

# SAFETY DATA SHEET

according to the OSHA  
Hazard Communication Standard

Version 6.12  
Revision Date 07/10/2026  
Print Date 07/11/2026

## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Zirconium

Product Number : 267724  
Brand : Aldrich  
CAS-No. : 7440-67-7

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

Identified uses : Laboratory chemicals, Synthesis of substances

Restrictions on use : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 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 number

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

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## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Flammable solids : Category 1

### Other hazards

None known.

### GHS label elements

Hazard pictograms

:



Signal word

: Danger

Hazard statements

: H228 Flammable solid.

Precautionary statements

: **Prevention:**

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting equipment.

P280 Wear protective gloves/ eye protection/ face protection.

**Response:**

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Substance

CAS-No.

: 7440-67-7

### Components

| Chemical name | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|---------------|-------------------|-----------------------|--------------|
| Zirconium     | 7440-67-7*        | >= 90 - <= 100        | -            |

\* Indicates that the identifier is a CAS No.

Actual concentration is withheld as a trade secret

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## SECTION 4. FIRST AID MEASURES

General advice

: Show this safety data sheet to the doctor in attendance.

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.                  |
| 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 |
| Protection of first-aiders                                  | : For personal protection see section 8.                                                                              |
| Notes to physician                                          | : No data available                                                                                                   |

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## SECTION 5. FIREFIGHTING MEASURES

|                                                |                                                                                                           |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Suitable extinguishing media                   | : Special powder against metal fire<br>Sand<br>Cement                                                     |
| Unsuitable extinguishing media                 | : Water<br>Foam                                                                                           |
| Specific hazards during fire fighting          | : Combustible.<br><br>Development of hazardous combustion gases or vapours possible in the event of fire. |
| Hazardous combustion products                  | : Zirconium oxides                                                                                        |
| Specific extinguishing methods                 | : No data available                                                                                       |
| Further information                            | : none                                                                                                    |
| Special protective equipment for fire-fighters | : In the event of fire, wear self-contained breathing apparatus.                                          |

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

|                                                                     |                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | : Advice for non-emergency personnel:<br>Avoid inhalation of dusts.<br>Avoid substance contact.<br>Ensure adequate ventilation.<br>Keep away from heat and sources of ignition.<br>Evacuate the danger area, observe emergency procedures, consult an expert.<br>Advice for emergency responders:<br>For personal protection see section 8. |
| Environmental precautions                                           | : Do not let product enter drains.<br>Risk of explosion.                                                                                                                                                                                                                                                                                    |
| Methods and materials for containment and cleaning up               | : Observe possible material restrictions (see sections 7 and 10).<br>Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.                                                                                                                                                                                   |

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

|                                                 |                                                                                                                              |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Advice on protection against fire and explosion | : Keep away from open flames, hot surfaces and sources of ignition.<br>Take precautionary measures against static discharge. |
| Further information on storage conditions       | : Tightly closed.<br>Keep away from heat and sources of ignition.                                                            |
| Storage class                                   | : 4.1B, Flammable solid hazardous materials                                                                                  |
| Recommended storage temperature                 | : Recommended storage temperature see product label.                                                                         |

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components | CAS-No.   | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis     |
|------------|-----------|-------------------------------|------------------------------------------------|-----------|
| Zirconium  | 7440-67-7 | TWA                           | 5 mg/m <sup>3</sup> (Zirconium)                | OSHA Z-1  |
|            |           | TWA                           | 5 mg/m <sup>3</sup> (Zirconium)                | NIOSH REL |
|            |           | ST                            | 10 mg/m <sup>3</sup>                           | NIOSH REL |

|  |  |      |                                     |       |
|--|--|------|-------------------------------------|-------|
|  |  |      | (Zirconium)                         |       |
|  |  | TWA  | 5 mg/m <sup>3</sup><br>(Zirconium)  | ACGIH |
|  |  | STEL | 10 mg/m <sup>3</sup><br>(Zirconium) | ACGIH |

**Engineering measures** : No data available

### Personal protective equipment

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.

