

Royal Refractories

Manufactures and Dealers in Refractories & Minerals
28, G.I.D.C., Wankaner, Gujarat – 363 622

Introduction

- Royal Refractories is a manufacturer and dealers in refractories & mineral since last 50 years. We have our own fully equipped plant with fully functional laboratory for manufacturing in Wankaner, Gujarat, India.
- We manufacture all refractory items that may be required by refinery industries, steel industries, chemical industries, glaze tiles industries, silicate industries viz. High alumina bricks, blocks, slabs, tiles, and so on.

Core Value



We believe in continuous quality improvement to achieve total customer satisfaction.



We satisfy our customers with superior quality, value and service.



We value everyone and treat people with dignity and professionalism.



We develop professionally through expanding our capabilities with innovative training.

Milestones

❑ Over the course of this prolonged period of time, we have provided a great service to our credit-worthy customers like:

- **RELIANCE INDUSTRIES LTD.**
- **ESSAR PROJECTS LTD. VADINAR, NIRMA LTD.**
- **BLA INDUSTRIES**
- **BIRLA NGK INDUSTRIES**
- **MUKUND IRON & STEEL**
- **PANCHMAHAL STEEL LTD.**
- **VERTEX DEVELOPMENT AND PROPERTIES PVT. LTD.**
- **LLOYDS STEEL COM. PVT. LTD.**
- **BIRLA NGK INSULATORS PVT LTD**
- **ESSAR OIL LTD.**
- **RELIANCE INDUSTRIES LTD.**
- **RHYTHM INFRASTRUCTURE PVT. LTD.**
- **INDRAJIT POWER PVT . LTD.**
- **SHREE CIMENT**
- **RAMA PHOSPHATES LIMITED.**
- **VARRSANA ISPAT LTD.**
- **INDUSTRIAL BOILERS LTD**
- **NIRMA LTD.,**
- **BLA INDUSTRIES,**
- **MUKUND IRON & STEEL,**
- **PANCHMAHAL STEEL LTD.**
- **VERTEX DEVELOPMENT AND PROPERTIES PVT. LTD.**
- **LLOYDS STEEL COM. PVT. LTD.**
- **LAKSHMI ENTERPRISES TELANGANA**
- **AMNS KHOPOLI LIMITED FORMERLY UTTAM GALVA STEELS LTD.**
- **ARCHEAN CHEMICAL INDU. PVT. LTD**
- **ASHAPURA GROUP OF INDUSTRIES**
- **B.R. STEEL PRODUCTS PVT LTD,**
- **BALKESHWAR SILICATE WORKS**
- **BANSAL LIME AND CHEMICALS**
- **ULTRAMARINE SPECIALTY CHEMICALS LTD.**
- **ULTRAMARINE & PIGMENTS LTD.**

Products

Alumina Bricks

Dense Bricks

Insulation Bricks

Castable Cement

Mortars

Profile's Grades & Drawings & various Refractories

Acid Resistant Bricks

Acid Proof Mortars

Silica Ramming Mass

& many more as per the requirement



Product's Profile



Various refractories Alumina & Dense Bricks

**ALLUMINA
BRICKS &
DENES BRICKS.**

Royal Alumina
Bricks – 30 %

Royal Alumina
Bricks – 40 %

Royal Alumina
Bricks – 45%

Royal Alumina
Bricks – 50 %

Royal Alumina
Bricks – 55 %

Royal Alumina
Bricks – 60 %

Royal Alumina
Bricks – 70 %

Royal Bricks –
LF70.

Royal Alumina
Bricks – 75 %

Royal Alumina
Bricks – 80 %

Royal Bricks. –
P80

Royal Alumina
Bricks – 85 %

Royal Alumina
Bricks – 90 %

Royal Dense
Bricks – 30.

Royal Dense
Bricks – 40.

Royal Dense
Bricks – 45.

Royal Dense
Bricks – 50.

Royal Dense
Bricks – 55.

Royal Dense
Bricks – 62

Royal Dense I
Bricks – 90.

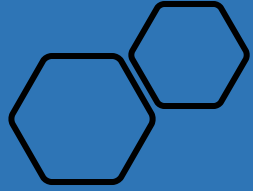
Royal Special
Bricks – 60.

Royal Special
Bricks – 70.

Royal Bricks –
M60.

Royal Bricks –
M70.

Royal
Sillimanite
Brick.



Insulation Bricks

- **Royal CF- 11**
- **Royal HF- 13**
- **Royal HFK**
- **Royal GR – 20**
- **Royal GR – 23**
- **Royal GR – 26**
- **Royal GR – 28**
- **Royal GR – 30.**

Castable Cement

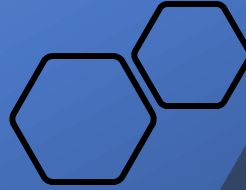
- Royal Crete Normal
- Royal Crete Special
- Royal Crete Super
- Royal Heat - C
- Royal Heat – K
- Royal Heat – A
- Royalyte – 7
- Royalyte–9
- Royalyte – 11
- Royalyte – 13
- Royalyte – 15
- Royalyte – 13 LI
- Royalyte – 15 LI



