

SAFETY DATA SHEET

Version 6.12
Revision Date 02/16/2022
Print Date 10/08/2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifiers**

Product name : Zinc

Product Number : 209988
Brand : Aldrich
Index-No. : 030-001-01-9
CAS-No. : 7440-66-6

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-
527-3887 CHEMTREC (International) 24
Hours/day; 7 Days/week

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Combustible dust,
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

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

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H410 May form combustible dust concentrations in air.
Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273 Avoid release to the environment.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Combustible dust

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : Zn
Molecular weight : 65.39 g/mol
CAS-No. : 7440-66-6
EC-No. : 231-175-3
Index-No. : 030-001-01-9

Component	Classification	Concentration
zinc powder, zinc dust stabilized		
	Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 1 M-Factor - Aquatic Chronic: 1	<= 100 %
Zinc oxide		
	Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 1 M-Factor - Aquatic Chronic: 1	>= 1 - < 5 %

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

No data available

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

Special powder against metal fire Sand Cement

Unsuitable extinguishing media

Water Foam

5.2 Special hazards arising from the substance or mixture

Zinc/zinc oxides

Combustible.

5.3 Advice for firefighters

No data available

5.4 Further information

No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For personal protection see section 8.

6.2 Environmental precautions

No data available

6.3 Methods and materials for containment and cleaning up

No data available

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

Component	CAS-No.	Value	Control parameters	Basis
Zinc oxide	1314-13-2	TWA	2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		STEL	10 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	15 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	15 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		PEL	5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	10 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		TWA	10 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	10 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

8.2 Exposure controls

Personal protective equipment

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Control of environmental exposure

Prevent product from entering drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: Dust Color: dark gray
b) Odor	odorless
c) Odor Threshold	Not applicable
d) pH	Not applicable
e) Melting point/freezing point	Melting point/range: 420 °C (788 °F) - lit.
f) Initial boiling point and boiling range	907 °C 1665 °F - lit.
g) Flash point	()Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	May form combustible dust concentrations in air.
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	1.33 hPa at 487 °C (909 °F)
l) Vapor density	No data available
m) Density	7.133 g/cm ³ at 25 °C (77 °F) - lit.
Relative density	6.922 °C
n) Water solubility	0.0001 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - slightly soluble

- o) Partition coefficient: Not applicable for inorganic substances
n-octanol/water
- p) Autoignition temperature does not ignite
- q) Decomposition temperature No data available
- r) Viscosity No data available
- 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

No data available

10.2 Chemical stability

No data available

Contains the following stabilizer(s):

Zinc oxide ($\leq 33\%$)

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Acids and bases

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

Acute toxicity estimate Oral - 2,500 mg/kg

(Calculation method)

LD50 Oral - Rat - male and female - $> 2,000$ mg/kg (zinc powder, zinc dust stabilized)
(OECD Test Guideline 401)

Acute toxicity estimate Inhalation - 4 h - 5.41 mg/l - dust/mist (Calculation method)

LC50 Inhalation - Rat - male and female - 4 h - > 5.41 mg/l - dust/mist
(zinc powder, zinc dust stabilized)

(OECD Test Guideline 403)

Acute toxicity estimate Dermal - $> 5,000$ mg/kg
(Calculation method)

Dermal: No data available

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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)

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 sulphate
Test 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 chloride
Test 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

- IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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

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)

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

No data available

SECTION 14: Transport information

DOT (US)

UN number: 3077 Class: 9

Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (zinc powder, zinc dust stabilized, Zinc oxide)

Reportable Quantity (RQ): 1030 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 3077 Class: 9

Packing group: III

EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc powder, zinc dust stabilized, Zinc oxide)

Marine pollutant : yes

IATA

UN number: 3077 Class: 9

Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (zinc powder, zinc dust stabilized, Zinc oxide)

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.

SECTION 15: Regulatory information

SARA 302 Components

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This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
zinc powder, zinc dust stabilized	7440-66-6	1993-02-16
Zinc oxide	1314-13-2	2007-03-01

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

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