maxell

Date: Jan. 1st, 2020

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:

R/maxell/+

(b) Other means of identification:

Manganese battery（Lead Free）(R20P, R14P, R6P,R03,R1,)

(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,909 Cheung Sha Wan Road,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 ≥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

Lead free Type

Chemical Name	Common Name and Synonyms	CAS #	Content (Wt %)
Manganese Dioxide	MnO_2	1313-13-9	17~35%
Zinc	Zn	7440-66-6	10~38%
Zinc Chloride	$ZnC1_2$	7646-85-7	2~10%
Ammonium Chloride	NH_4C1	12125-02-9	0~10%
Acetylene Black	C	1333-86-4	3~15%
Lead	Pb	7439-92-1	Not used（less than 40ppm）
Cadmium	Cd	7440-43-9	Not used（less than 20ppm）
Mercury	Hg	7439-97-6	Not used（less than 5ppm）

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.

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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.)	:	The appearance is a cylindrical shape and it is a primary cell with 1.5V 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 manganese batteries has been designed to be compliant with these regulatory concerns.

Manganese 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 61th 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 (61th Edition)
ICAO	Not regulated

All Maxell manganese 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 Date Sheets (SDS) is issued on 1 Jan, 2020 according to requirements of the USA's OSHA Standard 1910.1200 App D.

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