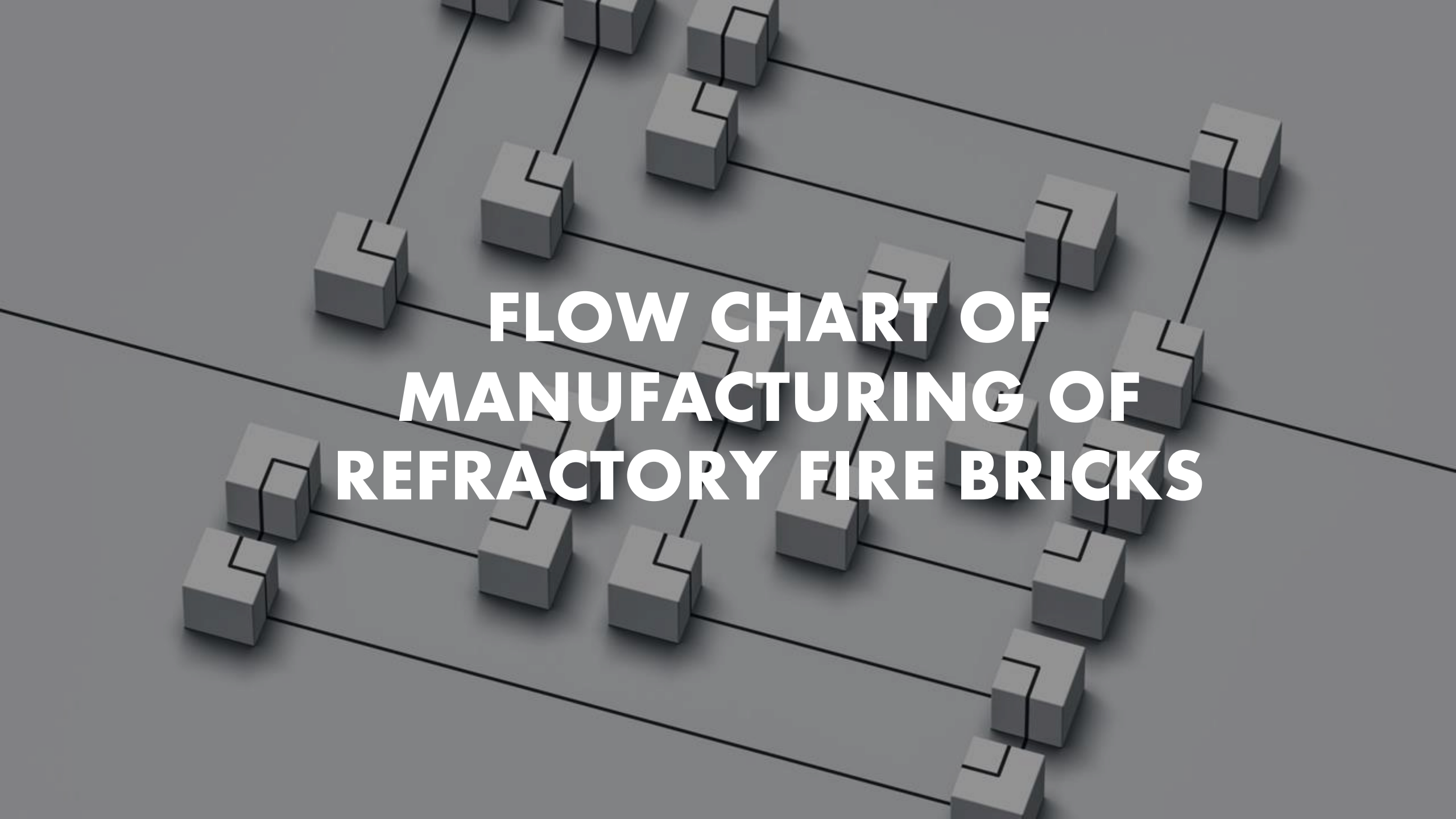
Mortars

Royal Set – 30	Royal Set – 40	Royal Set – 40 Spl	Royal Set -50. Normal	Royal Set – 50 SPI
Royal Set -51. Fines	Royal Set – 60	Royal Set – 60 Spl	Royal Set – 70	Royal Set – 70 Spl
Royal Set – 80	Royal Set – 85	Royal Set 90	Royal Set – HS (2 Component)	Royal Set – INS.
Royal Acid proof mortar Sodium Silicate Base	Royal Acid Proof mortar Potassium Silicate	Royal Sillimanite Mortar	Royal Mullite Mortar.	Royal Zircon Mortar
		Royal Zircon Patch.		

