



LEGION EXIM

# PRODUCT CATALOGUE

Aji GIDC, Road B, Rajkot, Gujarat - INDIA  
trade@legionexim.com | +91 91060 31803  
www.legionexim.com

## REFRACTORIES



LEGION EXIM

## INDEX

BRICKS	3
CASTABLES	13
MORTARS	20
RAMMING MASS	25
CERAMIC FIBER	27
CONTACT	33

### P.C.E - Orton / °C

PCE (Pyrometric Cone Equivalent), often referred to as PCE-Orton, is a measure of the refractoriness or the temperature resistance of refractory materials. PCE indicates the highest temperature at which the refractory material can maintain its shape and structural integrity under a defined load or environment.

### Apparent Porosity (%) max.

Apparent Porosity (AP) in refractories measures the percentage of open pores within a material's structure.

### Bulk Density (B.D.)

Bulk Density (BD) in refractories measures the mass of a unit volume of a material, including both the solid portion and the pores.

### Cold Crushing Strength (CCS)

Cold Crushing Strength (CCS) measures the material's mechanical strength under compression at room temperature.

### Thermal Conductivity

A measure of the material's ability to conduct heat. It plays a crucial role in determining the efficiency and suitability of a refractory material for specific applications.

### Permanent Linear Change (PLC)

PLC (Permanent Linear Change) in refractories measures the irreversible dimensional change a refractory material undergoes when exposed to a specific temperature and duration. It is expressed as a percentage (%), indicating either expansion or shrinkage of the material.

### Apparent Porosity (%) max.

Apparent Porosity (AP) in refractories measures the percentage of open pores within a material's structure.

### Refractoriness Under Load (RUL)

RUL (Refractoriness Under Load) is a critical property of refractories that measures the material's ability to withstand deformation under load at elevated temperatures.

## BRICKS

Refractory bricks are high-performance, heat-resistant materials designed for use in high-temperature applications such as furnaces, kilns, and incinerators.

### ***Manufacturing Process***

At Legion Exim, these bricks are manufactured using premium-grade raw materials like alumina, silica, and magnesia. The materials are mixed, shaped under high pressure, and fired at controlled high temperatures to achieve maximum density and strength.

### ***Quality***

Our refractory bricks are characterized by excellent thermal resistance, low porosity, and exceptional durability. They offer superior performance in extreme thermal environments, ensuring longer service life and energy efficiency.

### ***Applications***

- Lining industrial furnaces and kilns in steel, cement, and glass industries.
- Use in boilers, incinerators, and chimneys.
- High-temperature applications in chemical and petrochemical plants.



# ALUMINA & DENSE BRICKS



	P.C.E.-Orton / °C	App.Porosity (%) max	B.D. (gm/cc) min	CCS (Kg/cm <sup>2</sup> ) min	RUL (Ta) °C min	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.
Royal - 30	28 / 1649	26	1.9	250	1300	+/-1 at 1300 / 3hrs	28	3.5
Royal - 40	30 / 1665	24	2.1	350	1400	+/-1 at 1350 / 3hrs	40	2.8
Royal - 45	32 / 1717	21	2.25	400	1400	+/-0.8 at 1400 / 3hrs	42	3.5
Royal - 30D	30 / 1665	18	2.15	400	1350	+/-0.8 at 1350 / 3hrs	30	1.8
Royal - 42D	33 / 1743	17	2.25	500	1480	+/-0.8 at 1450 / 3hrs	42	1.3
Royal - 45D	34 / 1765	18	2.30	500	1500	+/-0.8 at 1500 / 2hrs	45	1.3

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*

# ALUMINA & DENSE BRICKS



	P.C.E.-Orton / °C	App.Porosity (%) max	B.D. (gm/cc) min	CCS (Kg/cm <sup>2</sup> ) min	RUL (Ta) °C min	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.
Royal - 50D	34 / 1765	18	2.35	500	1500	+/-0.5 at 1500 / 3hrs	50	1.3
Royal - 55	35 / 1785	21	2.4	450	1480	+/-1 at 1500 / 3hrs	55	2.0
Royal - 60 SPL	36 / 1804	22	2.45	450	1480	+/-0.8 at 1500 / 2hrs	60	2.2
Royal - Silicate	36 / 1804	18	2.45	500	1500	+/-0.3 at 1500 / 2hrs	58	1.5
Royal - 62D	36 / 1804	16	2.5	550	1510	+/-0.2 at 1500 / 2hrs	62	1.3
Royal - 60M	36 / 1804	18	2.45	550	1620	+/-0.4 at 1600 / 2hrs	60	0.8

