



CNBM

CMAX[®]

CNBM International Corporation

Refractories for Iron and Steel Products applications

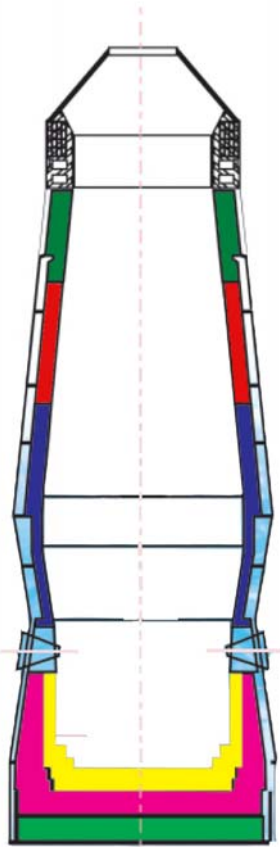


CNBM

CNBM International Corporation



Blast Furnace



Materials	Code	Application
Fire Clay Brick	VN46	Bottom Shaft
	ZGN42	
	CZGN42	Crucible
High Alumina Brick	GL70	Bosh Stave
	HGL65	
	GL65	Shaft Bottom
	GL55	
	GL48	
Alumina Carbon Brick	HALC12	Shaft Belly
	ALC12	
Corundum Brick	CAL97	Shaft Belly Bosh
	HCAL90	
	CAL90	
Combined Brown Corundum Brick	BALC14	Ceramic Cup Hearth
	BALC9	Ceramic Pad
Corundum Mullite Brick	CMAL90	Stave
	CMAL80	Bottom, Hearth
Mullite Brick	MAL80	Hearth, Bottom
	MAL70	
	MAL60	Bottom, Shaft
Mullite Cordierite Brick	MCA50	Stave
Al ₂ O ₃ -SiC-C Brick	ASC13	Stave



Physical and Chemical Properties

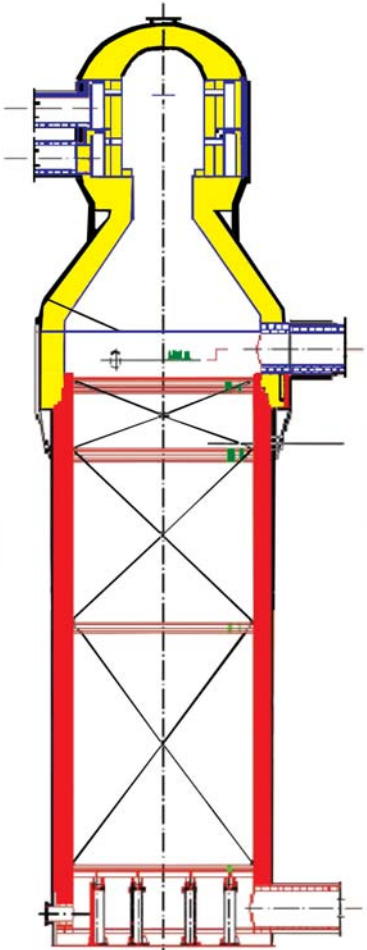
CODE	PHYSICAL PROPERTIES					CHEMICAL ANALYSIS (WEIGHT %)			
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	Al ₂ O ₃ (%) ≥	Fe ₂ O ₃ (%) ≤	SiC (%) ≥	C (%) ≥
VN46	2.25	19	38	1430	1430°Cx2h ≤-0.1	46	1.7	---	
ZGN42	2.3	15	58.8	1450	1450°Cx3h 0~-0.2	42	1.6		
CZGN42	2.3	13	58.8	1500	1450°Cx3h 0~-0.2	42	1.2		
GL70	2.6	17	60	1600	1500°Cx2h 0~+0.2	70	1.5		
HGL65		19	60	1550	1500°Cx2h 0~+0.4	60	2.0		
GL65		19	58.8	1500	1500°Cx2h 0~-0.2	65			
GL55		19	49	1480	1500°Cx2h 0~-0.2	55	2.0		
GL48		18	49	1450	1500°Cx2h 0~-0.2	48	2.0		
HALC12	2.85	15	50	1650		60			12
ALC12	2.85	10	40	1650		60			12
CAL97		21	60	1700	1600°Cx2h 0~-0.2	97	0.3		
HCAL90		17	60	1700	1600°Cx2h ±0.2	90	0.3		
CAL90		14	100	1650	1500°Cx2h ±0.2	90	1.0		
BALC14	2.9	16	80	1700	1500°Cx2h ±0.2	78	1.0	14	



