



SAFETY DATA SHEET

The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. 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.**

Section 1 - Product and Company Identification

Product Name Alkaline Battery (LR)	Sizes: LR20,LR14,LR6,LR03,LR1	Date of preparation: Jan. 1, 2018
Company: Maxell, Ltd., Energy Division		Telephone Numbers: 81-(0)794-63-8054
Address (Number, Street, City, State, and ZIP Code): 5, Takumidai, Ono-shi, Hyogo 675-1322, Japan		Fax Numbers: 81-(0)794-63-8445

Section 2 - Hazards Identification

Improper handling of the battery could lead to distortion, leakage*, overheating, or explosion and cause human injury or equipment trouble. Especially touch with liquid leaked out of battery could cause injury like a loss of eyesight. Please strictly observe safety instructions.

(* Leakage is defined as an unintended escape of liquid from a battery.)

Section 3 - Composition/Information on Ingredients

Ingredient	CAS#	Content (wt%)
Manganese Dioxide (MnO ₂)	1313-13-9	35 to 38
Potassium Hydroxide (KOH)	1310-58-3	5 to 8
Carbon (C)	7782-42-5	2 to 3
Zinc (Zn)	7440-66-6	15 to 18
Mercury (Hg)	7439-97-6	Not used (Less than 1 ppm)
Cadmium (Cd)	7440-43-9	Not used (Less than 5 ppm)
Lead (Pb)	7439-92-1	Not used (Less than 5 ppm)

Section 4 - First Aid Measures

None unless internal materials exposure. If contents are leaked out, observe following instructions.

Inhalation	Explosion may make fumes of potassium hydroxide solution and the fumes could cause respiratory irritation. Rinse by plenty of water and consult a physician.
Skin	Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately.
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

Section 5 - Fire Fighting Measures

Extinguishing Media	Any class of extinguisher is effective.
Fire fighting procedure	The batteries could be exploded by heat of fire and potassium hydroxide solution could disperse. Use self-contained breathing apparatus and full gear not to inhale or not to come into eyes or skin with harmful alkaline mist.

Section 6 - Accidental Release Measures

If the battery releases liquid, wipe it with a dry cloth. If the liquid comes into contact with the skin, see Section 4 - First Aid Measures.

Section 7 - Handling and Storage

1) Handling

- **Never swallow.**

If battery is accidentally swallowed, see Section 4 - First Aid Measures.

- **Never touch liquid leaking from a battery.**

If the liquid enters the eyes or mouth, see Section 4 - First Aid Measures.

- **Never short-circuit the battery.**

Do not allow the positive and negative terminals to short-circuit. Never carry or store the battery with metal objects such as necklaces or hairpins. Do not take multiple batteries out of the package and stack or mix them when storing. Otherwise, this can lead to distortion, leakage, overheating or explosion.

- **Never charge.**

The battery is not designed to be charged by any electrical source. Charging can generate gas

and internal short-circuiting, leading to distortion, leakage, overheating or explosion.

- **Never expose to naked flames.**

Exposing to naked flames can cause the battery to explode.

- **Never heat.**

Heating the battery to more than 100 deg. C can increase the internal pressure, causing distortion, leakage, overheating or explosion.

- **Never disassemble or deform.**

Disassembly or deforming the battery can cause leakage, overheating or explosion due to internal short-circuits.

- **Never reverse the positive and negative terminals when inserting in electrical equipment.**

Inserting the battery incorrectly can lead to short-circuiting, charging or forced-discharging. This can cause distortion, leakage, overheating or explosion.

- **Never use different batteries together.**

Using different batteries together, i.e. different types or old/used and new or those of different manufacturers, can cause distortion, leakage, overheating or explosion because of the differences in battery properties.

- **Take out exhausted batteries promptly from the equipment.**

Otherwise, gas can be generated in the battery leading to leakage, overheating, or explosion.

- **When not in use for a long time, take out the battery from the appliance.**

Otherwise, gas can be generated in the battery leading to leakage, overheating, or explosion.

2) Storage

Never store the battery in hot and high humid place. Never let the battery contact with water.

Section 8 - Exposure Controls, Personal Protection

Respiratory Protection	NA
Ventilation	NA
Eye Protection	NA
Protective Gloves	NA
Other protective clothing	NA

Section 9 - Physical/Chemical Characteristics

LR20, LR14, LR6, LR03, LR1: Cylindrical shape with primary cell of 1.5V nominal voltage

Section 10 - Stability and Reactivity

Stability: Stable (Performance deterioration depends on circumstance.)

Incompatibility: NA

Hazardous polymerization: NA

Condition to avoid: See section 7.

Hazardous Decomposition or Byproducts: NA

Section 11 - Toxicological Information

As the contents are sealed in the battery case, there is no toxicity.

Section 12 - Ecological Information

If the battery is disposed of on land or in water, the battery case may corrode and liquid may leak from the battery. Ecological information has not been reported.

Section 13 - Disposal condition

The battery may be regulated by national or local regulation. Please follow the instructions of proper regulation. As electric capacity is left in a discarded battery and it comes into contact with other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

Section 14 - Transportation Information

Maxell hereby certifies that the above captioned goods are non-dangerous and non-hazardous materials for air transport. The consignment is fully described by the proper shipping name and packed (short-circuit prevented), marked and in proper condition for transport by air. Maxell further certifies that the consignment is not classified as dangerous under current IATA DANGEROUS GOODS REGULATIONS (59th Edition), and complies with Special Provision A123 and all applicable carrier and governmental regulations. However, "Not restricted, as per Special Provision A123" must appear on the air waybill when an air waybill is issued.

Section 15 - Regulatory Information

Major environmental regulation is as follows:

EU Battery Directive 2006/66/EC(2013/56/EU): Maxell, Ltd. certifies that its LR batteries comply with this regulation.

Section 16 - Other Information

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