

**MATERIAL SAFETY DATA SHEET****1. Chemical product**

Name: Camelion Zinc Chloride Battery

Manufacturer: Camelion Battery Co. Ltd

Address: 705-708, Cyber Timers Tower A, Tian'an Cyber Park, Shenzhen, China

Tel: 0755-83618088

**2. Composition /information on ingredients:**

Chemical Nature: Zinc Chloride Battery

CAS-No/EINECS NO.: Graphite (CAS# 7782-42-5)

Zinc Chloride(CAS# 7646-85-7)

Manganese Dioxide (CAS# 1313-13-9)

Zinc(CAS# 7440-66-6)

Water(CAS#7732-18-5)

Dangerous ingredients which have to be mentioned acc. To 99/45/EEC and it adaptations

| Component         | Content(%wt) | Appearance           | Odor    | Corrosion | Toxicity | Flammability |
|-------------------|--------------|----------------------|---------|-----------|----------|--------------|
| Zinc              | 22.5~37.5    | Dust as particulates | None    | None      | None     | None         |
| Manganese Dioxide | 23.0~30.0    | Black-brown Powder   | None    |           |          |              |
| Carbon Rod        | 5.3~8.5      | Black Solid          | None    | None      |          |              |
| Acetylene Black   | 4.2~5.5      | Black Powder         | None    | None      |          |              |
| Zinc Chloride     | 4.8~6.8      | White Powder         | None    |           |          |              |
| Ammonium Chloride | 1.0~1.4      | White Powder         | Ammonia |           |          |              |
| Steel             | 1.3~3.0      | Metal Solid          | None    | None      | None     | None         |
| Brass             | 0~1.3        | Plate                | None    | None      | None     | None         |
| Paper             | 1.8~2.7      | Membrane             | None    |           |          |              |

|         |           |            |      |      |      |      |
|---------|-----------|------------|------|------|------|------|
| Plastic | 2.1~4.2   | Solid      | None |      |      |      |
| Water   | 14.1~18.7 | Liquid     | None | None | None | None |
| Asphalt | 0.8~2.3   | Solid      |      |      |      |      |
| Mercury | None      | Atom State | None |      |      | None |
| Cadmium | <20ppm    | Atom State | None |      |      | None |
| Lead    | <900ppm   | Atom State | None |      |      | None |
| Other   | 0.2~0.5   |            | None | None | None | None |

**3. Hazards identifications**

General: The battery should not be opened or discarded in fire or recharged or used improperly, or it could exposure. The ingredient and their combustion could be harmful.

| Material or Ingredient | PEL (OSHA)   | TLV (ACGIH)  |
|------------------------|--|--|
| Acetylene Black        | 3.5mg/m <sup>3</sup> TWA (as carbon black)   | 3.5mg/m <sup>3</sup> TWA (as carbon black)   |
| Ammonium Chloride      | None established   | 10.0mg/m <sup>3</sup> TWA (Fume)<br>20.0mg/m <sup>3</sup> STEL (Fume)                                  |
| Manganese Dioxide      | 5.0mg/m <sup>3</sup> CEILING (as Mn)   | 0.2mg/m <sup>3</sup> TWA (as Mn)   |
| Zinc                   | 15.0mg/m <sup>3</sup> TWA (Total dust as particulates not otherwise regulated)<br>5.0mg/m <sup>3</sup> TWA (Respirable fraction as particulates not otherwise regulated) | 10.0mg/m <sup>3</sup> TWA (Inhalable particulate)<br>3.0mg/m <sup>3</sup> TWA (Respirable particulate) |
| Zinc Chloride          | 1.0mg/m <sup>3</sup> TWA (Fume)  | 1.0mg/m <sup>3</sup> TWA (Fume)<br>2.0mg/m <sup>3</sup> STEL (Fume)                                    |

The Common known rules for handing of chemicals should be obeyed. Do not eat drink the product.

Physical-Chemical Hazards: This preparation is not classified as dangerous according to the criteria of directive 99/45/EEC

Hazards to man: This is preparation is classified Xi, N R38-43 according to the CE directive, May cause sensitization by skin contract

Hazards to environment: When spilled, this product may raze the surface of plastic, leather and paint, underground and surface water.

**4. First –aid measures:**

Inhalation: In case of excessive inhalation remove the person to fresh air and at rest obtain medical advice.