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*

# ALUMINA & DENSE BRICKS



	P.C.E.-Orton / °C	App.Porosity (%) max	B.D. (gm/cc) min	CCS (Kg/cm <sup>2</sup> ) min	RUL (Ta) °C min	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.
Royal - 70 SPL	37 / 1820	22	2.60	600	1460	+/-2 at 1500 / 2hrs	70	3
Royal - 70 LF	37 / 1820	22	2.55	600	1480	+/-2 at 1500 / 2hrs	70	2.5
Royal - 75	37 / 1820	22	2.65	600	1480	+/-2 at 1500 / 2hrs	75	3.5
Royal - 70 L	37 / 1820	18	2.6	600	1550	+/-0.5 at 1550 / 2hrs	70	1.5
Royal - 70 M	37 / 1820	18	2.55	600	1650	+/-0.3 at 1600 / 2hrs	70	0.4

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*



# ALUMINA & DENSE BRICKS

	P.C.E.- Orton / °C	App.Porosity (%) max	B.D. (gm/c c) min	CCS (Kg/cm 2) min	RUL (Ta) °C min	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.	P <sub>2</sub> O <sub>5</sub> (%) max.
Royal - 80 B	37 / 1820	20	2.75	700	1500	+/-1.2 at 1550 / 2hrs	79	1.9	-
Royal - 80	37 / 1820	18	2.75	700	1550	+/-0.8 at 1550 / 2hrs	79	1.4	-
Royal - 80 P	37 / 1820	17	2.75	750	1540	+/-1 at 1500 / 2hrs	80	1.4	1.5
Royal - 85	38 / 1835	18	2.8	750	1550	+/-0.8 at 1550 / 2hrs	84	1.3	-
Royal - 85 P	38 / 1835	17	2.8	800	1550	+/-0.8 at 1600 / 2hrs	84	1.3	1.5

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*

# ALUMINA & DENSE BRICKS



	P.C.E.- Orton / °C	App.Porosity (%) max	B.D. (gm/c c) min	CCS (Kg/cm 2) min	RUL (Ta) °C min	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.	Zr <sub>2</sub> O (%) min.
Royal - 90	38 / 1835	16	2.90	800	1580	+/-0.5 at 1550 / 2hrs	90	1.21	-
Royal - 90 D	38 / 1835	18	2.90	800	1630	+/-0.3 at 1600 / 2hrs	90	0.3	-
Royal - Mullite	36 / 1804	18	2.55	600	-	+/-0.3 at 1450 / 2hrs	90	1.21	-
Royal - Zirmul	37 / 1835	16	2.65	700	-	+/-0.25 at 1450 / 2hrs	90	0.3	13.5

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*

# INSULATION BRICKS

	Service Temperature °C	P.C.E.-Orton / °C	App.Porosity (%) max	B.D. (gm/cc) min	CCS (Kg/cm 2) min	Thermal Conductivity kcal/m/hr/degree at 600 °C	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.
Royal CF-11	1100	23 / 1605	60	0.9-1.0	22	0.25	+/-0.5 at 1100 / 5hrs	22	2.0
Royal HF13	1300	29 / 1659	60	0.95-1.05	30	0.3	+/-1.5 at 1350 / 5hrs	30	2.0
Royal HFK	1400	30/31 1665/1683	60	1.0-1.10	30	0.32	+/-1.5 at 1400 / 5hrs	40	1.5
Royal GR-20	1300	23 / 1605	70	0.5-0.55	8	0.22	+/-1 at 1250 / 24hrs	40	1.0
Royal GR-23	1350	31 / 1683	60	0.75-0.80	25	0.27	+/-1 at 1300 / 24hrs	50	1.2
Royal GR-26	1400	33 / 1743	58	0.78-0.85	30	0.32	+/-1 at 1400 / 5hrs	58	1.2