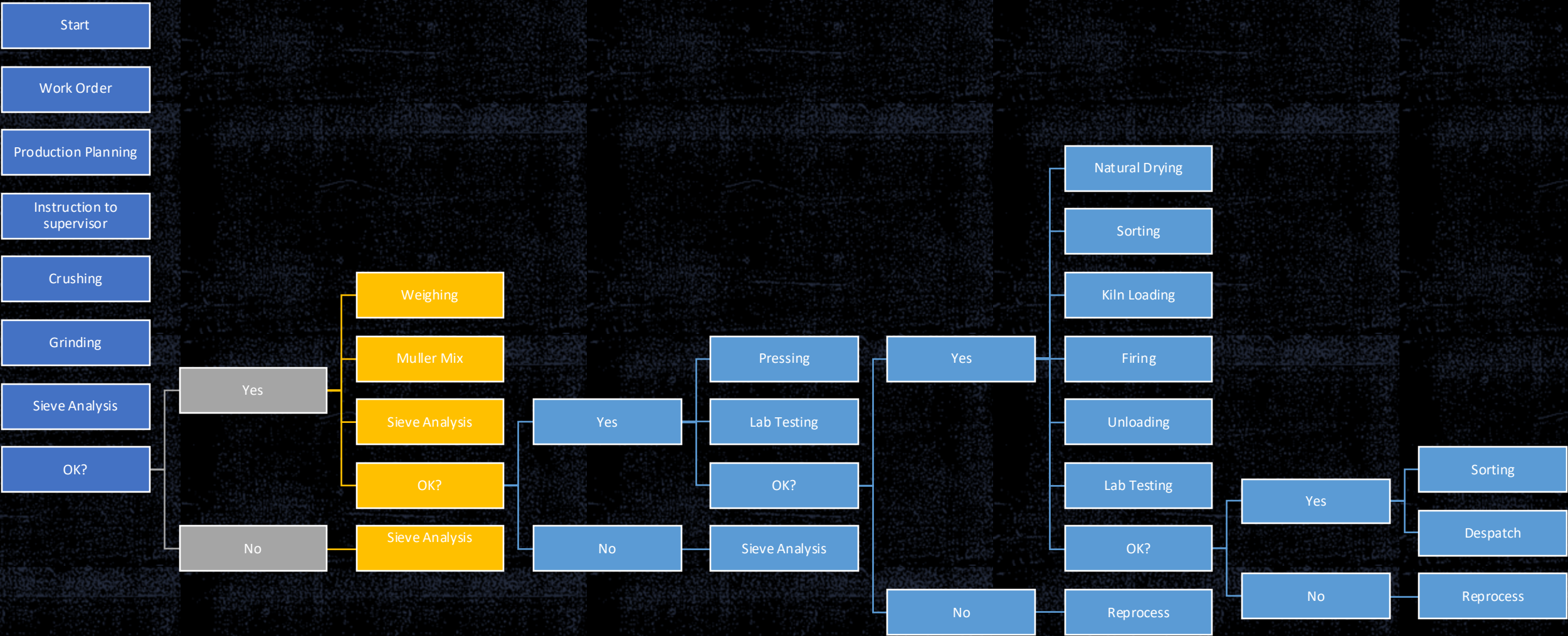
Grades & Drawings



- **Acid Proof Bricks**
- **Acid Proof Tiles**
- **Royal Silica Ramming Mass**
- **Silicate plant's Special Shapes**
- **Cement Plant's Special Shapes**
- **Galvanizer plant's Special Shapes**
- **Fertilizer Industries Special Shapes**
- **Petro Chemical Industries Special Shapes**
- **Sugar Industries Special Shapes**
- **Glass Industries Special Shapes**
- **Steel Plant's Special Shapes**
- **Glaze Tiles Industries Special Shapes**
- **Casting Industries Special Shapes**

The background is a 3D isometric view of a gray surface with a grid of black lines. Scattered across the grid are numerous small, light-gray cubes. Each cube has a black line on its top face, forming a cross-like shape. The cubes are arranged in a way that suggests a 3D grid or a complex pattern.

FLOW CHART OF MANUFACTURING OF REFRACTORY FIRE BRICKS



Dense Bricks

Brand Name	Royal - 30	Royal - 40	Royal - 45
Weight:	3.8 Kg	4.2 Kg	4.5 Kg
Physical Properties			
P .C.E.-Orton / C	28/1649	30/1665	32/1717
App. Porosity (%) max	26	24	21
B.D. (gm/cc) min	1.9	2.1	2.25
CCS (Kg/cm 2) min	250	350	400
Thermal Properties			
RUL (Ta) C min	1300	1400	1400
PLC(%) at C/hrs max.	+/- at	+/- 1 at	+/-0.8 at
	1300/3 hrs..	1350/3 hrs..	1400/3 hrs..
Chemical Properties			
Al2O3 (%) min.	28	40	45
Fe2O3(%) max.	3.5	2.8	3.5
Size Tolerance : $\pm 1.5\%$ or ± 2 mm whichever is greater.			

BRAND NAME	ROYAL - 30D	ROYAL - 42D	ROYAL - 45D
Weight:	4.3 Kg	4.5 Kg	4.6 Kg
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	30 / 1665	33 / 1743	34 / 1765
App. Porosity (%) max	18	17	18
B.D. (gm/cc) min	2.15	2.25	2.30
CCS (Kg/cm 2) min	400	500	500
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1350	1480	1500
PLC(%) at °C/hrs.. max.	+/-0.8 at	+/-0.8 at	+/-0.8 at
1350 / 3hrS		1450 / 3hrS	1500/ 2hrS
CHEMICAL ANALYSIS			
Al2O3 (%) min.	30	42	45
Fe2O3(%) max.	1.8	1.3	1.3
Size Tolerance : ± 1mm or ± 2 mm whichever is greater.			

BRAND NAME	ROYAL - 50	ROYAL - 60	ROYAL - 70
Weight:	4.7Kg	5.00 Kg	5.2 Kg
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton/°C	33 /1743	35 / 1785	36 / 1804
App. Porosity (%) max	22	22	22
B.D. (gm/cc) min	2.35	2.50	2.60
CCS (Kg/cm 2) min	400	500	550
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1410	1450	1460
PLC(%) at°C/hrs.. max.	+/- 1 at	+/- 1.8 at	+/- 2 at
1400 / 3hrS		1500 / 2hrS	1500/ 2hrS
<u>CHEMICAL ANALYSIS</u>			
Al2O3 (%) min.	50	60	70
Fe2O3(%) max.	3.5	3.5	3.5
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.			

BRAND NAME	ROYAL - 50D		ROYAL - 55	ROYAL - 60 spl
Weight:	4.7 Kg		4.8 Kg	4.9 Kg
<u>PHYSICAL PROPERTIES</u>				
P.C.E.-Orton/°C	34 /1765		35 / 1785	36 / 1804
App. Porosity (%) max	18		21	22
B.D. (gm/cc) min	2.35		2.40	2.45
CCS (Kg/cm 2) min	500		450	450
<u>THERMAL PROPERTIES</u>				
RUL (Ta) °C min	1500		1480	1480
PLC(%) at°C/hrs.. max.	+/- 0.5 at		+/- 1 at	+/- 0.8 at
1500 / 3hrS			1500 / 3hrS	1500/ 2hrS
<u>CHEMICAL ANALYSIS</u>				
Al2O3 (%) min.	50		55	60
Fe2O3(%) max.	1.3		2.0	2.2
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.				

