

SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1
Product Name Alkaline battery LR03 AAA AM4 (Mercury free)

Issue Date 14-May-2015
Revision date 14-May-2015

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name	Alkaline battery LR03 AAA AM4 (Mercury free)
Product Description	Mercury Free Alkaline Zinc Manganese Dry Battery
Product Model	LR03

Other means of identification

Synonyms	Product type: alkaline battery Voltage: 1.5 V Ampere hour: 650MAH Content of Li: None
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Recommended use of the chemical and restrictions on use

Recommended Use	Energy Source
Uses advised against	No information available

Details of the supplier of the safety data sheet

Importer	WUXI CITY BAOLAI BATTERY CO., LTD
Address	NORTH INDUSTRIAL ZONE, HUANSHI STREET, QIANZHOU TOWN, WUXI CITY
Phone	+86-510-83397086
FAX	+86-510-83397091
E-mail	wxbaolai@126.com

Emergency telephone number

+86-510-83397086

2. HAZARDS IDENTIFICATION

GHS Classification

Not classified

Label elements

Symbols/Pictograms	None
Signal word	None
Hazard Statements	Not classified
Precautionary Statements	
Prevention	Not applicable
Response	Not applicable
Storage	Not applicable
Disposal	Not applicable

Hazards not otherwise classified (HNOC)

No information available

Unknown acute toxicity

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature Article

Chemical Name	CAS No	Weight-%
Manganese dioxide	1313-13-9	36 - 41
Zinc	7440-66-6	15 - 20
Steel Sheet	7439-89-6	17.08
Water	7732-18-5	9.36
Potassium hydroxide	1310-58-3	6.99
Graphite	7782-42-5	3.30
Copper Nail	7440-50-8	1.91
Zinc Oxide	1314-13-2	0.70

4. FIRST AID MEASURES**Description of first aid measures**

General advice	If symptoms persist, call a physician.
Inhalation	Not an expected route of exposure. If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical advice.
Skin Contact	If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical advice.
Eye contact	Not an expected route of exposure. If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical advice.
Ingestion	Not an expected route of exposure. If battery contents are swallowed, do not induce vomiting. If the victim is alert, have them rinse their mouth and the surrounding skin with water for at least 15 minutes. Seek immediate medical attention.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Extinguishing media**

Suitable extinguishing media Carbon dioxide (CO₂). Dry chemical.
 Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Evacuate personnel to safe areas
 Ensure adequate ventilation, especially in confined areas
 Remove all sources of ignition
 Use personal protection recommended in Section 8
 Avoid contact with skin, eyes or clothing

Do not touch or walk through spilled material
 Caustic potassium hydroxide may be released from leaking or ruptured batteries.
 Avoid breathing vapors or mists

Methods and material for containment and cleaning up

Pick up and transfer to properly labeled containers

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice
 Wash thoroughly after handling
 Avoid mechanical or electrical abuse.
 DO NOT short circuit or install incorrectly.
 Batteries may explode pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures.
 Install batteries in accordance with equipment instructions.
 Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment.
 Replace all batteries in equipment at the same time.
 Do not carry batteries loose in a pocket or bag. Do not remove battery tester or battery label.
 Take precautionary measures against static discharges
 Do not eat, drink or smoke when using this product

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place
 Keep away from heat
 Do not refrigerate – this will not make them last longer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Denmark	European Union
Manganese dioxide (CAS #: 1313-13-9)	TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn	(vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn	IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn	TWA: 0.2 mg/m ³	-
Potassium hydroxide (CAS #: 1310-58-3)	Ceiling: 2 mg/m ³	(vacated) Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	-
Graphite (CAS #: 7782-42-5)	TWA: 2 mg/m ³ respirable fraction all forms except graphite fibers	-	IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ natural respirable dust	TWA: 2.5 mg/m ³	-
Copper Nail (CAS #: 7440-50-8)	TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist	-	IDLH: 100 mg/m ³ dust, fume and mist IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist	TWA: 1.0 mg/m ³ TWA: 0.1 mg/m ³	-
Zinc Oxide (CAS #: 1314-13-2)	STEL: 10 mg/m ³ respirable fraction TWA: 2 mg/m ³ respirable fraction	TWA: 5 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ fume (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) STEL: 10	IDLH: 500 mg/m ³ Ceiling: 15 mg/m ³ dust TWA: 5 mg/m ³ dust and fume STEL: 10 mg/m ³ fume	TWA: 4 mg/m ³	-