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*

# INSULATION BRICKS

	Service Temperature °C	P.C.E.- Orton / °C	App.Porosity (%) max	B.D. (gm/cc) min	CCS (Kg/cm 2) min	Thermal Conductivity kcal/m/hr/degree at 600 °C	PLC(%) at °C/hrs max.	Al <sub>2</sub> O <sub>3</sub> (%) min.	Fe <sub>2</sub> O <sub>3</sub> (%) max.
Royal GR-28	1500	36 / 1804	58	1.0-1.10	30	0.36	+/-1 at 1500 / 5hrs	60	1
Royal GR-30	1600	37 / 1820	55	1.10-1.20	35	0.40	+/-1 at 1550 / 5hrs	70	0.8

*Size Tolerance : ± 1% or ± 2 mm whichever is greater.*

# ACID RESISTANT BRICKS



## PHYSICAL PROPERTIES

Water Absorption (%)	Cold Crushing Strength (N/mm <sup>2</sup> )	Flexural Strength (N/mm <sup>2</sup> )	Acid Resistance (% loss in weight)
3	70	10	2.5

## CHEMICAL PROPERTIES

SiO <sub>3</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	CaO+MgO (%)	Na <sub>2</sub> O+K <sub>2</sub> O (%)
68	24	1.8	2.1	0.5	3.4

*Application Area: For thermal power plant chimney & acid storage tank & floor.*

## CASTABLES

Refractory castables are ready-to-use, heat-resistant mixtures that can be cast into custom shapes or used for patching and repairing high-temperature equipment.

### ***Manufacturing Process***

We produce castables by blending high-purity refractory aggregates, binders, and additives under stringent quality control measures. The mixture is designed for ease of application and superior thermal properties.

### ***Quality***

Our castables exhibit high mechanical strength, excellent thermal insulation, and resistance to thermal shock, ensuring consistent performance in the most demanding environments.

### ***Applications***

- Repairing and patching linings of furnaces, kilns, and reactors.
- Casting custom shapes for high-temperature zones in steel, cement, and non-ferrous industries.
- Insulating material for waste heat recovery systems.

# DENSE CASTABLES



BRAND NAME	ROYAL CRETE	ROYAL CRETE SPECIAL	ROYAL CRETE SUPER
Nature of Bond	Hydraulic	Hydraulic	Hydraulic
Application Method	Vibro Casting	Vibro Casting	Vibro Casting
GENERAL PROPERTIES			
Service Temp(max) °C	1400	1350	1450
Refractoriness (min) °C	20/23 1564/1605	450	31/32 1683/1717
Grain Size mm(max)	5	5	5
CHEMICAL ANALYSIS			
Al <sub>2</sub> O <sub>3</sub> (%) min.	45	45	70
Fe <sub>2</sub> O <sub>3</sub> (%) max.	4	4	4.2
PHYSICAL PROPERTIES			
Bulk Density (gm/cc)min	2.10	2.20	2.50
C.C.S (kg / cm <sup>2</sup> ) min			
110 °C	250	400	350
1350 °C	225	300	-
1450 °C	-	-	450
P.L.C.(%)max.			
800 °C	-0.12	-0.12	-0.12
1100 °C	-0.12	-0.15	-0.18
1350 °C	+/-1.0	-0.8	-
1450 °C	-	-	-0.8
Thermal Conductivity(Kcl/M/Hr/0 C max Typical Value)			
400 °C	0.74	0.71	0.93
600 °C	0.78	0.80	0.95
800 °C	0.84	0.84	0.98
Water requirement (%)	11-12	11-12	11-12

