

## Zirconium Sulfate

Version number: 1.0

### SECTION 1: Identification

#### 1.1 Product identifier

<b>Identification of the substance</b>	zirconium sulfate
<b>Trade name</b>	<b><u>Zirconium Sulfate</u></b>
<b>CAS number</b>	14644-61-2

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

<b>Relevant identified uses</b>	Industrial use
<b>Uses advised against</b>	Do not use for squirting or spraying Do not use for products which come into direct contact with the skin Do not use for private purposes (household)

#### 1.3 Details of the supplier of the safety data sheet

Valudor Products, LLC 179 Calle Magdalena Suite 100 Encinitas, California CA 92024 United States	Telephone: +1 (760) 635 8500 e-mail: info@valudor.com Website: www.valudor.com
---	--

#### 1.4 Emergency telephone number

<b>Emergency information</b>	800-535-5053 (Infotrac)
As above or nearest toxicological information centre.	

### SECTION 2: Hazard(s) identification

#### 2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
A.2	skin corrosion/irritation	1B	Skin Corr. 1B	H314
A.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318

For full text of abbreviations: see SECTION 16

# Zirconium Sulfate

## The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

## 2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

**Signal word** danger

**Pictograms**

**GHS05**



**Hazard statements**

**H314** Causes severe skin burns and eye damage.

**Precautionary statements**

**P260** Do not breathe dust.

**P264** Wash thoroughly after handling.

**P280** Wear protective gloves/protective clothing/eye protection/face protection.

**P301+P330+P331** If swallowed: Rinse mouth. Do NOT induce vomiting.

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

**P304+P340** If inhaled: Remove person to fresh air and keep comfortable for breathing.

**P305+P351+P338** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**P310** Immediately call a poison center/doctor.

**P363** Wash contaminated clothing before reuse.

**P405** Store locked up.

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

## 2.3 Other hazards

**Results of PBT and vPvB assessment**

According to the results of its assessment, this substance is not a PBT or a vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

**Name of substance** zirconium sulfate

**Identifiers**

CAS No 14644-61-2

# Zirconium Sulfate

---

## SECTION 4: First-aid measures

### 4.1 Description of first-aid measures

#### General notes

Take off immediately all contaminated clothing.

In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following inhalation

Provide fresh air.

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

#### Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

Wash with plenty of soap and water.

Call a physician immediately. Causes poorly healing wounds.

#### Following eye contact

Rinse immediately carefully and thoroughly with eye shower or water.

Remove contact lenses, if present and easy to do. Continue rinsing.

Get immediate medical advice/attention.

#### Following ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting.

Get immediate medical advice/attention.

#### Notes for the doctor

None.

### 4.2 Most important symptoms and effects, both acute and delayed

Causes poorly healing wounds.

Risk of blindness.

### 4.3 Indication of any immediate medical attention and special treatment needed

None.

## SECTION 5: Fire-fighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

water, foam, alcohol resistant foam, fire extinguishing powder

#### Unsuitable extinguishing media

none

### 5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.

# Zirconium Sulfate

---

## 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.  
Coordinate firefighting measures to the fire surroundings.  
Do not allow firefighting water to enter drains or water courses.  
Collect contaminated firefighting water separately.  
Fight fire with normal precautions from a reasonable distance.

### Special protective equipment for firefighters

chemical protection suit, self-contained breathing apparatus (SCBA)

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

Remove persons to safety.  
Ventilate affected area.  
Control of dust.  
Do not breathe dust.  
Do not get in eyes, on skin, or on clothing.  
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

#### For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water.  
Retain contaminated washing water and dispose of it.  
If substance has entered a water course or sewer, inform the responsible authority.

### 6.3 Methods and material for containment and cleaning up

#### Advice on how to contain a spill

Take up mechanically.

#### Advice on how to clean up a spill

Take up mechanically.  
Collect spillage.

#### Other information relating to spills and releases

Place in appropriate containers for disposal.  
Ventilate affected area.

### 6.4 Reference to other sections

Personal protective equipment: see section 8.  
Incompatible materials: see section 10.  
Disposal considerations: see section 13.

# Zirconium Sulfate

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

#### Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

#### Measures to protect the environment

Avoid release to the environment.

#### Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Remove contaminated clothing and protective equipment before entering eating areas.

Do not breathe dust.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Preventive skin protection (barrier creams/ointments) is recommended.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Flammability hazards

None.

#### Incompatible substances or mixtures

Incompatible materials: see section 10.

#### Protect against external exposure, such as

heat

#### Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Store in a dry place. Store in a closed container.

Store in a well-ventilated place. Keep cool.

