

# Zircon Sand

## 1. IDENTIFICATION MATERIAL SUPPLIER

Product Names: Zircon Sand

Other Names: Zirconium Silicate

Uses: Raw material for steelmaking refractories, glassmaking refractories, traditional ceramics, zirconia manufacture, zirconium manufacture, glass additive and foundry uses

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## 2. HAZARDS IDENTIFICATION

Not classified as hazardous according to SafeWork Australia and the Global Harmonised System of classification and labelling of chemicals (GHS).

Hazard Statement(s): None

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients (typical)	CAS Number	Concentration
Zircon	14940-68-2	90-99%
Quartz	14808-60-7	0.5-1%

## 4. FIRST AID MEASURES

Swallowed: First aid is unlikely to be required but, if necessary, wash mouth out with water ensuring the mouthwash is not swallowed. Give one or two glasses of water to drink. Seek medical attention if a large quantity has been swallowed.

Inhaled: Blow nose to remove particulates from nose. Move to area with fresh air. Seek medical attention if adverse reaction develops.

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## 4. FIRST AID MEASURES (Cont'd)

Skin:	Remove contaminated clothing gently to avoid creating dust. Wash skin. If skin becomes irritated, seek medical attention. Launder affected clothing before re-use.
Eye:	Hold eyelid open and flush with clean water. Continue until grit is removed. Seek medical attention if irritation or soreness persists.

### Acute

Swallowed:	Non-toxic. No known detrimental effect from accident ingestion as may occur during normal handling. Ingestion of large amounts may cause irritation to the gastro-intestinal system due to abrasiveness.
Inhaled:	Mainly regarded as nuisance dust but may be irritating if inhaled at high concentrations. May cause coughing and/or sneezing.
Skin:	Low hazard.
Eye:	Solid and dust can be moderately irritating due to abrasiveness.

### Chronic

Radiation:	<p>Zircon sand contains naturally occurring radioactive elements of the uranium and thorium series. The zircon sand produced by RZ Resources Ltd contains low concentrations of these impurities with a typical specific activity of approximately 5.5 Bq/g of combined uranium and thorium.</p> <ul style="list-style-type: none"> <li>• 0.9 – 1.1 Bq/g (thorium-232)</li> <li>• 3.8 – 4.8 Bq/g (uranium-238)</li> </ul> <p>Daughter products are present, usually at equilibrium concentrations but the main radiological hazard is internal dust. As a guide, continuous worker exposure to respirable dust levels above 3.5mg/m<sup>3</sup> could give rise to annual internal exposures above 1 mSv.</p> <p>External exposure is from gamma radiation. Continuous exposure (2000 hours per year) within 2 meters of bulk zircon sand could give rise to an annual external dose above 1 mSv.</p>
Silica:	Zircon sand may contain very small amounts of free quartz and precautions should be taken to avoid inhaling the dust.
First Aid Facilities:	Eye Wash Station
Doctor Treatment:	Treat symptomatically

## 5. FIRE FIGHTING MEASURES

Non-flammable, non-combustible. Use suitable firefighting measures for the surrounding fire.

## 6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures:	Not relevant
Containment and Clean-up:	<p>Wear safety equipment for normal handling. Avoid generating dust. Vacuum up, if possible, otherwise sweep up and recycle.</p> <p>Prevent from entering drains and waterways.</p> <p>If the spilled product is not suitable for re-use, dispose of to an approved landfill site and cover it with clean fill.</p>

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## 7. HANDLING AND STORAGE

Handling: Dust generation should be minimised when handling. Wash thoroughly after handling.  
Storage: Storage areas should be ventilated.

## 8. EXPOSURE CONTROLS and PERSONAL PROTECTION

National Exposure Standards (Source: Safe Work Australia):

Ingredient	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Zirconium compounds (as Zr)	5	10
Respirable silica	0.05	-
Uranium	0.2	0.6

Biological Limit Values: No information

Engineering Controls: Ventilation requirements will depend on handling methods and the amounts in use, but should be sufficient to maintain dust levels below exposure limits.

Personal Protective Equipment: Safety glasses or goggles. If there is a risk of inhaling dust, wear an approved P1 Class or better respirator.

## 9. PHYSICAL CHEMICAL PROPERTIES

Appearance: Brownish free running sand  
Odour: Odourless  
pH: Neutral  
Vapour Pressure: Not applicable  
Boiling Point/Range: Not applicable  
Melting Point: Zircon 2200°C  
Solubility: Insoluble  
Bulk Density: 2700 kg/m<sup>3</sup>  
Flash Point: Not applicable  
Flammability Limits: Not applicable

## 10. STABILITY AND REACTIVITY

Reactivity: Inert  
Chemical Stability: Stable  
Incompatible Materials: Strong acids  
Decomposition Products: Decomposition will not occur

## 11. TOXICOLOGICAL INFORMATION

Based on testing performed on the three major constituents, not considered as hazardous to human health according to criteria of GHS (UN 2017).

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## 12. ECOLOGICAL INFORMATION

Based on testing performed on the three major constituents, does not meet the conditions to be considered 'harmful to the marine environment' under the revised MARPOL Annexed V

## 13. DISPOSAL CONSIDERATION

If not reusable, dispose of at approved landfill site. Disposal must be in accordance with Commonwealth, State and local government regulations.

## 14. TRANSPORT INFORMATION

Transport may be regulated in some countries although the product is classified as Non-Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by road and rail (ADG) and international codes, IATA and IMDG. Trucks however should be covered when transporting dry bulk product to prevent dust creation.

## 15. REGULATORY INFORMATION

Poisons Schedule:      None allocated

## 16. OTHER INFORMATION

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**End of Safety Data Sheet**