Panasonic
Matsushita Battery Belgium N.V.

Panasonic BATTERIES
The Ultimate Power.

MATERIAL SAFETY DATA SHEET

1. Identification

Product name	alkaline primary battery
Type	LR20, LR14, LR6, LR03, 6LR61
Manufacturer's name	Matsushita Battery Belgium N.V.
address	Havenlaan 6, B-3980 Tessenderlo Belgium
date prepared	15.05.2002
telephone number	emergency telephone number 0032/(0)13 610 523 telephone number for information 0032/(0)13 610 514
approved by	Sonia Vanderlinden

2. Ingredients

Ingredient name	Cas#	%
1. Manganese dioxide	1313-13-9	25~45
2. Zinc	7440-66-6	10~20
3. Potassium hydroxide	1310-58-3	3~9
4. Zinc oxide	1314-13-2	0~1
5. Graphite	7782-42-5	1~4
6. Steel	7439-89-6	10~30

3. Physical and chemical characteristics.

Boiling point	NA
Vapor pressure (mmHg)	NA
Vapor density	NA
Specific gravity	NA
Melting point	NA
Evaporation rate (Butyl acetate =1)	NA
Solubility in water	NA
Appearance	Encased cylindrical or rectangular shape

4, Fire and explosion hazard data.

Flash point (Method used)	NA
Flammable limits	LEL: NA UEL: NA
Extinguishing media	Dry powder, carbon dioxide, foam, dry sand
Special fire fighting procedures	Fire fighters should wear self-contained breathing apparatus when any fire.
Unusual fire and explosion hazards	Cells exposed to excessive heat, may cause electrolyte leakage or explosion

5. Reactivity Data.

Stability	Stable
Incompatibility (materials to avoid)	NA
Hazardous decomposition of BY-products	Oxides or fumes of Mn , Zn
Hazardous polymerization	will not occur

6. Health hazard data.

Threshold limit value (TVL) and source	NA
Symptons of exposure	None, unless battery ruptures
Emergency first aid procedure	If leakage from battery contacts the skin, flush immediately with water If leakage enter eye, flush immediately with copious quantities of water get medical attention for eyes

7.Precautions for safe handling and use.

Steps to be taken in case material is released or spilled	Avoid skin and eye contact
waste disposal method	Scientific evidence indicates that cells may be disposed with household trash Never attempt to burn batteries in fire Dispose in accordance with applicable regulations.
Precautions to be taken in handling and string	Store at room temperature and in dry place.
Transportation and shipment	These are "Batteries dry" and are not considered to be a "hazardous material" per U.S. DOT (department of transportation regulations) or a " dangerous goods" per IATA (International Air Transport Association Regulations)
Others	Follow equipment instructions to avoid leakage or explosion. Do not short-circuit and reverse insertion of (+) , (-) Do not dismantle ,heat or dispose in fire. Do not attempt to recharge. Do not overdischarge or mix use cells may cause electrolyte leakage.

8. Control Measure

Respiratory protection (specific type)		Self-contained breathing apparatus as any fire situation
Ventilation	Local exhaust	NA
	Mechanical (general)	NA
	Specific	NA
	Others	NA
Protective gloves		NA
Eye protection		NA
Other protective clothing or equipment		NA

Ref. No. MN-MSDS-1E

Revision Date ; February 13, 2003
Issue Date ; December 27,2001

PRODUCT SAFETY DATA SHEET

1. PRODUCTS AND COMPANY IDENTIFICATION

PRODUCT NAME : Carbon Zinc Battery R03, R1, R6, R14, R20
COMPANY IDENTIFICATION
NAME : Matsushita Battery Industrial Co., Ltd.
Dry Battery Business Unit
Research & Development Group.
ADDRESS : 1−1 Matsushita−Chou, Moriguchi−shi, Osaka 570-8511 ,JAPAN
TEL : +81−6−6994−4559 FAX : +81−6−6998−3271
EMERGENCY TEL : +81−6−6994−4559 (Working hours)
+81−6−6991−1141 (Holiday)

2. COMPOSITION /IMFORMATION ON INGREDIENTS

SUBSTANCE NAME : Carbon Zinc Battery
CAS NUMBER : Not Specified
COMPOSITION :

COMPONENT	CONCENTRATION (WT%)	FORMULA	CAS NO.
POSITIVE ELECTRODE			
Manganese dioxide	20−30	MnO2	1313-13-9
Acetylene Black	2.5−4.5	C	1333-86-4
NEGATIVE ELECTRODE			
Zinc	18−35	Zn	7440-66-6
Lead	0.05−0.15	P b	7439-92-1
ELECTROLYTE			
Zinc Chloride	5−8	ZnCL2	7546-85-7
Water	11−19	H2O	−

3. HAZARDS IDENTIFICATION

MOST IMPORTANT HAZARDOUS
ADVERSE HUMAN HEALTH EFFECTS
When electrolyte touches skin, itch may occur.

PHYSICAL AND CHEMICAL HAZARD

There is the risk of explosion if batteries are disposed in fire, heated above 100 degree C.
Stacking or jumbling batteries may cause external short circuits, heat generation and explosion.

SPECIFIC HAZARDS

Not Applicable.

CLASS NAME OF HAZARDOUS CHEMICALS

Not Applicable

4. FIRST AID MEASURES (If leaked solution will contact.)

SKIN CONTACT

Wash the affected area under tepid running water using a mild soap.
If appropriates procedures are not taken, this may cause sores on the skin.
Get medical attention if irritation develops or persists.

