

## PRIMARY Zinc-Chloride batteries

### 1. Identification of the substance/mixture and of the company/undertaking

**Product names:** KODAK Zinc Chloride Battery types;

**SUPER HEAVY DUTY/ EXTRA HEAVY DUTY:** AA, AAA, C, D and 9V

**HEAVY DUTY:** AA, AAA, C, D and 9V

**Supplier:** Strand Europe Ltd., Strand House, Galway Road, Yateley, Hampshire, GU46 6GE, United Kingdom

For Hazardous Materials [or Dangerous Goods] Incident  
Spill, Leak, Fire, Exposure, or Accident  
Call CHEMTREC Day or Night  
1-800-424-9300 / +1 703-527-3887 CCN696626

For other information or to request an MSDS, contact;

Kodak Batteries - Technology Department  
Tel. +44 (0) 1252 864520  
Email: [kodakbatteries@strandeurope.com](mailto:kodakbatteries@strandeurope.com)

**Synonyms:** None.

**Product Use:** Battery, for consumer and industrial use.

### PRIMARY Zinc-Chloride batteries

## 2. Hazards identification

Classification of the chemical in accordance with paragraph (d) of 29 CFR 1910.1200 :

Components	Hazard Class	Hazard Category	Hazard Statement codes	Route of exposure
Manganese dioxide	Acute Toxicity	Category 4	H302 H332	Harmful if swallowed Harmful if inhaled
Zinc	Hazardous to the aquatic environment, Short term (Acute)	Acute 1 Chronic 1	H400 H410	Very toxic to aquatic life Very toxic to aquatic life with long lasting effects
Zinc Chloride	Acute Toxicity Skin corrosion/Irritation	Category 4 Category 1A, 1B, 1C	H302 H314	Harmful if swallowed Causes severe skin burns/eye damage
	Hazardous to the aquatic environment (Acute)	Category 1	H400	Very Toxic to aquatic life
	Hazardous to the aquatic environment (Chronic)	Category 1	H410	Very Toxic to aquatic life With long lasting effects
Carbon	Serious eye damage/ eye irritation STOT SE	Category 2	H319	Causes Serious eye irritation. May cause respiratory irritation.
		Category 3	H335	
Ammonium chloride	Acute Toxicity Serious eye damage/ eye irritation	Category 4 Category 2	H302 H319	Harmful if swallowed Causes Serious eye irritation.

### GHS-Labeling

**CONTAINS:** Manganese dioxide (1313-13-9), Zinc (7440-66-6), Carbon (7440-44-0), Zinc chloride (ZnCl<sub>2</sub>) (7646-85-7), Ammonium chloride ((NH<sub>4</sub>)Cl) (12125-02-9).



**Signal Word :** Warning

#### PRIMARY Zinc-Chloride batteries

##### **Hazard Statements:**

Harmful if swallowed, harmful if inhaled, causes serious eye irritation, may cause respiratory irritation, causes severe skin burns/eye damage, very toxic to aquatic life, very toxic to aquatic life with long lasting effects.

##### **Precautionary statements:**

**Prevention:** If battery has been damaged, do not breathe fumes or vapours. Do not get battery contents in eyes, on skin, on clothing. wear impervious gloves.

**Response:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician. IF SWALLOWED: All batteries may be harmful if swallowed. Call a physician/ doctor or POISON CENTER immediately for any actual or suspected ingestion. If swallowed, DO NOT induce vomiting. Batteries may lodge in the throat or digestive tract and fragment. If battery was leaking or was chewed, rinse mouth thoroughly with water. IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell. If skin irritation occurs: Get medical advice/ Attention. Remove/ Take off immediately all contaminated clothing and wash it before reuse. IF exposed or concerned. Get medical advice/ Attention.

**Storage:** Keep in a dry, cool place. Keep away from direct sunlight and sources of heat. Do not freeze. Keep away from water. Do not short circuit.

**Disposal:** Dispose of batteries in accordance with local/regional/national/International regulation.

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### 3. Composition/information on ingredients

Weight percent %	Components	CAS-No
25 - 30	Manganese dioxide	1313-13-9
25 - 30	Zinc	7440-66-6
5 - 10	Carbon	7440-44-0
> 7	Zinc chloride	7646-85-7
> 7	Ammonium chloride	12125-02-9

Weight percent listed is based on approximate percent of the average weight of the battery.

