Safety Data Sheet

Section 1. Chemical Product and Company Identification

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Section 2- Composition /Information on Ingredients:

Chemical Name		Percent (by weight)	CAS No.	EC#
Manganese Dioxide		48%	1313-13-9	215-202-6
Zinc powder		18%	7440-66-6	231-175-3
Potassium hydroxide		7%	1310-58-3	215-181-3
Carbon (C)		4%	7440-44-0	231-153-3
Steel shell		13%	12597-69-2	Unlisted
H65 Brass	Copper (Cu)	1%	7440-50-8	231-159-6
	Zinc (ZN)		7440-66-6	231-175-3
Electrolyte Solution		8.6%	7732-18-5	231-791-2
Nylon-66		0.4%	32131-17-2	Unlisted

Section 3-Hazards identifications

EMERGENCY OVERVIEW

Caution The battery pack and enclosed cells should not be recharged, opened, disassembled, crushed, burned, or exposed to high temperatures. Do not use organic solvents or other chemical cleaners on battery. Under normal use and handling, the customer has no contact with the internal components of the battery. However, on some bad using conditions (recharge, high over charge, Inverse charge, and external shout circuit….) and in case of a bad functioning, some electrolyte can be removed from the cell by the security vent. Exposure to the ingredients contained within the battery pack could be harmful under some circumstances.

Target Organs: None.

Hazard Sorts: None.

Potential Health Effects:

- **Eye:** No effect under routine handling and use for sealed battery. Exposure to the electrolyte contained inside the battery may result in severe irritation and chemical burns.
- **Skin:** No effect under routine handling and use for sealed battery. Exposure to the electrolyte contained inside the battery may result in chemical burns. Exposure to battery particulate may cause dermatitis.
- **Ingestion:** No effect under routine handling and use for sealed battery. Harmful if swallowed the electrolyte contained inside the battery.
  Exposure to the electrolyte contained inside the battery may cause severe chemical burn to mouth, esophagus and gastrointestinal system.
- **Inhalation:** No effect under routine handling and use for sealed battery. If battery is broken, inhale fume/dust may cause respiratory irritation, cough, and shortness of breath or chemical burns.

Section 4-Fist Aid Measures

Caution! No effect under routine handling and use. If exposure to internal materials within cell due to damaged outer metal casing, the following actions are recommended.

Eyes: Rinse immediately with plenty of water during at least 15-30 minutes, occasionally lifting the upper lower eyelids, Check for and remove any contact lenses if easily possible. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse. Get medical aid immediately,

Inhalation: If inhaled, remove from exposure and move to fresh air immediately. Rinse mouth and nose with water. Get medical aid immediately. DO NOT use mouth-to mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Ingestion: Do not induce vomiting. If the injured is fully conscious: wash mouth out with water, then give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Section 5. Fire-fighting Measures

General Information: Cells can be overheated by an external source or by internal shorting and develop potassium hydroxide mist and/or hydrogen gas. Toxic vapor may release in case of fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: Class D-Dry chemical powder, sand is suitable. Do NOT use water.

Section 6-Accidental Release Measures

General Information: No action shall be taken involving any personal risk or without suitable training. Review Section 5 and Section 7 sections before proceeding with clean-up. Use proper personal protective equipment as indicated in Section 8. If electrolyte leaks or spills, do not touch or walk through electrolyte.

Spills/Leaks: Keep unnecessary people away. Remove heat and sources of ignition. Move battery pack to well ventilated area. If electrolyte leaks or spills, neutralize with a weak acid such as vinegar or citric acid before proper disposal.

Section 7-Hanling and Storage

Storage: Store in a cool and dry area, but prevent condensation on cell or battery terminals. High temperature may damage the performance of the battery cause leaking or rusting. Protect from physical damage and short circuits. To avoid risk of fire or explosion, keep spark and other sources of ignition away from the battery. Do not allow metal objects to simultaneously contact both positive and negative terminal of batteries. Do not stack battery directly on another battery. Do not store batteries on electrically conductive surfaces.

