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SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Version 8.5 Revision Date 07.04.2025 Print Date 08.04.2025 GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1	Product identifiers		
	Product name	:	Zinc

:	209988
:	Aldrich
:	030-001-01-9
:	01-2119467174-37-XXXX
:	7440-66-6
	:

- 1.2 Relevant identified uses of the substance or mixture and uses advised against Identified uses : Laboratory chemicals, Manufacture of substances
- 1.3 Details of the supplier of the safety data sheet Company :
- 1.4 Emergency telephone

Emergency Phone #	:	+(44)-870-8200418 (CHEMTREC (GB))
		+(353)-19014670 (CHEMTREC Ireland)
		001-803-017-9114 (CHEMTREC India)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture Short-term (acute) aquatic H400: Very toxic to aquatic life. hazard, (Category 1) Long-term (chronic) aquatic H410: Very toxic to aquatic life with long hazard, (Category 1) lasting effects.

2.2 Label elements

Signal Word

Labelling according Regulation (EC) No 1272/2008 Pictogram

×

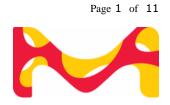
Warning

Hazard Statements H410

Very toxic to aquatic life with long lasting effects.

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Precautionary Statements	Avoid release to the environment.
P273	Collect spillage.
P391	Dispose of contents/ container to an approved waste disposal
P501	plant.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram

×

Signal WordWarningHazard StatementsnonePrecautionary StatementsnoneSupplemental HazardnoneStatementsStatements

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. May form explosible dust-air mixture if dispersed.

SECTION 3: Composition/information on ingredients

3.1 Substances Formula Zn Molecular weight 65.39 g/mol : 7440-66-6 CAS-No. EC-No. : 231-175-3 Index-No. : 030-001-01-9 Component Classification Concentration zinc powder, zinc dust stabilized CAS-No. 7440-66-6 Aquatic Acute 1; Aquatic <= 100 % EC-No. 231-175-3 Chronic 1; H400, H410 Index-No. 030-001-01-9 M-Factor - Aquatic Acute: 1 M-Factor - Aquatic Chronic: 1

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Zinc oxide			
CAS-No. EC-No. Index-No.	1314-13-2 215-222-5 030-013-00-7	Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 1 M-Factor - Aquatic Chronic: 1	>= 2.5 - < 10 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Zinc/zinc oxides Combustible. Risk of dust explosion. Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions Do not let product enter drains.

- **6.3 Methods and materials for containment and cleaning up** Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.
- **6.4 Reference to other sections** For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry.

Handle and store under inert gas. Air and moisture sensitive.

Storage class

Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Respiratory protection

required when dusts are generated.

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Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type P1

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

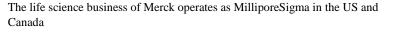
Do not let product enter drains.

SECTION 9: Physical and chemical properties 9.1 Information on basic physical and chemical properties

a)	Physical state	Dust
b)	Color	dark gray
c)	Odor	odorless
d)	Melting point/freezing point	Melting point/ range: 420 °C - lit.
e)	Initial boiling point and boiling range	907 °C - lit.
f)	Flammability (solid, gas)	May form combustible dust concentrations in air.
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	Not applicable
i)	Autoignition temperature	does not ignite
j)	Decomposition temperature	No data available
k)	рН	Not applicable
I)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: > 500 mPa.s at 417 °C
m)	Water solubility	0.0001 g/l at 20 °C - OECD Test Guideline 105- slightly soluble
n)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
o)	Vapor pressure	1.33 hPa at 487 °C
p)	Density	7.133 g/cm3 at 25 °C - lit.
	Relative density	6.9 at 22 °C
q)	Relative vapor density	
r)	Particle characteristics	No data available

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- s) Explosive properties No data available
- t) Oxidizing properties none
- 9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) . Contains the following stabilizer(s): Zinc oxide ($\langle = 33 \rangle$)

- **10.3 Possibility of hazardous reactions** No data available
- **10.4 Conditions to avoid** no information available
- **10.5 Incompatible materials** No data available
- **10.6 Hazardous decomposition products** In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 2,000 mg/kg (zinc powder, zinc dust stabilized) (OECD Test Guideline 401) LC50 Inhalation - Rat - male and female - 4 h - > 5.41 mg/l - dust/mist (zinc powder, zinc dust stabilized) (OECD Test Guideline 403) Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit (zinc powder, zinc dust stabilized)
Result: No skin irritation - 5 d
Remarks: (in analogy to similar products)
(ECHA)
The value is given in analogy to the following substances: Zinc oxide

