Material - Safety - Data Sheet (MSDS)

for

Ansmann Alkaline (Manganese Dioxide) Button Cells

single cells and multi-cell batteries

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1. Product and Supplier Identification

Product name: ANSMANN Button Cell; ANSMANN Alkaline Battery
Designation: Alkaline Battery
Models / types: LR44; LR43; LR54; LR41; LR9; A10; A11; A23; A27; A29; 4LR44

Electrochemical system: Zinc - MnO_2 (Manganese Dioxide) - KOH (Potassiumhydroxide)

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EMERGENCY CONTACT: For chemical emergency only (spill, leak, fire, exposure or accident)
call CHEMTREC at: 800-424-9300 within the USA and Canada
+1 703-527-3887 outside the USA and Canada
Non-emergency calls cannot be serviced at this number.

2. Product and Supplier Identification

The Alkaline batteries described in this MSDS are hermetically sealed units, which are not hazardous when used according to the recommendations of the manufacturer.
Under normal condition of use of the batteries, the electrode materials and the liquid electrolyte they contain are non-reactive provided the battery integrity is maintainted.
Risk of exposure exists only in case of mechanical, electrical or thermal abuse. Thus the batteries should not short circuited, recharged, punctured, incinerated, crushed, immersed in water, force discharged or exposed to temperatures above the temperature range of the cell or battery.
In these cases there is risk of fire or explosion.

3. Composition and Informations on Ingredients

IMPORTANT NOTE: The product is a manufactured article as described in 29 CFR 1910.1200. The battery cell is contained in a hermetically-sealed case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, hazardous materials are fully contained inside the battery cell. The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances. The following information is provided for the user's information only.

Ingredient	Content	CAS No.	Hazard Symbols	Classification	R Phrases
Manganese Dioxide (MnO_2)	15 - 30%	1313-13-9		Xn	20/22
Graphite (C)	2 - 4%	7782-42-5		n.a.	n.a.
Zinc (Zn)	5 - 10%	7440-66-6		N	50/53
Potassium Hydroxide (KOH)	2 - 5%	1310-58-3		C Xn	22 35
stainless steel (Fe)	15 - 70%	7439-89-6			
Lead (Pb) see chapter no.12	< 0.4%	7439-92-1		T N	33, 61, 62 20/22
Cadmium (Cd) see chapter no.12	< 0.002%	7440-43-9		T F	11, 25 26, 45
Mercury (Hg) see chapter no.12	< 2%	7439-97-6		T N	23, 33 50/53
paper, water, plastic	residue				

4. First Aid Measures

Inhalation: If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical advice.

Skin Contact: Wash off skin thoroughly with water. Remove contaminated clothing and wash before re-use. In severe cases obtain medical attention.

Eye Contact: Irrigate thoroughly with water for at least 15 minutes.Lifting upper and lower lids, until no evidence of the chemical remains. Obtain medical attention.

Ingestion: Wash out mouth thoroughly with water. Do not induce vomiting or give food. Drink plenty of water. Seek medical attention immediately.

Further treatment: All cases of eye contamination, persistent skin irritation and casualities who have swallowed this substance or been affected by breathing its vapours should be seen by a doctor.

5. Fire Fighting Measures

Fire and explosion hazards: Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Suitable extinguishing media: Use foam, water, carbon dioxide (CO_2), as appopriate

Special fire fighting procedures: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing. Fight fire from a distance or protected area.

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

6. Accidental Release Measures

Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal.

7. Precautions for safe Handling and Use

Storage:
Store batteries in a dry place at normal room temperature.
Do not refrigerate – this will not make them last longer.
Elevated temperatures can result in shortened battery life. Temperautes above 100°C may result in battery leakage and rupture.
Storage of unpacked batteries can cause electrical short circuit and heat generation. Avoid large temperature changes and direct sunlight.

Storage of big quantities:
If possible, store the batteries in the original packaging.
A fire alarm is recommended.
For automatic fire extinguisher consider chapter 5 "Fire Fighting Measures"

Handling:
Avoid mechanical or electrical abuse. DO NOT short circuit or install incorrectly.
Install batteries in accordance with equipment instructions.
Do not carry batteries loose in a pocket or bag.
Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access.
Do not swallow batteries.
Do not throw batteries into fire.
Do not throw batteries into water.
In case of battery change always replace all batteries by new ones of identical type and brand.

Charging:
Do not charge this batteries! This battery type is manufactured in a ready-to-use-state. It is not designed for recharging.

Disposal:
Dispose in accordance with all applicable federal, state and local regulations.

8. Special Protection Information

Ventilation Requirements:
Not necessary under normal conditions. Room ventilation may be required in areas where there are open or leaking batteries.

