



Refrasmith International Limited

COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

MONOLITHICS AND CASTABLES



REFRASMITH INTERNATIONAL LIMITED

MONOLITHIC PRODUCTS											
BRAND	CHEMICAL PROPERTIES							PHYSICAL PROPERTIES			
	MgO %	CaO %	Cr ₂ O ₃ %	SiO ₂ %	Fe ₂ O ₃ %	Al ₂ O ₃ %	C %	LOI %	Grading	Density gm / cc Min	
	Min	Min	Max	Max	Max	Max	Min	Max	mm	Bulk	Packed
RS FET 66	66.00%	16.00%	0.00%	5.00%	3.00%	2.00%	0.00%	5.00%	0 - 8	2.00	2.25
RS FET 85	85.00%	5.00%	0.00%	5.00%	3.00%	2.00%	0.00%	5.00%	0 - 8	2.10	2.35
RS HEARTH 80	80.00%	14.00%	0.00%	3.00%	1.00%	1.00%	0.00%	3.00%	0 - 8	2.25	2.40
RS HEARTH 85	85.00%	5.00%	0.00%	2.00%	1.00%	1.00%	0.00%	3.00%	0 - 8	-	-
RS GUN 66	65.00%	20.00%	0.00%	6.00%	1.00%	1.00%	0.00%	10.00%	0 - 3	-	-
RS GUN 80	80.00%	5.00%	0.00%	3.00%	1.00%	1.00%	0.00%	10.00%	0 - 4	-	-
RS WETRAM 85	85.00%	5.00%	3.00%	3.00%	1.00%	1.00%	0.00%	10.00%	0 - 4	-	-
RS GRAFILL 55	55.00%	2.00%	0.00%	40.00%	1.00%	1.00%	1.00%	3.00%	4 - 10	-	-
RS GRAFILL 85	85.00%	2.00%	0.00%	8.00%	1.00%	1.00%	1.00%	3.00%	4 - 10	-	-
RS BACKFILL 65	65.00%	5.00%	0.00%	8.00%	1.00%	25.00%	1.00%	5.00%	0 - 4	1.80	1.95
RS HOT PATCH	65.00%	10.00%	0.00%	5.00%	1.00%	15.00%	3.00%	10.00%	0 - 5	-	-

CASTABLE & PRECAST SHAPED PRODUCT SPECIFICATION										
BRAND	CHEMICAL PROPERTIES						PHYSICAL PROPERTIES			
	Al ₂ O ₃ %	SiO ₂ %	CaO %	Fe ₂ O ₃ %	MgO %	Cr ₂ O ₃ %	Service Temp °C	C.C.S MPa Min		PLC % @1500°C
	Max	Max	Min	Max	Min	Max		110°C	1500°C	
RS CAST 70	70.00%	7.00%	1.00%	1.00%	2.00%	0.00%	1450	35	70	+ / - 1.8
RS CAST 75	75.00%	6.00%	0.80%	0.80%	2.00%	0.00%	1550	40	80	+ / - 1.4
RS CAST 80	80.00%	5.00%	0.60%	0.60%	2.00%	0.00%	1700	45	90	+ / - 1.0
RS CAST 85	85.00%	4.00%	0.40%	0.40%	1.50%	0.00%	1700	50	100	+ / - 0.8
RS CAST 90	90.00%	3.00%	0.30%	0.30%	1.00%	2.00%	1750	55	110	+ / - 0.5
RS CAST 95	95.00%	2.00%	0.25%	0.25%	1.00%	2.00%	1850	60	120	+ / - 0.4

1. PHYSICAL PROPERTIES, WATER DEMAND, SETTING TIME, FLOW CHARACTER CAN BE MODIFIED AS PER APPLICATION DEMAND.
2. STEEL FIBERS, CHROME ADDITION IS OPTIONAL AS PER PRODUCT APPLICATION.



