

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 02/04/2025 Version: 4.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Article
Product name : KODAK Zinc Chloride Battery types: SUPER HEAVY DUTY/ EXTRA HEAVY DUTY/
HEAVY DUTY: AA, AAA, C, D, 4R25 and 9V; HEAVY DUTY: AA, AAA, C, D and 9V SDS

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Consumer use
Industrial/Professional use spec : Industrial
For professional use only
Use of the substance/mixture : Other batteries and accumulators

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Strand Europe Ltd
One Fleet,
Ancells Road,
Fleet,
Hampshire,
GU51 2UN
United Kingdom
T +44 (0) 1252 861000
sales@strandeurope.com

1.4. Emergency telephone number

Emergency number : 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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Acute toxicity (inhalation:dust,mist) Category 4	H332
Skin corrosion/irritation, Category 1, Sub-Category 1B	H314
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Specific target organ toxicity – Repeated exposure, Category 2	H373
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Carbon (c) Graphite substance with national workplace exposure limit(s) (GB)	CAS-No.: 7440-44-0 EC-No.: 231-153-3	5 – 10	Eye Irrit. 2, H319 STOT SE 3, H335
zinc chloride substance with national workplace exposure limit(s) (GB)	CAS-No.: 7646-85-7 EC-No.: 231-592-0 EC Index-No.: 030-003-00-2 REACH-no: 01-2119472431-44	≥ 5	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Carbon black substance with national workplace exposure limit(s) (GB)	CAS-No.: 1333-86-4 EC-No.: 215-609-9 REACH-no: 01-2119384822-32-XXXX	≥ 5	STOT RE 1, H372

Specific concentration limits:		
Name	Product identifier	Specific concentration limits
zinc chloride	CAS-No.: 7646-85-7 EC-No.: 231-592-0 EC Index-No.: 030-003-00-2 REACH-no: 01-2119472431-44	(5 ≤C < 100) STOT SE 3, H335

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. Immediately call a POISON CENTRE or doctor/physician.
First-aid measures after skin contact	: Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTRE or doctor/physician.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER/doctor if you feel unwell. Immediately call a POISON CENTRE or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects	: Causes severe skin burns and eye damage. Causes damage to organs.
Symptoms/effects after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after ingestion	: Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

SECTION 5: Firefighting measures

5.1. Extinguishing media

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| Suitable extinguishing media | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

- | | |
|--------------------------------|--|
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid fire-fighting water entering the environment. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

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|----------------------|-----------------------------------|
| Emergency procedures | : Evacuate unnecessary personnel. |
|----------------------|-----------------------------------|

6.1.2. For emergency responders

- | | |
|----------------------|--|
| Protective equipment | : Equip cleanup crew with proper protection. |
| Emergency procedures | : Ventilate area. |

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- | | |
|-------------------------|--|
| Methods for cleaning up | : On land, sweep or shovel into suitable containers. Minimise generation of dust. Store away from other materials. |
|-------------------------|--|

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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|-------------------------------|---|
| Precautions for safe handling | : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not breathe dust/fume/gas/mist/vapours/spray. |
| Hygiene measures | : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. |

7.2. Conditions for safe storage, including any incompatibilities

- | | |
|------------------------|---|
| Technical measures | : Comply with applicable regulations. |
| Storage conditions | : Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed. |
| Incompatible products | : Strong bases. Strong acids. |
| Incompatible materials | : Sources of ignition. Direct sunlight. |

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

manganese dioxide (1313-13-9)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	0.2 mg/m ³
Carbon (c) Graphite (7440-44-0)	
United Kingdom - Occupational Exposure Limits	
Local name	Graphite
WEL TWA (OEL TWA) [1]	4 mg/m ³ respirable 10 mg/m ³ inhalable dust
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
zinc chloride (7646-85-7)	
United Kingdom - Occupational Exposure Limits	
Local name	Zinc chloride
WEL TWA (OEL TWA) [1]	1 mg/m ³ fume
WEL STEL (OEL STEL)	2 mg/m ³ fume
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
ammonium chloride (12125-02-9)	
United Kingdom - Occupational Exposure Limits	
Local name	Ammonium chloride
WEL TWA (OEL TWA) [1]	10 mg/m ³ fume
WEL STEL (OEL STEL)	20 mg/m ³ fume
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Carbon black (1333-86-4)	
United Kingdom - Occupational Exposure Limits	
Local name	Carbon black
WEL TWA (OEL TWA) [1]	3.5 mg/m ³
WEL STEL (OEL STEL)	7 mg/m ³
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No additional information available

8.2.2. Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Chemical goggles or face shield

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Wear protective gloves.