# DENSE CASTABLES



BRAND NAME	ROYAL HEAT-C	ROYAL HEAT-K	ROYAL HEAT-A
Nature of Bond	Hydraulic	Hydraulic	Hydraulic
Application Method	Vibro Casting	Vibro Casting	Vibro Casting
GENERAL PROPERTIES			
Service Temp(max) °C	1500	1600	1700
Refractoriness (min) °C	30/31 1665/1683	31/32 1683/1717	37/1820
Grain Size mm(max)	5	5	5
CHEMICAL ANALYSIS			
Al <sub>2</sub> O <sub>3</sub> (%) min.	50	60	90
Fe <sub>2</sub> O <sub>3</sub> (%) max.	1.5	1.0	0.8
PHYSICAL PROPERTIES			
Bulk Density (gm/cc)min	2100	2200	2800
C.C.S (kg / cm <sup>2</sup> ) min			
110 °C	350	350	600
800 °C	270	280	410
1100 °C	220	220	320
1500 °C	500	500	650
P.L.C.(%)max.			
800 °C	-0.12	-0.12	-0.06
1100 °C	-0.18	-0.18	-0.12
1500 °C	-0.80	-0.70	-0.80
1450 °C	-	-	-0.8
Thermal Conductivity(Kcl/M/Hr/0 C max Typical Value)			
500 °C	0.76	0.78	1.18
800 °C	0.8	0.85	1.18
Water requirement (%)	11-12	11-12	11-12



# DENSE CASTABLES

BRAND NAME	ROYAL HARC-50
CHEMICAL ANALYSIS	
Al <sub>2</sub> O <sub>3</sub> (%) min.	50
CaO (%) max.	35
Fe <sub>2</sub> O <sub>3</sub> (%) max.	4
SiO <sub>2</sub> (%) max.	6
PHYSICAL PROPERTIES	
Specific Surface	3600-4400 cm <sup>2</sup>
Residue at 170 mesh	10% max.
Setting Time	
Initial	30 minutes (min)
Final	400 minutes (min)
CCS (Sample made with std. sand)	
Cured at 18°C ± 2°C/24hrs	300 kg/cm <sup>2</sup>
Cured at 18°C ± 2°C/72hrs	350 kg/cm <sup>2</sup>

# INSULATION CASTABLES



BRAND NAME	ROYALYTE-7	ROYALYTE-9	ROYALYTE-11
Nature of Bond	Hydraulic	Hydraulic	Hydraulic
Application Method	Tamping	Tamping	Tamping
GENERAL PROPERTIES			
Service Temp(max) °C	1100	1100	1300
Refractoriness (min) °C	-	-	-
Grain Size mm(max)	6	6	6
CHEMICAL ANALYSIS			
Al <sub>2</sub> O <sub>3</sub> (%) min.	30	30	34
Fe <sub>2</sub> O <sub>3</sub> (%) max.	8.2	6.2	3.7
PHYSICAL PROPERTIES			
Dry Density (gm/cc)min	850	1000	1250
C.C.S (kg / cm <sup>2</sup> ) min			
110 °C	12	15	35
800 °C	5	7	25
1100 °C	6	10	20
1300 °C	-	-	40
P.L.C.(%)max.			
800 °C	+/-0.80	+/-0.70	-
1100 °C	+/-1.20	+/-1.10	+/-0.2
1300 °C	-	-	+/-1.0
Thermal Conductivity(Kcl/M/Hr/0 C max Typical Value)			
500 °C	0.19	0.27	0.30
800 °C	0.21	0.29	0.33
Water requirement (%)	60-65	35-40	32-36

# INSULATION CASTABLES



BRAND NAME	ROYALYTE-7	ROYALYTE-9	ROYALYTE-11	ROYALYTE-13	ROYALYTE-15
Nature of Bond	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Application Method	Tamping	Tamping	Tamping	Tamping	Tamping
GENERAL PROPERTIES					
Service Temp(max) °C	1100	1100	1300	1350	1350
Refractoriness (min) °C	-	-	-	-	-
Grain Size mm(max)	6	6	6	6	6
CHEMICAL ANALYSIS					
Al <sub>2</sub> O <sub>3</sub> (%) min.	30	30	34	38	38
Fe <sub>2</sub> O <sub>3</sub> (%) max.	8.2	6.2	3.7	3.4	3.4
PHYSICAL PROPERTIES					
Dry Density (gm/cc)min	850	1000	1250	1450	1600
C.C.S (kg / cm <sup>2</sup> ) min					
110 °C	12	15	35	50	90
800 °C	5	7	25	35	65
1100 °C	6	10	20	30	60
1300 °C	-	-	40	50	80
P.L.C.(%)max.					
800 °C	+/-0.80	+/-0.70	-	+/-0.12	+/-0.12
1100 °C	+/-1.20	+/-1.10	+/-0.2	+/-0.20	+/-0.20
1300 °C	-	-	+/-1.0	+/-0.84	+/-1.00
Thermal Conductivity(Kcl/M/Hr/0 C max Typical Value)					
500 °C	0.19	0.27	0.30	0.33	0.45
800 °C	0.21	0.29	0.33	0.37	0.48
Water requirement (%)	60-65	35-40	32-36	28-32	26-30