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SPECIAL PRODUCTS



REFRASMITH INTERNATIONAL LIMITED

SLIDE PLATES

BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES			
	Al ₂ O ₃ % Min	MgO % Min	ZrO ₂ % Min	Carbon % Min	AP % Max	BD g/cc Min	CCS MPa Min	MOR Mpa @ 1400°C Min
RS ACSP 64	64	-	-	8	8	3	100	20
RS AZSP 62	62	-	6	8	8	3	100	20
RS MASP 52	27	52	-	7	8	3	100	20

NOZZLES

BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES			
	Al ₂ O ₃ + MgO % Min	ZrO ₂ % Min	SiO ₂ % Min	Carbon % Min	AP % Max	BD g/cc Min	CCS MPa Min	MOR Mpa @ 1400°C Min
RS MCNZ 90	90	-	0.2	5	8	3.00	80	15
RS CZNZ 83	83	3	-	-	6 - 24	2.90	35	15
RS CNZ 86	86	-	-	-	20	2.90	50	15

WELL BLOCKS

BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES			
	Al ₂ O ₃ + MgO % Min	ZrO ₂ % Min	SiO ₂ % Min	Carbon % Min	AP % Max	BD g/cc Min	CCS MPa Min	MOR Mpa @ 1400°C Min
RS MCWB 97	97	0.15	0.12	-	16	3.00	60	16
RS MCWB 90	90	1.2	6	-	14	3.00	65	12
RS CZWB 82	82	3	-	-	25	2.90	45	15

SEATING BLOCKS

BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES			
	Al ₂ O ₃ % Min	ZrO ₂ % Min	SiO ₂ % Max	Carbon % Min	AP % Max	BD g/cc Min	CCS MPa Min	MOR Mpa @ 1400°C Min
RS ACSB 92	92	-	1	-	5	3.10	182	20
RS AZSB 83	83	5	4	-	5	3.10	178	20



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

REFRACTORIES FOR TEEMING AND LADLE FURNACE



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REFRACTORIES FOR TEEMING					
KIND		Fire Clay		High Alumina	
BRAND		RS FCT A	RS FCT B	RS HAT A	RS HAT B
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	40	36	55	65
	Refractoriness °C Min	1710	1690	1770	1790
PHYSICAL PROPERTIES	AP % Max	17-25	17-25	-	-
	BD gm / cc Min	-	-	2.2	2.3
	PLC %	1350°C x 2h	1350°C x 2h	1450°C x 2h	1500°C x 2h
		±0.3	±0.3	±0.3	±0.3
Application		Die Casting			

LADLE LINING BRICKS						
KIND		Fire-Clay		High-Alumina		
BRAND		RS FCL 40	RS FCL 42	RS FCL 48	RS FCL 65	RS FCL 75
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	40	42	48	65	75
	RUL at 0.2MPa °C Min	1730	1750	1750	1790	1790
PHYSICAL PROPERTIES	PLC %	1400°C x 2h	1400°C x 2h	1450°C x 2h	1500°C x 2h	1500°C x 2h
		±0.3	±0.3	±0.4	±0.5	±0.5
	AP % Max	19	18	21	28	28
	CCS MPa Min	35	40	35	35	40
Application		Ladle Lining				



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

FIRED MAGNESITE AND MAGNESIA CHROME BRICKS



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MAGNESIA CHROME BRICKS							
BRAND	CHEMICAL PROPERTIES			PHYSICAL PROPERTIES			APPLICATION AREA
	MgO% Min	Cr ₂ O ₃ % Min	SiO ₂ % Max	AP % Max	CCS MPa Min	RUL ta ^o C Min	
Normal Magnesia Chrome Bricks							
RS CR 8	70	8	4.5	21	35	1580	Ladle Safety
RS CR 12	65	12	4.5	21	30	1600	BOF / Ladle Safety
RS CR 20	45	20	4.5	22	25	1650	OHF Front / Back Wall / General Applications
Direct Bonded Magnesia Chrome Bricks							
RS DBCR 8	80	8	1.5-2.5	18	40	1700	Cement Kiln
RS DBCR 20	60	20	2	16	35	1720	VOD / AOD / Stainless Steel Ladle
Rebonded Magnesia Chrome Bricks							
RS RBCR 12	75	12	1.2	16	45	1720	Copper / Cement & Non Ferrous Production
RS RBCR 20	60	20	1	16	45	1750	Copper / Cement & Non Ferrous Production