Handling: Do not dispose in fire, mix with other battery types, recharge, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents. Accidental short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat can burn attendant skin and even rupture of the battery cell case. Battery bulk container, coins, metal jewelry, metal worktable, metal belt or other equipment for assembly battery may be the source for short circuit. Use effective anti short circuit measures. Do not use organic solvents or other chemical cleaners on battery. Do not disassembly or decompose. Avoid contacting with water, avoid straight sunlight.

Section 8- Exposure Controls, Personal Protection

Exposure Limit:

CAS No.	ACGIH (mg/m^3)	NIOSH (mg/m^3)	OSHA(mg/m^3)
1313-13-9	TLV-TWA 0.2 (as Mn)	None listed	None listed
7440-66-6	TLV-TWA 5 (asZnO fume)	None listed	PEL-TWA 5 (as ZnO fume)
1310-58-3	TLV-TWA 2 (ceiling)	None listed	None listed
7440-44-0	None listed	None listed	None listed
12597-69-2	None listed	None listed	None listed
7440-50-8	TLV-TWA0.2 (fume): TLV-TWA1 (dust and mist)	REL-TWA 1	REL-TWA 1
7732-18-5	None listed	None listed	None listed
32131-17-2	None listed	None listed	None listed

Monitoring Methods: No Information found.

Engineering Controls: General room ventilation is sufficient during normal use and handing. Do not install these batteries in sealed, unventilated areas. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Work/Hygienic Practices: Remove jewelry, rings, watches and any other metallic objects while working on battery. All tools should insulate to avoid the possibility of shorting connections. DO NOT lay tools on top of the battery. The work area should be equipped with the corresponding species and quantity of fire equipment and leakage emergency equipment.

Personal Protective Equipment:

- **Eyes:** Under normal condition of use and handing no special protection is required for sealed battery.
- **Skin:** Under normal condition of use and handing no special protection is required for sealed Battery.
- **Clothing:** Under normal condition of use and handing no special protection is required for sealed battery.
- **Respirators:** Under normal condition of use and handing no special protection is required for sealed Battery. Use appropriate respirator if airborne dust or mist concentrations exceed.

Personal Protective Equipment (In the Event of Battery Case Breakage):

Always wear appropriate safety glasses with side shields or full face clothing. Use appropriate gloves. Wear appropriate boots, apron or clothing. Use appropriate respirator.

Other Protection: No smoking or eating scene work. To maintain good health habits. Wash hands thoroughly after working and before eating.

Section 9- Physical and chemical propertied

Physical State	: Cylindrical battery
Odour	: Odouriess
Molecular Formula	: Mixture.
Molecular Weight	: N/A
PH	: N/A
Flash Point	: N/A
Boiling Point	: N/A
Melting Point	: N/A
Relative density (water=1)	: N/A
Viscosity	: N/A
Water Solubility	: N/A
Chemical Users	: Power Supply.

Section 10-Stability and Reactivity

Chemical Stability: Stable under normal use.
Conditions to Avoid: When a battery cell is exposed to an external short-circuit, crushed, modification, high temperature, open flames, it will be the cause of heat generation and ignition. May explode or leak if recharged. Direct sunlight and high humidity.
Incompatibilities with other materials: Conductive materials, water, seawater, strong oxidizers and acids.
Hazardous decomposition products: Oxides of metal, harmful gas and etc.
Hazardous Polymerization: Will not occur.