#### Ventilation requirements

Provision of sufficient ventilation.

#### Packaging compatibilities

Only packagings which are approved (e.g. acc. to DOT) may be used.

### 7.3 Specific end use(s)

No information available.

# Zirconium Sulfate

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

No data available.

### 8.2 Exposure controls

#### Appropriate engineering controls

Use local and general ventilation.

#### Individual protection measures (personal protective equipment)

##### Eye/face protection

Wear eye/face protection.

##### Hand protection

Protective gloves		
Material	Material thickness	Breakthrough times of the glove material
no information available	no information available	no information available

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

##### Body protection

Protective clothing for use against solid particulates.

##### Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Particle filter device (DIN EN 143).

##### Environmental exposure controls

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

##### Physical state

solid  
(powder)

##### Color

white

##### Odor

characteristic

# Zirconium Sulfate

---

## Other safety parameters

<b>pH (value)</b>	not applicable
<b>Melting point/freezing point</b>	not determined
<b>Boiling point or initial boiling point and boiling range</b>	not determined
<b>Flash point</b>	not applicable
<b>Evaporation rate</b>	not determined
<b>Flammability (solid, gas)</b>	non-combustible
<b>Explosive limits</b>	
Explosion limits of dust clouds	not determined
<b>Vapor pressure</b>	not determined

Density	not determined
Vapor density	3.22 (water = 1)
Relative density	not applicable

## Solubility(ies)

Water solubility	669 g/l at 20 °C (OECD Guideline 105)
------------------	--

## Partition coefficient

n-octanol/water (log KOW)	not relevant (inorganic)
---------------------------	-----------------------------

Auto-ignition temperature	not determined
---------------------------	----------------

<b>Decomposition temperature</b>	740 °C (OECD Guideline 102)
----------------------------------	--------------------------------

<b>Viscosity</b>	not relevant (solid)
------------------	-------------------------

<b>Explosive properties</b>	none
-----------------------------	------

<b>Oxidizing properties</b>	none
-----------------------------	------

<b>Information for relevant hazard classes according to GHS</b>	hazard classes acc. to GHS (physical hazards): not relevant
---	--

<b>9.2 Other information</b>	there is no additional information
------------------------------	------------------------------------

# Zirconium Sulfate

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material is not reactive under normal ambient conditions.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

### 10.5 Incompatible materials

There is no additional information.

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgment (weight of evidence determination).

#### Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

##### Acute toxicity

Shall not be classified as acutely toxic (oral).

Exposure route	Endpoint	Value	Species	Method
oral	LD50	3,500 mg/kg	rat	OECD Guideline 401

##### Skin corrosion/irritation

Causes severe burns.

(OECD Guideline 435)

##### Serious eye damage/eye irritation

Causes serious eye damage.

##### Respiratory or skin sensitization

##### Skin sensitization

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.



# Zirconium Sulfate

---

## Respiratory sensitization

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

## Carcinogenicity

### IARC Monographs

not listed

### National Toxicology Program (United States)

not listed

### OSHA Carcinogens

Not listed.

## Reproductive toxicity

Shall not be classified as a reproductive toxicant.

## Specific target organ toxicity - single exposure

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## Specific target organ toxicity - repeated exposure

Exposure route	Endpoint	Value	Species	Method	Notes
oral	NOAEL	$\geq 1,000 \text{ mg/kg bw/day}$	rat	OECD Guideline 422	read-across

## Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

## 11.2 Other information

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Aquatic toxicity (acute)

No data available.

#### Aquatic toxicity (chronic)

No data available.

### 12.2 Persistence and degradability

#### Biodegradation

# Zirconium Sulfate

---

The study does not need to be conducted because the substance is inorganic.

## Persistence

The study does not need to be conducted because the substance is inorganic.

## 12.3 Bioaccumulative potential

**n-octanol/water (log KOW)** not relevant  
(inorganic)

**BCF** 0.64

## 12.4 Mobility in soil

No data available.

## 12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

## 12.6 Other adverse effects

Not listed.

This information is not available.

## Remarks

None.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

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

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packages

Completely emptied packages can be recycled.

Handle contaminated packages in the same way as the substance itself.