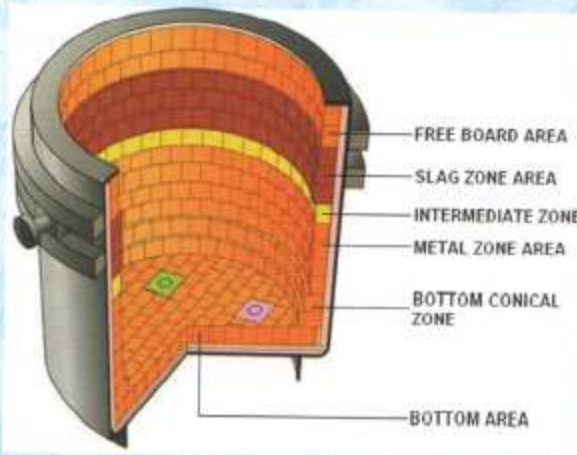
MAGNESITE BRICKS									
BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	SiO ₂ % Max	Fe ₂ O ₃ % Max	Al ₂ O ₃ % Max	AP % Max	BD gm/cc Min	CCS MPa Min	RUL ^o C Min	
RS MAG F 88	88	3.0	2.0	-	20	2.90	45	1600	BOF, EAF BOTTOM SAFETY
RS MAG F 90	90	2.0	1.5	-	18	2.92	45	1650	UHP EAF SAFETY
RS MAG F 95	95	1.0	1.0	-	18	2.92	50	1650	HOT METAL MIXER
RS MAGAL 5	85	2.0	1.0	5	22	2.85	45	1650	RE HAETING FURNACE
RS MAGAL 10	85	1.5	1.0	10	22	2.85	50	1650	RE HAETING FURNACE



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

LADLE FURNACE BRICKS



MAGNESIA CARBON

BRAND	CHEMICAL PROPERTIES			PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	FC % Min	Al ₂ O ₃ % Max	AP % Max	BD gm/cc Min	CCS MPa Min	HMOR 1400°CX0.5hr	
RS LF 8F	82	8	2	4	2.99	45	6	Bottom Impact
RS LF 8	82	8	2	4	2.99	45	6	Bottom Non Impact
RS LF 10F	80	10	2	4	2.99	45	8	Bottom Conical / Splash Pad
RS LF 10	80	10	2	4	2.99	45	10	Side Wall Purging
RS LF 10B	80	10	2	5	2.98	40	6	Side Wall Non Purging
RS LF 12 A	80	12	2	3	2.98	40	10	Slag Line Purging
RS LF 12	80	12	2	3	2.98	40	8	Slag Line Non Purging
RS LF 13	80	13	2	5	2.97	40	6	Free Board

ALUMINA MAGNESIA CARBON

BRAND	CHEMICAL PROPERTIES			PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	FC % Min	Al ₂ O ₃ % Max	AP % Max	BD gm/cc Min	CCS MPa Min	HMOR 1400°CX0.5hr	
RS AMC 7S2	10	7	70	5	3.05	45	6	Bottom Impact
RS AMC 7S2F	10	7	70	5	3.05	45	6	Bottom Impact
RS AMC 7	10	7	70	6	3.00	40	6	Bottom Non Impact
RS AMC 7F	10	7	70	6	3.00	40	6	Bottom Non Impact
RS AMC 8S6	10	8	74	4	3.10	45	6	Bottom Conical / Splash Pad
RS AMC 8S6F	10	8	74	4	3.10	45	6	Bottom Conical / Splash Pad
RS AMC 7S4	10	7	72	5	3.15	45	6	Side Wall Purging
RS AMC 7S3	10	7	72	5	3.10	45	6	Side Wall Non Purging

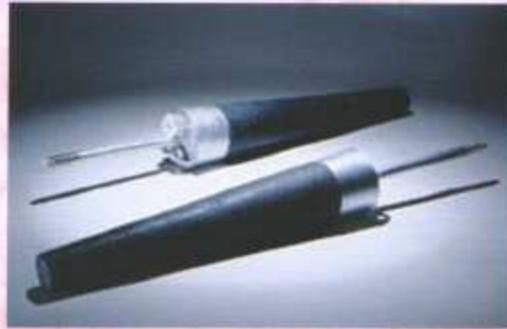
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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

