

ROYAL REFRACTORIES

MANUFACTURERS & DEALERS IN REFRACTORIES & MINERALS

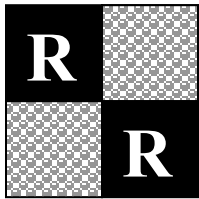
28 G.I.D.C., WANKANER – 363 622 TELEFAX : (F) (02828) 220533 , 222533 (R) 220883 , 222883

TIN G.S.T. No. 24092200055 Dtd. 23-09-05

TIN C.S.T. No. 24592200055 Dtd. 23-09-05

INSULATING BRICKS

BRAND NAME	ROYAL- CF- 11	ROYAL- HF- 13	ROYAL - HFK
PHYSICAL PROPERTIES			
Service Temperature - ^o C	1100	1300	1400
P.C.E.-Orton / ^o 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 ^o C/hrs max.	+/-0.5 at 1100 / 5 hrs	+/-1.5 at 1350 / 5 hrs	+/-1.5 at 1400 / 5 hrs
Thermal Conductivity kcal/m/hr/deg at 600 ^o C	0.25	0.3	0.32
CHEMICAL ANALYSIS (%)			
Al ₂ O ₃ (%) min.	22	30	40
Fe ₂ O ₃ (%) max.	2.0	2.0	1.5
Size Tolerance : ± 1 mm on Standard Bricks. : ± 1% or ± 1.5 mm for Shaped Bricks.			



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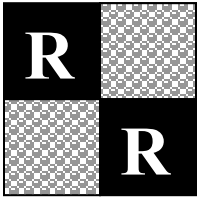
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INSULATING BRICKS

BRAND NAME	ROYAL- GR - 20	ROYAL- GR - 23	ROYAL - GR - 26
<u>PHYSICAL PROPERTIES</u>			
Service Temperature -°C	1300	1350	1400
P.C.E.-Orton / °C min	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 1250 / 24 hrs	+/-1 at 1300 / 24 hrs	+/-1 at 1400 / 5 hrs
Thermal Conductivity kcal/m/hr/deg at 600 °C	0.22	0.27	0.32
CHEMICAL ANALYSIS (%)			
Al ₂ O ₃ (%) min.	40	50	58
Fe ₂ O ₃ (%) max.	1.0	1.2	1.2
Size Tolerance : ± 1 mm on Standard Bricks. : ± 1% or ± 1.5 mm for Shaped Bricks.			



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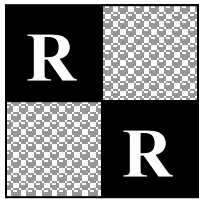
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INSULATING BRICKS

BRAND NAME	ROYAL- GR - 28	ROYAL - GR - 30
<u>PHYSICAL PROPERTIES</u>		
Service Temperature - ^o C	1500	1600
P.C.E.-Orton / ^o C min	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 ^o C/hrs max.	+/-1 at 1500 / 5 hrs	+/-1 at 1550 / 5 hrs
Thermal Conductivity kcal/m/hr/deg at 600 ^o 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.		



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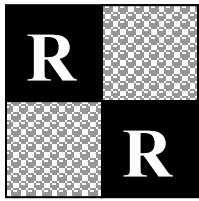
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TIN C.S.T. No. 24592200055 Dtd. 23-09-05

INSULATING 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
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



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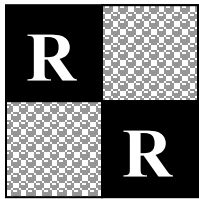
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INSULATING CASTABLES

BRAND NAME	ROYALYTE - 13	ROYALYTE - 15
Nature of Bond Application Method	Hydraulic Tamping	Hydraulic 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



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INSULATING CASTABLES

BRAND NAME	ROYALYTE - 11 Li	ROYALYTE - 13 Li	ROYALYTE - 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