



# Material Safety Data Sheet

## 1. Product & Company Identification

<b>Product:</b>	Zinc Chloride Battery (non-rechargeable) 3 LR12
<b>Manufacturer:</b>	Conrad Electronic SE
<b>Nominal voltage:</b>	4,5 V
<b>Nominal capacity:</b>	2000 mAh
<b>Address:</b>	Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date of issue:</b>	03.11.2016

## 2. Composition/Information on Ingredients

Chemical Nature: Zinc Chloride Battery (non-rechargeable)

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

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### 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	3.5 mg/m <sup>3</sup> TWA (as carbon black)	3.5 mg/m <sup>3</sup> TWA (as carbon black)
Ammonium Chloride	None established	10.0 mg/m <sup>3</sup> TWA (Fume) 20.0 mg/m <sup>3</sup> STEL (Fume)
Manganese Dioxide	5.0 mg/m <sup>3</sup> CEILING (as Mn)	0.2 mg/m <sup>3</sup> TWA (as Mn)
Zinc	15.0 mg/m <sup>3</sup> TWA (Total dust as particulates not otherwise regulated) 5.0 mg/m <sup>3</sup> TWA (Respirable fraction as particulates not otherwise regulated)	10.0 mg/m <sup>3</sup> TWA (Inhalable particulate) 3.0 mg/m <sup>3</sup> TWA (Respirable particulate)
Zinc Chloride	1.0 mg/m <sup>3</sup> TWA (Fume)	1.0 mg/m <sup>3</sup> TWA (Fume) 2.0 mg/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 preparation is classified Xi, N R38-43 according to the CE directive, May cause sensitization by skin contact 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.



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### 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 inert 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.



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### 9. Physical and chemical properties

Color	Any colors
Vapor pressure	not 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	not determined
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.



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### 14. Transport Information

This production is not hazardous under the applicable dot icao/iata, or IMDG regulation.

Zinc chloride batteries comply with Special Provisions A123 under the IATA.

### 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 Conrad Electronic SE. 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.