



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.**

1. Identification

- (a) Product identifier used on the label:

LR/maxell/+

- (b) Other means of identification:

Alkaline battery (LR20,LR14,LR6,LR03,LR1,6LF22)

- (c) Recommended use of the chemical and restrictions on use:

See 7.Handling and storage

- (d) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:

Manufacturer: Maxell Asia,Ltd.

Address: Unit Nos.03B-06,13/F, 909CheungShaWanRoad,Kowloon,HongKong

Tel: + (852) 2730 9243

Fax: + (852) 2735 6250

- (e) Emergency phone number.

Tel: + (852) 2730 9243

2. Hazard(s) identification

- (a) Classification of the chemical in accordance with paragraph (d) of §1910.1200

Chemical battery (Primary)

- (b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200. (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones)

N/A

- (c) Describe any hazards not otherwise classified that have been identified during the classification process

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.)

- (d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration $\geq 1\%$ and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required

No such an ingredient is contained in the product.

3. Composition/information on ingredients

Except as provided for in paragraph (i) of §1910.1200 on trade secrets:

For Substances:

- (a) Chemical name
 (b) Common name and synonyms
 (c) CAS number and other unique identifiers
 (d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance

Chemical Name	Common Name and Synonyms	CAS #	Content (Wt %)
Manganese Dioxide	MnO ₂	1313-13-9	35 to 45
Potassium Hydroxide	KOH	1310-58-3	5 to 15
Graphite	C	7782-42-5	1 to 5
Zinc	Zn	7440-66-6	10 to 20
Mercury	Hg	7439-97-6	Not used (Less than 5ppm)
Cadmium	Cd	7440-43-9	Not used (Less than 20ppm)
Lead	Pb	7439-92-1	Not used (Less than 40ppm)

For Mixtures

In addition to the information required for substances:

- (a) The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards in accordance with paragraph (d) of §1910.1200 and

- (1) Are present above their cut-off/concentration limits; or
 (2) Present a health risk below the cut-off/concentration limits.

No such an ingredient is contained in the product.

- (b) The concentration (exact percentage) shall be specified unless a trade secret claim is made in accordance with paragraph (i) of §1910.1200, when there is batch-to-batch variability in the production of a mixture, or for a group of substantially similar mixtures (See A.0.5.1.2) with similar chemical composition. In these cases, concentration ranges may be used.

No such a situation would happen during the production from batch to batch.

For All Chemicals Where a Trade Secret is claimed

Where a trade secret is claimed in accordance with paragraph (i) of §1910.1200, a statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

4. First-aid measures

- (a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

Inhalation Explosion may make fumes of alkaline solution and the fumes could cause respiratory irritation. Rinse by plenty of water and consult a physician.

Skin Contact Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.

Eye Contact 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.

- (b) Most important symptoms/ effects, acute and delayed

NA.

- (c) Indication of immediate medical attention and special treatment needed, if necessary

Wash with clean water immediately.

5. Fire-fighting measures

- (a) Suitable (and unsuitable) extinguishing media.

Any class of extinguisher is effective.

- (b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).

The batteries could be exploded by heat of fire and alkaline solution could disperse.

- (c) Special protective equipment and precautions for fire-fighters.

Use self-contained breathing apparatus and full gear not to inhale or not to come into eyes or skin with harmful alkaline mist.

6. Accidental release measures

- (a) Personal precautions, protective equipment, and emergency procedures.

Wear protective clothing. Keep unprotected persons away.

- (b) Methods and materials for containment and cleaning up.

When the liquid leaks out of the battery, absorb and wipe it with dry cloth.

If touching the liquid, Observe Section 4 - First Aid Measures

7. Handling and storage

- (a) Precautions for safe handling.

• **Never swallow.**

If swallowed, see Section 4 - First Aid Measures.

• **Never touch the liquid leaked out of battery.**

If the liquid comes into 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 keep battery with metal goods such as a necklace or a hairpin. Otherwise battery could cause distortion, leakage, overheating, or explosion of the battery.

• **Never charge.**

The battery is not designed to be charged by any other electrical source. Charging could generate gas and internal short-circuiting, leading to distortion, leakage, overheating, or explosion.

• **Never expose to open flames.**

Exposing to flames could cause explosion of the battery.

• **Never heat.**

Heating the battery more than 100 degree centigrade could increase the internal pressure leading to distortion, leakage, overheating, or explosion.