8.2.2.3. Respiratory protection

Respiratory protection:

Wear appropriate mask

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Colourless.
Odour	: characteristic.
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Non flammable.
Explosive limits	: Not applicable
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Flash point	: Not applicable

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not available
pH	: Not available
pH solution	: Not available
Viscosity, kinematic	: Not applicable
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not applicable
Particle size	: Not available
Particle size distribution	: Not available
Particle shape	: Not available
Particle aspect ratio	: Not available
Particle aggregation state	: Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Fume. Carbon monoxide. Carbon dioxide. Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Acute toxicity (inhalation) : Harmful if inhaled.

KODAK Zinc Chloride Battery types: SUPER HEAVY DUTY/ EXTRA HEAVY DUTY: AA, AAA, C, D, 4R25 and 9V; HEAVY DUTY: AA, AAA, C, D and 9V

ATE CLP (oral) 1341.034 mg/kg bodyweight

ATE CLP (dust,mist) 5 mg/l/4h

manganese dioxide (1313-13-9)

LD50 oral > 2197 mg/kg bodyweight

LD50 dermal 2000 mg/kg bodyweight

LC50 Inhalation - Rat (Dust/Mist) > 1500 mg/l

Zinc (7440-66-6)

LD50 oral rat > 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)

LC50 Inhalation - Rat > 5.41 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

Carbon (c) Graphite (7440-44-0)

LD50 oral rat ≥ 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 tris (Acute Oral Toxicity - Acute Toxic Class Method)

zinc chloride (7646-85-7)

LD50 oral 1100 mg/kg bodyweight

LC50 Inhalation - Rat (Dust/Mist) > 600 mg/l

ammonium chloride (12125-02-9)

LD50 oral 1410 mg/kg bodyweight

LD50 dermal > 2000 mg/kg bodyweight

Carbon black (1333-86-4)

LD50 oral rat > 8000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)

Skin corrosion/irritation : Causes severe skin burns.
 Serious eye damage/irritation : Assumed to cause serious eye damage
 Respiratory or skin sensitisation : Not classified
 Additional information : Based on available data, the classification criteria are not met
 Germ cell mutagenicity : Not classified
 Additional information : Based on available data, the classification criteria are not met
 Carcinogenicity : Not classified
 Additional information : Based on available data, the classification criteria are not met

Carbon black (1333-86-4)

IARC group 2B - Possibly carcinogenic to humans

Reproductive toxicity : Not classified
 Additional information : Based on available data, the classification criteria are not met

Carbon (c) Graphite (7440-44-0)

NOAEL (animal/male, F0/P) ≥ 859 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

STOT-single exposure : May cause respiratory irritation.

Carbon (c) Graphite (7440-44-0)

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

Zinc (7440-66-6)

NOAEL (oral, rat, 90 days) : 31.52 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Carbon black (1333-86-4)

LOAEC (inhalation, rat,dust/mist/fume, 90 days) : 0.0071 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

NOAEC (inhalation, rat, dust/mist/fume, 90 days) : 0.0011 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Additional information : Based on available data, the classification criteria are not met

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

Potential adverse human health effects and symptoms : Harmful if swallowed,Harmful if inhaled.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Very toxic to aquatic life with long lasting effects.

manganese dioxide (1313-13-9)

LC50 - Fish [1] : 100 mg/l

EC50 - Other aquatic organisms [1] : 100 mg/l waterflea

zinc chloride (7646-85-7)

EC50 - Other aquatic organisms [1] : 0.67 mg/l waterflea

EC50 - Other aquatic organisms [2] : 0.027 mg/l

ammonium chloride (12125-02-9)

LC50 - Fish [1] : 123.8 mg/l

EC50 - Other aquatic organisms [1] : 0.39 mg/l waterflea

EC50 - Other aquatic organisms [2] : 7.16 mg/l

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Carbon black (1333-86-4)

EC50 72h - Algae [1]	> 10000 mg/l Test organisms (species): Desmodemus subspicatus (previous name: Scenedesmus subspicatus)
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12.2. Persistence and degradability

KODAK Zinc Chloride Battery types: SUPER HEAVY DUTY/ EXTRA HEAVY DUTY: AA, AAA, C, D,4R25 and 9V; HEAVY DUTY: AA, AAA, C, D and 9V

Persistence and degradability	May cause long-term adverse effects in the environment.
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12.3. Bioaccumulative potential

KODAK Zinc Chloride Battery types: SUPER HEAVY DUTY/ EXTRA HEAVY DUTY: AA, AAA, C, D,4R25 and 9V; HEAVY DUTY: AA, AAA, C, D and 9V

Bioaccumulative potential	Not established.
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ammonium chloride (12125-02-9)

Partition coefficient n-octanol/water (Log Pow)	-4.37
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Zinc-Chloride Batteries

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

ADR	IMDG	IATA	ADN	RID
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

Inland waterway transport

Not applicable

Rail transport

Not applicable

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no substance(s) listed on the REACH Candidate List

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

Zinc-Chloride Batteries

Safety Data Sheet

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SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.