CODE	PHYSICAL PROPERTIES					CHEMICAL ANALYSIS (WEIGHT %)			
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	Al ₂ O ₃ (%) ≥	Fe ₂ O ₃ (%) ≤	SiC (%) ≥	C (%) ≥
BALC9	3.0	15	120	1700	1500°Cx3h 0~-0.2	75	1.0	9	
CMAL90	3.0	17.5	90	1650		90	0.5	SiO ₂ ≤ 8	
CMAL80	2.9	14	70	1700	1600°Cx2h 0~-0.2	80	1.0		
MAL80	2.9	16	70	1700	1600°Cx2h 0~-0.2	80	0.4		
MAL70		16	60	1700	1600°Cx2h 0~-0.2	70	1.0		
MAL60	2.5	15	60	1600	1500°Cx2h ±0.2	60	1.0		
MCAL50	2.4	17.5	70	1500		50	1.1		
ASC13	2.3	18	60			55		10	



Hot Blast Furnace



Materials	Code	Application
Fire Clay Brick	RN42	Huge Wall
	RN40	Checker Brick
	HRN42	Ceramic Burner
	RNLC42	Huge Wall
	RNLC40	Checker Brick
High Alumina Brick	RL65	Huge Wall Checker Brick Regenerator
	RL55	
	RL48	
	RLLC60	
	RLLC70	
	RLLC75	
Cordierite Brick	RCA55	Ceramic Burner
Spalling Resistant Brick	RSRA75	Arch Roof
	RSRA72	Combustion Chamber
	RSRA55	
	RSRA42	Arch Roof, Huge Wall
Andalusite Brick	RAN65	
	RAN60	
	RAN53	
Mullite Brick	RMAL75	Combustion Chambe
	RMAL80	Regenerator
	RMAL65	
	RMAL50	
Silica Brick	RSL95	Huge Wall, Checker
	RS94	
	RS95A	
	RS95B	



Physical and Chemical Properties

CODE	PHYSICAL PROPERTIES						CHEMICAL ANALYSIS (WEIGHT %)		
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	CREEP (%)	Al ₂ O ₃ (%)≥	Fe ₂ O ₃ (%)≤	TiO ₂ (%)≥
RN42		24	29.4	1400	1450°Cx2h 0~-0.4		42		
RN40		24	24.5	1350	1350°Cx2h 0~-0.3		40		
HRN42	2.3	16	60	1480	1450°Cx4h 0~-0.2		42	1.6	
RNLC42	2.15	20	35	1450	1400°Cx4h ±0.4	1250°C ≤0.2	42		
RNLC40	2.1	24	30	1450	1350°Cx2h ±0.2	1200°Cx50h ≤0.8	40		
RL65		24	49	1500	1500°Cx2h +0.1~-0.4		65		
RL55		24	44.1	1470	1500°Cx2h +0.1~-0.4		55		
RL48		24	39.2	1420	1450°Cx2h +0.1~-0.4		48		
RLLC60	2.35	22	55		1450°Cx2h +0.1~-0.4	1300°C ≤0.8	60		
RLLC70	2.55	19	55	1650	1500°Cx4h ±0.2	1500°C ≤0.2	70	0.8	0.8
RLLC75	2.6	19	55	1650	1500°Cx4h ±0.2	1550°C ≤0.2	75	0.6	0.6
RCA55	2.15	25	50				55	1.35	
RSRA75		22	60	1550	1550°Cx2h +0.1~-0.2	1550°Cx50h ≤0.8	75	1.2	
RSRA72		23	50	1550	1450°Cx2h ±0.1		72	1.2	

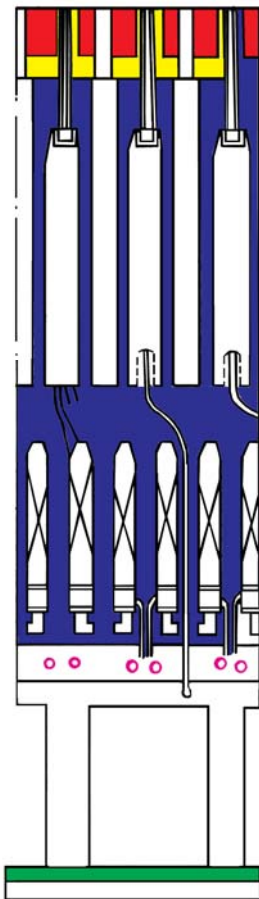


CODE	PHYSICAL PROPERTIES						CHEMICAL ANALYSIS (WEIGHT %)		
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	CREEP (%)	Al ₂ O ₃ (%)≥	Fe ₂ O ₃ (%)≤	TiO ₂ (%)≥
RSRA55		20	55	1550	1450°Cx2h ±0.1		55	0.8	
RSRA42		23	40	1520	1450°Cx2h 0~-0.2		42	1.5	
RAN65		20	50	1520	1500°Cx4h ±0.2	1500°C ≤0.2	65	0.8	0.5
RAN60		20	40	1460	1500°Cx4h ±0.2	1450°C ≤0.2	60	1.5	0.5
RAN53		20	40	1350	1400°Cx4h ±0.2	950°C ≥30	53	1.0	0.6
RMAL75		20	55	1700	1500°Cx4h +0.2~-0.1	1550°C ≤0.6	75	0.5	
RMAL80		21	45	1700	1500°Cx4h +0.2~-0.1	1500°C ≤0.6	75	0.5	
RMAL65		24	60	1550		1350°C ≤0.8	65	1.5	
RMAL50		21	55	1450		1270°C ≤0.8	50	1.5	