BRAND NAME	ROYAL - SILL	ROYAL - 62D	ROYAL - 60 M
WEIGHT:	4.9 KG	5 KG	4.9 KG
PHYSICAL PROPERTIES			
P.C.E.-Orton / °C	36 / 1804	36 / 1804	36 / 1804
App. Porosity (%) max	18	16	18
B.D. (gm/cc) min	2.45	2.50	2.45
CCS (Kg/cm 2) min	500	550	550
THERMAL PROPERTIES			
RUL (Ta) °C min	1500	1510	1620
PLC(%) at °C/hrs.. max.	+/- 0.3 at	+/- 0.2 at	+/- 0.4 at
	1500 / 2hrS	1500 / 2hrS	1600/ 2hrs
CHEMICAL ANALYSIS			
Al2O3 (%) min.	58	62	60
Fe2O3(%) max.	1.5	1.3	0.8

BRAND NAME	ROYAL - 70 spl	ROYAL - 70 LF	ROYAL - 75
Weight:	5.2Kg	5.1 Kg	5.3 Kg
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton/°C	37 / 1820	37 / 1820	37 / 1820
App. Porosity (%) max	22	22	22
B.D. (gm/cc) min	2.60	2.55	2.65
CCS (Kg/cm 2) min	600	600	600
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1460	1480	1480
PLC(%) at°C/hrs.. max.	+/- 2 at	+/- 2 at	+/- 2 at
	1500 / 2hrS	1500 / 2hrS	1500/ 2hrS
<u>CHEMICAL ANALYSIS</u>			
Al2O3 (%) min.	70	70	75
Fe2O3(%) max.	3	2.5	3.5

Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.

BRAND NAME	ROYAL - 70 L	ROYAL - 70 M
Weight:	5.2 Kg	5.3 Kg
<u>PHYSICAL PROPERTIES</u>		
P.C.E.-Orton / °C	37 / 1820	37 / 1820
App. Porosity (%) max	18	18
B.D. (gm/cc) min	2.60	2.55
CCS (Kg/cm 2) min	600	600
<u>THERMAL PROPERTIES</u>		
RUL (Ta) °C min	1550	1650
PLC(%) at °C/hrs.. max.	+/- 0.5 at	+/- 0.3 at
	1550 / 2hrS	1600/ 2hrS
CHEMICAL ANALYSIS		
Al2O3 (%) min.	70	70
Fe2O3(%) max.	1.5	0.4
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.		

BRAND NAME	ROYAL – 80B	ROYAL - 80	ROYAL - 80P
WEIGHT:	5.5KG	5.5 KG	5.5 KG
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	37 / 1820	37 / 1820	37 / 1820
App. Porosity (%) max	20	18	17
B.D. (gm/cc) min	2.75	2.75	2.75
CCS (Kg/cm 2) min	700	700	750
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1500	1550	1540
PLC(%) at °C/hrs.. max.	+/- 1.20 at	+/- 0.8 at	+/- 1 at
	1550 / 2hrS	1550 / 2hrS	1550/ 2hrS
<u>CHEMICAL ANALYSIS</u>			
Al2O3 (%) min.	79	79	80
Fe2O3(%) max.	1.90	1.40	1.40
P2O5(%) max.	-	-	1.5
Size Tolerance : ± 1.5% or ± 1.5 mm whichever is greater.			

BRAND NAME	ROYAL - 85	ROYAL - 85P
Weight:	5.6 Kg	5.6 Kg
PHYSICAL PROPERTIES		
P.C.E.-Orton / °C	38 / 1835	38 / 1835
App. Porosity (%) max	18	17
B.D. (gm/cc) min	2.80	2.80
CCS (Kg/cm 2) min	750	800
THERMAL PROPERTIES		
RUL (Ta) °C min	1550	1550
PLC(%) at °C/hrs.. max.	+/- 0.8 at	+/- 0.8 at
	1550 / 2hrS	1550/ 2hrS
CHEMICAL ANALYSIS		
Al2O3 (%) min.	84	84
Fe2O3(%) max.	1.3	1.3
P2O5(%) max.	-	1.5
Size Tolerance : ± 1% or ± 1.5 mm whichever is greater.		

BRAND NAME	ROYAL 90	ROYAL - 90D
Weight:	5.8 Kg	5.8 Kg
PHYSICAL PROPERTIES		
P.C.E.-Orton / °C	38/1835	38 / 1835
App. Porosity (%) max	16	18
B.D. (gm/cc) min	2.90	2.90
CCS (Kg/cm 2) min	800	800
THERMAL PROPERTIES		
RUL (Ta) °C min	1580	1630
PLC(%) at °C/hrs.. max.	+/- 0.5 at 1550/2 hrs	+/- 0.3 at 1600/ 2hrS
CHEMICAL ANALYSIS		
Al2O3 (%) min.	90	90
Fe2O3(%) max.	1.21	0.3