	mg/m ³ fume				
Chemical Name	Latvia	France	Finland	Germany	Italy
Manganese dioxide (CAS #: 1313-13-9)	TWA: 0.3 mg/m ³	-	TWA: 0.2 mg/m ³ TWA: 0.1 mg/m ³	TWA: 0.2 mg/m ³ TWA: 0.02 mg/m ³ Ceiling / Peak: 1.6 mg/m ³ Ceiling / Peak: 0.16 mg/m ³ TWA: 0.5 mg/m ³	-
Zinc (CAS #: 7440-66-6)		-	-	TWA: 0.1 mg/m ³ TWA: 2 mg/m ³ Ceiling / Peak: 0.4 mg/m ³ Ceiling / Peak: 4 mg/m ³	-
Potassium hydroxide (CAS #: 1310-58-3)	-	STEL: 2 mg/m ³	STEL: 2 mg/m ³ Ceiling: 2 mg/m ³	-	-
Graphite (CAS #: 7782-42-5)	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³	TWA: 1.5 mg/m ³ TWA: 4 mg/m ³	-
Copper Nail (CAS #: 7440-50-8)	TWA: 0.5 mg/m ³ STEL: 1 mg/m ³	TWA: 0.2 mg/m ³ TWA: 1 mg/m ³ STEL: 2 mg/m ³	TWA: 1 mg/m ³ TWA: 0.1 mg/m ³	TWA: 0.01 mg/m ³ Ceiling / Peak: 0.02 mg/m ³ Ceiling / Peak: 0.2 mg/m ³	-
Zinc Oxide (CAS #: 1314-13-2)	TWA: 0.5 mg/m ³	TWA: 5 mg/m ³ TWA: 10 mg/m ³	TWA: 2 mg/m ³ STEL: 10 mg/m ³	TWA: 1 mg/m ³ TWA: 0.1 mg/m ³ TWA: 2 mg/m ³ Ceiling / Peak: 2 mg/m ³ Ceiling / Peak: 0.4 mg/m ³ Ceiling / Peak: 4 mg/m ³	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
Manganese dioxide (CAS #: 1313-13-9)	TWA: 0.3 mg/m ³	TWA: 0.2 mg/m ³	TWA: 0.2 mg/m ³	TWA: 0.5 mg/m ³	-
Potassium hydroxide (CAS #: 1310-58-3)	STEL: 1 mg/m ³ TWA: 0.5 mg/m ³	Ceiling: 2 mg/m ³	STEL: 2 mg/m ³	TWA: 2 mg/m ³	-
Copper Nail (CAS #: 7440-50-8)	-	-	-	-	TWA: 0.1 mg/m ³
Zinc Oxide (CAS #: 1314-13-2)	STEL: 10 mg/m ³ TWA: 5 mg/m ³	STEL: 10 mg/m ³ TWA: 2 mg/m ³	STEL: 10 mg/m ³ TWA: 2 mg/m ³	STEL: 3 mg/m ³ TWA: 3 mg/m ³	-

Chemical Name	Norway	United Kingdom	Australia	Austria	Belgium
Manganese dioxide (CAS #: 1313-13-9)	TWA: 1 mg/m ³ TWA: 0.1 mg/m ³ STEL: 1 ppm STEL: 0.1 mg/m ³	TWA: 0.5 mg/m ³	1 mg/m ³	STEL 2 mg/m ³ TWA: 0.5 mg/m ³	-
Potassium hydroxide (CAS #: 1310-58-3)	Ceiling: 2 mg/m ³	STEL: 2 mg/m ³	2 mg/m ³ Peak	TWA: 2 mg/m ³	-
Graphite (CAS #: 7782-42-5)	TWA: 5 mg/m ³ TWA: 2 mg/m ³ TWA: 10 mg/m ³ TWA: 4 mg/m ³ STEL: 5 mg/m ³ STEL: 2 mg/m ³ STEL: 10 mg/m ³ STEL: 4 mg/m ³	-	3 mg/m ³	STEL 10 mg/m ³ TWA: 5 mg/m ³	-
Copper Nail (CAS #: 7440-50-8)	TWA: 0.1 mg/m ³ TWA: 1 mg/m ³ STEL: 0.1 mg/m ³ STEL: 1 mg/m ³	-	1 mg/m ³ 0.2 mg/m ³	STEL 4 mg/m ³ STEL 0.4 mg/m ³ TWA: 1 mg/m ³ TWA: 0.1 mg/m ³	-
Zinc Oxide (CAS #: 1314-13-2)	TWA: 5 mg/m ³ STEL: 10 mg/m ³	-	10 mg/m ³ 5 mg/m ³ 10 mg/m ³ STEL	TWA: 5 mg/m ³	-

