Material Safety Data Sheet

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1. IDENTIFICATION

Alkaline-Batteries **Sizes all**

VARTA Consumer Batteries
GmbH & Co. KGaA

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2. COMPOSITION / INFORMATION on INGREDIENTS

Substance	Approximate percent of total weight
Manganese Dioxide (MnO_2)	24 - 43
Zinc (Zn)	9 - 18
Graphite (C)	2 - 5
Potassium Hydroxide (KOH)	3 - 8
Steel	14 - 26
Zinc Oxide (ZnO)	< 0.5
Water, paper, plastic (Polyamide, Teflon), other	balance
Mercury (Hg)	0.00003
Lead (Pb)	0.0001 – 0.003
Cadmium (Cd)	0.00002

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 (mechanicel, 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 ºC, 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 sorrounding 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 ($CaCO_3$) 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 ºC), 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.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory eqipment:	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.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Geometric solid objects.

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10. STABILITY AND REACTIVITY

May rupture violently when heated above 100 ºC or when charged.

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11. TOXIOLOGICAL INFORMATION

Not applicable.

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12. ECOLOGICAL INFORMATION

Not applicable.

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13. DISPOSAL CONSIDERATIONS

In accordance with appropriate national regulations (2006/66/EC).

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14. TRANSPORT INFORMATION

Alkaline batteries, which we supply to our customers are not subject to dangerous goods transport regulations due to following regulations:

Air transport: IATA **Dangerous Goods Regulations** 55th Edition special provision A123
The shipping documents contain “Not restricted, as per Special Provision A123”in the airwaybill (8.2.6 IATA-DGR)
Sea transport: IMDG Code 36. Amendment
Road and rail transport: ADR/RID 2013

All of these batteries are carefully packed and provide appropriate protection for prevention of short circuits.

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15. REGULATORY INFORMATION

Not applicable.

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16. OTHER INFORMATION

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

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