



SAFETY DATA SHEET

according to Regulation (EU) 2015/830

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zircon all grades [NA]

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

1.1. Product identifier

Product name	zircon all grades [NA]
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1.2. Relevant identified uses of the substance or mixture and uses advised against

Description	Foundry material.
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1.3. Details of the supplier of the safety data sheet

Company	Ransom & Randolph
Address	3535 Briarfield Boulevard, PO Box 1570 Maumee, Ohio 43537 USA
Web	www.ransom-randolph.com
Telephone	+1 (419) 865-9497
Fax	+1 (419) 865-9997
Email	SDS@ransom-randolph.com
Email address of the competent person	dyouel@ransom-randolph.com

1.4. Emergency telephone number

Emergency telephone number	USA +1 419 865 9497
Company	Ransom & Randolph Co. 08:00-17:00 (US Eastern Std. / GMT minus 5)

SECTION 2: Hazards identification

2.2. Label elements

	While this material is not considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and made available for employees and other users of this product.
Precautionary Statement: Prevention	Avoid breathing dust/fume/gas/mist/vapours/spray.
Precautionary Statement: Response	Seek medical attention if irritation or symptoms persist.
Hazard Statement	No Significant Hazard

Further information

	Not applicable. PBT and vPvB assessment.
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SECTION 3: Composition/information on ingredients

3.2. Mixtures

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3.2. Mixtures

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
zirconium silicate		14940-68-2			90 - 100%	
Aluminum Silicate		1302-76-7	215-106-4		1 - 10%	

Further information

Full text for all Risk Phrases mentioned in this section are displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air.
Eye contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open.
Skin contact	Wash with soap and water.
Ingestion	Drink 1 to 2 glasses of water. DO NOT INDUCE VOMITING.

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

Inhalation	May cause irritation to respiratory system.
Eye contact	May cause irritation to eyes.
Skin contact	May cause irritation to skin.
Ingestion	May cause irritation to mucous membranes.

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

Inhalation	Seek medical attention if irritation or symptoms persist.
Eye contact	Seek medical attention if irritation or symptoms persist.
Skin contact	Seek medical attention if irritation or symptoms persist.
Ingestion	Seek medical attention if irritation or symptoms persist.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use extinguishing media appropriate to the surrounding fire conditions.

5.2. Special hazards arising from the substance or mixture

Burning produces irritating, toxic and obnoxious fumes.

5.3. Advice for firefighters

Self-contained breathing apparatus. Wear suitable protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid raising dust. Wear suitable respiratory equipment when necessary.

6.2. Environmental precautions

No environmental requirements.

6.3. Methods and material for containment and cleaning up

Avoid raising dust. Clean the area using a vacuum cleaner. Transfer to suitable, labelled containers for disposal.

6.4. Reference to other sections

See section [2, 8 & 13] for further information.

SECTION 7: Handling and storage

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7.1. Precautions for safe handling

	Avoid raising dust. Ensure adequate ventilation of the working area. In case of insufficient ventilation, wear suitable respiratory equipment.
	Do not eat, drink or smoke in areas where this product is used or stored. Wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

	Keep containers tightly closed.
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7.3. Specific end use(s)

	Foundry material.
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SECTION 8: Exposure controls/personal protection


8.1. Control parameters

	exposure limits: Zirconium silicate 10 mg/m ³ STEL ACGIH (respirable fraction) 5 mg/m ³ TWA OSHA PEL (respirable fraction).
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8.1.1. Exposure Limit Values

zircon all grades [NA]	WEL 8-hr limit ppm: WEL 15 min limit ppm: WEL 8-hr limit mg/m ³ total inhalable dust: WEL 8-hr limit mg/m ³ total respirable dust:	WEL 8-hr limit mg/m ³ : 5 WEL 15 min limit mg/m ³ : WEL 15 min limit mg/m ³ total inhalable dust: WEL 15 min limit mg/m ³ total respirable dust:
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8.2. Exposure controls