The components in this section may only represent a hazard if the integrity of the battery is compromised.

### 4. First aid measures

The routine handling and use of intact, non-damaged batteries is not expected to result in situations that require first-aid measures. If battery is damaged due to opening, cutting, crushing, overheating, improper installation, exposure to fire or high temperatures, or recharging, battery contents may be released.

**Inhalation:** If vapours or fumes from vented or leaking battery are irritating to respiratory tract, move to fresh air. Get medical attention if symptoms occur.

**Eyes:** In case of contact with battery contents (liquid or metal), immediately flush with plenty of water for at least 15 minutes. Get medical attention immediately.

**Skin:** In case of contact with battery contents (liquid or metal), immediately remove metal fragments and flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes. Get medical attention immediately.

**Ingestion:** All batteries may be harmful if swallowed. Call a physician or poison control center immediately for any actual or suspected ingestion. If swallowed, DO NOT induce vomiting. Batteries may lodge in the throat or digestive tract and fragment. If battery was leaking or was chewed, rinse mouth thoroughly with water.

#### Notes to physician:

**Hazards:** Battery ingestions should not be managed in the same way as other small metallic object ingestions, e.g., coins. The position and integrity of the battery in the gastrointestinal tract should be assessed and monitored by x-ray. Leaking batteries may cause necrosis and tissue damage. Larger batteries or batteries that lodge in the gastrointestinal tract may have to be removed endoscopically or surgically.

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#### 5. Fire-fighting measures

**Extinguishing Media:** Flood with water. Do not use carbon dioxide or Halon type extinguisher. Use caution during water application as burning pieces of lithium may be ejected from fire.

**Special Fire-Fighting Procedures:** Wear self-contained breathing apparatus and protective clothing. Fire or excessive heat may produce hazardous decomposition products.

**Hazardous Combustion Products:** oxides of zinc, oxides of manganese, Carbon oxides, (see also Hazardous Decomposition Products sections.)

**Unusual Fire and Explosion Hazards:** Fire or high temperatures may cause battery to flame or leak flammable and hazardous vapours. Damaged or opened batteries can result in rapid heating and the release of flammable and hazardous vapours.

#### 6. Accidental release measures

Dispose of in accordance with local regulations (see Section 13. Disposal considerations).

**For Large Spills:** None should be needed.

#### 7. Handling and storage

**Personal precautions:** If battery has been damaged, do not breathe fumes or vapours. Do not get battery contents in eyes, on skin, on clothing. Wash thoroughly after handling.

**Prevention of Fire and Explosion:** DO NOT DISASSEMBLE. Keep away from heat and flame. Do not short circuit. Avoid the use of old and new batteries or batteries of varying sizes and types in the same battery assembly. The batteries electrical characteristics and capabilities may vary and damage may result to the batteries or electrical equipment. DO NOT RECHARGE. Charging may result in electrolyte leakage, explosion and/or cause the battery to flame. Avoid reversing polarity within a device or a battery assembly. To do so may cause leakage, explosion, and/or flame.

**Storage:** Do not store in a manner that allows terminals to short circuit. Keep in a dry, cool place. Keep away from direct sunlight. Storage above 21°C (70°F) may affect product quality. Do not freeze. Keep away from water. Short circuiting may reduce battery service life. Extended short circuiting creates high temperatures in the battery. High temperatures can cause leakage, explosion, and/or flame. Keep away from incompatible substances (see Incompatibility section.)

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#### 8. Exposure controls/personal protection

