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
REACH No.: 01-2119467174-37-XXXX
CAS-No.: 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: 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
Classification according to Regulation (EC) No 1272/2008
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 Label elements
Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word: Warning
Hazard statement(s)
H410 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.

Supplemental Hazard Statements
none

Reduced Labeling (<= 125 ml)
Pictogram

Signal word Warning
Hazard statement(s) none
Precautionary statement(s) none
Supplemental Hazard Statements none

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.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>zinc powder, zinc dust stabilized</td>
<td>Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 1 M-Factor - Aquatic Chronic: 1</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7440-66-6</td>
<td></td>
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<tr>
<td>EC-No.</td>
<td>231-175-3</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>030-001-01-9</td>
<td></td>
</tr>
<tr>
<td>zinc oxide</td>
<td>Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 1 M-Factor - Aquatic Chronic: 1</td>
<td>&gt;= 2.5 - &lt; 10 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1314-13-2</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>215-222-5</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>030-013-00-7</td>
<td></td>
</tr>
</tbody>
</table>
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
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

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.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested:Dermatril® (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 - lit.
f) Initial boiling point and boiling range 907 °C - 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
l) Vapor density No data available
m) Density 7,133 g/cm³ at 25 °C - lit.
Relative density 6,9 at 22 °C
n) Water solubility 0,0001 g/l at 20 °C - OECD Test Guideline 105- slightly soluble
o) Partition coefficient: n-octanol/water Not applicable for inorganic substances
p) Autoignition temperature does not ignite
q) Decomposition temperature No data available
r) Viscosity Viscosity, kinematic: No data available
Viscosity, dynamic: > 500 mPa.s at 417 °C
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 (<=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
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)

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 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 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)

RTCECS: 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
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
Product:
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: 3077  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: 9  IMDG: 9  IATA: 9

14.4 Packaging group
ADR/RID: III  IMDG: III  IATA: III

14.5 Environmental hazards
ADR/RID: yes  IMDG Marine pollutant: yes  IATA: yes

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.

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.

National legislation

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 referred to under sections 2 and 3.
H400  Very toxic to aquatic life.
H410  Very toxic to aquatic life with long lasting effects.
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.
The life science business of Merck operates as MilliporeSigma in the US and Canada