POROUS PLUGS



POROUS PLUGS

KIND		High Alumina	Corundum	Corundum - Chrome	Magnesia Carbon	
BRAND		RS HAPP 75	RS CPP 90	RS CCPP 88	RS MCPP 70	RS MCPP A 70
PHYSICAL PROPERTIES	Al ₂ O ₃ % Min	75	90	88	-	-
	MgO % Min	-	-	-	70	70
	Cr ₂ O ₃ % Min	-	-	3.5	-	-
	C % Min	-	-	-	14	18
CHEMICAL PROPERTIES	BD g/cc Min	-	-	-	2.9	-
	Refractoriness °C Min	1790	1790	1790	-	-
	AP % Max	23	22	23	5	4
	CCS MPa Min	50	60	55	35	25
	RUL at 0.2 MPa °C Min	1550	1600	1650	-	-
	PLC % 1500°C x 2h	±0.2	±0.3	±0.3	-	-
Application		Ladle Bottom	Ladle Bottom	Ladle Bottom	Converter Bottom	Converter Bottom

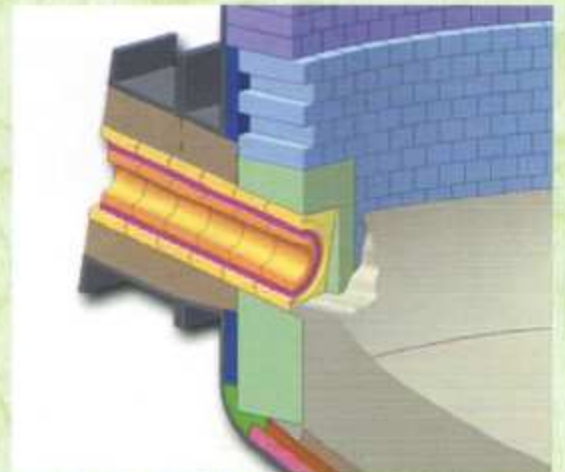
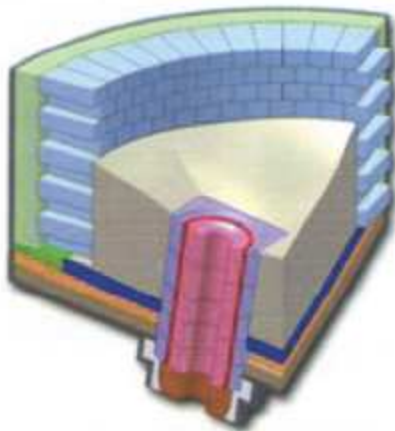
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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

EAF - EBT TAP SYSTEM



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EAF - EBT TAP SYSTEM

BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	FC % Min	Al ₂ O ₃ % Max	SiC % Max	AP % Max	BD gm/cc Min	CCS MPa Min	HMOR 1400°CX0.5hr	
RS TAPS 10 FA	88	10	3	1	3	3.00	40	12	Sieves
RS TAPS 12 FA	86	12	3	1	3	3.00	40	12	
RS TAPS 15 FA	84	15	3	1	3	3.00	40	14	
RS ALSIC 8	-	12	70	8	2	3.05	40	12	End Brick
RS EB 12 FA	86	12	3	1	3	3.00	40	12	
RS ALSIC 10	-	12	68	8	2	3.05	40	12	
RS EB 14 FA	84	12	3	1	3	3.00	40	12	
RS NB 8 F	90	8	1	0	4	2.99	40	6	Nest Blocks



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

ELECTRIC ARC FURNACE BRICKS



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MAGNESIA CARBON								
BRAND	CHEMICAL PROPERTIES			PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	FC % Min	Al ₂ O ₃ % Max	AP % Max	BD gm/cc Min	CCS MPa Min	HMOR 1400°CX0.5hr	
Resin Bonded								
RS EF 8 DF	88	8	1	4	2.99	40	6	Cold Spots / Metal Zone
RS EF 10 DF	86	10	1	4	2.99	40	6	
RS EF 12 DF	84	12	1	4	2.99	40	6	
RS EF 14 DF	82	14	1	4	2.99	40	6	
Resin Bonded SPL								
RS EF 12 DFA	84	12	3	3	3.00	40	12	Hot Spots
RS EF 14 DFA	82	14	3	3	3.00	40	12	
Resin Bonded								
RS EF 8 F	88	8	1	3	2.99	42	6	Cold Spots
RS EF 10 F	86	10	1	3	2.99	42	6	
RS EF 12 F	84	12	1	3	2.99	42	6	
RS EF 14 F	82	14	1	3	2.99	42	6	
Resin Bonded SPL								
RS EF 12 FA	86	12	3	3	3.00	42	12	Hot Spots
RS EF 14 FA	84	14	3	3	3.00	42	12	



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

BOF TAP SYSTEM



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BOF TAP SYSTEM - MAGNESIA CARBON

