

ALKALINE
D Size (LR20)

TYPE	Primary Battery
NUMBER	BEXEL-ME-1004(Rev.0)
DATE	March 1. 2002

Material Safety Data Sheet

This information provides material safety data sheet for Alkaline Manganese 'D'(LR20)battery manufactured by BEXEL corporation.

Identify : ALKALINE 'D' CELLS (LR20)

Section

Manufacturer : BEXEL CORPORATION

Address : 261-1, GONGDANDONG GUMI CITY KYOUNG BUK,KOREA

Telephone Number for information : 82-54-463-4721

Date of prepared and revision : 1998. 3. 11

Signature of Preparer(optional) : Y. B. KIM (82-54-463-4721(#248))

Emergency telephone numbers : J. H. LIM (82-54-463-4721(#242))

Section - Hazardous Ingredients / Information

Hazardous Component	Approximate % of Total Weight
Manganese Dioxide(MnO ₂)	35
Zinc(Zn)	16
Graphite (C)	5
KOH	10
Lead (Pb)	0.005
Mercury(Hg)	0
Cadmium(Cd)	0

Section - Physical / Chemical Characteristics

Boiling Point() : N A(MnO₂), 907(Zn), NA(C), 732(ZnCl₂)

Vapor Pressure(mmHg) : N A(MnO₂), 1mmHg@487 (Zn),NA(C),NA(ZnCl₂)

Vapor Density(air=1) : N A(MnO₂), N A(Zn), NA (C), NA(ZnCl₂)

Solubility in water ; Insoluble(MnO₂), Reacts(Zn), Insoluble(C),432%(ZnCl₂)

Specific Gravity(H₂O=1) : 5.026(MnO₂),7.14(Zn),2.09~2.23(C),2.91 (ZnCl₂)

Melting Point() : 535 (MnO₂), 420 (Zn),3650 , 283 (ZnCl₂)

Evaporation Rate (butyl Acetate = 1) : N.A(MnO₂,Zn,C, ZnCl₂)

Appearance and odor : No Data Available

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Section - Fire and Explosion Hazard Data

Flash Point (method used) : N.A

Extinguishing Media : N.A

Flammable Limits : LeI PeI

Special Fire Fighting Procedures :

Fire fighter should use self-contained breathing apparatus when a large number of cells is Involved in a fire.

Unusual fire and explosion Hazards :

Cells may release toxic zinc fumes when the battery is exposed to fire.

Section - Reactivity

Stability : Stable

Condition to avoid : Do not heat, Disassemble or recharge

Hazardous Polymerization : Will not occur

Section - Health Hazard Data

Routes of entry : Inhalation ? : Yes, Ingestion ? : Yes

Acute/chronic Health Hazard : None

Carcinogenicity :

Ntp ? : No Irac, Monograph ? : No, Osha regulated ? : No

Signs/symptoms of exposure : None

Medical conditions generally aggravated by exposure :

An acute exposure will not generally aggravate any medical condition.

Emergency & First aid procedures

If accidentally ingested, See physician promptly

Other Protective Clothing or Equipment : None

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Section - Precautions for safe handling and use

Steps to be taken in case material is release of spilled :

Avoid skin or eye contact

Waste disposal method

Individual consumers may dispose with household trash. Industrial users must landfill in accordance with appropriate regulations, Do not incinerate since cells may explode at excessive temperatures.

Precautions to be taken in handing and storage :

Avoid mechanical, physical of electrical abuse. Store in a cool place but prevent condensation on

cell or battery terminals. Elevated temperatures can result in shortened battery Life.

Other Precautions :

Do not attempt to recharge. Install cells in accordance with equipment instructions.

Do not dispose of in fire. Replace all batteries in equipment at the same time.

Do not mix battery systems such as Zinc Carbon and Alkaline in the same equipment.

Do not carry batteries loose in pocket or bag.

Section - Control Measures

Respiratory Protection (specify type) :

Self-contained breathing Apparatus when numbers of cells are involved in fire.

Ventilation :

Subsequent to a fire, Provide as much ventilation as possible.

Protective Gloves :

Not ordinarily required but, neoprene rubber or Latex-nitrile Gloves are recommend when handling leakers.

Eye Protection :

Safety glasses when handling leakers.