# INSULATION CASTABLES



BRAND NAME	ROYALYTE-11 LI	ROYALYTE-13 LI	ROYALYTE-15 LI
Nature of Bond	Hydraulic	Hydraulic	Hydraulic
Application Method	Tamping	Tamping	Tamping
GENERAL PROPERTIES			
Service Temp(max) °C	1300	1350	1400
Grain Size mm(max)	6	6	6
CHEMICAL ANALYSIS			
Al <sub>2</sub> O <sub>3</sub> (%) min.	43	44	45
Fe <sub>2</sub> O <sub>3</sub> (%) max.	1.5	1.5	1.5
PHYSICAL PROPERTIES			
Dry Density (gm/cc)min	1250	1450	1600
C.C.S (kg / cm2 ) min			
110 °C	45	15	35
800 °C	30	7	25
1100 °C	30	10	20
1300 °C	50	-	40
P.L.C.(%)max.			
800 °C	+/-0.12	+/-0.12	+/-0.12
1100 °C	+/-0.20	+/-0.80	+/-0.20
1300 °C	+/-0.10	+/-0.80	-
1350 °C	-	-	+/-4.00
Thermal Conductivity(Kcl/M/Hr/0 C max Typical Value)			
500 °C	0.33	0.38	0.43
800 °C	0.36	0.41	0.46
Water requirement (%)	32-36	32-36	30-34

## MORTARS

Refractory mortars are specialized binders that join refractory bricks and other high-temperature components, ensuring tight seals and structural integrity.

### ***Manufacturing Process***

We formulate refractory mortars by finely grinding high-grade raw materials, and incorporating special additives to enhance workability and adhesion. The mix undergoes rigorous testing for consistency and performance.

### ***Quality***

Our mortars provide exceptional bonding strength, high thermal stability, and resistance to chemical attacks, ensuring seamless construction and extended operational reliability.

### ***Applications***

- Bonding refractory bricks in furnaces, kilns, and ovens.
- Sealing gaps in industrial boilers and chimneys.
- Maintenance and repair of refractory linings.

BRAND NAME	ROYAL SET-50	ROYAL SET-51	ROYAL SET-HS	ROYAL SET-INS
<b>PHYSICAL PROPERTIES</b>				
P.C.E.-Orton / °C	31/32 1683/1717	31/32 1683/1717	31/32 1683/1717	20/1564
Grain Size mm (max)	0-1.5	0-0.5	0-0.5	0-1
Setting	Air Setting	Air Setting	Air Setting	Air Setting
Service Temperature °C	1550	1500	1550	1350
Sintering Temperature °C	1100	1100	900	1100
<b>CHEMICAL ANALYSIS</b>				
Al <sub>2</sub> O <sub>3</sub> (%) min.	50	50	40	22
Fe <sub>2</sub> O <sub>3</sub> (%) max.	3.8	3.8	1.5	2.0

BRAND NAME	ROYAL SET-30	ROYAL SET-40	ROYAL SET-60	ROYAL SET-70	ROYAL SET-80
<b>PHYSICAL PROPERTIES</b>					
P.C.E.-Orton / °C	27 /1640	31 /1683	34 /1763	35 /1785	36 /1804
Grain Size mm (max)	0-1	0-1	0-0.5	0-0.5	0-0.5
Setting	Ceramic	Ceramic	Air Setting	Air Setting	Air Setting
Service Temperature °C	1350	1400	1500	1500	1600
Sintering Temperature °C	1100	1100	1100	1100	1100
<b>CHEMICAL ANALYSIS</b>					
Al <sub>2</sub> O <sub>3</sub> (%) min.	30	40	60	70	80
Fe <sub>2</sub> O <sub>3</sub> (%) max.	3.0	3.5	3.8	3.8	3.5

