



SPECTRUM BATTERIES INC.

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MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION

PRODUCT NAME: **ALKALINE BATTERIES**

CHEMICAL REACTION: $2\text{MnO}_2 + \text{Zn} \rightarrow \text{ZnO} + \text{Mn}_2\text{O}_3$ (in KOH Solution)

INGREDIENTS:

<u>NAME</u>	<u>CAS #</u>	<u>ACGIH TLV</u>
Manganese Dioxide	1313-13-9	5 mg/m ³
Zinc	7440-66-6	10 zno/m ³
Potassium Hydroxide (KOH)	1310-58-3	C 2 mg/m ³
Carbon	7440-44-0	2 mg/m ³

SECTION 2 - PHYSICAL DATA

BOILING POINT:	N/A	SPECIFIC GRAVITY:	N/A
VAPOR PRESSURE:	N/A	MELTING POINT:	N/A
VAPOR DENSITY:	N/A	EVAPORATION RATE:	N/A
SOLUBILITY IN WATER:	N/A	WATER REACTIVE:	N/A
APPEARANCE:	Cylindrical Shape	ODOR:	Slight ammonia (if leaking)

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	N/A
FLAMMABLE LIMITS:	N/A
EXTINGUISHER MEDIA:	Foam or dry powder
AUTO IGNITION:	N/A
SPECIAL FIRE FIGHTING PROCEDURES	As with any fire, wear self-contained breathing apparatus to avoid inhalation.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Release of KOH if cell is opened. Battery cells may rupture when exposed to excessive heat; this could result in the release of corrosive materials.

SECTION 4 - REACTIVITY DATA

STABILITY:	Stable
CONDITIONS TO AVOID	Fire, heat over 100°C, electrical shorting, recharging, disassembly

INCOMPATIBILITY: N/A
HAZARDOUS DECOMPOSITION PRODUCTS: Oxides or fumes of Manganese, zinc, potassium
HAZARDOUS POLYMERIZATION: Will not occur

SECTION 5 - HEALTH HAZARD DATA

ROUTES OF ENTRY: INHALATION: NO INGESTION: NO SKIN: NO
HEALTH HAZARD: Corrosive Liquid (KOH) Solution
CARCINOGEN LISTED IN: N/A
SIGNS AND SYMPTOMS OF EXPOSURE: None, unless battery ruptures (see below)
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: None
EMERGENCY FIRST AID PROCEDURES: In the event that battery ruptures, flush with water and get prompt medical attention for contact with eyes.

SECTION 6 - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED: In the event of rupture, collect all material in a plastic bag for waste disposal.
WASTE DISPOSAL METHOD: These batteries do not have hazardous waste characteristics, and they can be landfilled as per Local, State, and Federal regulations.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in a dry place. Storing unpackaged cells could result in cell shorting and heat build-up.

SECTION 7 - CONTROL MEASURES

RESPIRATORY PROTECTION:	As in any fire situation, use self contained breathing apparatus	EYE PROTECTION:	N/A
PROTECTIVE GLOVES:	N/A	OTHER PROTECTIVE CLOTHING:	N/A
VENTILATION:	LOCAL EXHAUST: N/A SPECIAL: N/A	MECHANICAL: N/A OTHER: N/A	

SECTION 8 - TRANSPORTATION

Alkaline batteries are not restricted for shipping purposes as per U.S. DOT or IATA regulations.

SECTION 9 - DISPOSAL

There are no disposal restrictions for alkaline batteries. Dispose of in normal refuse.