respirable, OSHA)

Carbon Black - 3.5 mg/m<sup>3</sup> (ACGIH/OSHA)

Zinc Oxide (dust) - 10 mg/m<sup>3</sup> (ACGIH), 15 mg/m<sup>3</sup> (total, OSHA); 5 mg/m<sup>3</sup> (respirable, OSHA)

These levels are not anticipated under normal consumer use conditions.



#### Eye Contact:

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 Contact:

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.

#### Note to Physicians:

- 1) The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide.
- 2) Anticipated potential leakage of potassium hydroxide is 2-20 ml, depending on battery size.
- 3) This MSDS does not include or address the small button cell batteries, which can be ingested.

#### SECTION 7 : Reactivity Data

Chemical Stability:

Stable.

Conditions to Avoid:

Do not heat, crush, disassemble, short circuit or recharge.

Incompatibilities with Other Materials:

Contents incompatible with strong oxidizing agents.

Hazardous Polymerization:

Will not occur.

Conditions to avoid: Not applicable

Hazardous Decomposition Products:

Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapors of potassium hydroxide and other toxic by-products.

## SECTION 8 : Precautions For Safe Handling

Spill Cleanup Measures:

Normal Clean Up: Not applicable

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.

#### Handling:

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.

#### Storage:

Store at room temperature.

#### Environmental Fate:

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

#### Waste Disposal:

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.

DOT Shipping Name:

Not applicable

DOT Hazard Class: 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.

#### SECTION 9 : Control Measures

Engineering Controls:

General ventilation under normal use conditions.

Skin Protection Description:

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

Eye/Face Protection:

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

Respiratory Protection:

None under normal use conditions.

Other Protective:

Keep batteries away from small children.

Exposure Limits:

Occupational Exposure Limits (PELs, TLVs, 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)

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mg/m<sup>3</sup> (total, OSHA); 5 mg/m<sup>3</sup> (respirable, OSHA)

Carbon Black - 3.5 mg/m<sup>3</sup> (ACGIH/OSHA)

Zinc Oxide (dust) - 10 mg/m<sup>3</sup> (ACGIH), 15 mg/m<sup>3</sup> (total, OSHA); 5 mg/m<sup>3</sup>  
(respirable, OSHA)

SECTION 10 : Other Information

Applies to all ingredients:

TSCA 8(b): Inventory Status

Applicable Regulations - All ingredients listed in TSCA inventory.

MSDS Revision Date:

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Disclaimer:

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.

Footnotes:

NA=Not Available

Please note: Some Duracell alkaline batteries contain the Duracell Power Check TM 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.

Replaces ##1898, ##1360, consolidation of information for similar products.

MSDS-5

GMEL## 2002

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