Respiratory Protection:

Not necessary under normal conditions. Avoid exposure to electrolyte fumes from open or leaking battery. In all fire situations, use self-contained breathing apparatus

Eye Protection:

Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

Hand Protection:

Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery

9. Physical and Chemical Properties

Appearance:	small round cylinders	Odour:	n/a
Vapour Density:	n/a	Vapour Pressure:	n/a
Boiling Point:	n/a	VOC Content:	n/a
Evaporation Rate:	n/a	Solubility in Water:	n/a
Specific Gravity:	not determined	pH:	not determined

10. Stability and Reactivity

Product is stable under conditions described in Section 7.

Conditions to avoid:	Heat above 100° or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble. Recharge. Short circuit. Expose over a long period to humid conditions.
Hazardous decomposition products:	Thermal decomposition may produce hazardous fumes of zinc and manganese; caustic vapors of potassium hydroxide and other toxic by-products.
Hazardous polymerization:	Will not occur.

11. Toxicological Information

Potential Health Effects:	The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Damaged battery will release concentrated potassium hydroxide, which is caustic.
Inhalation:	Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.
Skin contact:	Contact with battery contents may cause severe irritation and burns.
Eye contact:	Contact with battery contents may cause severe irritation and burns. Eye damage is possible.
Ingestion:	Swallowing of Alkaline button cells is possible and can be harmfull.
Acute Toxicity Data:	Manganese Dioxide: LD50 oral rat >3478 mg/kg Potassium Hydroxide: LD50 oral rat 273 mg/kg
Chronic Effects:	The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.
Target Organs:	Skin, eyes and respiratory system.
Carcinogenicity:	None of the components of this product are listed as carcinogens by the EU Directive on the classification and labeling of substances.

12. Ecological Information

Ansmann Alkaline (zinc-manganese-dioxide) button cells do contain mercury and lead, and do not contain cadmium as defined by the European directive 2006/66/EC Article 21.

13. Disposal Information

USA: Alkaline (zinc-manganese-dioxide) button cells/batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream.

In the European Union, manufacturing, handling and disposal of batteries is regulated on the basis of the DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC. Customers find detailed information on disposal in their specific countries using the web site of the European Portable Batteries Association ***(http://www.epbaeurope.net/legislation_national.html)***

Importers and users outside EU should consider the local laws and rules.

In order to avoid short circuit and heating, used cylindrical primary alkaline cells/batteries should never be stored or transported in bulk. Proper measures against short circuit are:

- Storage of batteries in original packaging
- Coverage of the terminals

14. Transport Information

Alkaline (zinc-manganese-dioxide) button cells cells/batteries are considered to be "dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civic Aviation Administration (ICAO), International Air Transport Association (IATA), the International Maritime Organization (IMO), the "Accord Europeèn Relatif au Transport International des Merchandises Dangereuses par Route" (ADR) and the "Règlement concernant le transport international ferroviaire de marchandises Dangereuses" (RID).

IATA DGR: Special Provision A123: "Examples of such batteries are: alkali-manganese, zinc-carbon and nickel-cadmium batteries. Any electrical battery…having the potential of a dangerous evolution of heat must be prepared for transport as to prevent:
(a) a short circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals…)
(b) an accidential activation
The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

EU: Special Provision 304 (ADR/RID): "Batteries dry, containing corrosive electrolyte, which will not flow out of the battery if the battery case is cracked, are not subject to the requirements of ADR/RID provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries"

USA: 49 CFR § 172.102 Special Provision 130: "For other than a dry battery specifically covered by another entry in the § 172.101. table, "Batteries, dry" are not subject to the requirements of this subchapter when they are securely packaged and offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals) and protects against short-circuits".

Code of practice for packaging and shipment of primary batteries given in IEC 60086-1: The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture. Shock and vibration shall be kept to a minimum. For instance, boxes should not be thrown off trucks, slammed into position or piled so high as to overload battery containers below. Protection from inclement weather should be provided.

15. Regulatory Information

Marking consideration:	According to Directive 2006/66/EC of THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC primary zinc-manganese batteries have to be marked with the crossed bin. According to Article 21 of this directive primary zinc-manganese button cells have to be marked with the element symbols "Hg" and "Pb". Due to the size of the battery this marking has to be placed on the packaging.
International safety standard:	IEC 60086-5
Water hazard class:	(according to German Federal Water Management Act) non-water pollution according to VwVwS Appendix 1 (no.1443 and 766)

16. Other Information

Full text of Classification and R-phrases referred to under section 3

Classification:	Xn	Harmful
	C	Corrosive
	N	Dangerous for the environment
	T	Toxic
R-Phrases:	20/22	Harmful by inhalation and if swallowed
	22	Harmful if swallowed
	23	Toxic by inhalation
	33	Danger of cumulative effects
	35	Causes severe burns
	50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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