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

1.1 Product identifiers
   Product name: Zinc
   Product Number: 324930
   Brand: Aldrich
   Index-No.: 030-001-00-1
   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

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>zinc powder, zinc dust stabilized</strong></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>
</tr>
<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>
</tbody>
</table>

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
Sand Special powder against metal fire Cement

Unsuitable extinguishing media
Foam Water

5.2 Special hazards arising from the substance or mixture
Zinc/zinc oxides
Combustible.
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.

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
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

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

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm  
Break through time: 480 min  
Material tested: KCL 741 Dermatril® L

**Respiratory protection**

required when dusts are generated.

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 entrepreneur 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) Appearance</strong></td>
<td>Form: powder</td>
</tr>
<tr>
<td></td>
<td>Color: metallic, gray</td>
</tr>
<tr>
<td><strong>b) Odor</strong></td>
<td>odorless</td>
</tr>
<tr>
<td><strong>c) Odor Threshold</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>d) pH</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>e) Melting point/freezing point</strong></td>
<td>Melting point/range: 420 °C - lit.</td>
</tr>
<tr>
<td><strong>f) Initial boiling point and boiling range</strong></td>
<td>907 °C - lit.</td>
</tr>
<tr>
<td><strong>g) Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>h) Evaporation rate</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>i) Flammability (solid, gas)</strong></td>
<td>May form combustible dust concentrations in air.</td>
</tr>
<tr>
<td><strong>j) Upper/lower flammability or explosive limits</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>k) Vapor pressure</strong></td>
<td>1,33 hPa at 487 °C</td>
</tr>
<tr>
<td><strong>l) Vapor density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>m) Density</strong></td>
<td>7,133 g/mL at 25 °C - lit.</td>
</tr>
<tr>
<td></td>
<td>Relative density at 22 °C: 6,9</td>
</tr>
<tr>
<td><strong>n) Water solubility</strong></td>
<td>0,0001 g/l at 20 °C - OECD Test Guideline 105- slightly soluble</td>
</tr>
<tr>
<td><strong>o) Partition coefficient: n-octanol/water</strong></td>
<td>Not applicable for inorganic substances</td>
</tr>
<tr>
<td><strong>p) Autoignition temperature</strong></td>
<td>does not ignite</td>
</tr>
<tr>
<td><strong>q) Decomposition</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>
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).

10.3 Possibility of hazardous reactions
Exothermic reaction with:
alkali hydroxides
Fluorine
carbon disulfide
halogen-halogen compounds
acids
alkalines
Chlorine
with Moisture.
Risk of explosion with:
ammonium compounds
azides
chlorates
metal catalysts
Nitric acid
hydroxylamine
hydrazine and derivatives
Halogenated hydrocarbon
Hydrogen
nitrates
Peroxides
cadmium
chromium(VI) oxide
peroxi compounds
Nitro compounds
performic acid
Oxidizing agents
sulfur
iodine
with
Water
Risk of ignition or formation of inflammable gases or vapours with:

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
The life science business of Merck operates as MilliporeSigma in the US and Canada

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
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - > 5,41 mg/l - dust/mist
(OECD Test Guideline 403)
Dermal: No data available

**Skin corrosion/irritation**
Skin - Rabbit
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
Result: No eye irritation - 24 h
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Maximization Test - Guinea pig
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
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
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
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
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

RTCS: ZG86000000

Effects due to ingestion may include:.; chills, dry throat, sweet taste, Fever, Cough, Nausea, Vomiting, Weakness, Contact with eyes or skin may cause:.; Irritation

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish
flow-through test LC50 - other fish - 0,439 mg/l - 96 h
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Ceriodaphnia dubia (water flea) - 0,155 mg/l - 48 h
(US-EPA)

Toxicity to algae
static test NOEC - Pseudokirchneriella subcapitata (green algae) - 0,05 mg/l - 3 d
(OECD Test Guideline 201)

Toxicity to bacteria
static test NOEC - activated sludge - 0,1 mg/l - 4 h
(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: 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

Product: See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.
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)  
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc powder, zinc dust stabilized)  
IATA: Environmentally hazardous substance, solid, n.o.s. (zinc powder, zinc dust stabilized)  

### 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**

**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 referred to under sections 2 and 3.**

<table>
<thead>
<tr>
<th>H400</th>
<th>Very toxic to aquatic life.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

**Relevant changes since previous version**
2. Hazards identification

---

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**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. 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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