**Size Tolerance : 95% Passing through the Maximum indicated grain size.**

BRAND NAME	ROYAL SET-40 SPL	ROYAL SET-50 SPL	ROYAL SET-60 SPL
<b>PHYSICAL PROPERTIES</b>			
P.C.E.-Orton / °C	31 / 1683	32/33 1717/1743	33 / 1743
Grain Size mm (max)	0-0.5	0-0.5	0-0.5
Setting	Air Setting	Air Setting	Air Setting
Service Temperature °C	1500	1550	1650
Sintering Temperature °C	1100	1100	1100
<b>CHEMICAL ANALYSIS</b>			
Al <sub>2</sub> O <sub>3</sub> (%) min.	40	50	60
Fe <sub>2</sub> O <sub>3</sub> (%) max.	2.0	2.0	2.0

BRAND NAME	ROYAL SET-70 SPL	ROYAL SET-85	ROYAL SET-90
<b>PHYSICAL PROPERTIES</b>			
P.C.E.-Orton / °C	35 / 1785	36 / 1804	37 / 1820
Grain Size mm (max)	0-0.5	0-0.5	0-0.5
Setting	Air Setting	Air Setting	Air Setting
Service Temperature °C	1550	1700	1700
Sintering Temperature °C	1100	1100	1100
<b>CHEMICAL ANALYSIS</b>			
Al <sub>2</sub> O <sub>3</sub> (%) min.	70	84	89
Fe <sub>2</sub> O <sub>3</sub> (%) max.	1.5	1.5	1.0

**Size Tolerance : 95% Passing through the Maximum indicated grain size.**

BRAND NAME	MULLITE	ZIRMUL	ZIRCON PATCH
<b>PHYSICAL PROPERTIES</b>			
P.C.E.-Orton / °C	35 / 1785	36 / 1804	35 / 1785
Grain Size mm (max)	0-0.5	0-0.5	0-0.3
Setting	Air Setting	Air Setting	Air Setting
Service Temperature °C	1650	1650	1650
Sintering Temperature °C	1250	1450	-
<b>CHEMICAL ANALYSIS</b>			
Al <sub>2</sub> O <sub>3</sub> (%) min.	64	55	60
Fe <sub>2</sub> O <sub>3</sub> (%) max.	0.6	0.5	0.5
Zr <sub>2</sub> O (%) min.	-	15	13.5
CaO (%) max.	-	-	6

**Size Tolerance : 95% Passing through the Maximum indicated grain size.**



# ACID PROOF MORTARS



	SODIUM SILICATE BASE	POTASSIUM SILICATE BASE
<b>WORKING TIME</b> (min. at 270°C +/- 20° C) Minutes	15	20
<b>FLEXURAL STRENGTH</b> (min. kg/cm <sup>2</sup> ) at 7 days	35	40
<b>COMPRESSIVE STRENGTH</b> (min. kg/cm <sup>2</sup> ) at 7 days	100	150
<b>BOND STRENGTH</b> (min. kg/cm <sup>2</sup> ) at 7 days	5	5
<b>APPLICATION AREA</b>	Laying of Acid resisting Brick & Tiles	Laying of Acid resisting Brick & Tiles

**Size Tolerance : 95% Passing through the Maximum indicated grain size.**

## RAMMING MASS

Ramming mass is a monolithic refractory material used for lining induction furnaces and other high-temperature industrial equipment.

### ***Manufacturing Process***

Legion Exim produces ramming mass using graded quartz or silica and precise bonding agents. The mix is processed under strict quality protocols to ensure homogeneity and high performance.

### ***Quality***

Our ramming mass offers excellent thermal conductivity, resistance to thermal spalling, and extended lining life, optimizing furnace operations with minimal downtime.

### ***Application***

- Lining induction furnaces in steel and foundry industries.
- Use in coreless and channel-type furnaces.
- Repair and maintenance of furnace linings.