### Hand protection

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Full contact  
Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Splash contact  
Manufacturer : KCL 741 Dermatril® L

Remarks : Handle with impervious gloves.  
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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

|                          |                                                                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye protection           | : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).<br>Safety glasses |
| Skin and body protection | : Flame retardant antistatic protective clothing.                                                                                                 |
| Hygiene measures         | : Change contaminated clothing. Wash hands after working with substance.                                                                          |

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                                     |                                                                                                                   |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Appearance                                          | : Rods                                                                                                            |
| Colour                                              | : grey, to, white                                                                                                 |
| Odour                                               | : odourless                                                                                                       |
| Odour Threshold                                     | : No data available                                                                                               |
| pH                                                  | : No data available                                                                                               |
| Melting point/ range                                | : 3,366 °F / 1,852 °C<br>Method: lit.                                                                             |
| Boiling point/boiling range                         | : 7,911 °F / 4,377 °C<br>Method: lit.                                                                             |
| Flash point                                         | : Not applicable                                                                                                  |
| Evaporation rate                                    | : No data available                                                                                               |
| Flammability (solid, gas)                           | : The substance or mixture is a flammable solid with the category 1.<br>Method: Flammability (solids)<br>GLP: yes |
| Burning rate                                        | : No data available                                                                                               |
| Self-ignition                                       | : 732 °F / 389 °C<br>Method: Regulation (EC) No. 440/2008, Annex, A.16<br>GLP: yes                                |
| Upper explosion limit /<br>Upper flammability limit | : No data available                                                                                               |
| Lower explosion limit /<br>Lower flammability limit | : No data available                                                                                               |

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|                                        |                                            |
|----------------------------------------|--------------------------------------------|
| Vapour pressure                        | : No data available                        |
| Relative vapour density                | : No data available                        |
| Relative density                       | : No data available                        |
| Density                                | : 6.5 g/mL (77 °F / 25 °C)<br>Method: lit. |
| Solubility(ies)                        |                                            |
| Water solubility                       | : insoluble                                |
| Partition coefficient: n-octanol/water | : Not applicable for inorganic substances  |
| Autoignition temperature               | : No data available                        |
| Decomposition temperature              | : No data available                        |
| Viscosity, dynamic                     | : No data available                        |
| Viscosity, kinematic                   | : No data available                        |
| Flow time                              | : No data available                        |
| Explosive properties                   | : No data available                        |
| Oxidizing properties                   | : none                                     |
| Molecular weight                       | : 91.22 g/mol                              |
| Particle characteristics               |                                            |
| Particle size                          | : No data available                        |

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## SECTION 10. STABILITY AND REACTIVITY

|                                    |                                                                                                                                                                                             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |
| Chemical stability                 | : The product is chemically stable under standard ambient conditions (room temperature) .                                                                                                   |
| Possibility of hazardous reactions | : No data available                                                                                                                                                                         |
| Conditions to avoid                | : no information available                                                                                                                                                                  |

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Incompatible materials : Strong oxidizing agents

Hazardous decomposition : In the event of fire: see section 5 products

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### **Acute toxicity**

Oral: No data available

Inhalation: No data available

Dermal: No data available

#### **Skin corrosion/irritation**

No data available

#### **Serious eye damage/eye irritation**

No data available

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

No data available

#### **Carcinogenicity**

IARC: No component 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 component 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

RTECS: ZH7070000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

No data available

### Persistence and degradability

#### Components:

#### **Zirconium:**

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

### Bioaccumulative potential

#### Components:

#### **Zirconium:**

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

### Mobility in soil

No data available

### Other adverse effects

No data available

### Endocrine disrupting properties

No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### **IATA-DGR**

UN/ID No. : UN 2858  
Proper shipping name : Zirconium, dry  
Class : 4.1  
Packing group : III  
Labels : Division 4.1 - Flammable solids  
Packing instruction (cargo aircraft) : 449

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Packing instruction : 446  
(passenger aircraft)

**IMDG-Code**

UN number : UN 2858  
Proper shipping name : ZIRCONIUM, DRY

Class : 4.1  
Packing group : III  
Labels : 4.1  
EmS Code : F-G, S-G  
Marine pollutant : no

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**National Regulations**

**49 CFR**

UN/ID/NA number : UN 2858  
Proper shipping name : Zirconium, dry

Class : 4.1

Packing group : III  
Labels : Division 4.1 - Flammable solids  
ERG Code : 170  
Marine pollutant : no  
Poison Inhalation Hazard : No

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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**SECTION 15. REGULATORY INFORMATION**

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

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

**SARA 311/312 Hazards** : No SARA Hazards

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### **US State Regulations**

#### **Massachusetts Right To Know**

Zirconium 7440-67-7

#### **Pennsylvania Right To Know**

Zirconium 7440-67-7

#### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

#### **The components of this product are reported in the following inventories:**

US TSCA : All substances listed as active on the TSCA inventory

#### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## **SECTION 16. OTHER INFORMATION**

### **Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
NIOSH REL : USA. NIOSH Recommended Exposure Limits  
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek  
NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday  
OSHA Z-1 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response;

EHS - Extremely Hazardous Substance; 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; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; 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

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](http://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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