

## MATERIAL SAFETY DATA SHEET

### 1. Substance/preparation and company name

Quantum International

Product:

C batteries 937955/937947

AAA batteries 937963/937971

AA batteries 937957/937981

D batteries 937949

9V batteries 937965/937973

### 2.Composition/information on ingredients\*

COMPOSTION	CAS#	%	Formula
Manganese(asManganese Dioxide)	1313-13-9	25-45	MNO2
Zinc	7440-66-6	20	Zn
Postasium Hydroxide	1310-58-3	10	KOH
Ammonium Chloride	12125-02-9	0.5-15	
others		10-20	

### 3. Possible hazards

**Critical hazards to man:** If battery leaking, exposure to caustic ingredients may occur.

**Critical hazards to the environment:** Dispose of battery properly (see Section 13).

Contains zinc compounds which may present a hazard to aquatic environments

**Other Information:** Keep batteries away from small children.

### 4. First aid measures

**General advice:** These chemicals and metals are contained in a sealed can. For consumer use, adequate hazard warnings are included on both the package and on the battery.

Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Concentration of aqueous zinc chloride ranges from 5-25%. Concentration of aqueous ammonium chloride ranges from 0.5-15%.

**If inhaled:** Not anticipated. Respiratory and eye irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists

**On skin contact:** Not anticipated.

Zinc chloride/ammonium chloride from a leaking battery may cause burnst If battery is leaking, irrigate exposed skin with copious amount of clear water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

**On contact with eyes:** Not anticipated

Zinc chloride/ammonium chloride from a leaking battery may cause burns or permanent injury. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for 30 minutes. Contact physician at once.

**On ingestion:** Not anticipated

due to size of batteries. Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. Rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. Consult a physician immediately for treatment and to rule out involvement of the esophagus and other tissues.

**Notes to Physician:** 1) The primary acutely toxic ingredients are zinc chloride/ammonium chloride.

2) This MSDS does not include small button or cell batteries which can be ingested.

## 5. Fire fighting measures

**Suitable extinguishing media:** As appropriate for adjacent fire.

**Special protective equipment:** In fires involving large quantities of product, use self-contained breathing apparatus and full protective clothing.

**Further information:** Hazardous decomposition products may be produced. (Sec. 10).

## 6. Accidental release measures

**Personal precautions:** Notify safety personnel of large spills. Caustic zinc chloride and ammonium chloride may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase ventilation. Clean-up personnel should wear

appropriate protective gear.

**Environmental precautions:** Notify EHS personnel of large spills.

**Methods for cleaning up:** Not applicable

## 7. Handling and storage

### Handling

Avoid mechanical or electrical abuse. **DO NOT** short or install incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc chloride, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

### Storage

Store at room temperature.

## 8. Exposure controls and personal protection

8-Hour TWAs: Manganese Dioxide (as Mn) - 5 mg/m<sup>3</sup> (U.K.), (Ceiling)(OSHA); 0.2 mg/m<sup>3</sup> (ACGIH/Gillette)

Zinc Chloride (Fume) - 1 mg/m<sup>3</sup> (OSHA/ACGIH); 2 mg/m<sup>3</sup> (STEL) (OSHA/ACGIH)

Ammonium Chloride (Fume) - 10 mg/m<sup>3</sup> (U.K./ACGIH); 20 mg/m<sup>3</sup> (STEL)(U.K./ACGIH)

Carbon Black - 3.5 mg/m<sup>3</sup>(U.K./OSHA/ACGIH); 7 mg/m<sup>3</sup> (STEL)(U.K.)

These levels are not anticipated under normal consumer use conditions.

**Personal protective equipment**

**Respiratory equipment:** None required under normal use conditions.

**Hand protection:** None required under normal use conditions. Use neoprene, rubber or nitrile gloves when handling leaking batteries.

**Eye protection:** None required under normal use conditions. Wear safety glasses when handling leaking batteries.

**General safety and hygiene measures:** Use only as directed.

## 9. Physical and chemical properties

**Form and Colour:** Cylindrical battery. Contents dark in colour.

**Odour:** Not applicable

**Change in physical state**

**Melting point/melting range:** Not available

**Boiling point/boiling range:** Not available

**Flash point:** Not applicable

**Explosion limits:** Not available

**Ignition temperature:** Not available

**Vapour pressure:** Not available

**Specific Gravity:** Not applicable

**% Volatiles:** Not available

**Solubility in water:** Not applicable

**Solubility in other solvents:** Not applicable

**pH value:** Not available

**Octanol/water partition coefficient (log POW):** Not available

**Viscosity:** Not available

## 10. Stability and reactivity

**Thermal decomposition:** Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

**Substance(s) to avoid:** Strong oxidisers

**Hazardous reactions:** Contents incompatible with strong oxidising agents.

**Hazardous decomposition products:** Thermal degradation may produce hazardous fumes of zinc and manganese, caustic vapours of zinc chloride and ammonium chloride and other toxic by-products.

## 11. Toxicological information

Toxicity information is available on the battery ingredients noted in Section 2, but, generally not applicable to intact batteries as used by customers.

**Chronic Health Effects:** Not applicable to intact batteries.

## 12. Ecological information

Not available

## 13. Disposal considerations

**Product:** Dispose in accordance with appropriate regulations. If in doubt, contact us for information. Do not incinerate, since batteries may explode at excessive temperatures.

## 14. Transport information

**UN Number:** None

**IMDG Classification:** None

**ADR/RID Classification:** None

**ICAO/IATA Classification:** None

These batteries are not regulated by U. S. DOT or international agencies as hazardous materials or dangerous goods when shipped. A shipping name of 'Dry Batteries - Non-hazardous' may be used on all domestic and international bills of lading. The only DOT requirement for shipping ZINC MANGANESE BATTERY are Special Provision 304 which says: "Batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are : alkaline-manganese, zinc-carbon, nickel metal hydride and nickel-cadmium batteries and IATA DGR Special Provision A123 which states: "An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transportation.

## 15. Regulatory information

**EC Labeling:** None

**Risk Phrases:** None

**Safety Phrases:** None

Labeling is not required because batteries are classified as "articles" under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

## 16. Other information:

NO