BRAND	CHEMICAL PROPERTIES				PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	FC % Min	Al ₂ O ₃ % Max	SiC % Max	AP % Max	BD gm/cc Min	CCS MPa Min	HMOR 1400°CX0.5hr	
RS TAPS 10 FA	88	10	3	1	3	3	40	12	Sleeves
RS TAPS 10 FA	86	12	3	1	3	3	40	12	
RS TAPS 15 FA	84	15	3	1	3	3	40	14	
RS NB 8 F	90	8	1	0	4	2.99	40	6	Nest Blocks

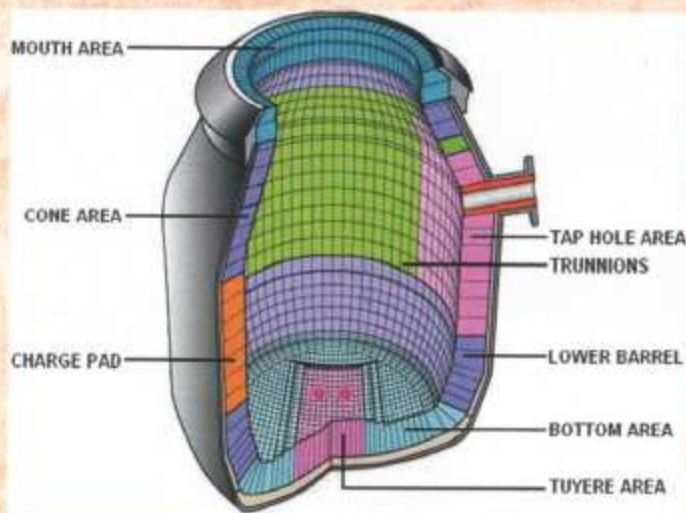
PRE ASSEMBLED TAP HOLE SETS AVAILABLE IN DIFFERENT LENGTHS SUITABLE FOR TOTAL CAMPAIGN.



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

BASIC OXYGEN FURNACE BRICKS



REFRASMITH INTERNATIONAL LIMITED

MAGNESIA CARBON

BRAND	CHEMICAL PROPERTIES			PHYSICAL PROPERTIES				APPLICATION AREA
	MgO% Min	FC % Min	Al ₂ O ₃ % Max	AP % Max	BD gm/cc Min	CCS MPa Min	HMR 1400°CX0.5hr	
RS BOF A 10	86	10	4	3	3	45	12	BOTTOM & LOWER CONE 360°
RS BOF B 10	84	10	3	3	3	45	10	REST OF BARREL 180°
RS BOF A 8F	85	8	3	3	3	50	10	CHARGE PAD 90°
RS BOF A 14	86	14	4	3	3	45	14	TRUNION 45° x 2
RS BOF A 15	86	15	4	3	3	45	14	TAP HOLE AREA 90°
RS BOF B 12	82	12	2	3	3	40	10	TOP CONE 360°



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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

HIGH ALUMINA BRICKS



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HIGH ALUMINA BRICKS								
		Normal Application						
BRAND		RS HAB 75	RS HAB 65	RS HAB 55	RS HAB 48	RS HAB 80	RS HAB 85	
PHYSICAL PROPERTIES	Refractoriness SK Min	38	37	37	36	39	40	
	RUL at 0.2MPa °C Min	1520	1500	1470	1420	1530	1550	
	PLC%	1500°C x 2h	±0.4	±0.4	±0.4	-	±0.4	±0.4
		1450°C x 2h	-	-	-	±0.4	-	-
	AP % Max	23	23	23	22	23	23	
CCS MPa Min	50	45	40	40	55	55		
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	75	65	55	48	80	85	
	Fe ₂ O ₃ % Max	-	-	-	-	-	-	

HIGH ALUMINA BRICKS					
		Blast Furnace Application			
BRAND		RS HABF 55	RS HABF 48	RS HABF 65	
PHYSICAL PROPERTIES	Refractoriness SK Min	38	37	36	
	RUL at 0.2MPa °C Min	1500	1480	1450	
	PLC%	1500°C x 2h	±0.2	±0.2	-
		1450°C x 2h	-	-	±0.2
	AP % Max	19	19	18	
CCS Mpa Min	55	50	50		
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	55	48	65	
	Fe ₂ O ₃ % Max	2	2	2	