	
8.2.1. Appropriate engineering controls	Ensure adequate ventilation of the working area.
8.2.2. Individual protection measures	Protective clothing.
Eye / face protection	In case of splashing, wear: Approved safety goggles, safety glasses with side-shields.
Skin protection - Handprotection	Wear suitable gloves.
Respiratory protection	Suitable respiratory equipment.
8.2.3. Environmental exposure controls	Not normally required.
Occupational exposure controls	Appropriate local exhaust ventilation is required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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9.1. Information on basic physical and chemical properties

Appearance	Granules./Powder
Colour	White
Odour threshold	Not applicable.
pH	No data available
Melting point	No data available
Freezing Point	Not applicable.
Initial boiling point	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	4.68 (H ₂ O = 1 @ 20 °C)
Fat Solubility	Not applicable.
Partition coefficient	No data available
Autoignition temperature	Not applicable.
Viscosity	No data available
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
Solubility	Insoluble in water

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Gas group	Not applicable.
Benzene Content	Not applicable.
Lead content	Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity

	Not applicable.
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10.2. Chemical stability

	Stable under normal conditions.
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10.3. Possibility of hazardous reactions

	No Significant Hazard.
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10.4. Conditions to avoid

	Moisture.
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10.5. Incompatible materials

	No Significant Hazard.
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10.6. Hazardous decomposition products

	Hazardous Decomposition Products (Zircon): Zirconium silicate will disassociate to Zirconium Dioxide (ZRO ₂) and Silicon dioxide (SiO ₂) when heated above 1540 degrees Celsius. Hazardous Polymerization: Will not occur.
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	Harmful: possible risk of irreversible effects through inhalation.
Skin corrosion/irritation	Prolonged or repeated exposure may cause irritation to skin and mucous membranes.

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11.1. Information on toxicological effects

Serious eye damage/irritation	Causes eye irritation.
Respiratory or skin sensitisation	No sensitization effects reported.
Germ cell mutagenicity	No mutagenic effects reported.
Carcinogenicity	No carcinogenic effects reported.
Reproductive toxicity	No observed effect level. No observed effect concentration.
STOT-single exposure	No known adverse health effects.
Aspiration hazard	No Significant Hazard.
Repeated or prolonged exposure	Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system.

11.1.4. Toxicological Information

	<p>Zirconium and Zirconium Compounds</p> <p>Single exposure (acute) studies indicate that zirconium and zirconium compounds are slightly toxic to mice, rats and guinea pigs if swallowed [LD50 990 to 2,290 mg/kg (insoluble zirconium salts)] and practically non-toxic to rats, guinea pigs, rabbits, cats and dogs if inhaled (LC50 >6 mg/l).</p> <p>Zirconium Silicate</p> <p>Following single or repeated intraperitoneal doses, this material was considered to be physiologically inert. Following repeated inhalation exposure to dust of this material, radiographic lung shadows were reported in rats; however, histological examination of the lung tissues showed no changes. Following implantation of a disc of this material into the muscle tissue of rabbits, histological examination of the surrounding tissues did not show any effects that were different from other materials used in medical implants. This material contains trace quantities of naturally occurring radioactive uranium, thorium and radium (106-120 Pico curies/gram). Overexposure to respirable dusts containing radioactive uranium, thorium and radium may cause lung cancer. (Zircon is exempt from NRC regulations for source material per 10 CFR 40, since it falls under the definition of material containing less than 0.05% uranium or thorium. However, calculations show that observance of 2.2-2.8 mg/m³ of respirable dust will, under voluntary guidelines, ensure that intake is less than 10% of the annual limits on intake (ALIS) specified in 10 CFR 20.1502(B) and NRC standards for protection against radiation for uranium, thorium, radium and radioactive daughter decay products).</p> <p>Aluminum Silicate</p> <p>Workers exposed to a hydrated clay of this material, have been reported to have experienced lung effects ranging from mild pneumoconiosis, a non-disabling lung change, to progressive pulmonary fibrosis and emphysema. Exposure to the anhydrous form of this material used for refractory and porcelain manufacture, has been reported to cause interstitial pulmonary fibrosis in workers and in experimental animals; these findings are complicated by the presence of cristobalite. Another report has indicated that occupational exposure to this material in kitty litter dust caused pulmonary fibrosis; however, further evaluation of these workers and lack of pulmonary toxicity in animals from instillation of this material in the lungs suggests that smoking behavior may have been the most significant causative factor. Oral administration of aluminum silicate to dogs and rats showed no evidence of toxicity to kidneys or other organs. In vitro studies and long-term inhalation studies with this material have shown aluminum silicate to be less cytotoxic and carcinogenic than other inorganic fiber dusts. Other studies have suggested an association between aluminum and neurological degenerative diseases, including Alzheimer's disease, dialysis dementia and reduced neural-motor functions. In aluminum sensitive animal species such as cats and rabbits, a pathological change noted in neurons is an accumulation of neurofibrillary tangles. Neurofibrillary tangles and increased brain levels of aluminum are also observed in patients with Alzheimer's disease and dialysis dementia; however, these tangles are associated with a variety of neurological disorders. Because there are scientific questions regarding these studies, the causative association between aluminum and these diseases has not been demonstrated. In a study of occupationally exposed workers to aluminum dusts, no increased mortality from Alzheimer's disease or other neurological diseases was noted.</p>
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zircon all grades [NA]	Fish LC50/96h: 20.000 mg/l	Green algae EC50/96h: 2.6 mg/l
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12.2. Persistence and degradability

