

Safety data sheet according to 91/155 EWG / ISO 11014-1

Edition: August 14, 2003

Version: 2003/1/V/Alkaline

1. IDENTIFICATION

Alkaline-Batteries

Sizes all

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2. COMPOSITION / INFORMATION on INGREDIENTS

Substance	Approximate percent of total weight
Manganese Dioxide (MnO ₂)	24 - 43
Zinc (Zn)	10 - 18
Graphite (C)	2 - 5
Potassium Hydroxide (KOH)	4 - 8
Steel	14 - 26
Zinc Oxide (ZnO)	< 0.5
Water, paper, plastic, other	balance
Mercury (Hg)	< 0.0001
Lead (Pb)	< 0.009
Cadmium (Cd)	< 0.0005

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3. HAZARDS IDENTIFICATION

Note: The batteries described in this Safety Data Sheet are sealed and are not harmful, as long as they are used in compliance with the manufacturer instructions. The content of the battery housing does not create a hazard, as long as the integrity of the battery housing is not affected by abuse (mechanical, thermal, electrical). Fire, explosion and severe, burn hazard in such abuse conditions may occur.

Warning: Do not charge, short circuit, puncture, deform, disassemble, heat above 85 °C, incinerate or expose contents to water. Keep batteries away from small children. International Standard IEC 60086-5 contains more detailed information on safety of alkaline batteries.

4. FIRST AID MEASURES

Contact to internal Battery content:

- ▶ **Skin:** Immediately flush with plenty of water for at least 15 minutes. If symptoms are present after flushing, get medical attention.
- ▶ **Eyes:** Immediately flush with plenty of water for at least 15 minutes and get medical attention.
- ▶ **Respiratory system:** Leave area immediately. With large quantities and irritation of the respiratory tract get medical attention.
- ▶ **Ingestion:** Rinse mouth and surrounding area with water. Seek for immediate medical attention.

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5. FIRE – FIGHTING MEASURES

A. Extinguishing Media:

- ▶ Copious amounts of water is an effective extinguishing medium for alkaline batteries.

- ▶ Dry chemical type extinguishers may also be used.

B. Fire Fighting Procedures:

- ▶ Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire.

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6. ACCIDENTAL RELEASE MEASURES

When the battery housing is damaged, small amounts of electrolyte may leak. Seal battery air tight in a plastic bag, adding some dry sand, chalk (CaCO₃) or lime (CaO) powder or Vermiculite. Electrolyte traces may be wiped off dryly using household paper. Rinse with water afterwards.

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7. HANDLING AND STORAGE

- ▶ Do not allow terminals to short-circuit.
- ▶ Storage preferably in a cool (below 30 °C), dry area that is subject to little temperature change.
- ▶ Do not place near heating equipment, nor expose to direct sunlight for long periods. Elevated temperatures can result in reduced battery service life.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory equipment: None required under normal use conditions.
Hand protection: None required under normal use conditions. Use butyl gloves when handling leaking batteries.
Eye protection: None required under normal use conditions. Wear safety glasses when handling leaking batteries.

9. PHYSICAL AND CHEMICAL PROPERTIES

Geometric solid objects.

10. STABILITY AND REACTIVITY

May rupture violently when heated above 100 °C or when charged.

11. TOXICOLOGICAL INFORMATION

Not applicable.

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12. ECOLOGICAL INFORMATION

Not applicable.

13. DISPOSAL CONSIDERATIONS

- ▶ Alkaline batteries do not contain hazardous materials according to EC directives 91/157/EEC and 93/86/EEC.
 - ▶ In accordance with appropriate national regulations (EC 91/157 item 4).
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14. TRANSPORT INFORMATION

Alkaline batteries shipped by VARTA Gerätebatterie GmbH are not regarded as hazardous goods per IATA* regulations.

* International Air Transport Association.

15. REGULATORY INFORMATION

Not applicable.

16. OTHER INFORMATION

For alkaline batteries in general, Safety standard IEC 60086-5 applies. It contains detailed recommendations for manufactures of equipment and users.