EYE CONTACT

Not rubbing the eyes, flush immediately with plenty of clean water for at least 15 minutes. Take medical treatment, if appropriate procedures are not taken, this may cause eye irritation.

INGESTION

Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

5. FIRE FIGHTING MEASURES

Dry chemical, carbon dioxide, great deal of water.

EXTINGUISHING MEDIA

SPECIFIC FIRE-FIGHTING METHODS

Be sure on the windward to extinguish the fire, since vapor from burning batteries may make eyes, nose and throat irritate, Wear the respiratory protection equipment in some cases.

6. ACCIDENTAL RELEASE MEASURES (in case of electrolyte leakage from the battery)

HEALTH CONSIDERATIONS AND PROTECTIVE EQUIPME

Wear proper protective equipment.

ENVIRONMENTAL PRECAUTIONS

Prevent spills form entering sewers, watercourses.

SPILL CLEAN-UP PROCEDURES

Collect material to minimize dust generation ; use wet mop, damp sponge.
Place collected material into a suitable container for disposal.

7. HANDLING AND STORAGE

HANDLING

TECHNICAL MEASURES

No exposure limits exist for the battery.

PRECAUTION

When packing the butteries, do not allow battery terminals to contact each other, or contact with electrically conductive materials. Be sure to pack batteries by providing partitions in packaging boxes, or in separate plastic bags to avoid they are mixed together.

Use strong material for packaging boxes to avoid damage by vibration, impact, dropping and stacking during transportation.

Do not recharge batteries. Do not deform batteries.

Do not mix different types of batteries.

Do not solder directly onto batteries.

STORAGE

STORAGE CONDITION

Do not let water penetrate into packaging boxes during their storage and transportation.

Do not store the batteries in the high temperature exceeding 35 degree C, under direct sunlight or near heat source. Also avoid high humidity. Be sure not to expose the batteries to condensation, water drop or not to store them under frozen condition.

SAFE PACKAGING MATERIALS

Carton boxes, Wooden boxes.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION (in case of electrolyte leakage from the battery)

ENGINEERING MEASURES

No special facility is necessary.

OCCUPATIONAL EXPOSURE LIMITS (OELs)

Not specified in ACGIH and OSHA

PROTECTIVE EQUIPMENTS.

RESPIRATORY PROTECTION

For most condition no respiratory protection.

HAND PROTECTION

Safety gloves.

EYE PROTECTION

Safety glasses with side shields must be worn when handling this product.

SKIN AND BODY PROTECTION

To prevent any contact, wear impervious clothing such as boots or whole body suits. as appropriate.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STYLE

APPEARANCE	:	Cylindrical shape.
COLOR	:	Depend on the design.
ODOR	:	Odorless～Characteristic odor
p H	:	Not Applicable.

SPECIFIC TEMPERATURES/TEMPARATURE RANGE AT WHICH CHANGES IN PHYSICAL STATE OCCUR	:	Not Applicable.
FLASH PINT	:	Not Applicable.
EXPLASION PROPERTIES	:	Not Date.
SPECIFIC GRAVITY(g/cm3)	:	Not Data.
SOLUBILITY	:	Not Applicabl
VOLTAGE	:	1.5 volts.

10. STABILITY AND REACTIVITY (Physical Hazard)

STABILTY

Stable under normal conditions.

When batteries are short－circuited :

There is the possibility that stacking or jumbling batteries cause short circuits, heat generation, leakage or explosion.

When batteries are recharge :

Risk of swelling leakage or explosion, contents may protrude.

When batteries are heated or disposed in fire :

Risk of leakage or explosion.

When batteries are disassembled :

Risk of short circuits. Electrolyte may cause skin itching.

REACTIVITY

Stable under normal conditions.

HAZARDOUS DECOMPOSITION PRODUCTS

No information.

11. TOXICOLOGICAL INFORMATION

ACUT TOXICITY	: No information as a battery.
LOCAL EFFECTS	: No information as a battery.

12. ECOLOGICAL INFORMATION

In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte.
But, we have no ecological information.
Heavy metal quantity in a cell

: Hg ＜0.1 ppm　Measurement Analysis : Atomic Absorption Spectrometer
: Cd ＜1 ppm　Measurement Analysis : Atomic Absorption Spectrometer
: Pb ＜1600 ppm　Measurement Analysis : Atomic Absorption Spectrometer

13. DISPOSAL CONSIDERATIONS

When the battery is worm out, dispose of it under the ordinance of each local government or the low issued by relating government.

14. TRANSPORT INFORMATION:

Carbon Zinc battery R03, R1, R6, R14, R20 is not a regulated material.
During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperature and do not allow them to be exposed to exposed to condensation.
During the transportation do not allow packages to be fallen down or damaged.

15. REGULATORY INFORMATION

No information. (Follow all regulations in your country.) .

16. OTHER INFORMATION

INFORMATION CONTACT

Matsushita Battery Industrial Co., Ltd.
Dry Battery Business Unit
Research & Development Group.

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TEL : +81−6−6994−4559　FAX : +81−6−6998−3271

This PSDS is described on the basis of present materials, information and data. So, please notice that it will be revised by new information. Also this is supplied to entrepreneurs as reference information in order to handle batteries safety. Please notice that entrepreneurs have to deal with batteries, as they think fit.