Appropriate engineering controls
Ventilation systems

Individual protection measures, such as personal protective equipment

Respiratory protection	None required for normal use.
Hand Protection	None required for normal use. Use neoprene, rubber or latex gloves when handling leaking batteries.
Eye/face protection	None required for normal use. Wear safety goggles when handling leaking batteries.
Skin and body protection	None required for normal use. Use neoprene, rubber or latex gloves when handling leaking batteries.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	Solid, cylindrical
Color	Black and golden
Odor	Odorless
Odor Threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Boiling point / boiling range	Not determined
Flash point	Not determined
Evaporation rate	Not determined
Flammability (solid, gas)	Not determined
Flammability Limit in Air	Not determined
Vapor Pressure	Not determined
Vapor density	Not determined
Density	Not determined
Relative density	Not determined
Bulk density	Not determined
Specific gravity	Not determined
Water solubility	Not determined
Partition coefficient (LogPow)	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not an explosive
Oxidizing properties	Not determined

Other information

Voltage	1.5V
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10. STABILITY AND REACTIVITY**Reactivity**

Stable under recommended storage and handling conditions (see SECTION 7, handling and storage).

Chemical stability

Stable under normal conditions

Possibility of Hazardous Reactions

None under normal processing

Conditions to avoid

Flames, sparks, and other sources of ignition, incompatible materials.

Incompatible materials

Oxidizing agents, acid, base.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide, lithium oxide fumes.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.

Eye contact Contact with battery contents may cause severe irritation and burns. Eye damage is possible.

Skin Contact Contact with battery contents may cause severe irritation and burns.

Ingestion Swallowing is not anticipated due to battery size. Choking may occur if smaller AAA batteries are swallowed. Ingestion of battery contents (from a leaking battery) may cause mouth, throat and intestinal burns and damage.

Information on toxicological effects**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide (CAS #: 1313-13-9)	= 9000 mg/kg (Rat)	-	-
Steel Sheet (CAS #: 7439-89-6)	98.6 g/kg bw (rat)	-	-
Water (CAS #: 7732-18-5)	> 90 mL/kg (Rat)	-	-
Potassium hydroxide (CAS #: 1310-58-3)	= 333 mg/kg (Rat)	-	-
Copper Nail (CAS #: 7440-50-8)	> 2500 mg/kg bw(rat)	> 2000 mg/kg bw(rat)	=1.03 mg/L/4 h(rat)
Zinc Oxide (CAS #: 1314-13-2)	> 5000 mg/kg (Rat)	-	-