Serious eye damage/eye irritation

Eyes - Rabbit (zinc powder, zinc dust stabilized) Result: No eye irritation - 24 h (OECD Test Guideline 405)

Respiratory or skin sensitization Maximization Test - Guinea pig (zinc powder, zinc dust stabilized) Result: negative (OECD Test Guideline 406) Remarks: (in analogy to similar products)

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The value is given in analogy to the following substances: Zinc oxide

Germ cell mutagenicity

Test Type: Ames test (zinc powder, zinc dust stabilized) Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Remarks: (in analogy to similar products) The value is given in analogy to the following substances: Zinc sulphateTest Type: In vitro mammalian cell gene mutation test (zinc powder, zinc dust stabilized) Test system: mouse lymphoma cells Metabolic activation: without metabolic activation **Result:** negative Remarks: (in analogy to similar products) (ECHA) The value is given in analogy to the following substances: zinc chlorideTest Type: Chromosome aberration test in vitro (zinc powder, zinc dust stabilized) Test system: Other cell types Metabolic activation: with and without metabolic activation Result: negative Remarks: (in analogy to similar products) (ECHA) The value is given in analogy to the following substances: zinc chloride (zinc powder, zinc dust stabilized) Test Type: Micronucleus test Species: Mouse Cell type: Red blood cells (erythrocytes) Application Route: Intraperitoneal

Result: negative Remarks: (in analogy to similar products) (ECHA) The value is given in analogy to the following substances: Zinc sulphate

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure No data available

Specific target organ toxicity - repeated exposure No data available

Aspiration hazard No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment

The substance/mixture does not contain components considered to have endocrine

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disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 31.52 mg/kg - LOAEL (Lowest observed adverse effect level) - 53.8 mg/kg

(zinc powder, zinc dust stabilized)

RTECS: ZG8600000

Effects due to ingestion may include:, chills, dry throat, sweet taste, Fever, Cough, Nausea, Vomiting, Weakness, Contact with eyes or skin may cause:, Irritation (zinc powder, zinc dust stabilized)

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (zinc powder, zinc dust stabilized)

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - other fish - 0.439 mg/l - 96 h (zinc powder, zinc dust stabilized) Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Ceriodaphnia dubia (water flea) - 0.155 mg/l - 48 h (zinc powder, zinc dust stabilized) (US-EPA)
Toxicity to algae	static test NOEC - Pseudokirchneriella subcapitata (green algae) - 0.05 mg/l - 3 d (zinc powder, zinc dust stabilized) (OECD Test Guideline 201)
Toxicity to bacteria	static test NOEC - activated sludge - 0.1 mg/l - 4 h (zinc powder, zinc dust stabilized) (ISO 9509) Remarks: (in analogy to similar products)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - other fish - 0.169 mg/l - 30 d (zinc powder, zinc dust stabilized) Remarks: (ECHA)
Toxicity to daphnia	semi-static test NOEC - Daphnia magna (Water flea) - 0.100 mg/l -

3 Weeks (zinc powder, zinc dust stabilized) and other aquatic invertebrates(Chronic Remarks: (ECHA) toxicity)

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Substance is not persistent, bioaccumulative, and toxic (PBT).

12.4 Mobility in soil

No data available

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12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties <u>Product:</u>

Assessment

: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods No data available

SECTION 14: Transport information				
14.1 UN number ADR/RID: 3	-	IMDG: 3077	IATA: 3077	
 14.2 UN proper shipping name ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc powder, zinc dust stabilized, Zinc oxide) IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc powder, zinc dust stabilized, Zinc oxide) IATA: Environmentally hazardous substance, solid, n.o.s. (zinc powder, zinc dust stabilized, Zinc oxide) 				
14.3 Transport hazard class(es) ADR/RID: 9IMDG: 9IATA: 9				
14.4 Packaging ADR/RID: II		IMDG: III	IATA: III	
14.5 Environme ADR/RID: y		IMDG Marine pollutant: yes	IATA: yes	
14.6 Special pre	ecautions for user	-		

14.6 Special precautions for user

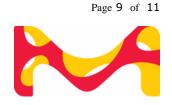
Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

14.7 Maritime transport in bulk according to IMO instruments Not applicable for product as supplied.

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SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

National legislation

Seveso III: Directive 2012/18/EU of the	E1	ENVIRONMENTAL HAZARDS
European Parliament and of the Council		
on the control of major-accident hazards		
involving dangerous substances.		
	E1	ENVIRONMENTAL HAZARDS

Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.



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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM -American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS -Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx -Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. -Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIOC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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