

**MATERIAL SAFETY DATA SHEET** (according to 93/112/EEC)

Product: DURACELL ZINC AIR BATTERIES

Date / revised: 11/03/02

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GMEL # 2019.4E

Revision: 4

**1. Substance/preparation and company name**

Duracell Zinc Air Button Cells/Small Cylindrical Batteries: DA5; DA10; DA13; DA312; DA146; DA230; DA312; DA675 (1.4V)

**Company:**

Duracell Batteries Ltd.  
c/o Gillette U.K. Ltd.  
Great West Road  
Isleworth, Middlesex  
TW7 5NP  
UK

**Country contact numbers:**

Austria: 02236 645240  
Belgium: 02 711 9102  
Denmark: 33 26 9100  
Finland: 09 452 8737  
France: 01 47 48 70 00  
Germany: 02 21 59670  
Italy: 02 66 7811

Netherlands: 070 4131 800  
Norway: 022 72 8810  
Portugal: 011 7210950  
Spain: 091 387 9600  
Sweden: 08 6292700  
Switzerland: 017 55 62 42  
United Kingdom: 0181 560 1234

**2. Composition/information on ingredients**

<u>Chemical nature:</u>	<u>Wt. %</u>	<u>CAS No.</u>	<u>EEC No.</u>	<u>Index No.</u>	<u>Classification</u>
Zinc	30-50	7440-66-6	231-175-3	030-002-00-7	F; R-15; R-17
Potassium Hydroxide (35%)	8-13	1310-58-3	215-181-3	019-002-00-8	C; R35
Manganese Dioxide	< 0.5	1313-13-9	215-202-6	025-001-00-3	Xn, R20/22
Mercury	<1.5	7439-97-6	231-106-7	080-001-00-0	T; R23/33

**3. Possible hazards**

**Critical hazards to man:** If battery leaking, exposure to caustic ingredients may occur.

**Critical hazards to the environment:** Not applicable

**Other Information:** Keep batteries away from small children.

**4. First aid measures**

**General advice:** 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.

**If inhaled:** Not anticipated. Respiratory and eye irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists.

**On skin contact:** Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. Irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

**On contact with eyes:** Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for 30 minutes. Contact physician at once.

#### 4. First aid measures (continued)

**On ingestion:** Consult a physician. 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. An initial x-ray should be obtained promptly to determine battery location. 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 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. If irritation injury or pain persists, consult a physician.

**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 of potassium hydroxide is 0.01 - 2.5 ml. depending on battery size.

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#### 5. Fire fighting measures

**Suitable extinguishing media:** As appropriate for adjacent fire.

**Special protective equipment:** In fires involving large quantities of product, use self-contained breathing apparatus and full protective clothing.

**Further information:** Hazardous decomposition products may be produced. (Sec. 10).

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#### 6. Accidental release measures

**Personal precautions:** 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 vapours. Increase ventilation. Clean-up personnel should wear appropriate protective gear.

**Environmental precautions:** Not applicable

**Methods for cleaning up:** Not applicable

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#### 7. Handling and storage

##### 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. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

##### Storage

Store at room temperature.

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#### 8. Exposure controls and personal protection

8-Hour TWAs: Manganese Dioxide (as Mn) - 5 mg/m<sup>3</sup> (U.K.), (Ceiling) (OSHA);  
0.2 mg/m<sup>3</sup> (ACGIH/Duracell)  
Potassium Hydroxide - 2 mg/m<sup>3</sup> (Ceiling) (ACGIH); 2 mg/m<sup>3</sup> (STEL) (U.K.)  
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.

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## 8. Exposure controls and personal protection (continued)

### Personal protective equipment

**Respiratory equipment:** None required under normal use conditions.

**Hand protection:** None required under normal use conditions. Use neoprene, rubber or latex gloves when handling leaking batteries.

**Eye protection:** None required under normal use conditions. Wear safety glasses when handling leaking batteries.

**General safety and hygiene measures:** Use only as directed.

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## 9. Physical and chemical properties

**Form and Colour:** Button and small cylindrical batteries. Contents dark in colour.

**Odour:** Not applicable

### Change in physical state

**Melting point/melting range:** Not available

**Boiling point/boiling range:** Not available

**Flash point:** Not applicable

**Explosion limits:** Not available

**Ignition temperature:** Not available

**Vapour pressure:** Not available

**Specific Gravity:** Not available

**% Volatiles:** Not available

**Solubility in water:** Not applicable

**Solubility in other solvents:** Not applicable

**pH value:** Not applicable

**Octanol/water partition coefficient (log POW):** Not available

**Viscosity:** Not available

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## 10. Stability and reactivity

**Thermal decomposition:** Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

**Substance(s) to avoid:** Strong oxidisers

**Hazardous reactions:** Contents incompatible with strong oxidising agents.

**Hazardous decomposition products:** Thermal degradation may produce hazardous fumes of mercury, zinc and manganese; hydrogen gas; caustic vapours of potassium hydroxide and other toxic by-products.

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**11. Toxicological information**

Toxicity information is available on the battery ingredients noted in Section 2, but, generally not applicable to intact batteries as used by customers.

**Chronic Health Effects:** Not applicable to intact batteries.

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**12. Ecological information**

None available regarding product.

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**13. Disposal considerations**

**Product:** Dispose in accordance with appropriate regulations. If in doubt, contact your national Gillette office for information. Do not incinerate, since batteries may explode at excessive temperatures.

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**14. Transport information**

**UN Number:** None  
**IMO Classification:** None  
**ADR Classification:** None  
**IATA Classification:** None

These batteries are not regulated by U. S. DOT or international agencies as hazardous materials or dangerous goods when shipped. A shipping name of 'Alkaline Batteries - Non-hazardous' may be used on all domestic and international bills of lading.

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**15. Regulatory information**

**EC Labeling:** None  
**Risk Phrases:** None  
**Safety Phrases:** None

Labeling is not required because batteries are classified as "articles" under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

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**16. Other information:** Revised: composition given as %wt. Removal of obsolete product numbers DA630; DA146

**Preparation of MSDS:**

**Prepared by:** Gillette Medical Evaluation Laboratories    **Phone Number:**    **Date:** 11/03/02  
37 A Street    781.292.8151    **Revision:** 4  
Needham, MA 02492 USA    **Replaces:** 1507E

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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.