##### Occupational exposure controls

Chemical Name	Regulatory List	Value Type	Value
Manganese dioxide	ACGIH	Time weighted average	0.2 mg/m <sup>3</sup> <i>Expressed as Mn</i>
	OSHA	Ceiling Limit Value	5 mg/m <sup>3</sup> <i>Expressed as Mn</i>
	NIOSH	Time weighted average	1 mg/m <sup>3</sup> (ST) 3 mg/m <sup>3</sup>
	CAL/OSHA	Time weighted average	0.02 mg/m <sup>3</sup> (resp.) 0.1 mg/m <sup>3</sup> (IHL)
Zinc chloride	ACGIH	Time weighted average	1 mg/m <sup>3</sup> (ST) 2 mg/m <sup>3</sup>
	NIOSH	Time weighted average	1 mg/m <sup>3</sup> (ST) 2 mg/m <sup>3</sup>
	CAL/ OSHA	Time weighted average	1 mg/m <sup>3</sup> (ST) 2 mg/m <sup>3</sup>
Ammonium chloride (NH <sub>4</sub> ) Cl	ACGIH	Time weighted average	10 mg/m <sup>3</sup> <i>Expressed as Mn</i>
	ACGIH	Short term exposure limit	20 mg/m <sup>3</sup> as fume
	NIOSH	Time weighted average	10 mg/m <sup>3</sup>

Abbreviations:

ST = Short Term Exposure Limit

IHL = Inhalable

**Ventilation:** Supplemental ventilation may be needed in special circumstances to control fumes/vapours to an acceptable level.

**Respiratory protection:** None should be needed.

**Eye protection:** When handling a damaged battery, wear safety glasses with side shields (or goggles).

**Hand protection:** When handling a damaged battery, wear impervious gloves.

#### 9. Physical and chemical properties

**Physical form:** solid

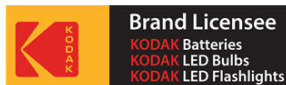
**Colour:** not applicable

**Odour:** odourless

**Specific gravity:** not applicable

**Vapour pressure:** negligible

**Vapour density:** not applicable



#### PRIMARY Zinc-Chloride batteries

**Volatile fraction by weight:** not applicable

**Melting point/range:** not applicable

**Water solubility:** insoluble

**pH:** not applicable

**Flash point:** not applicable

#### 10. Stability and reactivity

**Stability:** Stable under normal conditions.

**Incompatibility:** Water.

**Hazardous decomposition products:** None under normal conditions of use.

**Hazardous Polymerization:** Hazardous polymerization does not occur.

#### 11. Toxicological information

##### Effects of Exposure

**General advice:** Since the materials in this battery are sealed in the battery case, the potential for exposure to the components of the battery is negligible when the battery is used as directed. However, technical or electrical abuse of the battery may result in the release of battery contents.

Contains: Manganese dioxide. Can cause nervous system damage.

**Inhalation:** Intact battery: Expected to be a low hazard for recommended handling. Damaged battery: Harmful if inhaled. May cause irritation to the mucous membranes and upper respiratory tract.

**Eyes:** Intact battery: Expected to be a low hazard for recommended handling. Damaged battery: Contact with electrolyte (liquid) causes burns. Airborne dust/mist/vapor irritating. Contact with metal fragments may cause burns or mechanical injury.

**Skin:** Intact battery: Expected to be a low hazard for recommended handling. Damaged battery: Contact with electrolyte (liquid) causes burns. Contact with metal fragments may cause burns or mechanical injury. Harmful if absorbed through skin. Vapors or fumes may cause irritation.

**Ingestion:** All batteries may be harmful if swallowed. May cause burns of the gastrointestinal tract if swallowed.

##### Data for Manganese dioxide (CAS 1313-13-9):

##### Acute Toxicity Data:

Oral LD50 (rat): > 3,478 mg/kg

##### Data for Carbon (CAS 7440-44-0):

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**Acute Toxicity Data:**

Oral LD50 (rat): > 10,000 mg/kg

**Data for Zinc chloride (ZnCl<sub>2</sub>) (CAS 7646-85-7):****Acute Toxicity Data:**

Oral LD50 (rat): 350 mg/kg

**Data for Ammonium chloride ((NH<sub>4</sub>) Cl) (CAS 12125-02-9):**

Oral LD50 (rat): 1,650 mg/kg

ATE US (oral) 1650.000 mg/kg body weight

**Acute Toxicity Data:**

Oral LD50 (rat): 1,410 mg/kg

- Skin irritation: none
- Eye irritation: Irritating to eyes.

#### 12. Ecological information

This material is not expected to be harmful to aquatic life.

#### 13. Disposal considerations

DO NOT INCINERATE or expose to fire. Discharge, treatment, or disposal may be subject to federal, state, commonwealth, provincial, or local laws.