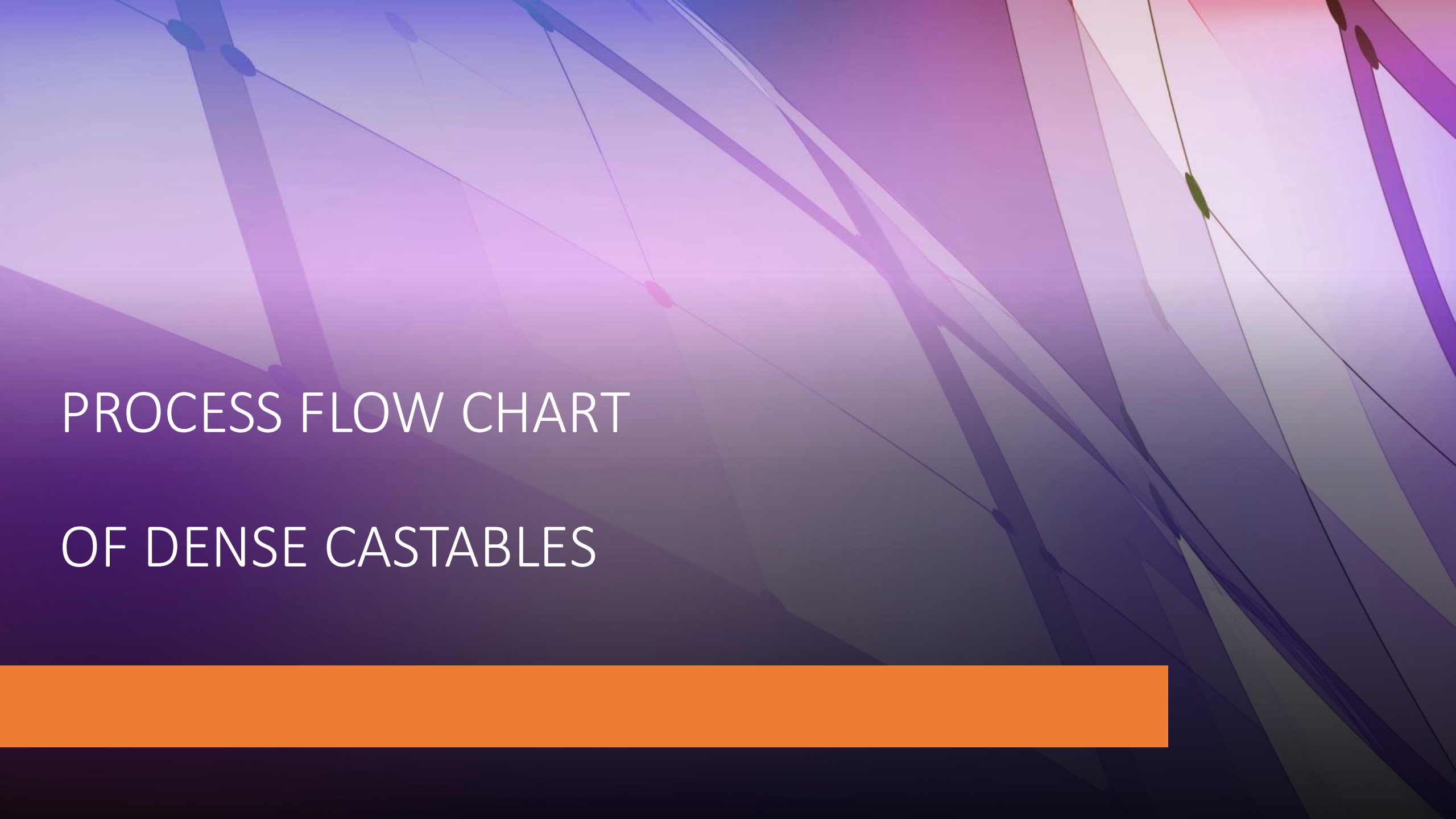
Size Tolerance : ± 1 mm or ± 2 mm whichever is greater.

Brand Name	Royal Mullite	Royal Zirmul
Weight	5.1 Kg	5.3 Kg
Physical Properties		
P.C.E.-Orton / °C	36/1804	37/1835
App. Porosity (%) max	18	16
B.D. (gm/cc) min	2.55	2.65
CCS (Kg/cm 2) min	600	700
Thermal Properties		
PLC(%) at °C/hrs. max.	+/- 0.3 at	+/- 0.25 at
	1450/2 hrs.	1450/2 hrs.
Chemical Analysis		
Al ₂ O ₃ (%) min.	70	60
Fe ₂ O ₃ (%) max.	0.5	0.4
Zr ₂ O(%) min.	-	13.5
Size Tolerance : ± 1 mm or ± 2 mm whichever is greater.		



Acid Resistant Bricks

Weight	4.1 Kg
<u>PHYSICAL PROPERTIES :</u>	
Water Absorption(%)	3
Cold Crushing Strength	70
Flexural Strength(N/mm ²)	10
Acid Resistance (% loss in weight)	2.5
<u>CHEMICAL ANALYSIS :</u>	
SiO ₃ (%)	68
Al ₂ O ₃ (%)	24
Fe ₂ O ₃ (%)	1.8
TiO ₂ (%)	2.1
CaO+MgO (%)	0.5
Na ₂ O+K ₂ O(%)	3.4
Application Area	For thermal power plant chimney & acid Storage tank & floor.



PROCESS FLOW CHART OF DENSE CASTABLES



Start

Work Order

Production
Planning

Instruction to
Supervisor

Crushing

Grinding

Sieve
Analysis

OK?

Yes

No

Weighing

Blending

Sieve
Analysis

OK?

Sieve
Analysis

Yes

No

Ready for
Packing

Lab Testing

OK?

Sieve
Analysis

Yes

No

Packing

Reprocess

Dispatch

Mortar

Brand Name	Royal Set - 30	Royal Set - 40
Physical Properties		
P.C.E.-Orton / °C	27/1640	31/1683
Grain Size (mm)	0 - 1	0 - 1
Setting	Ceramic	Ceramic
Service Temp °C	1350	1400
Sintering Temp °C	1100	1100
Chemical Analysis		
Al ₂ O ₃ (%) min.	30	40
Fe ₂ O ₃ (%) max.	3.0	3.5
Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg	

Brand Name	Royal Set - 50	Royal Set - 51
Physical Properties	(NORMAL)	(FINES)
P.C.E.-Orton / °C	31/32 1683/1717	31/32 1683/1717
Grain Size (mm)	0 - 1.5	0 - 0.5
Setting	Air Setting	Air Setting
Service Temp °C	1550	1550
Sintering Temp °C	1100	1100
Chemical Analysis		
Al ₂ O ₃ (%) min.	50	50
Fe ₂ O ₃ (%) max.	3.8	3.8
Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg	

Brand Name	Royal Set – 40 Spl	Royal Set – 50 Spl	Royal Set – 60 Spl
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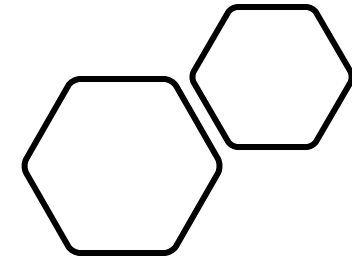
Physical Properties

P.C.E.-Orton / °C	31 / 1683	32/33 1717/1743	33 / 1743
Grain Size (mm)	0 - 0.5	0 - 0.5	0 - 0.5
Setting	Air Setting	Air Setting	Air setting
Service Temp °C	1500	1550	1650
Sintering Temp °C	1100	1100	1100

