

MATERIAL SAFETY DATA SHEET

In Accordance with Directive 2001/58/CE

Date: 01/01/2020

1. Chemical Product

MSDS Name: Alkaline Battery

Supplier: Maxell Europe Limited

Address: Whitebrook Park, Lower Cookham Road, Maidenhead SL6 8YA UK

Tel: +441628412012

Fax: +441628412010

2. Composition /Information on Ingredients:

Chemical Nature: Chemical power source

CAS-No/EINECS NO.: Not applicable.

INCI CTFA-Description: Alkaline Zinc-Manganese Dry Battery

Tariff No.: "W" 850610.12.10

IMPORTANT NOTE: The battery shall not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

MATERIAL OR INGREDIENT	CAS #	PEL (OSHA)	TLV (ACGIH)	% (by Wt.)
Graphite	7782-42-5	15 mg/m ³ TWA (total dust) 5 mg/m ³ TWA (respirable fraction)	2 mg/m ³ TWA (respirable fraction)	2~6
Manganese Dioxide	1313-13-9	5 mg/m ³ Ceiling (as Mn)	0.2 mg/m ³ TWA (as Mn)	30~45
Potassium Hydroxide	1310-58-3	None established	2 mg/m ³ Ceiling	4~8
Zinc	7440-66-6	15 mg/m ³ TWA PNOR* (total dust) 5 mg/m ³ TWA PNOR* (respirable fraction)	10 mg/m ³ TWA PNOC** (inhalable particulate) 3 mg/m ³ TWA PNOC** (respirable particulate)	12~25

* PNOR: Particulates not otherwise regulated

** PNOC: Particulates not otherwise classified

MATERIAL OR INGREDIENT	CAS #	Directive 2006/66/EC Limit (PPM)	PPM (by Wt.)
Mercury	7439-97-6	5	Not detected ($\leq$ 1ppm)
Cadmium	7439-92-1	20	Not detected ($<$ 5ppm)
Lead	7440-43-9	40	Not detected ($<$ 20ppm)

3. Hazards identifications

General: Alkaline battery --- The Common known rules for handing of chemical power source should be obeyed. Do not heat, recharge, disassemble the product or dispose of in fire.

Physical-Chemical Hazards: The chemical materials concluded in the Product is sealed up, thus being stable, safe and eco-friendly under common conditions, may not cause

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physical-chemical hazards.

Hazards to Human being: Disassemble the product without a professional basis, may cause leakage of the electrolyte and irritation to skin.

Hazards to environment: Dispose the product without separate collection, may lead to pollution caused by Hg/ Cd/ Pb (micro trace), or by the electrolyte of alkaline solution.

4. First-aid measures

Inhalation: Not applicable.

Skin Contact: Wash with clean water immediately once leakage happens and the inner liquid splashes onto skin.

Eye contact: Rinse eyes immediately with running water for at least ten minutes. Consult an ophthalmologist.

Ingestion: Rinse mouth with water; Give plenty of water to drink. Obtain medical advice.

5. Fire-fighting measures

Suitable extinguishing media: Carbon dioxide (CO₂), foam, dry chemical powder.

Extinguishing media not to be used: Never use a direct water jet, may pollute the water system.

Exposure hazards from combustion products: In case of fire, carbon monoxide or other toxic organic substances may be generated.
Do not inhale fumes and smoke.

Personal protective equipments: Wear full protective clothing. Use self contained breathing apparatus.

★ **Remark: It can be extinguished by car extinguisher as well.**

6. Accidental release measures

Personal precautions: Wear protective clothing. Keep unprotected persons away.

Environmental precautions: Avoid discharge and penetration into sewerage systems, waterways, pits, and cellars.

Methods for cleaning up: Collect spilled material with an insert standard absorbent like sand or silica. Care for well-Ventilated conditions. Recycle or dispose of the materials in an appropriate way.

7. Handling and storage

General: Obey the common known rules and precautions for handling with chemical power sources.

Fire/Explosion protections: Explosion may happen if short-circuit; collect spilled material with an insert standard absorbent like sand or silica.

Storage: Store product in clean, cool and ventilated place with a temperature between 10°C and 30°C (no higher than 40°C in the ordinary course of events) and a relative humidity no higher than 65%; the storage time should not be too long;

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the batteries should be well-arranged, and do avoid sort-circuit caused by the contact of the positive and negative electrodes.

8. Exposure controls/Personal protection

Exposition/ Technical measures: Not applicable.

Protection of hands, eyes and skin: To protect hands, eyes and skin, do not disassemble the product without professional basis.

9. Physical and chemical properties

Physical state	Solid	Solubility in water	not applicable
Color	not applicable	Vapor pressure	not applicable
Odor	not applicable	Explosion limit	not applicable
pH value	not applicable	Oxidizing properties	not applicable
Specific gravity	not applicable	Flashpoint	not applicable
Refractive index	not applicable	Auto flammability	not applicable
Solubility in ethanol	not applicable	Partition coefficient	not applicable
Melting Point	not applicable	Boiling Point	not applicable
Freezing Point	not applicable		

10. Stability and Reactivity

The chemical materials concluded in the Product are sealed up, thus being stable, safe and eco-friendly under common conditions.

11. Toxicological information

The product is multi component mixture for which no toxicological data exists.

Precautions avoid disassembling the product without a professional basis.

12. Ecological information

In general, no ecological data is available for preparations.

Precautions avoid disposing into drainage systems and into the environment.

13. Disposable considerations

Precautions avoid disposing waste products into environment, sewerage, landfills or by incineration.

Obey the rules and precautions for separate collection and recycling of the waste products.

14. Transport Information

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents. All original packaging for our alkaline battery product has been designed to be compliant with these regulatory concerns.

Alkaline batteries (sometimes referred to as "Dry battery" or "Dry cell" batteries) are not listed as dangerous goods under the ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road, the IMDG International Maritime Dangerous Goods Code,

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UN Dangerous Good Regulations, IATA Dangerous Goods Regulations (IATA DGR) (61th), ICAO Technical Industrial and the U.S hazardous materials regulations (49 CFR).

The batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following special provisions:

Regulatory Body	Special Provisions
ADR	Not regulated
IMDG	Not regulated
UN	Not regulated
US DOT	49 CFR 172.102 Provision 130
IATA	A123 (not regulated)
ICAO	Not regulated

All our alkaline battery products are packed in such a way to prevent short circuits or the generation dangerous quantities of heat and meet the special provision listed above. In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instruction require the words “not restricted” and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.

15. Regulatory Information

Symbol: for transportation, collection, or environment protection (stipulated respectively by each contract).

Contains: transportation marks;
“separate collection” symbol;
“RoHS” symbol (maybe), etc.

16. Other information

The information on this Material Safety Date Sheet (MSDS) was obtained from current and reputable sources. For any other question, please contact the manufacturer for further information.