



<a href="#">Zirconium Chloride Solution</a>	<a href="#">Pricing &gt;</a>
<a href="#">Zirconium(IV) Chloride</a>	<a href="#">Pricing &gt;</a>

<b>Linear Formula</b>	ZrCl <sub>4</sub>
<b>Pubchem CID</b>	24817
<b>MDL Number</b>	MFCD00011306
<b>EC No.</b>	233-058-2
<b>IUPAC Name</b>	tetrachlorozirconium
<b>Beilstein/Reaxys No.</b>	N/A
<b>SMILES</b>	Cl[Zr](Cl)(Cl)Cl
<b>Inchl Identifier</b>	InChI=1S/4ClH.Zr/h4*1H;/q;;;+4/p-4
<b>Inchl Key</b>	DUNKXUFBGCUVQW-UHFFFAOYSA-J

<b>Signal Word</b>	Danger
<b>Hazard Statements</b>	H290-H314
<b>Hazard Codes</b>	C
<b>Precautionary Statements</b>	P280-P305 + P351 + P338-P310
<b>Flash Point</b>	Not applicable
<b>Risk Codes</b>	14-22-34
<b>Safety Statements</b>	26-36/37/39-45
<b>RTECS Number</b>	ZH7175000
<b>Transport Information</b>	UN 2503 8 / PGIII
<b>WGK Germany</b>	3
<b>GHS Pictograms</b>	<p><a href="#">GHS05</a> <a href="#">Corrosive</a></p>  <p><a href="#">GHS07</a> <a href="#">Exclamation Point</a></p> 

# SAFETY DATA SHEET

Date Accessed: 04/19/2024

Date Revised: 01/15/2022

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## SECTION 1. IDENTIFICATION

**Product Identifiers:** All applicable American Elements product codes for CAS #10026-11-6

**Relevant identified uses of the substance:**  
Scientific research and development

Supplier details:  
American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351

Emergency telephone number:  
Domestic, North America +1 800-424-9300  
International +1 703-527-3887

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture  
Classification according to Regulation (EC) No 1272/2008  
GHS05 Corrosion  
Skin Corr. 1B H314 Causes severe skin burns and eye damage.  
Eye Dam. 1 H318 Causes serious eye damage.  
GHS07  
Acute Tox. 4 H302 Harmful if swallowed.  
Classification according to Directive 67/548/EEC or Directive 1999/45/EC  
C; Corrosive  
R34: Causes burns.  
Xn; Harmful  
R22: Harmful if swallowed.  
R14: Reacts violently with water.  
Information concerning particular hazards for human and environment: N/A  
Hazards not otherwise classified: No data available  
Label elements  
Labelling according to Regulation (EC) No 1272/2008  
The substance is classified and labeled according to the CLP regulation.  
Hazard pictograms



GHS05 GHS07

Signal word: Danger

Hazard statements

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

Precautionary statements

P260 Do not breathe

dust/fume/gas/mist/vapors/spray.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D2B - Toxic material causing other toxic effects

E - Corrosive material

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

3

0

2

Health (acute effects) = 3

Flammability = 0

Physical Hazard = 2

Other hazards

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS No. / Substance Name:

10026-11-6 Zirconium(IV) chloride

Identification number(s):

EC number: 233-058-2

Additional information:

Zirconium is routinely found with a low level of hafnium since separation of the two elements is

difficult.

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## **SECTION 4. FIRST AID MEASURES**

Description of first aid measures

General information: Immediately remove any clothing soiled by the product.

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact: Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed: Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Causes serious eye damage.

Indication of any immediate medical attention and special treatment needed: No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing agents: In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

For safety reasons unsuitable extinguishing agents:

Water

Special hazards arising from the substance or mixture

Reacts violently with water

If this product is involved in a fire, the following can be released:

Hydrogen chloride (HCl)

Metal oxide fume

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Environmental precautions:  
Do not allow material to be released to the environment without official permits.  
Do not allow product to enter drains, sewage systems, or other water courses.  
Do not allow material to penetrate the ground or soil.  
Methods and materials for containment and cleanup:  
Use neutralizing agent.  
Dispose of contaminated material as waste according to section 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents  
Prevention of secondary hazards: No special measures required.  
Reference to other sections  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

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## **SECTION 7. HANDLING AND STORAGE**