CODE	PHYSICAL PROPERTIES						CHEMICAL ANALYSIS (WEIGHT %)		
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	CREEP (%)	Al ₂ O ₃ (%)≤	Fe ₂ O ₃ (%)≤	SiO (%)≥
RSL95		22	45	1650		1550°Cx50h ≤0.8	1.0	1.3	95
RS94		23	29.4			1550°Cx50h ≤0.1	1.1	1.5	94
RS95A		23	30	1650		1550°Cx(5~25)h ≤0.13	0.8	0.5	95
RS95B		21	30	1600	1500°Cx4h ±0.2	1550°Cx(20~50)h ≤0.13			



Coke Oven



Materials	Code	Application
Fire Clay Brick	CN40A	Regenerator Huge Wall Checker
	CN40B	
	CN36	
	CSN70	
	CSN65	
High Alumina Brick	CAL75A	Coking Chamber Combustion Chamber
	CAL75B	
	CAL60	
Cordierite Brick	CCA40	Door
Silica Brick	RS94A	Furnace Bottom Wall
	RS94B	

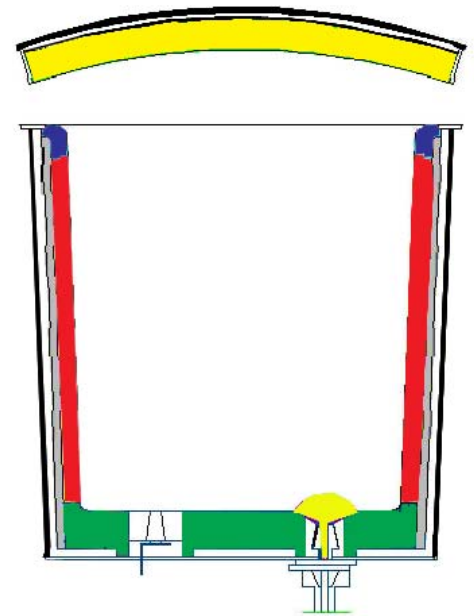


Physical and Chemical Properties

CODE	PHYSICAL PROPERTIES						CHEMICAL ANALYSIS (WEIGHT %)		
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	Thermal Expansion (%)≤	Al ₂ O ₃ (%)≥	Fe ₂ O ₃ (%)≤	SiO ₂ (%)≥
CN40A	2	20	35	1450		0.6	40	2.0	
CN40B	2	24	30	1400		0.6	40	2.0	
CN36	2	24	25				30~36	2.5	
CSN70		21	35	1350					70
CSN65		22	40	1320					65
CAL75A		20	65	1550	1500°Cx2h +0.1~-0.4				
CAL75B	2.65	18	90	1650	1500°Cx2h 0~+0.3		35	0.8	
CAL60	2.4	20	50	1640		0.6	20	1.5	
CCA40		30	15		1300°Cx2h 0.7		40		
RS94A		22	40	1650	1450°Cx2h 0~+0.2	1.28	1.5	1.5	94.5
RS94B		24	35	1650	1450°Cx2h 0~+0.2	1.30	1.5	1.5	94.5



Ladle



CODE	PHYSICAL PROPERTIES					CHEMICAL ANALYSIS (WEIGHT %)			
	B.D. (g/cm ³)	A.P. (%)	C.C.S. (Mpa)	R.U.L. (T _{0.6} , °C)	R.L.C (%)	Al ₂ O ₃ (%) ≥	Fe ₂ O ₃ (%) ≤	SiC (%) ≥	C (%) ≥
VN46	2.25	19	38	1430	1430°Cx2h ≤-0.1	46	1.7	---	
LN42		18	38	1430	1400°Cx2h 0~-0.3	42			
LN40		19	34	1400	1400°Cx2h 0~-0.3	40			
LA55		22	45	1470	1450°Cx2h 0.1~-0.5	55			
LA65		28	35	1490	1500°Cx2h 0.1~-0.5	65			
LA75		28	40	1510	1500°Cx2h 0.1~-0.5	75			
LAH60		17	60	1600	1500°Cx2h 0~+0.1	60	1.5		
LAH85	2.8	19	50	1500	1500°Cx5h >+0.5	85	2.0		

Note: B.D is short for Bulk Density
A.P is short for Apparent Porosity
C.C.S is short for Cold Crushing Strength
R.U.L is short for Refractoriness Under Load