No data is available on this product.

12.3. Bioaccumulative potential

Does not bioaccumulate.

Partition coefficient

zircon all grades [NA] No data available

12.4. Mobility in soil

Not determined.

12.5. Results of PBT and vPvB assessment

Not determined.

12.6. Other adverse effects

Not applicable.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Dispose of in compliance with all. local and national regulations.

Disposal methods

Contact a licensed waste disposal company.

Disposal of packaging

Empty containers can be sent for disposal or recycling.

SECTION 14: Transport information**14.1. UN number**

The product is not classified as dangerous for carriage.

14.2. UN proper shipping name

The product is not classified as dangerous for carriage.

14.3. Transport hazard class(es)

The product is not classified as dangerous for carriage.

14.4. Packing group

The product is not classified as dangerous for carriage.

14.5. Environmental hazards

The product is not classified as dangerous for carriage.

14.6. Special precautions for user

The product is not classified as dangerous for carriage.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

The product is not classified as dangerous for carriage.

Further information

The product is not classified as dangerous for carriage.

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SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulations	<p>U.S. FEDERAL REGULATIONS: Zircon. CERCLA 103 Reportable Quantity: is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.</p> <p>SARA TITLE III: Hazard Category For Section 311/312: Chronic health</p> <p>Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None</p> <p>Section 302 Extremely Hazardous Substances (TPQ): None</p> <p>EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.</p> <p>U.S. STATE REGULATIONS</p> <p>California Proposition 65: This product contains the following substances known to the State of California to cause cancer: Crystalline Silica as Quartz (<0.05 %).</p> <p>INTERNATIONAL REGULATIONS:</p> <p>Canadian Environmental Protection Act: All of the components in this product are listed on the Domestic Substances List (DSL).</p> <p>Canadian WHMIS Classification: Class D Division 2A (quartz) and Class D Division 2B (zircon)</p> <p>Australian Inventory of Chemical Substances: All of the components in this product are listed on the AICS for Australia.</p> <p>China Inventory of Existing Chemicals and Chemical Substances: All of the components in this product are listed on the IECSC for China.</p> <p>Japanese Existing and New Chemical Substances: All of the components in this product are listed on the Japanese ENCS list.</p> <p>Korean Existing Chemicals List: All of the components in this product are listed on the KECL for Korea.</p> <p>Philippine Inventory of Chemicals and Chemical Substances: All of the components in this product are listed on the PICCS.</p>
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15.2. Chemical safety assessment

No data is available on this product.

SECTION 16: Other information**Further information**

Further information	<p>Training Workers must be informed of the presence of crystalline silica and trained in the proper use and handling of this product as required under applicable regulations.</p> <p>The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.</p>
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