

MANUFACTURERS & EXPORTERS OF REFRACTORIES

Bricks & Shapes | Castables | Mortars | Ramming Mass | Ceramic Fiber

Regd. Address: Legion Exim LLP, D/21, Galaxy Town Homes, Near Collector Office,
Shroff Road, Rajkot, Gujarat 360001 – INDIA

PRODUCT DATA SHEET

BRAND NAME: ROYAL ZIRCONIUM

GENERAL PROPERTIES

Service Temp (max.): 1500°C

Grain Size mm (max.): 6

CHEMICAL ANALYSIS

Al₂O₃: 57-63%

SiO₂: 18-23%

Fe₂O₃: 0.8-1%

ZrO₂: 16-19%

Others: ≤1%

PHYSICAL PROPERTIES

Bulk Density (kg/m³)

110°C/24 Hr Min.: 2800

C.C.S (kg/cm²) min.

110 °C / 24 Hrs: 650

1100 °C / 3 Hrs: 750-900

1400 °C / 3 Hrs: 900-1050

P.L.C. (%) @ 1400°C / 3 Hrs.: ±0.5

Water requirement (%): 5-6

Shelf Life: 6 Months

Packaging: 25 kgs HDPE-lined Kraft paper bags.

MATERIAL SAFETY DATASHEET (MSDS)

(Prepared according to the Globally Harmonized System of Classification and Labelling of Chemicals – GHS Rev. 11, 2025)

1. Identification

Product name: Royal Zirconium Castable

Other means of identification: Zirconia-containing high-alumina refractory castable

Recommended use: Industrial refractory lining for furnaces, kilns, glass, steel, and non-ferrous metallurgical applications requiring high corrosion resistance.

Use restrictions: For industrial/professional use only. Not for domestic applications.

Supplier: Legion Exim LLP, Rajkot – Gujarat, India

Telephone: +91 91060 31803

Email (general inquiries): trade@legionexim.com

Emergency contact (24 h): +91 91060 31803

2. Hazard Identification

Classification according to GHS Rev. 11:

- Not classified as hazardous under normal conditions of use.
- Contains **respirable crystalline silica (< 1 %)**, which may cause **lung damage through prolonged or repeated inhalation (STOT RE 1)**.

Signal word: *Danger*

Hazard statements:

- H372 – Causes damage to lungs through prolonged or repeated exposure (inhalation).

Precautionary statements:

- P260 – Do not breathe dust.
- P264 – Wash hands thoroughly after handling.
- P271 – Use only outdoors or in a well-ventilated area.
- P280 – Wear respiratory protection, gloves, and eye protection.
- P501 – Dispose of contents/container in accordance with local regulations.

Other hazards: Prolonged exposure to dust may cause mechanical irritation of the eyes, skin, and respiratory tract.

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3. Composition / Information on Ingredients

Component	CAS No.	Approx. %	GHS Classification
Aluminium oxide (Al ₂ O ₃)	1344-28-1	57-63	Not classified
Silicon dioxide (SiO ₂)	14808-60-7	18-23	STOT RE 1 (lungs)
Zirconium dioxide (ZrO ₂)	1314-23-4	16-19	Not classified
Iron oxide (Fe ₂ O ₃)	1309-37-1	0.8-1	Not classified
Other mineral oxides	—	<1	Not classified

4. First-Aid Measures

- **Inhalation:** Move to fresh air. Seek medical attention if respiratory irritation persists.
 - **Skin contact:** Wash with soap and water. Remove contaminated clothing.
 - **Eye contact:** Rinse cautiously with water for several minutes; seek medical advice if irritation continues.
 - **Ingestion:** Rinse mouth; obtain medical advice if discomfort occurs.
- Most important symptoms:** Coughing, dryness of throat, irritation. Prolonged inhalation may cause silicosis.

5. Fire-Fighting Measures

The product is **non-flammable**.

Suitable extinguishing media: Water spray, CO₂, dry chemical.

Specific hazards: None. Avoid breathing dust generated by fire debris.

Protective equipment: Use a self-contained breathing apparatus for dust exposure.

6. Accidental Release Measures

Avoid creating airborne dust.

Sweep or vacuum using equipment fitted with HEPA filters.

Avoid dry sweeping. Collect in sealed containers for disposal.

Wear a respirator and protective clothing. Prevent release to drains.

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7. Handling and Storage

Handling: Avoid dust generation. Use local exhaust or adequate ventilation.

Storage: Store in a cool, dry area away from moisture. Keep bags tightly closed.

Hygiene: Wash hands and face after handling. Do not eat, drink, or smoke while working.

8. Exposure Controls / Personal Protection

Exposure limits (India / ACGIH):

- Crystalline silica (Quartz): TWA 0.025 mg/m³ (respirable).
Engineering controls: Provide ventilation or dust extraction.

Personal protection:

- Respiratory protection: N95 / P3 filter respirator for dust.
- Eye protection: Safety goggles.
- Skin protection: Gloves and protective clothing.

9. Physical and Chemical Properties

Property	Value
Appearance	Grey to off-white powder
Odour	Odourless
pH (slurry)	≈ 10 – 12
Melting point	1500 °C
Bulk density	≈ 2800 kg/m ³
Water requirement	5-6 %
Solubility	Insoluble in water

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10. Stability and Reactivity

Stable under normal conditions.

Avoid: Moisture before use; formation of airborne dust.

Decomposition products: None known.

11. Toxicological Information

Not acutely toxic.

Likely routes of exposure: Inhalation of dust, skin and eye contact.

Chronic effects: Prolonged inhalation of respirable silica may cause lung fibrosis (silicosis).

Carcinogenicity: Crystalline silica – IARC Group 1 (carcinogenic to humans).

12. Ecological Information

Inorganic, insoluble material – non-toxic to aquatic life.

No bioaccumulation expected. Avoid large releases to the environment.

13. Disposal Considerations

Collect and dispose of as non-hazardous mineral waste in accordance with local regulations.

Do not dispose of into sewage systems. Packaging may be recycled after cleaning.

14. Transport Information

Not classified as dangerous under the UN Model Regulations.

UN number: Not applicable

Transport hazard class: Not applicable

Packing group: Not applicable

Environmental hazard: None

15. Regulatory Information

Complies with UN GHS Rev. 11 (2025) criteria.

Not subject to transport restrictions.

National and local chemical inventory registration may apply.

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16. Other Information

Prepared by: Legion Exim LLP, Rajkot – Gujarat, India

Date of issue: November 2025

Revision: 01

This SDS is based on available data and current GHS guidelines. It does not constitute a product warranty.

Users must ensure safe handling and compliance with local laws.



LEGION