Skin corrosion/irritation

Non-irritating to the skin

Serious eye damage/eye irritation

No eye irritation

Sensitization

No information available

Germ cell mutagenicity

No information available

Carcinogenicity

No information available

Reproductive toxicity

No information available

STOT - single exposure

No information available

STOT - repeated exposure

No information available

Aspiration hazard

No information available

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
Steel Sheet (CAS #: 7439-89-6)	-	13.6: 96 h <i>Morone saxatilis</i> mg/L LC50 static	> 100 mg/L/48h (<i>Daphnia magna</i>)
Zinc (CAS #: 7440-66-6)	0.11 - 0.271 mg/L/96h <i>Pseudokirchneriella subcapitata</i> static 0.09 - 0.125 mg/L/72h <i>Pseudokirchneriella subcapitata</i> static	2.16 - 3.05 mg/L/96h <i>Pimephales promelas</i> flow-through 0.211 - 0.269 mg/L/96h <i>Pimephales promelas</i> semi-static 2.66: mg/L/96h <i>Pimephales promelas</i> static 30 mg/L/96h <i>Cyprinus carpio</i> 0.45 mg/L/96h <i>Cyprinus carpio</i> semi-static 7.8 mg/L/96h <i>Cyprinus carpio</i> static 3.5 mg/L/96h <i>Lepomis macrochirus</i> static 0.24 mg/L/96h <i>Oncorhynchus mykiss</i> flow-through 0.59 mg/L/96h <i>Oncorhynchus mykiss</i> semi-static 0.41 mg/L/96h <i>Oncorhynchus mykiss</i> static	0.139 - 0.908 mg/L/48h <i>Daphnia magna</i> Static
Potassium hydroxide (CAS #: 1310-58-3)	-	80mg/L/96h <i>Gambusia affinis</i> static	-
Copper Nail (CAS #: 7440-50-8)	0.031 - 0.054 mg/L/96h <i>Pseudokirchneriella subcapitata</i> static 0.0426 - 0.0535 mg/L/72h <i>Pseudokirchneriella subcapitata</i> static	1.25: 96 h <i>Lepomis macrochirus</i> mg/L LC50 static 0.3: 96 h <i>Cyprinus carpio</i> mg/L LC50 semi-static 0.8: 96 h <i>Cyprinus carpio</i> mg/L LC50 static 0.112: 96 h <i>Poecilia reticulata</i> mg/L LC50 flow-through 0.0068 - 0.0156: 96 h <i>Pimephales promelas</i> mg/L LC50 0.3: 96 h <i>Pimephales promelas</i> mg/L LC50 static 0.2: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 0.052: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 flow-through	-

Persistence and degradability

No information available

Bioaccumulative potential

Chemical Name	Partition coefficient (LogPow)
Manganese dioxide (CAS #: 1313-13-9)	<0
Potassium hydroxide (CAS #: 1310-58-3)	0.65

Mobility in soil

No information available

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations

Contaminated packaging Dispose of in accordance with federal, state and local regulations

14. TRANSPORT INFORMATION

DOT

UN/ID No. Not regulated
 Proper shipping name Not regulated
 Hazard Class Not regulated
 Packing Group Not regulated
 Special precautions No information available
 Marine pollutant Not applicable

15. REGULATORY INFORMATION

International Inventories

Component	AICS	DSL/NDL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Manganese dioxide 1313-13-9	X	X	X	X	X	X	X	X
Steel Sheet 7439-89-6	X	X	X	-	X	X	X	X
Zinc 7440-66-6	X	X	X	-	X	X	X	X
Water 7732-18-5	X	X	X	-	X	X	X	X
Potassium hydroxide 1310-58-3	X	X	X	X	X	X	X	X
Graphite 7782-42-5	X	X	X	-	X	X	X	X
Copper Nail 7440-50-8	X	X	X	-	X	X	X	X
Zinc Oxide 1314-13-2	X	X	X	X	X	X	X	X

"-" Not Listed
 "X" Listed

US Federal Regulations

SARA 313

Chemical Name	SARA 313 - Threshold Values %
Manganese dioxide - 1313-13-9	1.0
Zinc - 7440-66-6	1.0
Zinc Oxide - 1314-13-2	1.0

SARA 311/312 Hazard Categories

Not apply

CWA (Clean Water Act)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc 7440-66-6	-	X	X	-
Potassium hydroxide 1310-58-3	1000 lb	-	-	X
Copper Nail 7440-50-8	-	X	X	-
Zinc Oxide 1314-13-2	-	X	-	-

CERCLA

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
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Zinc 7440-66-6	1000 lb	-	RQ 454 kg final RQ RQ 1000 lb final RQ
Potassium hydroxide 1310-58-3	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations**California Proposition 65**

Not apply

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Manganese dioxide 1313-13-9	X	-	X
Zinc 7440-66-6	X	X	X
Potassium hydroxide 1310-58-3	X	X	X
Graphite 7782-42-5	X	X	-
Copper Nail 7440-50-8	X	X	-
Zinc Oxide 1314-13-2	X	X	X

16. OTHER INFORMATION**Revision Note**

Issue Date 14-May-2015
Revision date 14-May-2015
Revision Note Not applicable

Key or legend to abbreviations and acronyms used in the safety data sheet

TWA - TWA (time-weighted average)
STEL - STEL (Short Term Exposure Limit)
Ceiling - Maximum limit value
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

----- End of Safety Data Sheet -----