

High Alumina Refractories



CUMILOX



USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> Fertiliser Petro-Chemical Carbon Black Reactor/ Thermal Oxidiser Foundry Iron & Steel Electro Ceramics 	Secondary reformer and gas generator lining, Catalyst bed support Sulphur Recovery Unit reactor lining Reactor lining Channel induction furnace lining Ladle nozzles, Well blocks and sleeves, DRI reactor lining Reheating furnace hearth Skid Rails

PROPERTIES	UNIT	CUMILOX M		CUMILOX K313 W		CUMILOX 90	
		Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1500	1500	1650	1650	1650	1650
Bulk Density	gm/cc	2.2 min.	2.22	2.70 min.	2.75	2.95	3.00
Apparent Porosity	%	24.0 max.	21.0	21.0 max.	19.0	18.0	17.0
Cold Crushing Strength	Kg/cm ²	500 min.	600	800 min.	1000	1000	1050
Modulus of Rupture							
At Room Temperature	Kg/cm ²	100 min.	125	150 min.	200	175	190
At 1250°C		100 min.	125	75 min.	100	-	-
Reheat Change After heating at 1450°C for 6 hrs.	%	+/- 0.2 max.	+0.15	+/- 0.25 max.	-	+/-0.5at1600°C/2 hrs.	-
Thermal Conductivity							
At 800°C Hot Face Temp.	W/m ² K	1.6 max.	1.32	3.0 max.	2.74	2.9 max.	2.75
At 1000°C Hot Face Temp.		1.6 max.	1.28	3.2 max.	2.47	2.7 max.	2.65
At 1200°C Hot Face Temp.		1.6 max.	1.33	3.0 max.	2.78	2.8 max.	2.65
Chemical Analysis							
Al ₂ O ₃	%	55.0 min.	57.78	85.0 min.	85.55	89.0 min.	90.65
SiO ₂		-	41.23	10.0 max.	8.32	10.0 max.	8.75
Fe ₂ O ₃		1.0 max.	0.82	1.0 max.	0.65	0.30 max.	0.21
P ₂ O ₅		-	-	4.0 max.	2.97	-	-
TiO ₂		-	-	2.5 max.	1.53	-	-
Recommended Laying Mortars		CUMIBOND LK 65		CUMIBOND LA FX		CUMIBOND LA 282	

Note : The above typical values shown are based on average test result on standard samples. Properties are subjected to reasonable variation based on product shape etc. and hence should be considered for general guidance only.

CUMILOX High Alumina refractories are produced from fused and sintered alumina for high purity range from 85 – 99.5% alumina. Calcined Bauxite, Chamotte etc. are used for 85% alumina and below. High purity alumina, being a stable oxide, is inert to corrosive attack in oxidizing atmospheres and can also withstand highly reducing atmospheres. It can also withstand high temperature hydrogen attack and is indispensable in applications which encounter hydrogen attack. CUMILOX possesses all these inherent characteristics of alumina and more.

OUTSTANDING FEATURES

- Very high refractoriness, slag and metal corrosion resistance
- Very high stability in oxidizing and reducing atmospheres at high temperatures
- Very high abrasion resistance, chemical stability

CUMILOX M (Formerly CUMIRITE M) : 55% Alumina, Calcined Clay and Fused mullite based product with secondary mullite bond
 CUMILOX K313 W : 85% Alumina, Fused brown alumina with phosphate bond
 CUMILOX 90 : 90% Alumina, Fused alumina with secondary mullite bond

Feasibility of special shapes require case-by-case study by CUMI manufacturing and Technical team. We would request all our customers to kindly ask CUMI Sales Representatives for detail Product Data, Quality Assurance Plans etc. as and when applicable.



CARBORUNDUM UNIVERSAL LIMITED
SUPER REFRACTORIES



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USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> • Fertiliser • Petro-Chemical • Carbon Black Reactor/ Thermal Oxidiser • Foundry • Iron & Steel • Electro Ceramics 	Secondary reformer and gas generator lining, Catalyst bed support Sulphur Recovery Unit reactor lining Reactor lining Channel induction furnace lining Ladle nozzles, Well blocks and sleeves, DRI reactor lining Reheating furnace hearth Skid Rails

PROPERTIES	UNIT	CUMILOX 201HF		CUMILOX 96	
		Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1800	1800	1750	1750
Bulk Density	gm/cc	2.95 min.	3.0	3.0 min.	3.10
Apparent Porosity	%	18.0 max.	16.0	22.0 max.	19.0
Cold Crushing Strength	Kg/cm ²	1100 min.	1300	600 min.	750
Modulus of Rupture					
At Room Temperature	Kg/cm ²	200 min.	250	200 min.	225
At 1350°C		150 min.	200	-	-
Reheat Change After heating at 1450°C for 6 hrs.	%	+/-0.1 max.	-0.05	+/-0.5 at 1600°C/2 hrs.	-0.3 at 1600°C/2 hrs.
Thermal Conductivity					
At 800°C Hot Face Temp.	W/m ² K	2.9 max.	2.40	3.0 max.	2.87
At 1000°C Hot Face Temp.		2.7 max.	2.23	2.9 max.	2.77
At 1200°C Hot Face Temp.		2.8 max.	2.27	3.0 max.	2.70
Chemical Analysis					
Al ₂ O ₃	%	88.0 min.	90.38	96.0 min.	96.50
SiO ₂		11.0 max.	8.60	-	-
Fe ₂ O ₃		0.20 max.	0.13	0.3 max.	0.25
Recommended Laying Mortars		CUMIBOND LA 282		CUMIBOND LA 102	

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CUMILOX 201HF : 90% Alumina, Tabular alumina with secondary mullite bond

CUMILOX 96 : 96% Alumina, White fused alumina with secondary mullite bond

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PROPERTIES	UNIT	CUMILOX 101HF		CUMILOX 101HB	
		Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1870	1870	1870	1870
Bulk Density	gm/cc	3.00 min.	3.20	3.20 min.	3.30
Apparent Porosity	%	22.0 max.	19.0	19.0 max.	16.0
Cold Crushing Strength	Kg/cm ²	600 min.	700	800 min.	900
Modulus of Rupture					
At Room Temperature	Kg/cm ²	180 min.	195	180 min.	200
At 1350°C		50 min.	65	50 min.	70
Reheat Change After heating at 1450°C/6 hrs.	%	+/-0.1 max.	-0.05	+/-0.1 max.	-0.05
Thermal Conductivity					
At 800°C Hot Face Temp.	W/m ² K	3.0 max.	2.63	3.0 max.	2.65
At 1000°C Hot Face Temp.		2.9 max.	2.43	2.9 max.	2.45
At 1200°C Hot Face Temp.		3.0 max.	2.56	3.0 max.	2.60
Chemical Analysis					
Al ₂ O ₃	%	99.0 min.	99.45	99.0 min.	99.50
SiO ₂		0.20 max.	0.18	0.20 max.	0.17
Fe ₂ O ₃		0.07 max.	0.06	0.07 max.	0.06
Recommended Laying Mortars		CUMIBOND LA 102 XL		CUMIBOND LA 102 XL	

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CUMILOX 101 HF : 99.5% Alumina with glass free alumina bond
 CUMILOX 101 HB : 99.5% Alumina with glass free alumina bond, 1750 Deg. C Fired

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