

**1. IDENTIFICATION MATERIAL SUPPLIER**

Product Names: Monazite

Other Names: Mineral Sands Concentrate

Uses: Raw material to produce rare earth compounds

Company: RZ Resources Ltd  
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**2. HAZARDS IDENTIFICATION**

Classified as hazardous according to SafeWork Australia and the Global Harmonised System of classification and labelling of chemicals (GHS).

## GHS Classifications:

Acute Toxicity: Oral: Category 5  
Carcinogenicity: Category 1B

## Hazard Statements:

H302 Harmful if swallowed

H332 Harmful if inhaled

## Precautionary Statements:

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

Other Hazards: Radioactive

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients (typical)	CAS Number	EC Number	Concentration
<b>Monazite</b>	<b>1306-41-8</b>		<b>65-70%</b>
Cerium Phosphate	13454-71-2	236-637-8	18-22%
Yttrium Phosphate	13990-54-0	237-790-3	10-14%
Lanthanum Phosphate	14913-14-5	237-419-5	8-12%
Neodymium Phosphate	14298-32-9	238-232-1	8-12%
Thorium Phosphate	14485-31-5	-	4-6%
Praseodymium Phosphate	14298-31-8	238-231-6	1-3%
Samarium Phosphate	13465-57-1	236-698-0	1-3%
Dysprosium Phosphate	13863-49-5	237-605-6	1-3%
Gadolinium Phosphate	13628-51-8	237-112-6	1-3%
Ytterbium Phosphate	13759-80-3	237-346-9	0.5-1.5%
Uranium Phosphate	18433-48-2	242-306-9	0.3 -0.4%
<b>Non monazite Components</b>			
Zircon	14940-68-2	239-019-6	22-26%
Rutile	1317-80-2	215-282-2	2-4%
Iron Oxide	1309-37-1	215-168-2	1-2%
Quartz	14808-60-7	238-878-4	1-2%

### 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.
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.
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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: Monazite contains naturally occurring radioactive elements of the uranium and thorium series. The Monazite produced by RZ Resources Ltd contains concentrations of these impurities with a typical specific activity of approximately 200 Bq/g of combined uranium and thorium.

- 170 Bq/g (thorium-232) and
- 30 Bq/g (uranium-238).

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.

External exposure is from gamma radiation. Continuous exposure (2000 hours per year) within 2 meters of bulk Monazite could give rise to an annual external dose above 1 mSv.

Silica:	Monazite contains 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:	Wear safety equipment for normal handling. Avoid generating dust. Vacuum up, if possible, otherwise sweep up and recycle. If the spilled product is not suitable for re-use, dispose of as radioactive waste.

## 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 / PERSONAL PROTECTION

National Exposure Standards (Source: Safe Work Australia):

Ingredient	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Titanium dioxide	10	-
Iron Oxide	5	-
Respirable silica (quartz)	0.05	-
Zirconium compounds (as Zr)	5	10
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 P2, or better, respirator.

## 9. PHYSICAL CHEMICAL PROPERTIES

Appearance:	Brownish free running sand
Odour:	Odourless
pH:	5 - 7
Vapour Pressure:	Not applicable
Boiling Point/Range:	Not applicable
Melting Point:	Monazite 1900°C -2100°C, Rutile 1840°C, Quartz 1700°C, Zirconia 2200°C
Solubility:	Insoluble
Bulk Density:	2900 kg/m <sup>3</sup>
Flash Point:	Not applicable
Flammability Limits:	Not applicable

## 10. STABILITY AND REACTIVITY

Reactivity:	Inert
Chemical Stability:	Stable
Incompatible Materials:	None in normal or expected use
Decomposition Products:	Decomposition will not occur

## 11. TOXICOLOGICAL INFORMATION

Acute Toxicity: Harmful if swallowed or inhaled

## 12.ECOLOGICAL INFORMATION

No information available.

## 13.DISPOSAL CONSIDERATION

If not reusable, dispose in accordance with Commonwealth, State and local government and regulations for radioactive waste.

## 14.TRANSPORT INFORMATION

UN Code 2912 - Classified as a Class 7 Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by road and rail (ADG) and international codes, IATA and IMDG.



	LAND TRANSPORT (CNDG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
<b>UN Number</b>	2912	2912	2912
<b>Proper Shipping Name</b>	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted
<b>Transport hazard class</b>	7	7	7
<b>Packing Group</b>	None allocated.	None allocated.	None allocated.

Transport of Class 7 by road or rail in Australia is subject to separate state and territory legislation and the ARPANZA Code of Practice for the Safe Transport of Radioactive Substances (2008).

Transport may be regulated in some countries.

Material should be transported in sealed containers to prevent spillage and leakage. All spillages should be cleaned up immediately.

## 15.REGULATORY INFORMATON

Poisons Schedule: None allocated

## 16.OTHER INFORMATION

Date of Issue: October 4, 2022

Replaces Issue: August 8, 2022

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**End of Safety Data Sheet**