ROYAL SILICA RAMMING MASS	
SiO <sub>2</sub> (min.)	98%
Fe <sub>2</sub> O <sub>3</sub> (max.)	0.05%
Al <sub>2</sub> O <sub>3</sub> (max.)	0.3%
Sintering Temp.(min.)	1200° C
Application Temp. (max.)	1700° C
PCE (min.)	32/1717
Grading (mm)	0-5
Density after Ramming (gm/cc)	2.35-2.5
LOI	0.20 max.
Application Area	Lining of coreless Induction Furnace & Foundry.
Packing	Normally packed in 50 kg. Polyline double HDPE bags or as per customers' requirements.
Self-life	The self-life is six months when stored in a dry & covered area.

## CERAMIC FIBER

Ceramic fiber products are lightweight, high-temperature insulation materials widely used in industrial furnaces, kilns, and thermal processing equipment.

### ***Manufacturing Process***

We manufacture ceramic fibers by melting high-purity alumina-silica raw materials in a controlled environment, followed by spinning or blowing to form fibers. The fibers are then processed into blankets, boards, or other shapes.

### ***Quality***

Our ceramic fiber products are known for their exceptional thermal insulation, low thermal conductivity, and excellent flexibility. They contribute to energy efficiency and operational safety in high-temperature applications.

### ***Applications***

- Insulation in high-temperature furnaces and kilns in metal, glass, and ceramics industries.
- Heat shields and gaskets in thermal equipment.
- Lining for ductwork and exhaust systems in power plants.

# CERAMIC FIBER | BULK



SIMWOOL BULK		
Classification Temperature (°C)	1260	1425
Melting Point (°C)	1760	
Colour	White	
Fiber Diameter (µm)	2.5 ~ 4	
Non Fibrous content by weight (%)	30 max.	
Chemical Composition (%)		
Al <sub>2</sub> O <sub>3</sub>	42-47	30-34
SiO <sub>2</sub>	53-58	48-55
ZrO <sub>2</sub>	-	13-18
Other	Traces	Traces
Packing (kg/bag)	15	

### CHARACTERISTICS

- Excellent thermal and chemical stability
- Excellent thermal shock resistance
- Resilient up to high temperatures
- Lightweight, low heat storage capacity
- Low thermal conductivity
- Excellent sound absorber
- Asbestos free

### APPLICATION

- Raw material of secondary ceramic fiber products e.g. blanket, paper, board.
- Expansion joint seal.
- Temporary repair of insulation.
- Loose insulating fill for complex spaces and areas where access is difficult.

# CERAMIC FIBER | BLANKET

SIMWOOL BLANKET		
Classification Temperature (°C)	1260	1425
Melting Point (°C)	1760	
Colour	White	
Fiber Diameter (µm)	2.5 ~ 4	
Linear Shrinkage (%)	1200 °C x 24 hours - 3.5	1400 °C x 24 hours - 3.5
Thermal Conductivity (W/mk) (Density 128 kg/m <sup>3</sup> & Mean temp. 500° C)	0.15	
Tensile Strength (KPa) (25 mm thick, 128 kg/m <sup>3</sup> )	55 min.	
Non Fibrous content by weight (%)	30 max.	
Theoretical Density (kg/m <sup>3</sup> )	64/96/128	
Chemical Composition (%)		
Al <sub>2</sub> O <sub>3</sub>	42-47	30-34
SiO <sub>2</sub>	53-58	48-55
ZrO <sub>2</sub>	-	13-18
Other	Traces	Traces
Blanket Size (mm)	13 x 610 x 7620 25 x 610 x 7620 50 x 610 x 3810	



## CHARACTERISTICS

- Double needled blanket
- Low thermal conductivity
- Low weight comparatively other refractory material
- Short heating & cooling time
- Resistant to thermal shock
- Flexible and easy to cut and install
- Contains no organic binder
- Asbestos free

## APPLICATION

- Lining for furnace, kiln and oven
- Expansion joint and seals for furnace, kiln and oven
- Back-up insulation
- Lagging of high-temperature pipe work
- High-temperature filtration
- Steam turbine and nuclear insulation
- Pipe insulation
- Fire protection

# CERAMIC FIBER | MODULE



## CHARACTERISTICS

- Low thermal conductivity
- Great mechanical strength
- Resistant to gas flow erosion
- Short heating and cooling time
- Resistant to thermal shock
- Flexible and easy to cut and install
- Asbestos free