Chemical Analysis

Al ₂ O ₃ (%) min.	40	50	60
Fe ₂ O ₃ (%) max.	2.0	2.0	2.0

Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg
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Brand Name	Royal Set - 60	Royal Set - 70	Royal Set - 80
Physical Properties			
P.C.E.-Orton / °C	34 / 1763	35 / 1785	36 / 1804
Grain Size (mm)	0 - 0.5	0 - 0.5	0 - 0.5
Setting	Air Setting	Air Setting	Air setting
Service Temp °C	1500	1500	1600
Sintering Temp °C	1100	1100	1100
Chemical Analysis			
Al ₂ O ₃ (%) min.	60	70	80
Fe ₂ O ₃ (%) max.	3.8	3.8	3.5
Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg		

Brand Name	Royal Set - HS	Royal Set - INS
Physical Properties	(2 Component)	
P.C.E.-Orton / °C	31/32 1683/1717	20/1564
Grain Size (mm)	0 - 0.5	0 - 1
Setting	Air Setting	Air Setting
Service Temp °C	1550	1350
Sintering Temp °C	900	1100
Chemical Analysis		
Al ₂ O ₃ (%) min.	40	22
Fe ₂ O ₃ (%) max.	1.5	2.0
1 Bag = 50 Kg		

Brand Name	Royal Set – 70 Spl	Royal Set – 80	Royal Set – 90
Physical Properties			
P.C.E.-Orton / °C	35 / 1785	36 / 1804	37 / 1820
Grain Size (mm)	0 - 0.5	0 - 0.5	0 - 0.5
Setting	Air Setting	Air Setting	Air setting
Service Temp °C	1550	1700	1700
Sintering Temp °C	1100	1100	1100
Chemical Analysis			
Al ₂ O ₃ (%) min.	70	84	89
Fe ₂ O ₃ (%) max.	1.5	1.5	1.0
Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg		

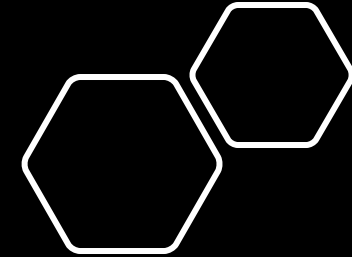
Brand Name	Mullite	Zirmul
Physical Properties		
P.C.E.-Orton / °C	35 / 1785	36 / 1804
Grain Size (mm)	0 - 0.5	0 - 0.5
Setting	Air Setting	Air Setting
Service Temp °C	1650	1650
Sintering Temp °C	1250	1450
Chemical Analysis		
Al ₂ O ₃ (%) min.	64	55
Fe ₂ O ₃ (%) max.	0.6	0.5
Zr₂O(%) min.	-	15
CaO(%) max.		
Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg	

Brand Name	Zircon Patch
Physical Properties	
P.C.E.-Orton / °C	35 / 1785
Grain Size (mm)	0 - 0.3
Setting	Air Setting
Service Temp °C	1650
Sintering Temp °C	-
Chemical Analysis	
Al ₂ O ₃ (%) min.	60
Fe ₂ O ₃ (%) max.	0.5
Zr₂O(%) min.	13.5
CaO(%) max.	6
Size Tolerance : 95% Passing through the Maximum indicated grain Size	1 Bag = 50 Kg



Dense Castable

BRAND NAME	ROYAL CRETE	ROYAL CRETE	ROYAL CRETE
Nature of Bond	Hydraulic	Hydraulic	Hydraulic
Application Method	Vibrio Casting	Vibrio Casting	Vibrio 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 ₂ O ₃ (%) min.	45	45	70
Fe ₂ O ₃ (%) max.	4	4	4.2
PHYSICAL PROPERTIES			
Bulk Density (gm/cc)min	2.10	2.20	2.50
C.C.S (kg / cm ²) 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./°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



1 bag = 50 kg

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
Grain Size mm(max)	5	5	5
CHEMICAL ANALYSIS			
Al2O3 (%) min.	50	60	90
Fe2O3(%) max.	1.5	1	0.8
PHYSICAL PROPERTIES			
Bulk Density (kg/m)			
110 °C	2100	2200	2800
C.C.S (kg / cm²) min			
110 °C	350	350	600
800 °C	270	280	410
1100 °C	220	220	320
1500	500	500	-
1500	-	-	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
Refractoriness(min)	30/31 1665/1683	31/32 1683/1717	37 / 1820
Thermal Conductivity (Kcal/M/Hr./ °C)max (Typical Value)			
500 °C	0.76	0.78	1.18
800 °C	0.8	0.85	1.28
Water requirement (%)	11 - 12	11 - 12	8 – 9

1 bag = 50 kg

Brand Name	Royal HARC – 50
Chemical Analysis	
Al ₂ O ₃	50.0% Min.
CaO	35.0% Max.
Fe ₂ O ₃	4.00% Max.
SiO ₂	6.00% Max.
Physical Properties	
Specific Surface	3600-4400 Cm ²
Residue at 170 mesh	10% Max.
Setting Time • Initial • Final	30 Minutes (Min.) 400 Minutes (Min.)
CCS (Sample made with std. sand) • Cured at 18°C ± 2°C/24 Hrs • Cured at 18°C ± 2°C/72 Hrs	300 Kg/Cm ² (Min.) 350 Kg/Cm ² (Min.) 15 ORTON CON