HIGH ALUMINA BRICKS					
		Hot - Blast Stoves			
KIND		RS HAHBS 55	RS HAHBS 48	RS HAHBS 65	
BRAND		RS HAHBS 55	RS HAHBS 48	RS HAHBS 65	
PHYSICAL PROPERTIES	Refractoriness SK Min	37	36	36	
	RUL at 0.2MPa °C Min	1500	1470	1420	
	PLC%	1500°C x 2h	±0.4	±0.4	-
		1450°C x 2h	-	-	±0.4
	AP % Max	24	24	24	
CCS Mpa Min	45	40	40		
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	55	48	65	
	Fe ₂ O ₃ % Max	-	-	-	

LOW CREEP HIGH ALUMINA BRICKS FOR HOT - BALST STOVES							
BRAND		RS LCHBS A	RS LCHBS B	RS LCHBS C	RS LCHBS D	RS LCHBS E	RS LCHBS F
PHYSICAL PROPERTIES	Refractoriness °C Min	1790	1770	1790	1790	1790	1820
	AP % Max	20	24	24	24	24	21
	BD gm / cc Min	2.4	2.35	2.4	2.6		2.4
	CCS MPa Min	40	40	40	40	49	50
	RUL at 0.2MPa °C Min	1580	1450	1500	1500	1500	1600
	PLC %	1500°C x 4h	1400°C x 4h	1400°C x 4h	1500°C x 4h	1500°C x 4h	1500°C x 4h
		±0.2	±0.2	±0.2	±0.2	±0.4	±0.1
	Creep %	1400°Cx(20-50)h < 0.2	1270°Cx50h < 0.8		1300°Cx50h	1350°Cx50h	1400°Cx50h
				< 0.8	< 0.8	< 0.8	50h < 1
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	57	50	60	65	65	65
	APPLICATION AREA		Wall checker, Combustion Chamber, Regenerator, Wind mixing chamber, bottom, connecting main and combine brick				



HIGH ALUMINA BRICKS

HIGH ALUMINA INSULATING BRICKS								
BRAND		RS HAI A	RS HAI B	RS HAI C	RS HAI D	RS HAI E	RS HAI F	RS HAI G
PHYSICAL PROPERTIES	BD gm / cc Min	1	0.9	0.8	0.7	0.6	0.5	0.4
	CCS MPa Min	40	35	30	25	20	15	8
	PLC temp. < 2% °C	1350	1300	1250	1250	1200	1150	1150
	Thermal Conductivity (w/mK) Max	0.5	0.45	0.35	0.35	0.3	0.25	0.2
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	48	48	48	48	48	48	48
	Fe ₂ O ₃ % Max	2	2	2	2	2	2	2

HIGH ALUMINA BRICK WITH PHOSPHATE BONDED					
KIND		High Alumina bricks with phosphate		Modified High Alumina bricks with phosphate	
BRAND		RS HAP 75	RS HAP 77	RS HAP A 75	RS HAP A 80
PHYSICAL PROPERTIES	Refractoriness SK Min	38	38	38	39
	CCS MPa Min	70	75	60	80
	RUL at 0.2MPa °C Min	1350	1300	1450	1500
	Thermal Shock Resistance @ 1100°C Min	-	-	20	20
	BD gm / cc Min	2.7	2.75	2.7	2.8
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	75	77	75	80
	Fe ₂ O ₃ % Max	3.2	3.2	-	-
	CaO % Max	0.6	0.6	-	-

HIGH ALUMINA BRICKS FOR EAF ROOFS							
KIND		Burned Bricks			Unburned Bricks		
BRAND		DL-80	DL-75	DL-65	DLB-75	DLB-80	
PHYSICAL PROPERTIES	Refractoriness °C Min	1790	1790	1790	1770	1790	
	RUL at 0.2MPa °C Min	1550	1530	1520	T3 > 1500	T3 > 1530	
	PLC %	1550°Cx2h	1550°Cx2h	1550°Cx2h	-	-	
		±0.3	±0.3	±0.3	-	-	
	AP % Max	Roof brick	19	19	22	21	23
		Skew brick	21	21	23	22	24
CCS MPa Min	78.5	68.5	58.8	29.4	34.3		
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	80	75	65	75	80	
	Fe ₂ O ₃ % Max	-	-	-	-	-	
APPLICATION AREA		Steel making Electric Arc Furnace roofs					