## APPLICATION

- Iron and steel reheating furnace
- Multi & single stack coil annealing furnace
- Transfer ladle lids
- Continuous annealing and coat ducting furnace
- Petrochemicals: Reformers, Duct-work pyrolysis heaters
- Ceramic: Shuttle kiln, Tunnel kiln, Kiln cars
- Utilities: Waste heat recovery units, Combustion chambers, Boiler ductwork

SIMWOOL MODULE		
Classification Temperature (°C)	1260	1425
Colour	White	
Fiber Diameter (µm)	2.5 ~ 4	
Non Fibrous content by weight (%)	30 max.	
Theoretical Density (kg/m <sup>3</sup> )	128/160/192	
Chemical Composition (%)		
Al <sub>2</sub> O <sub>3</sub>	42-47	30-34
SiO <sub>2</sub>	53-58	48-55
ZrO <sub>2</sub>	-	13-18
Other	Traces	Traces
Blanket Size (mm)	150 x 305 x 305 175 x 305 x 305 200 x 305 x 305 225 x 305 x 305 250 x 305 x 305 275 x 305 x 305 305 x 305 x 305	

# CERAMIC FIBER | BOARD



SIMVAC BOARD			
Classification Temperature (°C)	1050	1260	1425
Colour	White		
Density (kg/m <sup>3</sup> )	300-370	320-380	320-380
Loss on Ignition (%)	5-8	4-7	4-7
Compressive Strength 10% deform (kg/cm <sup>3</sup> )	2.8 min.		
Compressive Strength 25% deform (kg/cm <sup>3</sup> )	4.5 min.		
Bursting Strength (kg/cm <sup>3</sup> )	10 min.	15 min.	
Linear Shrinkage % 24 hours	2.5 max. at 1000° C	3.5 max. at 1200° C	3.5 max. at 1400° C
Chemical Composition (%)			
Al <sub>2</sub> O <sub>3</sub>	21-23	43-45	29-31
SiO <sub>2</sub>	72-74	54-56	54-58
ZrO <sub>2</sub>	-	-	12-14

## CHARACTERISTICS

- Low thermal conductivity
- Resistant to thermal shock
- Great Mechanical Strength
- Even density and thickness
- Able to withstand gas flow velocity of 30m/sec
- Easy to cut and install
- Good erosion resistance
- Short heat-up and cool-down time
- Asbestos free

## APPLICATION

- Hot face lining of ceramic fiber kiln
- Insulation for kiln car
- Furnace door insulation
- Duct insulation
- General thermal barrier
- High temperature insulation



## TYPES:

### Simwool Lagging Rope

It is made from Simwool fiber Blanket continuous strip enclosed in glass filament yarn or SS wire & can perform with low density and good strength for sealing purposes.

### Simwool Braided Rope

Round /Square braid Rope is made from high performance ceramic fiber yarn with glass fiber or s.s.wire insert which is braided under compression to form round/square braid. It has good mechanical strength and chemical resistance property.

### Simwool Twisted Rope

Twisted Rope is made from ceramic fiber yarn and reinforced with fibreglass or s.s. wire by mechanical twisting process. It has good tensile strength and resilience for suitable application.

**Diameter Available in stock (mm): 10, 13, 16, 19, 25, 32, 38, 50**



**SIMWOOL  
LAGGING ROPE**



**SIMWOOL  
BRAIDED ROPE**



**SIMWOOL  
TWISTED ROPE**



## CHARACTERISTICS

- Stable at high temperature
- High tensile strength
- Strong resistance to thermal shock and corrosion attack
- Low thermal conductivity
- Asbestos free
- Low weight
- Easily fabricate and material handling

## APPLICATION

- Furnace door insulation and seal
- Coke oven door seal
- Foundries, refineries and power plants
- Gasket for vacuum degassing of steel
- Expansion joint packing in boilers and furnaces
- Glass furnace sealing

REGD. OFFICE

## Legion Exim LLP

Road B, Aji GIDC, Rajkot, Gujarat - 360003  
INDIA

Visit us: [www.legionexim.com](http://www.legionexim.com)

Mail us: [trade@legionexim.com](mailto:trade@legionexim.com)

Call us: [+91 91060 31803](tel:+919106031803) | [+91 84879 92496](tel:+918487992496)

*Follow us:*