ROYAL-AL-XAB

Chemical Properties	Unit	Specification (Maxplastt-AL-XAB)	Typical Values
Al ₂ O ₃	Wt%	72-76	72.80
SiO ₂	Wt%	20-25	20.60
Fe ₂ O ₃	Wt%	1.0-1.5	1.10
TiO ₂	Wt%	1.5-2.8	1.80
Physical Properties			
Apparent Porosity after Firing at 1000°C/3h	%	20 max	19
Bulk Density after drying at 110°C for 24Hrs	g/cm ³	2.50 min	2.59
Firing at 1000°C for 3 Hrs		2.37 min	2.44
Cold Crusing Strength			
After drying at 110°C/24Hrs	Kg/cm ²	100 min	110
After fired at 800°C/3Hrs		220 min	250
After fired at 1000°C/3Hrs		270 min	295
After fired at 1200°C/3Hrs		200 min	230
After fired at 1400°C/3Hrs		210 min	240
Cold Modulus of Rapture			
After drying at 110°C/24Hrs	Kg/cm ²	25 min	30
After fired at 800°C/3Hrs		30 min	40
After fired at 1000°C/3Hrs		35 min	45
After fired at 1200°C/3Hrs		35 min	40
After fired at 1400°C/3Hrs		40 min	55
PLC			
After drying at 110°C/24Hrs	%	-1.10 max	-1.15
After fired at 800°C/3Hrs		-1.20 max	-0.27
After fired at 1000°C/3Hrs		-1.40 max	-0.30
After fired at 1200°C/3Hrs		-1.50 max	-0.44
After fired at 1400°C/3Hrs		±0.60	-0.56
Thermal Conductivity			
At 500°C (Hot Face)	W/mK	1.45 max	1.42
At 800°C (Hot Face)		1.56 max	1.52
At 1000°C (Hot Face)		1.6 max	1.58
Maximum Service Temperature	°C	1600	

ROYAL-F45-AB

PROPERTIES	Unit	Specification (Maxplastt-F45-AB)	Typical Values
Al ₂ O ₃	Wt%	40-45	42.40
SiO ₂	Wt%	50-55	50.60
Fe ₂ O ₃	Wt%	1.0-1.5	1.12
TiO ₂	Wt%	1.5-2.5	2.00
Apparent Porosity after Firing at 1000°C/3h	%	22	21
Bulk Density After Drying at 110°C for 24h Firing at 1000°C for 3h	g/cm ³	2.30 min 2.06 min	2.32 2.15
Cold Compressive Strength After drying at 110°C/24h After firing at 800°C/3h After firing at 1000°C/3h After firing at 1200°C/3h After firing at 1400°C/3h	Kg/cm ²	80 min 200 min 200 min 160 min 170 min	85 223 230 180 210
Cold Modulus of Rupture After drying at 110°C/24h After firing at 800°C/3h After firing at 1000°C/3h After firing at 1200°C/3h After firing at 1400°C/3h	Kg/cm ²	20 min 18 min 30 min 30 min 30 min	27 25 35 40 45
Permanent Linear Change After drying at 110°C/24h After firing at 800°C/3h After firing at 1000°C/3h After firing at 1200°C/3h After firing at 1400°C/3h	%	-1.45 max -1.50 max -1.75 max -2.00 max -1.55 max	-1.38 -1.40 -1.50 -1.45 -1.25
Thermal Conductivity at Hot Face Temperature of 500°C 800°C 1000°C	W/mK	1.02 max 1.12 max 1.24 max	0.98 1.04 1.17
Maximum Service Temperature	°C	1500	



Insulating Bricks

BRAND NAME	ROYAL- CF- 11	ROYAL- HF- 13	ROYAL - HFK
Weight:	1.8 Kg	1.9 Kg	2 Kg
PHYSICAL PROPERTIES			
Service Temperature -°C	1100	1300	1400
P.C.E.-Orton / °C	23 / 1605	29 / 1659	30/31 1665/1683
App. Porosity (%) min.	60	60	60
B.D. (gm/cc)	0.9 - 1.0	0.95 - 1.05	1.00 - 1.10
CCS (Kg/cm 2) min	22	30	30
PLC(%) at °C/hrs. max.	+/-0.5 at	+/-1.5 at	+/-1.5 at
	1100 / 5 hrs.	1350 / 5 hrs.	1400 / 5 hrs.
Thermal Conductivity kcal/m/hr./deg at 600 °C	0.25	0.3	0.32
CHEMICAL ANALYSIS (%)			
Al2O3 (%) min.	22	30	40
Fe2O3(%) max.	2.0	2.0	1.5
Size Tolerance : ± 1 mm on Standard Bricks.			

BRAND NAME	ROYAL- GR - 20	ROYAL- GR - 23	ROYAL - GR - 26
Weight:	1.1 Kg	1.5 Kg	1.8 Kg
PHYSICAL PROPERTIES			
Service Temperature -°C	1300	1350	1400
P.C.E.-Orton / °C	23 / 1605	31 / 1683	33 / 1743
App. Porosity (%) min.	70	60	58
B.D. (gm/cc)	0.50 - 0.55	0.75 - 0.80	0.78 - 0.85
CCS (Kg/cm 2) min	8	25	30
PLC(%) at °C/hrs. max.	+/-1 at	+/-1 at	+/-1 at
	1250 / 24 hrs.	1300 / 24 hrs.	1400 / 5 hrs.
Thermal Conductivity kcal/m/hr./deg at 600 °C	0.22	0.27	0.32
CHEMICAL ANALYSIS (%)			
Al2O3 (%) min.	40	50	58
Fe2O3(%) max.	1.0	1.2	1.2
Size Tolerance : ± 1 mm on Standard Bricks.			
: ± 1% or ± 1.5 mm for Shaped Bricks.			

BRAND NAME	ROYAL- GR - 28	ROYAL- GR - 30
Weight:	2.2 Kg	2.4 Kg
PHYSICAL PROPERTIES		
Service Temperature -°C	1500	1600
P.C.E.-Orton / °C	36/1804	37/1820
App. Porosity (%) min.	58	55
B.D. (gm/cc)	1.00 – 1.10	1.10 – 1.20
CCS (Kg/cm 2) min	30	35
PLC(%) at °C/hrs. max.	+/-1 at	+/-1 at
	1500 / 5 hrs.	1550 / 5 hrs.
Thermal Conductivity kcal/m/hr./deg at 600 °C	0.36	0.4
CHEMICAL ANALYSIS (%)		
Al ₂ O ₃ (%) min.	60	70
Fe ₂ O ₃ (%) max.	1.0	0.8
Size Tolerance : ± 1 mm on Standard Bricks.		

