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>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>
</tbody>
</table>

CAS-No.  
7440-66-6

EC-No.  
231-175-3

Index-No.  
030-001-01-9

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

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**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

- **a)** Appearance
  - Form: powder
  - Color: metallic, 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/mL 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
  - 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
   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
     - peroxy compounds
     - Nitro compounds
     - performic acid
     - Oxidizing agents
     - sulfur
     - iodine
     - with Water
   - Risk of ignition or formation of inflammable gases or vapours with:
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
The life science business of Merck operates as MilliporeSigma in the US and Canada.

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: 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

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
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
dynamic 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:
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

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

Relevant changes since previous version
2. Hazards identification
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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