• **Never disassemble or deform.**

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

(b) Conditions for safe storage, including any incompatibilities.

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

8. Exposure controls/personal protection

(a) OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

N/A

(b) Appropriate engineering controls.

Do not disassemble the product without professional basis.

(c) Individual protection measures, such as personal protective equipment.

No special equipment is required for handling, carrying or using the product.
The chemical materials concluded in the Product is sealed up, thus being stable, safe and eco-friendly under common conditions.

9. Physical and chemical properties

- | | | |
|--|---|--|
| (a) Appearance (physical state, color, etc.) | : | LR20,LR14,LR6,LR03,LR1 : cylindrical shape with primary cell of 1.5V nominal voltage.
6LF22: prismatic shape with primary cell of 9V nominal voltage. |
| (b) Odor | : | not applicable |
| (c) Odor threshold | : | not applicable |
| (d) pH | : | not applicable |
| (e) Melting point/ freezing point | : | not applicable |
| (f) Initial boiling point and boiling range | : | not applicable |
| (g) Flash point | : | not applicable |
| (h) Evaporation rate | : | not applicable |
| (i) Flammability (solid, gas) | : | not applicable |
| (j) Upper/lower flammability or explosive limits | : | not applicable |

- (k) Vapor pressure : not applicable
- (l) Vapor density : not applicable
- (m) Relative density : not applicable
- (n) Solubility(ies) : not applicable
- (o) Partition coefficient:
n-octanol/ water : not applicable
- (p) Auto-ignition temperature : not applicable
- (q) Decomposition temperature : not applicable
- (r) Viscosity : not applicable

10. Stability and reactivity

- (a) Reactivity

N/A

- (b) Chemical stability

Stable (performance deterioration depends on circumstance.)

- (c) Possibility of hazardous reactions

No.

- (d) Conditions to avoid (e.g., static discharge, shock, or vibration)

See 7.Handling and storage

- (e) Incompatible materials

No.

- (f) Hazardous decomposition products

No.

11. Toxicological information

Description of the various toxicological (health) effects and the available data used to identify those effects, including

- (a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)

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

(b) Symptoms related to the physical, chemical and toxicological characteristics

People might feel itching, if the inner liquid splashes onto skin.

(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure

N/A

(d) Numerical measures of toxicity (such as acute toxicity estimates)

N/A

(e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA

No.

12. Ecological information (Non-mandatory)

(a) Ecotoxicity (aquatic and terrestrial, where available): N/A

(b) Persistence and degradability: N/A

(c) Bio-accumulative potential: N/A

(d) Mobility in soil: N/A

(e) Other adverse effects (such as hazardous to the ozone layer) : If the battery is disposed in land or water, battery case may be corroded and the liquid may leak out of the battery. Information regarding ecological concerns has not been reported.

13. Disposal considerations (Non-mandatory)

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

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.

14. Transport information (Non-mandatory)

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 59th 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 (59th 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)

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.

15. Regulatory information (Non-mandatory)

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

The product is complying with the environmental requirements in EU BATTERY DIRECTIVE (2006/66/EC) and its amendments 2013/56/EU.

16. Other information, including date of preparation or last revision

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

This Safety Data Sheets (SDS) is issued on 1 Jan, 2018 according to requirements of the USA's OSHA Standard 1910.1200 App D.

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



Safety Data Sheet for (0.%Hg) Alkaline Button Cell (LR) Series

Document Number: MSDS-LR (0.%Hg) Series ****Not for recharge**** 不可充電 (Version : 2018)

SECTION I – Manufacturer Information 生產商資料

Manufacturer's Name 生產商 : New Leader Battery Limited 新利達電池有限公司

Emergency & Information Phone No 緊急和查詢電話 : 852 - 2790 6280

Address : Rm A, 4/F, Block 1, Camelpaint Building, 62 Hoi Yuen Road, Kwun Tong, Kowloon, Hong Kong.

Signature of Prepare (Optional)

SECTION II – Hazardous Ingredients / Identity Information 成份表

IMPORTANT NOTE :

Use under normal conditions, the Zinc Manganese alkaline battery is hermetically sealed.

鋅錳鹼性電池在正常使用下是密封的

Ingestion: Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. **IMMEDIATELY SEE DOCTOR**; Do not induce vomiting or give food or drink.

