Mullite Refractories

CUMILITE

USER INDUSTRIES	APPLICATION
• Glass	Furnace super structure lining, Regenerator, Sub-paving
• Iron & Steel	Blast Furnace, Stove, Torpedo ladle, Iron ladle
• Petrochemicals, Fertilisers	Burner blocks
• Metallurgical industries	Heating element carrying plates
• Ceramics	Kiln lining, Burner blocks & Kiln furniture
• Carbon black	Reactor lining

		CUMILITE W		CUMILITE WHF		CUMILITE HF	
PROPERTIES	UNIT	Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1760	1760	1760	1760	1800	1800
Bulk Density	gm/cc	2.50 min.	2.60	2.55 min.	2.65	2.70 min.	2.75
Apparent Porosity	%	21.0 max.	19.0	20.0 max.	17.5	22.0 max.	20.5
Cold Crushing Strength	Kg/cm^2	800 min.	950	850 min.	1000	800 min.	950
Modulus of Rupture							
At Room Temperature	Kg/cm^2	150 min.	175	150 min.	175	80 min.	100
At 1350°C		75 min.	100	75 min.	100	70 min.	90
Reheat Change After heating at 1450°C for 6 hrs.	%	+/-0.1 max.	-	+/-0.1 max.	-	+/-0.1 max.	-
Thermal Conductivity							
At 800°C Hot Face Temp.		1.9 max.	1.68	1.9 max.	1.68	2.0 max.	1.73
At 1000°C Hot Face Temp.	W/m^oK	2.0 max.	1.61	2.0 max.	1.61	2.0 max.	1.68
At 1200°C Hot Face Temp.		2.0 max.	1.74	2.0 max.	1.74	2.2 max.	1.83
Chemical Analysis							
Al_2O_3		76.0 min.	77.47	76.0 min.	77.42	86.0 min.	87.55
SiO_2	%	22.0 max.	20.64	22.0 max.	21.01	11.0 max.	10.14
Fe_2O_3		0.30 max.	0.21	0.30 max.	0.19	0.15 max.	0.14
Recommended Laying Mortars		CUMIBOND LM 36		CUMIBOND LM 36		CUMIBOND LM 36	

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 guidence only.

CUMILITE Mullite refractories are manufactured from high purity mullite grains. CUMILITE refractories are extremely stable in service, unlike conventional mullite refractories. They are specially meant for applications that demand good chemical and mechanical stability, strength at high temperatures and resistance to spalling, corrosion and flame impingement. They outperform other refractories in high temperature volume stability in applications such as high intensity burner, carbon black reactors and other processes operated at extremes of temperature and corrosive conditions. Mullite products based on Silimanite, Andalusite and sintered mullite are widely used in glass and steel industry applications for their excellent thermal shock properties, creep resistance and resistance to chemical attack.

OUTSTANDING FEATURES

● High refractoriness, creep resistance, volume stability ● High erosion resistance, thermal spalling resistance ● Withstand oxidizing and reducing atmospheres

CUMILITE W : 76% Alumina, Fused mullite with a secondary mullite bond
CUMILITE WHF : 76% Alumina, Fused mullite with a secondary mullite bond, High Fired
CUMILITE HF : 86% Alumina, Fused mullite and tabular alumina with a secondary mullite bond, High Fired

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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Mullite Refractories

CUMILITE

USER INDUSTRIES	APPLICATION
• Ceramics	Kiln lining, Burner blocks & Kiln furniture
• Petrochemicals, Fertilisers	Burner blocks

		CUMILITE 90		CUMILITE 90HF	
	UNIT	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1800	1800	1800	1800
Bulk Density	gm/cc	2.90 min.	2.95	2.95 min.	3.00
Apparent Porosity	%	19.0 max.	17.0	18.0 max.	16.0
Cold Crushing Strength	Kg/cm^2	1000 min.	1050	1000 min.	1100
Modulus of Rupture					
At Room Temperature	Kg/cm^2	150.0 min.	175.0	150.0 min.	200.0
At 1350°C		75.0 min.	100.0	100.0 min.	125.0
Reheat Change After heating at 1450°C for 6 hrs.	%	+/-0.1 max.	-	+/-0.1 max.	-
Thermal Conductivity					
At 800°C Hot Face Temp.	W/m^oK	2.9 max.	2.40	2.9 max.	2.40
At 1000°C Hot Face Temp.		2.7 max.	2.25	2.7 max.	2.25
At 1200°C Hot Face Temp.		2.8 max.	2.30	2.8 max.	2.30
Chemical Analysis					
Al_2O_3	%	88.0 min.	89.0	88.0 min.	89.0
SiO_2		11.5 max.	9.50	11.0 max.	9.50
Fe_2O_3		0.2 max.	0.15	0.2 max.	0.15
Recommended Laying Mortars		CUMIBOND LA 282		CUMIBOND LA 282	

