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SAFETY DATA SHEETS

The batteries are articles and are not subject to the OSHA Hazard Communication Standard Requirement as shown in paragraph (b)(6)(v) of §1910.1200. This sheet is provided as technical information only. The information and recommendations set forth are made in good faith and are believed to be accurate as of the date of preparation. However, **Maxell makes no warranty expressed or implied.**

IDENTITY (As Read on Label and Line) LR41, LR43, LR44, LR1130 ALKALINE BUTTON CELL	Notice: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
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Section I

Manufacturer's Name Hitachi Maxell Global Ltd	Telephone Number 852-2730-9243
Address (Number, Sheet, City, State, and ZIP Code) Unit Nos 03B-06, 13/Fl., No 909 Cheung Sha Wan Road, Cheung Sha Wan, Kowloon, Hong Kong.	Fax Number 852-2735-6250
	Date Prepared 1-Jan-2016
	Signature of Preparer (optional)

Section II – Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Names)	(contents, %/wt)	CAS No.
Manganese Dioxide (MnO ₂)	22.0~30.0 %	1313-13-9
Zinc (Zn)	8.0~11.06 %	7440-66-6
Potassium Hydroxide (KOH)	3.0~4.0 %	1310-58-3
Graphite (C)	2.0~3.0 %	7782-42-5
Cadmium (Cd)	≅ 0.0005 %	7440-43-9
Mercury (Hg)	≅ 0.0001 %	7439-97-6
Lead (Pb)	≅ 0.002%	7439-92-1
Water (H ₂ O)		7732-18-5
Other		Balance

Section III – Physical/Chemical Characteristics

Boiling Point KOH aqua solution = 140 °C	Specific Gravity (H ₂ O=1) MnO ₂ = 4.4, Zn = 7.1, KOH = 2.0
Vapor Pressure (mmHg) KOH aqua solution = 3mmHg at 20 °C	Melting Point MnO ₂ decompose at 535°C Zn = 420 °C, KOH aqua = -35 °C
Vapor Density (Air = 1)	Evaporation Rate (Butyl Acetate = 1)
Solubility in Water KOH – complete	
Appearance and Color MnO ₂ is a black powder, Graphite is also a black powder, Zinc is a silver metal. KOH aqua is a colorless liquid with stimulative order.	



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Section IV – Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
Incombustible	Not Available		

Extinguishing Media: See Special Fire Fighting Procedure

Special Fire Fighting Procedure: In case of fire in an adjacent area, use water, CO₂ or dry chemical extinguishers if cells are packed in their original containers since the fuel of the fire is basically paper products. For bulk quantities of unpackaged cells use LITH-X (Graphite Base). In this case, do not use water.

As with any fire, wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products.

Unusual Fire and Explosion Hazards

Section V – Reactivity Data

Stability	Unstable		Conditions to Avoid Do not short circuit, charge or dispose of in fire.
	Stable	√	

Incompatibility (Materials to Avoid) Hazardous polymerization will not occur.

Hazardous Decomposition or Byproducts Not Available

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	√	

Section VI – Health Hazard Data

Route(s) of Entry.	Inhalation?	Yes	Skin?	Yes	Ingestion?	Yes
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Health Hazards (Acute and Chronic) These chemicals are contained in a sealed can. Risk of exposure occurs, only if battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents KOH is caustic alkali and attack the skin and eyes. Contact of electrolyte with skin and eyes should be avoided.

Section VII – Ecological Information

Cardnogenicity	NTP?	Not Available	IARC Monographs?	Not Available	OSHA Regulated?	Not Available
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Signs and Symptoms of Exposure KOH can cause chemical burn upon contact with skin.

Medical Conditions
Generally Aggravated by Exposure An acute exposure will not generally aggravate any medical help.

Section VIII –Emergency and First Aid Procedures

In case of skin contact with content of battery, flush immediately with water.
For eye contact, flush with copious amount of water for 10 minutes. If irritation persists, get medical help.

Section IX - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled Wipe out by wet duster

Section X - Waste Disposal Method

General abandonment



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Section XI - Precautions to Be Taken in Handling and Storing

Avoid mechanical or electrical abuse.

Section XII - Other Precautions

Do not short circuit, charge or dispose of in fire. Battery may explode or leak.

Section XIII - Control Measures

Respiratory Protection (Specify Type) Not Available

Ventilation	Local Exhaust	Special
	Not Available	Not Available
	Mechanical (General)	Other
	Not Available	Not Available

Protective Gloves	Butyl	Eye Protection	Safety Glasses
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Other Protective Clothing or Equipment Not Available

Work / Hygienic Practices Not Available

Section XIV –Transportation Information



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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 Maxell alkaline batteries has been designed to be compliant with these regulatory concerns.

Alkaline batteries (sometimes referred to as “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, UN Dangerous Good Regulations, IATA Dangerous Goods Regulations 58th edition, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These 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 (58th Edition)
ICAO	Not regulated

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

- (a) UN number: N/A
- (b) UN proper shipping name: N/A
- (c) Transport hazard class(es) : N/A
- (d) Packing group, if applicable: N/A
- (e) Environmental hazards (e.g., Marine pollutant (Yes/No)) No
- (f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)



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The product can be treated as ordinary goods in transportation;

Products in bulk shall be packed in inner packaging in such a manner that can prevent movement or short-circuit effectively.

- (g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Avoid high-temperature, high-humidity condition.

Section XV –Regulatory Information

Safety, health and environmental regulations specific for the product in question

The product is eco-friendly and in accordance with the safety regulations in ANSI C18.1M Part2 Standard, and complying with the environmental requirements in EU Directives 2006/66/EC (Battery Directive) and its amendments 2013/56/EU..

Section XVI –Other Information

The date of preparation of the SDS or the last change to it

This Safety Date Sheets (SDS) is issued on 1 Jan, 2017 according to requirements of the USA's OSHA Standard 1910.1200 App D.



If you want further information, please contact Maxell sales representative.