#### Remarks

Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

### 14.1 UN number

**DOT** UN1759



**IMDG-Code** UN1759

**ICAO-TI** UN1759

### 14.2 UN proper shipping name

**DOT** Corrosive solid, n.o.s.

# Zirconium Sulfate

	<b>IMDG-Code</b>	CORROSIVE SOLID, N.O.S.
	<b>ICAO-TI</b>	Corrosive solid, n.o.s.
	<b>Technical name</b>	zirconium sulfate
<b>14.3</b>	<b>Transport hazard class(es)</b>	
	<b>DOT</b>	8
	<b>IMDG-Code</b>	8
	<b>ICAO-TI</b>	8
<b>14.4</b>	<b>Packing group</b>	
	<b>DOT</b>	II
	<b>IMDG-Code</b>	II
	<b>ICAO-TI</b>	II
<b>14.5</b>	<b>Environmental hazards</b>	-
<b>14.6</b>	<b>Special precautions for user</b>	-
<b>14.7</b>	<b>Transport in bulk according to IMO instruments</b>	-
<b>14.8</b>	<b><u>Information for each of the UN Model Regulations</u></b>	
	<b>Transport of dangerous goods by road or rail (49 CFR US DOT) Additional information</b>	
	Particulars in the shipper's declaration	UN1759, Corrosive solid, n.o.s., (zirconium sulfate), 8, II
	Reportable quantity (RQ)	5,000 lbs (2,270 kg) (zirconium sulfate)
	Danger label(s)	8
		
	Special provisions (SP)	128, IB8, IP2, IP4, T3, TP33
	ERG No	154
	<b>International Maritime Dangerous Goods Code (IMDG) Additional information</b>	
	Marine pollutant	-
	Danger label(s)	8
		
	Special provisions (SP)	274

# Zirconium Sulfate

Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg
EmS	F-A, S-B
Stowage category	A

## International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Danger label(s) 8



Special provisions (SP) A3

Excepted quantities (EQ) E2

Limited quantities (LQ) 5 kg

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

#### National regulations (United States)

**Toxic Substance Control Act (TSCA)** substance is listed

#### Superfund Amendment and Reauthorization Act (SARA TITLE III )

**The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)**

not listed

#### Specific Toxic Chemical Listings (EPCRA Section 313)

not listed

#### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

#### List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Name of substance	Name acc. to inventory	CAS No	Remarks	Statutory code	Final RQ pounds (Kg)
zirconium sulfate	zirconium sulfate	14644-61-2	-	1	5000 (2270)

#### Legend

1 "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act

#### Clean Air Act

not listed

# Zirconium Sulfate

## Right to Know Hazardous Substance List

### Hazardous Substance List (NJ-RTK)

Name of substance	Name acc. to inventory	CAS No	Remarks	Classifications	Listed in	Substance number	DOT number
zirconium sulfate	zirconium sulfate	14644-61-2	-	CO.	1 2 4 20	2052	9163

#### Legend

- 1 Occupational Safety and Health Administration, 29 CFR 1910-Occupational Safety and Health Standards, Subpart Z-Toxic and Hazardous Substances, July 1, 2008.
- 2 "2009 TLVs® and BEIs®, Threshold Limit Values and Biological Exposure Indices," American Conference of Governmental Industrial Hygienists (ACGIH), 2009.
- 20 List of Hazardous Substances and Reportable Quantities (RQ), Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), U.S. Environmental Protection Agency, 40 CFR 302, Table 302.4, July 1, 2008.
- 4 "NIOSH Pocket Guide to Chemical Hazards," National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, No. 2005-149, September 2005.
- CO Corrosive

### California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

not listed

### Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

not listed

### Industry or sector specific available guidance(s)

#### NPCA-HMIS® III

Hazardous Materials Identification System.  
American Coatings Association.

Category	Rating	Description
Chronic	/	none
Health	3	major injury likely unless prompt action is taken and medical treatment is given
Flammability	0	material that will not burn under typical fire conditions
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	-

# Zirconium Sulfate

## NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	0	material that will not burn under typical fire conditions
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard	-	-

## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

## SECTION 16: Other information, including date of preparation or last revision

Date of preparation: 2022-09-07

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
49 CFR US DOT	49 CFR U.S. Department of Transportation
BCF	Bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DOT	Department of Transportation (USA)
EmS	Emergency Schedule
ERG No	Emergency Response Guidebook - Number
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IARC Monographs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code

# Zirconium Sulfate

Abbr.	Descriptions of used abbreviations
IMDG-Code	International Maritime Dangerous Goods Code
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NOAEL	No Observed Adverse Effect Level
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic
vPvB	Very Persistent and very Bioaccumulative

## Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT).

International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

## List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

## Responsible for the safety data sheet

Chemical Regulatory Compliance Company Telephone: +1 (630) 410-1660  
Jasper, GA e-Mail: GHS@crc-us.com  
USA Website: www.crc-us.com

## Disclaimer

This information is based upon the present state of our knowledge.

This SDS has been compiled and is solely intended for this product.