SPALLING RESISTANCE - HIGH ALUMINA BRICKS						
BRAND		RS HASR 80	RS HASR 65	RS HASR 48	RS HASR 40	RS HASR A 80
PHYSICAL PROPERTIES	Refractoriness SK Min	39	38	36	34	39
	RUL at 0.2MPa °C Min	1520	1480	1450	1420	1450
	PLC%	1450°Cx4h	1400°Cx4h	1400°Cx4h	1350°Cx4h	1450°Cx4h
		±0.1	±0.4	±0.4	±0.4	±0.4
	BD gm / cc Min	2.9	2.3	2.2	2.3	2.9
	CCS MPa Min	80	50	50	60	80
	Thermal Shock Resistance @ 1100°C Min	20	8	15	15	20
AP % Max	28	26	-	-	-	
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	80	65	48	40	80
	Fe ₂ O ₃ % Max	-	-	-	-	-



Refrasmith International Limited

COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

REFRACTORY CLAY BRICKS



REFRASMITH INTERNATIONAL LIMITED

CLAY BRICKS			
KIND		NORMAL	
BRAND		RS CB 40	RS CB A 40
PHYSICAL PROPERTIES	RUL 0.2MPa °C Min	1400	1350
	PLC (1400°C x 2h)%	±0.4	±0.5
	AP % Max	22	24
	CCS MPa Min	30	25
	Thermal Shock Resistance @ 1100°C Min	-	-
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	42	42
	Fe ₂ O ₃ % Max	2	-

CLAY BRICKS			
KIND		COKE OVEN	
BRAND		RS CBCO 40	RS CBCO 45
PHYSICAL PROPERTIES	RUL 0.2MPa °C Min	1350	1350
	PLC (1400°C x 2h)%	±0.5	±0.5
	AP % Max	24	24
	CCS MPa Min	25	25
	Thermal Shock Resistance @ 1100°C Min	-	10
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	40	45
	Fe ₂ O ₃ % Max	-	-

CLAY BRICKS			
KIND		BLAST FURNACE	
BRAND		RS CBBF A 42	RS CBBF B 42
PHYSICAL PROPERTIES	RUL 0.2MPa °C Min	1450	1430
	PLC (1400°C x 2h)%	±0.2	±0.3
	AP % Max	15	16
	CCS MPa Min	60	50
	Thermal Shock Resistance @ 1100°C Min	-	-
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	42	42
	Fe ₂ O ₃ % Max	1.6	1.7



Refrasmith International Limited

COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

REFRACTORARY CLAY BRICKS

CLAY INSULATING BRICKS

BRAND		RS CIB A	RS CIB B	RS CIB C	RS CIB D	RS CIB E	RS CIB F	RS CIB G
PHYSICAL PROPERTIES	BD gm / cc Min	1	0.9	0.8	0.7	0.6	0.5	0.4
	CCS MPa Min	35	25	25	25	20	15	10
	PLC °C < 2% Min	1350	1300	1250	1250	1200	1150	1150
	Thermal Conductivity (w/mK) Max	0.5	0.4	0.35	0.35	0.25	0.25	0.2
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	30	30	30	30	30	30	30
	Fe ₂ O ₃ % Max	2	2	2	2	2	2	2

CLAY BRICKS FOR HOT - BLAST STOVES

BRAND		RS CBHBS A	RS CBHBS B	RS CBHBS C	
PHYSICAL PROPERTIES	Refractoriness SK Min	34	34	33	
	RUL at 0.2MPa °C Min	1400	1350	1300	
	PLC%	1450°C x 2h	±0.4	-	-
		1350°C x 2h	-	±0.3	±0.5
	AP % Max	24	24	26	
	CCS MPa Min	30	25	20	
CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	42	40	36	
	Fe ₂ O ₃ % Max	-	-	-	

LOW CREEP CLAY BRICKS FOR HOT - BLAST STOVES

BRAND		RS LCHBS A	RS LCHBS B	RS LCHBS C
PHYSICAL PROPERTIES	Refractoriness °C Min	1730	1750	1750
	RUL at 0.2MPa °C Min	1350	1430	1450
	PLC% 1400°C x 2h	±0.5	±0.3	±0.3
	AP % Max	20	18	15
	CCS MPa Min	35	45	50
	CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	40	42
Fe ₂ O ₃ % Max		2	1.8	1.5