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OUTSTANDING FEATURES

● High refractoriness, creep resistance, volume stability ● High erosion resistance, thermal spalling resistance ● Withstand oxidizing and reducing atmospheres

CUMILITE 90 : 90% Alumina , Corrundum & fused mullite product
CUMILITE 90 HF : 90% Alumina , Corrundum & fused mullite product, High Fired

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Mullite Refractories

CUMILITE

USER INDUSTRIES	APPLICATION
• Glass	Furnace super structure lining, Regenerator, Sub-paving
• Iron & Steel	Blast Furnace, Stove, Torpedo ladle, Iron ladle
• Petrochemicals, Fertilisers	Burner blocks
• Metallurgical industries	Heating element carrying plates
• Ceramics	Kiln lining, Burner blocks & Kiln furniture

		CUMILITE 60AH		CUMILITE 60A		CUMILITE 60A SPL	
PROPERTIES	UNIT	Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C			1550	1550	1550	1550
Bulk Density	gm/cc	2.50 min.	2.55	2.45 min.	2.55	2.50 min.	2.55
Apparent Porosity	%	17.5 max.	16.5	18.0 max.	16.0	16.0 max.	15.0
Cold Crushing Strength	Kg/cm^2	600 min.	700	500 min.	600	650 min.	650
Modulus of Rupture							
At Room Temperature	Kg/cm^2	-	-	50 min.	65	75 min.	90
At 1350°C		-	-	35 min.	40	40 min.	50
Reheat Change After heating at 1450°C for 6 hrs.	%	+/-0.5max.at1600°C/2Hrs.	+ 0.25	+/- 0.5 max.	+ 0.2	+/- 0.25 max.	+ 0.17
Chemical Analysis							
Al_2O_3		60.0 min.	60.5	60.0 min.	61.0	60.0 min.	60.5
SiO_2	%	38.0 max.	36.0	35.0 max.	33.5	37.0 max.	35.5
Fe_2O_3		1.50 max.	1.25	1.2 max.	0.85	1.0 max.	0.75
Recommended Laying Mortars		CUMIBOND LK 65		CUMIBOND LK 65		CUMIBOND LK 65	

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OUTSTANDING FEATURES

● High refractoriness, creep resistance, volume stability ● High erosion resistance, thermal spalling resistance ● Withstand oxidizing and reducing atmospheres

CUMILITE 60AH : 60% Alumina , Andalusite based mullite product
CUMILITE 60A : 60% Alumina , Andalusite based mullite product, improved purity
CUMILITE 60A SPL : 60% Alumina , Andalusite based mullite product, higher strength

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• Petrochemicals, Fertilisers	Burner blocks
• Metallurgical industries	Heating element carrying plates
• Ceramics	Kiln lining, Burner blocks & Kiln furniture

		CUMILITE 65 A		CUMILITE 65A SPL		CUMILITE 70 A	
PROPERTIES	UNIT	Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1550	1550	1550	1500	1600	1600
Bulk Density	gm/cc	2.55 min.	2.55	2.55 min.	2.60	2.55 min.	2.60
Apparent Porosity	%	20.0 max.	19.0	18.0 max.	19.0	18.0 max.	15.0
Cold Crushing Strength	Kg/cm^2	550 min.	600	700 min.	750	700 min.	750
Modulus of Rupture							
At Room Temperature	Kg/cm^2	60 min.	75	75 min.	90	100 min.	140
At 1350°C		40 min.	50	40 min.	50		
Reheat Change After heating at 1450°C for 6 hrs.	%	+/- 0.5 max.	-	+/- 0.25 max.	-	+/- 0.25 max.	-
Thermal Conductivity							
At 800°C Hot Face Temp.				1.9 max.	1.64		
At 1000°C Hot Face Temp.	W/m^oK			2.0 max.	1.53		
At 1200°C Hot Face Temp.				2.2 max.	1.72		
Chemical Analysis							
Al_2O_3		65.0 min.	66.02	65.0 min.	66.5	68.0 min.	70.02
SiO_2	%	34.0 max.	33.05	33.0 max.	32.5	30.0 max.	28.65
Fe_2O_3		1.0 max.	0.85	0.90 max.	0.85	1.3 max.	1.0
Recommended Laying Mortars		CUMIBOND LK 65		CUMIBOND LK 65		CUMIBOND LK 65	

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OUTSTANDING FEATURES

● High refractoriness, creep resistance, volume stability ● High erosion resistance, thermal spalling resistance ● Withstand oxidizing and reducing atmospheres

CUMILITE 65 A : 65% Alumina , Andalusite based mullite product
CUMILITE 65 A SPL : 65% Alumina , Andalusite based mullite product, higher strength
CUMILITE 70A : 70% Alumina, Fused mullite and Andalusite based product

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