: ± 1% or ± 1.5 mm for Shaped Bricks.

Insulating Castable

BRAND NAME	ROYALTYE - 7	ROYALTYE - 9	ROYALTYE - 11
Nature of Bond	Hydraulic	Hydraulic	Hydraulic
Application Method	Tamping	Tamping	Tamping
GENERAL PROPERTIES			
Service Temp(max) °C	1100	1100	1300
Grain Size mm(max)	6	6	6
CHEMICAL ANALYSIS			
Al ₂ O ₃ (%) min.	30	30	34
Fe ₂ O ₃ (%) max.	8.2	6.2	3.7
PHYSICAL PROPERTIES			
Dry Density (kg/m) max.			
110 °C	850	1000	1250
C.C.S (kg / cm ²) min			
110 °C	12	15	35
800 °C	5	7	25
1100 °C	6	10	20
1300	-	-	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 (Kcal/M/Hr./ °C)max (Typical Value) At			
500 °C	0.19	0.27	0.30
800 °C	0.21	0.29	0.33
Water requirement (%)	60 - 65	35 - 40	32 - 36
1 bag = 25 kg			

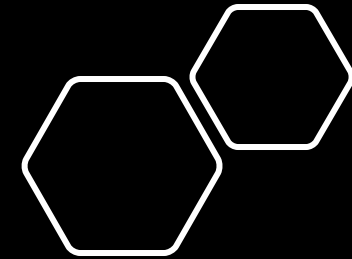
BRAND NAME	ROYALTE - 13	ROYALTE - 15
Nature of Bond	Hydraulic	Hydraulic
Application Method	Tamping	Tamping
GENERAL PROPERTIES		
Service Temp(max) °C	1350	1350
Grain Size mm(max)	6	6
CHEMICAL ANALYSIS		
Al ₂ O ₃ (%) min.	38	38
Fe ₂ O ₃ (%) max.	3.4	3.4
PHYSICAL PROPERTIES		
Dry Density (kg/m) max.		
110 °C	1450	1600
C.C.S (kg / cm ²) min		
110 °C	50	90
800 °C	35	65
1100 °C	30	60
1300	50	80
P.L.C. (%) max.		
800 °C	+/-0.12	+/-0.12
1100 °C	+/-0.20	+/-0.20
1300 °C	+/-0.84	+/-1.00
Thermal Conductivity (Kcal/M/Hr./ °C)max (Typical Value) At		
500 °C	0.33	0.45
800 °C	0.37	0.48
Water requirement (%)	28 - 32	26 - 30
1 bag = 25 kg		

BRAND NAME	ROYALTYE - 11 Li	ROYALTYE – 13 Li	ROYALTYE - 15Li
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 ₂ O ₃ (%) min.	43.00	44.00	45.00
Fe ₂ O ₃ (%) max.	1.50	1.50	1.50
PHYSICAL PROPERTIES			
Bulk Density (kg/m)			
110 °C	1250	1450	1600
C.C.S (kg / cm ²) min			
110 °C	45	15	35
800 °C	30	7	25
1100 °C	30	10	20
1300 °C	50	-	40
1350 °C			
P.L.C. (%) max.			
800 °C	+/-0.12	-0.12	+/-0.12
1100 °C	+/-0.20	+/-1.20	+/-0.20
1300 °C	+/-1.0	+/-0.80	-
1350 °C	-	-	+/-4.00
Thermal Conductivity (Kcal/M/Hr./ °C)max (Typical Value) At			
500 °C	0.33	0.38	0.43
800 °C	0.36	0.41	0.46
Water requirement (%)	32 - 36	32 - 36	30 - 34
1 bag = 25 kg			



Acid Proof Mortars

Specification	Sodium Silicate Base	Potassium Silicate Base
Working time (min at 270 +/- 2°C) Minute	15	20
Flexural Strength (min. kg/cm ²) at 7 days	35	40
Compressive Strength (min. Kg/cm ²) at 7 days	100	150
Application Area	5	5
	For laying of acid resisting brick & tiles	For laying of acid resisting brick & tiles
1 bag = 50 kg		



The background of the image is a dark gray field filled with a complex network of thin, light gray lines connecting small, semi-transparent blue and black dots. These dots are scattered across the entire frame, creating a dense, web-like pattern that resembles a molecular structure or a data network. The overall effect is a textured, high-tech aesthetic.

Royal Silica Ramming Mass

Technical Specifications

SiO ₂ (min.)	98%
Fe ₂ O ₃ (max.)	0.05%
Al ₂ O ₃ (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 & Foundry
Packing	Normally packed in 50 kg. polyline double HDPE bags Or As per customers requirement.
Self Life	The self life is six months when stored in a dry and covered area

1 bag = 50 kg

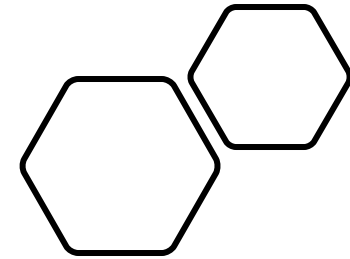




Photo Gallery



Our Plant









An abstract network diagram on a black background. It features several nodes, represented by small white circles with black outlines, some of which have concentric circles. These nodes are interconnected by a web of thin, curved lines in red, teal, and orange. The lines create a sense of depth and movement, with some lines appearing to converge or diverge. The overall composition is dynamic and complex, suggesting a network or a system of relationships.

Our Laboratory

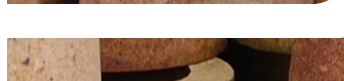




Our Products











The background is a solid dark grey. Scattered across it are several 3D-style speech bubbles in various shades of green, including dark forest green, medium sea green, and light lime green. Each bubble has a slight shadow beneath it, giving it a three-dimensional appearance. The bubbles are of different sizes and orientations, some pointing up, some down, and some to the side.

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Thank you for taking time
to consider our company
and we look forward to
hearing from you.