LOW POROSITY FIRE CLAY BRICKS

BRAND		RS CBLC A	RS CBLC B	RS CBLC C
PHYSICAL PROPERTIES	Refractoriness °C Min	1730	1750	1750
	CCS MPa Min	35	45	50
	RUL at 0.2MPa °C Min	1350	1430	1450
	PLC (1400 °C x 2h) %	±0.5	±0.3	±0.3
	AP % Max	20	18	15
	CHEMICAL PROPERTIES	Al ₂ O ₃ % Min	40	42
Fe ₂ O ₃ % Max		2	1.8	1.5

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COMPLETE TECHNOLOGICAL ANALYSTS IN REFRACTORIES

SILICA BRICKS



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SILICA BRICKS FOR GLASS TANK

BRAND		RS SBGK A	RS SBGK B	RS SBGK C	RS SBGK D	RS SBGK E	RS SBGK F
PHYSICAL PROPERTIES	Refractoriness °C Min	-	-	-	-	1710	1710
	True density g/cc Max	2.34	2.34	2.35	2.35	2.38	2.37
	AP % Max	22(24)	22(24)	22(24)	22(24)	23	22
	CCS MPa Min	35(30)	35(30)	35(30)	35(30)	24.5	29.4
	RUL at 0.2MPa °C Min	1660	1650	1680	1670	1640	1650
	Melting index % Max	0.7(0.7)	-	0.5(0.6)	-	-	-
CHEMICAL PROPERTIES	SiO ₂ % Min	95	95	96	96	94	95
	Fe ₂ O ₃ % Max	1.2	1.2	0.8	1	-	-

AP data in sign of aggregation is hand made product, CCS, melting index data is more than 20Kgs product.

HIGH QUALITY SILICA BRICKS

BRAND		RS SBHQ A	RS SBHQ B	RS SBHQ C
		> 15Kgs	15-25Kgs	25-40Kgs
PHYSICAL PROPERTIES	True density g/cc Max	2.34	2.34	2.34
	AP % Max	22	23	24
	CCS MPa Min	35(30)	35(30)	29.4
	RUL at 0.2MPa °C Min	1680	1680	1670
	PLC %	±0.3	±0.3	±0.3
	Melting index % Max	0.5	0.5	0.6
CHEMICAL PROPERTIES	SiO ₂ % Min	96	96	96
	Fe ₂ O ₃ % Max	0.9	0.9	0.9



SILICA BRICKS

REFRASMITH INTERNATIONAL LIMITED

SILICA BRICK FOR COKE OVEN				
BRAND		RS SBCO A	RS SBCO B	RS SBCO C
PHYSICAL PROPERTIES	Refractoriness °C Min	1690	1690	1690
	AP % Max	22	24	22
	True density g/cc Max	2.35	2.35	2.35
	CCS MPa Min	30	30	30
	RUL at 0.2MPa °C Min	1650	1650	1650
	PLC 1450°C x 2hrs % Max	0.2	0.2	0.2
	Thermal coefficient of expansion @ 1000°C % Max	-	-	1.25
CHEMICAL PROPERTIES	SiO ₂ % Min	94	94	94
	Al ₂ O ₃ % Min			1.5
	Fe ₂ O ₃ % Max			1.5

SILICA BRICK FOR HOT - BLAST STOVE			
KIND		Stove Wall	Checker Brick
BRAND		RS SBBS A	RS SBBS B
PHYSICAL PROPERTIES	AP % Max	22	23
	CCS MPa Min	35	30
	True Density g/cc Max	2.35	2.35
	Creep 0.2Mpa °C x 50h %	1550°C < 0.8	1550°C < 0.8
	Thermal Shock Resistance @ 1100°C Min	1.26	1.26
CHEMICAL PROPERTIES	SiO ₂ % Min	95	95

SILICA INSULATING BRICK					
BRAND		RS SIB A	RS SIB B	RS SIB C	RS SIB D
PHYSICAL PROPERTIES	True density g/cc Max	1	1.1	1.15	1.2
	CCS MPa Min	2	3	5	5
	RUL at 0.2MPa °C Min	1400	1420	1500	1520
	PLC %	1450°C x 2h	1450°C x 2h	1550°C x 2h	1550°C x 2h
	Thermal Conductivity (w/mK) Max	0.55	0.6	0.65	0.7
CHEMICAL PROPERTIES	SiO ₂ % Min	91	91	91	91