誤服：吞服電池是有害的，誤服了的電池會導致化學性燒傷，使食道嚴重灼傷，萬一誤服應立即盡快找就近的醫生診斷，不要給誤服者飲食或企圖把誤服之電池吐出

Inhalation: Contents of an open battery can cause respiratory irritation.

吸入：吸入了開封的電池會刺激呼吸道

Skin Contact: Contents of an open battery can cause skin irritation and/or chemical burns.

皮膚接觸：接觸了開封的電池會導致皮膚過敏或可能引致化學燒傷

Eye Contact: Contents of an open battery can cause severe irritation and chemical burns.

眼睛接觸：如眼睛不慎接觸了已開封的電池會導致眼睛刺痛或可能引致化學燒傷

Product Name : Alkaline Manganese Button Cell Mercury Free (0.%Hg LR series)

Substance Name/Cas # 名稱代號	PEL (OSHA)	% Weight
Zinc 鋅 7440 – 66 – 6	15 mg/m ³ TWA (Total Dust) 5mg/m ³ TWA (respirable fraction)	8%
Graphite 石墨 7782 – 42 - 5	15 mg/m ³ TWA (Total Dust) 5mg/m ³ TWA (respirable fraction)	3%
Manganese Dioxide 二氧化錳 1313 – 13 - 9	5mg/m ³ Ceiling (as Mn)	30%
Potassium Hydroxide 氫氧化鉀 1310 – 58 - 3	None established	10%
Iron 鐵 65997 – 19 – 5	None established	37%
Distilled Water 純水 7732- 18 - 3	None established	11%
Others 其他 N/A	None established	Balance

Prepared January 2018



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SECTION III – Physical / Chemical Characteristics 物理/化學特性

Boiling Point 沸點 : N.A.

Specific Gravity 比重 (H2O = 1) : N.A.

Melting Point 熔點 : N.A.

Vapor Pressure 蒸氣壓 (mm Hg) : N.A.

Vapor Density 蒸氣密度 (AIR = 1) : N.A.

Evaporation Rate (Butyl Acetate) : N.A.

Solubility in Water 溶解度 : N.A.

Appearance and Odor 形狀和氣味 , Cylindrical Shape, Odorless 圓柱型 : 無氣味

SECTION IV – Control Fire Measures

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

如遇上電池所引發之火警，可用任何認可之滅火器救火和他們的包裝材料，請勿把破裂的電池投入火堆中，滅火時應穿上有自動提供氧氣的滅火衣

SECTION V – Reactivity Data 反應性數據

Stability 穩定性: stable 穩定

Conditions to Avoid 避免條件 : Stable 穩定

Hazardous Decomposition or Byproducts : 副產品或分解物是危險的

The Alkaline Button Battery do not meet any of the criteria established in 40 CFR 261.2 of reactivity

鹼性電池的反應性達不到 40CFR 261.2 的標準

SECTION VII – First Aid Measures 急救處理措施

Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately. Call National Battery Ingestion Hotline for advice.

誤服 : 不要給誤服者飲食或企圖把誤服之電池吐出，應立即盡快找就近的醫生診斷,聯絡國際電池熱線尋求意見

Inhalation : Provide fresh air and seek medical attention.

吸入 : 提供新鮮的空氣和盡快找就近的醫生診斷



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Skin Contact : Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention

皮膚接觸：把受污染的衣物移走和應立即用肥皂水清洗患處

Eye Contact : Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

眼睛接觸：盡快用清水沖洗 15 分鐘,眨動上下眼皮,直至沒有化學物殘留在眼睛,盡快找就近的醫生診斷

SECTION VIII – Accidental Release or Spillage 處理意外釋放或溢出之電池

Ventilation Requirements: Room ventilation may be required in areas where there are open or leaking batteries

通風設備：如發生漏液或破損,應把電池移往室內通風地方

Eye Protection: Wear safety glasses with side shields if handling an open or leaking battery

眼部護理：應把已打開或漏液之電池,放入已盛載了水的水杯內

Gloves: Use neoprene or natural rubber gloves if handling an open or leaking battery.

Battery materials should be collected in a leak-proof container

手套：已打開或漏液之電池在處理時,應帶上橡膠手套和放入防漏之容器內

SECTION IX – Handling and Storage

Storage : Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

存放：電池應存放在通風及清涼的地方,高溫存放會縮短電池之壽命

Mechanical Containment: If potting or sealing the battery in an airtight or watertight container is required, consult your New Leader Battery Limited representative for precautionary suggestions. Batteries normally evolve hydrogen which, when combined with oxygen from the air can produce a combustible or explosive mixture unless vented. If such a mixture is present, short circuits, high temperature, or static sparks can cause an ignition.

