

## Material Safety Data Sheet

## Alkaline (Manganese Dioxide)

The information and recommendations below are believed to be accurate at the date of preparation. Ascent Battery Supply makes no warranty of merchantability or any other warranty, express or implied, with respect to such information and we assume no liability resulting from its use. This MSDS provides guidelines for safe use and handling of the product. It does not and cannot advise all possible situations. Your specific use of this product should be evaluated to determine if additional precautions must be taken.

<b>Manufacturer's Name</b>	Hengdian Group DMGEC Magnetics Stock Co., LTD	<b>Emergency Number</b>	INFOTRAC (800) 535-5053
<b>Address</b>	Hengdian Industrial Zone, Dongyang City, Zhejiang Province, P.R.C 322118	<b>Overseas Emergency Number</b>	INFOTRAC (800) 535-5053
<b>Revision Date</b>	08/22/05		

### SECTION 1 – IDENTITY

<b>Product Name</b>	Manganese Dioxide Battery
<b>Common</b>	Alkaline
<b>Synonyms</b>	
<b>DOT Description</b>	Dry Battery
<b>Chemical Name</b>	Manganese Dioxide; Primary Battery

### SECTION 2 – HAZARDOUS INGREDIENTS

Chemical Name	CAS No.	Percentage %
Manganese Dioxide	1313-13-9	50
Zinc	7440-66-6	18
Graphite	7782-42-5	3
Potassium Hydroxide	1310-58-3	15
Stainless Steel	N/A	12
Plastic	N/A	2

### SECTION 3 – PHYSICAL AND CHEMICAL CHARACTERISTICS

<b>Boiling Point</b>	NA	<b>Melting Point</b>	NA
<b>Vapor Pressure</b>	NA	<b>Vapor Density</b>	NA
<b>Specific Gravity</b>	NA	<b>Percent Volatile By Volume</b>	NA
<b>Solubility in Water</b>	NA	<b>Reactivity in Water</b>	NA
<b>Appearance and Odor</b>	Geometric, solid object	<b>Evaporation Rate</b>	NA
<b>Flash Point</b>	NA	<b>Flammable Limits in Air % by Volume</b>	NA
<b>Extinguisher Media</b>	Use Water, foam or dry powder	<b>Auto-ignition Temperature</b>	NA
<b>Special Fire Fighting Procedures</b>	Wear self-contained breathing apparatus to avoid inhalation of hazardous decomposition products.		
<b>Unusual Fire and Explosion Hazards</b>	Cells may rupture when exposed to excessive heat. This could result in the release of flammable or corrosive materials.		

## SECTION 4 – PHYSICAL HAZARDS

<b>Stable or Unstable</b>	Stable	<b>Conditions to Avoid</b>	Electrical shorting the cell.
<b>Incompatibility (Materials to Avoid)</b>	NA		
<b>Hazardous Decomposition Products</b>	NA		
<b>Hazardous Polymerization</b>	Will Not Occur		

## SECTION 5 – HEALTH HAZARDS

<b>Threshold Limit Value</b>	NA
<b>Signs and Symptoms of Exposure</b>	None (In fire or rupture situation see section 2 and section 4.)
<b>Medical Conditions Generally Caused by Exposure</b>	Chemicals may cause burns to skin, eyes, gastrointestinal tract and mucous membranes.
<b>Routes of Entry</b>	Skin, Eyes, Swallowing
<b>Emergency and First Aid Procedures for</b>	Manganese Dioxide Chemicals
<b>1. Inhalation</b>	Get fresh air. If symptoms persist seek medical attention
<b>2. Eyes and Skin</b>	If a cell ruptures, flush with copious quantities of flowing lukewarm water for a minimum of 15 minutes. Get immediate medical attention for eyes. Wash skin with soap and water.
<b>4. Ingestion</b>	Ingestion of battery chemicals can be harmful. Call The National Battery Ingestion Hotline (202-625-3333) 24 hours a day, for procedures treating ingestion of chemicals. Do not induce vomiting.

## SECTION 6 – SPECIAL PROTECTION INFORMATION

<b>Respiratory Protection</b>	NA				
<b>Ventilation</b>	NA	<b>Local Exhaust</b>	NA	<b>Mechanical (General)</b>	NA
<b>Gloves</b>	Wear gloves if cell ruptures, is corroded or leaking chemicals.	<b>Safety Glasses</b>			Always wear safety glasses when working with batteries and cells.
<b>Other Protective Equipment</b>	NA				

## SECTION 7 – SPECIAL PRECAUTIONS – SPILL AND LEAKAGE PROCEDURES

<b>Precautions to be Taken when Handling and Storing</b>	Store in dry place. Storing unpacked cells together could result in cells shorting and heating to the point of rupturing.
<b>Other Precautions</b>	If packaging materials are not available place masking taped on positive and negatives ends of the cells.
<b>Steps to be Taken if chemicals are spilled</b>	If cells are leaking or rupture, prevent skin and eye contact and collect all released material in a plastic lined metal container.
<b>Waste Disposal</b>	Manganese Dioxide (Alkaline) batteries have no hazardous waste characteristics and can be landfilled.
<b>Transportation</b>	These are considered to be "Dry Batteries" and are not considered a "Hazardous Material" per U.S. DOT (Department of Transportation) regulations or "dangerous goods" per IATA (International Air Transport Association) regulations.