Skin contact: Remove contaminated clothing. Wash affected areas with plenty of water

and soap. If irritation occurs, consult a physician.

Eye contact: Rinse eyes immediately with running water for at least ten minutes. Consult an ophthalmologist.

Ingestion: Rinse mouth with water. Give plenty of water to drink. Do not induce vomiting. Obtain medical advice.

## 5. Fire-fighting measures

Suitable extinguishing media: Carbon dioxide (CO<sub>2</sub>), foam, dry chemical powder.

Extinguishing media not to be used: Never use a direct water jet.

Exposure hazards from combustion products: In case of fire, carbon dioxide, carbon monoxide and other toxic organic substances will be generated. Do not inhale fumes and smoke.

Personal protective equipments: Wear full protective clothing. Use self contained breathing apparatus.

## 6. Accidental release measures:

Personal precautions: Wear protective clothing. Keep unprotected persons away.

Environmental precautions: Avoid discharge and penetration into sewerage systems, waterways, pits, and cellars.

Methods for cleaning up: Collect spilled material with an insert standard absorbent like sand or silica. Care for well-Ventilated conditions. Recycle or dispose of the materials in an appropriate way.

## 7. Handling and storage

General: Obey the common known rules and precautions for handling with chemicals.

Fire/Explosion protection: Product vapors and oxygen/air may lead to potentially explosive mixtures. Keep ignition sources away. Do not smoke. Avoid electrostatic charge. Provide fire extinguisher.

Handling: Accidental short circuit for a few seconds will not seriously affect the battery. But prolonged short circuit will cause the battery to lose energy, and can cause the safety release vent to open. Sources of short circuit include jumbled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries in devices.

Charging: This battery is not designed for recharging. Recharging can cause battery leakage or high pressure rupture, in some cases. Inadvertent charging can happen if a battery is installed backwards.

Storage: Store product in well-filled, appropriate coated and tightly closed containers avoiding influence of oxygen/air, light and humidity. Store at a cool and constant

temperature.

Disposal: Dispose in accordance with all applicable local regulations. Appropriate disposal technologies include incineration and landfill.

## 8. Exposure controls/Personal protection

Exposition/ Technical measures: Atmospheric vapor concentrations must be minimized by adequate ventilation. Protection of hands, eyes and skin: To protect hands, eyes and skin, the use of appropriate chemical resistant gloves, safety glasses and suitable protective clothing is strictly recommended.

## 9. Physical and chemical properties

|                       |                        |                       |                     |
|-----------------------|------------------------|-----------------------|---------------------|
| Physical state        | Liquid                 | Solubility in water   | soluble             |
| Color                 | Any colors             | Vapor pressure        | no applicable       |
| Odor                  | COOL COLOGNE Smell     | Explosion limit       | not applicable      |
| pH value              | not determined         | Oxidizing properties  | not applicable      |
| Specific gravity      | 0.990-1.040 (at 25 °C) | Flashpoint            | 10-200 (closed cup) |
| Refractive index      | 1.480-1.515 (at 20 °C) | Auto flammability     | not determined      |
| Solubility in ethanol | soluble                | Partition coefficient | not determined      |
| Melting Point         | not applicable         | Boiling Point         | not determined      |
| Freezing Point        | not determined         |                       |                     |

## 10. Stability and Reactivity

Good stability at standard temperature. Avoid temperatures above or close to the flash point. Never heat sealed containers. This product presents no significant reactivity hazard, by itself or in contact water.

Hazardous decomposition products: carbon monoxide and unidentified organic compounds may be formed during combustion.

## 11. Toxicological information

The product is multi component mixture for which no toxicological data exists.

## 12. Ecological information

In general, no ecological data is available for preparations.

Precautions avoid disposing into drainage systems and in the environment.

## 13. Disposal considerations

Do not dispose of into environment or into sewerage. If recycling is not possible, the product and its container have to be disposed of in accordance with your local legislation and regulations.

## 14. Transport Information

|      |             |                 |
|------|-------------|-----------------|
| Road | (ADR/RID)   | : not regulated |
| Air  | (ICAO/IATA) | : not regulated |



According the European directive 2006/66/EC

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Sea (IMDG) : not regulated

### 15.Regulatory Information

Symbol: N/A

Contains: Expiration date is on the battery bottom..

### 16.Other information

The information on this Material Safety Date Sheet (MSDS) was obtained form current and reputable Camelion. 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.