Handling  
Precautions for safe handling  
Handle under dry protective gas.  
Keep container tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation at the workplace.  
Information about protection against explosions and fires: No data available  
Conditions for safe storage, including any incompatibilities  
Requirements to be met by storerooms and receptacles: No special requirements.  
Information about storage in one common storage facility:  
Store away from water/moisture.  
Store away from strong bases.  
Store away from oxidizing agents.  
Further information about storage conditions:  
Store under dry inert gas.  
This product is moisture sensitive.  
Protect from humidity and water.  
Keep container tightly sealed.  
Store in cool, dry conditions in well-sealed containers.  
Specific end use(s): No data available

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute

Control parameters

Components with limit values that require monitoring at the workplace: 10026-11-6 Zirconium(IV) chloride (100.0%)

PEL (USA) Long-term value: 5 mg/m<sup>3</sup> as Zr

TLV (USA) Short-term value: 10 mg/m<sup>3</sup>

Long-term value: 5 mg/m<sup>3</sup> as Zr

EL (Canada) Short-term value: 10 mg/m<sup>3</sup>

Long-term value: 5 mg/m<sup>3</sup> as Zr

Additional information: No data

Exposure controls

Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands:

Impervious gloves

Inspect gloves prior to use.

Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.

Penetration time of glove material (in minutes): No data available

Eye protection:

Tightly sealed goggles

Full face protection

Body protection: Protective work clothing

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## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

Appearance:

Form: Powder  
Color: White to orange  
Odor: No data available  
Odor threshold: No data available.  
pH: N/A  
Melting point/Melting range: 331 °C (628 °F) (subl)  
Boiling point/Boiling range: No data available  
Sublimation temperature / start: No data available  
Flammability (solid, gas): No data available.  
Ignition temperature: No data available  
Decomposition temperature: No data available  
Autoignition: No data available.  
Danger of explosion: No data available.  
Explosion limits:  
Lower: No data available  
Upper: No data available  
Vapor pressure: N/A  
  
Density at 20 °C (68 °F): 2.803 g/cm<sup>3</sup> (23.391 lbs/gal)  
Relative density: No data available.  
Vapor density: N/A  
Evaporation rate: N/A  
Solubility in Water (H<sub>2</sub>O): Reacts violently  
Partition coefficient (n-octanol/water): No data available.  
Viscosity:  
Dynamic: N/A  
Kinematic: N/A  
Other information  
No data available

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## **SECTION 10. STABILITY AND REACTIVITY**

Reactivity: Reacts violently with water.  
Chemical stability: Stable under recommended storage conditions.  
Thermal decomposition / conditions to be avoided:  
Decomposition will not occur if used and stored according to specifications.  
Possibility of hazardous reactions  
Reacts with strong oxidizing agents  
Reacts violently with water  
Conditions to avoid: No data available  
Incompatible materials:  
Bases  
Oxidizing agents  
Water/moisture  
Hazardous decomposition products:  
Hydrogen chloride (HCl)  
Metal oxide fume

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

Information on toxicological effects

Acute toxicity:

Harmful if swallowed.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

LD/LC50 values that are relevant for classification:

Oral LD50 1688 mg/kg (rat)

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: No effects known.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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## **SECTION 12. ECOLOGICAL INFORMATION**

Toxicity

Aquatic toxicity: No data available

Persistence and degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Additional ecological information:

Do not allow material to be released to the environment without official permits.

Do not allow undiluted product or large quantities to reach groundwater, water courses, or sewage systems.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

Other adverse effects: No data available



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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods

Recommendation: Consult official regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

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## **SECTION 14. TRANSPORT INFORMATION**

UN-Number

DOT, IMDG, IATA

UN2503

UN proper shipping name

DOT

Zirconium tetrachloride

IMDG, IATA

ZIRCONIUM TETRACHLORIDE

Transport hazard class(es)

DOT

Class

8 Corrosive substances.

Label

8

Class

8 (C2) Corrosive substances

Label

8

IMDG, IATA

Class

8 Corrosive substances.

Label

8

Packing group

DOT, IMDG, IATA

III

Environmental hazards:

N/A

Special precautions for user

Warning: Corrosive substances

EMS Number:

F-A,S-B

Segregation groups

Acids

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N/A

Transport/Additional information:

DOT

Marine Pollutant (DOT):  
No  
UN "Model Regulation":  
UN2503, Zirconium tetrachloride, 8, III

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## **SECTION 15. REGULATORY INFORMATION**

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL).

SARA Section 313 (specific toxic chemical listings):  
Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer:  
Substance is not listed.

Prop 65 - Developmental toxicity: Substance is not listed.

Prop 65 - Developmental toxicity, female: Substance is not listed.

Prop 65 - Developmental toxicity, male: Substance is not listed.

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006:  
Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed: Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use): Substance is not listed.

REACH - Pre-registered substances: Substance is listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). 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. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.

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