#### 14. Transport information

These batteries are not regulated by international agencies as hazardous materials or dangerous goods when shipped. IATA Dangerous Goods Regulations and ICAO require the words "Not restricted" A shipping name of "Zinc-Chloride Batteries – Non-hazardous" may be used on all domestic and international bills of lading.

Kodak batteries follow the regulatory concerns on batteries from all agencies for safe packaging which require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents.

These batteries are not regulated by international agencies as hazardous materials or dangerous goods when shipped under IATA Dangerous Goods Regulations, ICAO Technical Instructions, IMDG Code, UN Model Regulations, U.S. Hazardous Materials Regulations (49 CFR), and UNECE ADR

UN Identification Number	None - Not Required
Air Transport (IATA/ICAO) SP	Special Provision A123 (60th Edition - 2019). NOTE: The words "NOT RESTRICTED" and "SPECIAL PROVISION A123" must be included on the description in the Air Waybill.
US DOT SP	49 CFR 172.102 Special Provision 130



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**15. Regulatory information**

**Notification status**

Regulatory List	Notification status
TSCA	All listed
DSL	All listed
NDSL	None listed
EINECS	All listed
ELINCS	None listed
NLP	None listed
AICS	All listed
IECS	All listed
ENCS	Not all listed
ECI	All listed
NZIoC	All listed
PICCS	All listed

"Not all listed" indicates one or more component is either not on the public Inventory or is subject to exemption requirements. If additional information is needed contact Strand Europe.

**Other regulations**

American Conference of Governmental Industrial Hygienists (ACGIH):	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
International Agency for Research on Cancer (IARC):	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
U.S. National Toxicology Program (NTP):	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
U.S. Occupational Safety and Health Administration (OSHA):	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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California Prop. 65	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
U.S. - CERCLA/SARA (40 CFR § 302.4 Designation of hazardous substances):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Zinc, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - CERCLA/SARA - Section 302 (40 CFR § 355 Appendices A and B - The List of Extremely Hazardous Substances and Their Threshold Planning Quantities):	No components of this product are subject to the SARA Section 302 (40 CFR 355) reporting requirements.
U.S. - CERCLA/SARA - Section 313 (40 CFR § 372.65 Toxic Chemical Release Reporting):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Manganese dioxide, Zinc, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances:	Ammonium chloride ((NH <sub>4</sub> ) Cl), Manganese dioxide, Zinc, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - California - 8 CCR Section 5200-5220 - Specifically Regulated Carcinogens:	No components found on the California Specifically Regulated Carcinogens List.
U.S. - California - 8 CCR Section 5203 Carcinogens:	No components found on the California Section 5203 Carcinogens List.
U.S. - California - 8 CCR Section 5209 Carcinogens:	No components found on the California Section 5209 Carcinogens List.
U.S. - Massachusetts - General Law Chapter 111F (MGL c 111F) - Hazardous Substances Disclosure by Employers (a.k.a. Right to Know Law):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Zinc, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - Minnesota Employee Right-to-Know (5206.0400, Subpart 5. List of Hazardous Substances):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Manganese dioxide, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - New Jersey - Worker and Community Right to Know Act (N.J.S.A. 34:5A-1):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Manganese dioxide, Zinc, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - Pennsylvania - Part XIII. Worker and Community Right-to-Know Act (Chapters 301-323):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Manganese dioxide, Carbon, Zinc, Zinc chloride (ZnCl <sub>2</sub> )
U.S. - Rhode Island - Title 28 Labor and Labor Relations (Chapters 28-21 Hazardous Substance Right-to-Know Act):	Ammonium chloride ((NH <sub>4</sub> ) Cl), Carbon, Zinc, Zinc chloride (ZnCl <sub>2</sub> )

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#### 16. Other information

##### GHS-Labeling

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**Signal Word :** Warning

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#### PRIMARY Zinc-Chloride batteries

**Storage:** Keep in a dry, cool place. Keep away from direct sunlight and sources of heat. Do not freeze. Keep away from water. Do not short circuit.

**Disposal :** Dispose of batteries in accordance with local/regional/national/International regulation.

The data below reflects current legislative requirements whereas the product in your possession may carry a different version of the label depending on the date of manufacture.

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The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment. The information relating to the working solution is for guidance purposes only and is based on correct mixing and use of the product according to instructions.

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