Section 11- Toxicological information

Toxicological Information:

CAS No.	RTECS#	LD50/LC50
1313-13-9	OP0350000	LD50:3478 mg/kg (Oral, rat)
7440-66-6	ZG8600000	No date available.
1310-58-3	TT2100000	LD50: 273mg/kg(oral, rat)
7440-44-0	FF5250100	No date available
12597-69-2	Unlisted	No date available
7440-50-8	GL5325000	LD50:>5 g /Kg (Oral, mouse) LD50: 413mg/kg (Oral, mouse)
7732-18-5	ZC0110000	LD50:> 90ml/kg(oral, rat)
32131-17-2	Unlisted	No date available

Section 12- Ecological information

Ecological Toxicity : Not available
Ecological Degradation : Not available
Biology Degradation : Not available.
Other Information : If the battery is discarded into the environment, the harmful contents inside may be dangerous.

Section 13- Disposal considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Disposal should be in accordance with applicable regional, national and local laws and regulations. Do not incinerate, since batteries may explode at excessive temperature.

Refer to Section 7 and Section 8 for additional handling information and protection of employees.

Section 14- Transport Information

Products covered by this MSDS, in their original form, are considered " dry cell" batteries and are not regulated for transportation as " Dangerous Goods" The batteries must be packed in safe and responsible manner.

For finished packaged product transported by ground (US DOT):- not regulated.

For finished packaged product transported by sea (IMDG):-not regulated.

For finished packaged product transported by air (IATA): not regulated.

Hazards Identification: none

Special provision for Transport: all Dry Battery are packed to meet special provisions listed above.

We hereby clarify that consignment is not classified as dangerous goods under the current edition of the IATA Dangerous Goods Regulations A123 under IATA DGR 61th edition & IMDG CODE 39-18 edition and all applicable came and government regulations'

Section 15-Regulatory Information

Regulatory information: Reference to local, national, US, EU,CA and International regulations.

CAS No.	**TSCA**	**Canada**	**OSHA**	**California Prop 65**
1313-13-9	Listed	Listed in DSL	Unlisted	Unlisted
7440-66-6	Listed	Listed in DSL	Unlisted	Unlisted
1310-58-3	Listed	Listed in DSL	Listed	Unlisted
7440-44-0	Listed	Listed in DSL	Listed	Unlisted
12597-69-2	Unlisted	Unlisted	Unlisted	Unlisted
7440-50-8	Listed	Listed in DSL	Unlisted	Unlisted
7732-18-5	Listed	Listed in DSL	Unlisted	Unlisted
32131-17-2	Listed	Listed in DSL	Unlisted	Unlisted

European Labeling in Accordance with EC Directives:

CAS No.	EC#	Hazard Symbols	Risk Description	Safety Description
1313-13-9	215-202-6	Xn	R20/22	S2-25
7440-66-6	231-175-3	[zinc powder/ dust (Stabilized)]N	R50/53	S 60-61
1310-58-3	215-181-3	Xn; C	R22-35	S1/2/26-36/37/39-45
7440-44-0	231-153-3	None	R36/37	S26
12597-69-2	Unlisted	None	None	None
7440-50-8	231-159-6	F(for powder)	R11-36/37/38	S16
7732-18-5	231-791-2	None	None	None
32131-17-2	Unlisted	None	None	None

Hazard Symbols:

F	: Flammable
Xn	: Harmful.
C	: Corrosive.
N	: Dangerous for the environment.

Risk Description:

R11	: Highly Flammable
R20/22	: Harmful by inhalation and if swallowed
R35	: Cause severe burns.
R36/37/38	: Irritating to eyes, respiratory system and skin.
R50/53	: Very toxic to aquatic organisms, may cause long-term adverse effects.

Safety Description:

S 1/2	: Keep locked up and out of reach of children.
S 16	: Keep away from sources of ignition –No smoking.
S 25	: Avoid contact with eyes.
S 26	: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39	: Wear suitable protective clothing , gloves and eye/face protection.
S45	: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60	: This material and / or its container must be disposed of as hazardous waste.
S 61	: Avoid release to the environment. Refer to special Instructions/ Safety data sheets.

Section 16- Other information

The information on this Material Safety Data Sheet (MSDS) was obtained from current and reputable sources. However, the data is provided without any warranty; expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to assume liability on loss, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.

Part Number
MP001841
PE000007