

SAFETY DATA SHEET

Version: v1

Revision Date: 2025-06-10

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

1.1 Product identifiers

Product name : Zirconium dioxide
Product Number : Z104398
Brand : aladdin
CAS-No. : 1314-23-4

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

Identified uses : Laboratory chemicals, Manufacture of substances.

1.3 Company

Company : ALADDIN SCIENTIFIC CORPORATION
Address : 14078 Meridian Parkway,
Riverside, CA. 92518
Telephone : +1 (833) 552-7181
Fax : no data available

1.4 Emergency telephone number

CHEMTREC®, Inside the USA : 1-800-424-9300
CHEMTREC®, Outside the USA :

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the criteria are not met

2.2 GHS Label elements, including precautionary statements

Pictogram : no data available
Signal word : no data available
Hazard statement(s)
Precautionary statement(s)

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

None identified

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SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Zirconium(IV) oxide
Formula	: ZrO ₂
Molecular weight	: 123.22
CAS No.	: 1314-23-4
EC-NO.	: 215-227-2

Component	Classification	Concentration
Zirconium dioxide	no data available	PrimorTrace™, ≥99.99% metals basis, excluding Hf or HfO ₂

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

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

If inhaled

Remove to fresh air. Get medical attention immediately if symptoms occur.

In case of skin contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

In case of eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

If swallowed

Clean mouth with water and drink afterwards plenty of water.

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

Water, Foam, Carbon dioxide (CO₂), Dry powder

Unsuitable extinguishing media

no data available

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5.2 Special hazards arising from the substance or mixture

no data available

5.3 Advice for firefighters

wear self-contained breathing and full protective gear.

5.4 Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

6.2 Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Do not let this chemical enter the environment. Avoid dust formation.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****8.2 Exposure controls**

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166(EU).

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.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a fullface particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).

Control of environmental exposure

If safety requires, prevent further leakage or spillage. Do not let the product enter the sewer.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	form: Powder Solid color: White
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	2680°C
f) Initial boiling point and boiling range	5000 °C (lit.)
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	5.89
n) Water solubility	no data available
o) Partition coefficient: n-octanol/water	no data available
p) Auto-ignition temperature	no data available

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q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties N	no data available
t) Oxidizing properties N	no data available

9.2 Other safety information

no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

strong acid

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral: No data available

LC50 inhalation - rat - male and female -4 h ->4.3 mg/l - aerosol
(OECD Testing Guideline 436)

Transcutaneous: No data available

Skin corrosion/irritation

Skin - Rabbit Result: No skin irritation (OECD Testing Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit Result: No eye irritation (OECD Testing Guideline 405)

Respiratory or skin sensitisation

Maximum Response Test - Guinea Pig Result: Non skin sensitizer (OECD Testing Guideline 406)

Germ cell mutagenicity

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Test type: In vitro mammalian cell gene mutation assay Testing System: Mouse lymphoma test Metabolic activation: with or without metabolic activation effect Method: OECD Testing Guidelines 476 Result: Negative

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

Additional Information

Registration of Toxic Effects of Chemical Substances: ZH8800000

To our knowledge, the chemical, physical, and toxic properties of this substance have not been fully studied.

SECTION 12: Ecological information**12.1 Toxicity**

Static toxicity test on fish - Danio rerio (zebrafish) ->100 mg/l -96 h

(OECD Testing Guidelines 203)

Static toxicity test on water fleas and other aquatic invertebrates EC50- Daphnia magna ->100 mg/l -48 h

(Regulation (EC) No. 440/2008, Annex C-2)

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

no data available

SECTION 13:**13.1 Disposal considerations**

Product

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Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information
DOT (US)

UN number: no data available

Packing group: no data available

Class: no data available

Proper shipping name: no data available

Reportable Quantity(RQ): no data available

Poison Inhalation Hazard: no data available

Environmental Hazards: no data available

IMDG

UN number: no data available

Packing group: no data available

EMS-No: no data available

Proper shipping name: no data available

IATA

UN number: no data available

Packing group: no data available

Class: no data available

Proper shipping name: no data available

SECTION 15: Regulatory information

Please note that waste disposal should also meet local regulations. If applicable, the chemical meets the requirements of the Regulations on the Safety Management of Hazardous Chemicals (adopted by the State Council on December 4, 2013).

SECTION 16: Other information
Prepared By

Regulatory Affairs

ALADDIN SCIENTIFIC CORPORATION

Email: QualityAssurance@aladdinsci.com
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Revision Summary

SDS sections updated v1

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