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IDENTITY:

Chemical Name: Alkaline Manganese Dioxide Cell
 Common name: MN1300(D, LR20), MN1400(C, LR14), MN1500(AA, LR6), MN2400(AAA, LR03), MN9100(N, LR1), MNS08(4LR20X), MNS18(4LR20-2), MN1604(9V, 6LR61), and batteries comprised of these cells.

MANUFACTURER:

Duracell International Inc.
 Berkshire Industrial Park
 Bethel, CT 06801 U.S.A.
 203-796-4000

EMERGENCY TELEPHONE NUMBER:

Jim Donahue 203-796-4000
 George Wallis 617-449-7600

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION:

HAZARDOUS COMPONENTS Chemical/Common Names	OSHA PEL	ACGIH TLV	Other Limits	% by Weight (Approximate)
Potassium Hydroxide (KOH)	2 mg/m ³ (C)	2 mg/m ³ (C)	—	8
Manganese Dioxide (MnO ₂)	5 mg/m ³ (C)	5 mg/m ³ (C)	—	37
Zinc (Zn)	15 mg/m ³	10 mg/m ³	—	15

PHYSICAL/CHEMICAL CHARACTERISTICS:

Boiling Point (°C): KOH: 1320, MnO₂: N/A, Zn: 907

Vapor Pressure (mm Hg): KOH & MnO₂: N/A, Zn: 1 mm @ 487°C

Vapor Density (Air = 1): N/A

Solubility in Water: KOH: 50%, MnO₂, Zn: 0%

Specific Gravity (H₂O = 1): KOH: 2.0, MnO₂: 5.0, Zn: 7.14

Melting Point (°C): KOH: 360, MnO₂: 535, Zn: 420

Evaporation Rate (Butyl Acetate = 1): N/A

Appearance & Color: KOH: Clear Liquid, MnO₂: Black Powder, Zn: Gray Powder.

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FIRE AND EXPLOSION HAZARD:

Flash Point (Method Used): N/A Extinguishing Media: N/A
Flammable Limits (LEL & UEL): N/A

Special Fire Fighting Procedures:

Fire fighters should use self-contained breathing apparatus when a large number of cells are involved in a fire.

Unusual Fire and Explosion Hazards: None.

REACTIVITY DATA:

Stability: Stable.

Conditions to Avoid: DO NOT heat, disassemble, or recharge.

Hazardous Decomposition or By-products: When heated, cells may emit hazardous vapors of caustic KOH.

Hazardous Polymerization: Will NOT occur.

HEALTH HAZARD DATA:

Routes of Entry: Inhalation - Yes Skin - Yes Ingestion - Yes

Acute/Chronic Health Hazards:

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically, physically or electrically abused. The most likely risk is acute exposure when a cell leaks. KOH is caustic and skin contact can cause burns. Eye contact with KOH may cause permanent eye injury.

Carcinogenicity: NTP - No IARC Monograph - No OSHA Regulated - No

Signs/Symptoms of Exposure:

Skin and eye contact with KOH may cause chemical burns.

Medical Conditions Generally Aggravated by Exposure:

An acute exposure will not generally aggravate any medical condition.

Emergency and First Aid Procedures:

If leakage from a cell contacts the skin, flush immediately with water. For eye contact, flush with copious amounts of water for 15 minutes and see a physician at once. If vapor is inhaled, remove to fresh air.

MATERIAL SAFETY DATA SHEET

401-03

PRECAUTIONS FOR SAFE HANDLING AND USE:Steps to be Taken in Case Material is Released or Spilled:

Avoid skin and eye contact. Do not inhale vapors.

Waste Disposal Method:

Open cells in large quantities should be treated as a hazardous waste. Do not incinerate since cells may explode at excessive temperatures. Dispose in accordance with applicable regulations.

Precautions to be Taken in Handling and Storage:

Avoid mechanical or electrical abuse. Use neoprene, rubber or latex-nitrile gloves when handling leaking batteries. Store at room temperature.

Other Precautions:

Do not attempt to recharge. Install cells in accordance with equipment instructions. Do not dispose of in fire. Replace all batteries of same age in equipment at the same time. Do not mix battery systems such as alkaline and zinc carbon in the same equipment. Do not carry batteries loose in pocket or bag. Remove batteries from the device when used-up.

Control Measures:

Respiratory Protection (Specify Type): Self contained breathing apparatus when large numbers of cells are involved.

Ventilation: Subsequent to a fire provide as much ventilation as possible.

Protective Gloves: Use neoprene, rubber or latex-nitrile gloves when handling leaking batteries.

Eye Protection: Wear safety glasses when handling leaking batteries.

Other Protective Clothing or Equipment: None.

ABBREVIATIONS:

ACGIH	American Council of Governmental Industrial Hygienists
IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Administration (U.S.)
NTP	National Toxicology Program (U.S.)
PEL	Permissible Exposure Limit.
TLV	Threshold Limit Values.

NOTE:

This document complies with 29 CFR 1910.1200 for an OSHA Hazard Communication Sheet.