Do not obstruct safety release vents on batteries, Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.

機械密封：電池必須在一個防水氣和空氣之情況下做焊接或密封之加工,咨詢新利達電池有限公司查詢有關之安全建議.電池在正常使用下會產生氫氣,當開蓋後和空氣結合後會產生易燃或易爆的氣體,放在通風通道例外.短路,高溫,靜電火花也容易產生火點

不要忽略已開封電池之安全.已封裝之電池是不容許打開外殼和有機會引起高壓擊破.

Handling: Accidental short circuit for a few seconds will not seriously affect the battery. Prolonged short circuit will cause the battery to lose energy, and can cause the safety release vent to open. Sources of short circuits include



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jumbled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries into devices.

處理： 短暫短路對電池不會有嚴重之影響，短路時間會對電池之容量構成影響，產生高熱影響安全。把其他電池或金屬物品混合和放在同一容器內，會對電池產生短路，被破壞之池在結構內會形成短路

Charging: This battery is manufactured in a charged state. Its is not designed for recharging. Recharging can cause battery leakage or in some case, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards

充電： 電池在生產時已有足夠電量,此款電池設計是不適用在充電池上, 把電池再充電有機會令電池漏液及因高壓造成破壞, 如不慎把電池充電可令電池發生反充.

SECTION X – Exposure Controls / Person Protection 接觸控制/個人保護

Ventilation Requirements 通風系統之要求 : N.A.

Respiratory Protection 呼吸道保護: N.A..

Eyes Protection 眼睛保護 : N.A.

Gloves 手套 : N.A.

SECTION XI – Ecological Information 生態資料 : N.A.

SECTION XIII – Regulatory Information: Batteries are not classified as dangerous goods by US Department of Transportation or the major international regulatory bodies and are therefore not regulated. SARA/TITLE III – As an article, this battery and its contents are not subject to the requirements of the Emergency Planning and Community Right to Know Act.

在美國運輸局和主要國際之條例中, 鋅錳鹼性電池是不介定在危險品的種類內.

SARA/TITLE III – 文章中, 此類電池沒有在有關急介定之項目中.

SECTION XIV – Transport Information 運輸資訊

The Batteries in all forms of transportation (e.g. Truck, air, or sea) must be packaged in a safe and responsible manner. Regulatory concerns form all agencies for safe packaging require that batteries be packaged in s manner that prevents short circuits and be contained in (Strong Carton / Packaging) that prevents spillage of contents. 所有電池之運送方式(e.g.航運,空運和陸運)必須要已負責任之態度和安全包裝來運送.所有代理在監管安全包裝的問題上,電池必須要裝放在(加厚紙箱/包裝)防止短路和防電池溢出之包裝容器內.

Alkaline battery (sometime referred to as "**Dry Cell**") 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 Regulation, **ICAO** Technical



Safety Data Sheet for (0.%Hg) Alkaline Button Cell (LR) Series

Document Number: MSDS-LR (0.%Hg) Series **Not for recharge 不可充電** (Version : 2018)

Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations provided they meet the requirement contained in the following special provisions. 鹼性電池(有需要時可參考“干電池”，因干電池類在 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 Regulation, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR)的危險品類別中。

此電池在下列的航運條例中也不屬於危險品：

Regulatory Parties	Special Provisions
ADR	Not Regulated
IMDG	Not Regulated
UN, ICAO	Not Regulated
US DOT	49 CFR 172.102 Provision 130
IATA,	A123,

Ref: Summary of Packing Instruction (IATA Dangerous Goods Regulations 59th Edition) the minimum requirements necessary to transport as non-restricted goods are as follows

總括在包裝指引(IATA 危險品條例 59 版)，在非違禁品運輸中最基本之要求如下：

****All 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 ICAO Technical Instructions require the words “ Not Restricted” and the Special Provision No: A123 be provided on the air waybill, when an air waybill is issued.**

所有鹼性電池必需包裝在防止短路或在防止產生過熱之數量內和達到有關特別指引之要求下。另外,有關國際危險品的規例中的 ICAO 技術指示 “Not Restricted”字眼，在 A123 的特別條例中必須展示在空運提單中

SECTION XV – Other Information : None