

# Insulation Refractories



## CUMILAG

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>● Ceramic, Metallurgical</li> <li>● Carbon black</li> <li>● Fertiliser</li> </ul>	High temperature kiln hot face & backup lining Back up lining Primary reformer and hydrogen transfer lines back up, Secondary reformer cold face
<ul style="list-style-type: none"> <li>● Iron &amp; Steel</li> <li>● Power generation</li> </ul>	Blast furnace stoves High temperature air pre-heaters



PROPERTIES	UNIT	CUMILAG 23		CUMILAG 25		CUMILAG 26	
		Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1260	1260	1350	1350	1400	1400
Bulk Density	gm/cc	0.60 max.	0.55	0.85 max.	0.80	0.90 max.	0.86
Cold Crushing Strength	Kg/cm <sup>2</sup>	10 min.	12	20 min.	25	15 min.	18
Reheat Change (For 24 hrs.)	%	+/-1.5max.at1250°C	-0.7at1250°C	-0.5max.at1300°C	-0.2at1300°C	-0.7max.at1350°C	-0.2at1350°C
Thermal Conductivity	W/m <sup>2</sup> K						
At 400°C Hot Face Temp.		0.20 max.	0.14	0.27 max.	0.19	0.28 max.	0.17
At 600°C Hot Face Temp.		0.25 max.	0.17	0.30 max.	0.22	0.30 max.	0.23
At 800°C Hot Face Temp.		0.30 max.	0.24	0.36 max.	0.30	0.42 max.	0.31
At 1000°C Hot Face Temp.		0.35 max.	0.26	0.43 max.	0.35	0.50 max.	0.35
At 1200°C Hot Face Temp.	0.40 max.	0.30	-	-	0.55 max.	0.38	
Chemical Analysis	%						
Al <sub>2</sub> O <sub>3</sub>		35.0 min.	37.20	50.0 min.	51.72	55.0 min.	57.34
SiO <sub>2</sub>		-	45.10	-	-	40.0 max.	39.15
Fe <sub>2</sub> O <sub>3</sub>		1.0 max.	0.80	1.0 max.	0.80	1.0 max.	0.80
Recommended Laying Mortars		CUMIBOND LK FX		CUMIBOND LK FX		CUMIBOND LK FX	

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.

CUMILAG insulation exhibit unique combination of chemical, mechanical stability and insulating properties. They are suitable for applications at service temperatures ranging from 1250°C to 1850°C. They can be directly exposed to flame, and combustion products.

### OUTSTANDING FEATURES

- Very high refractoriness, structural strength
- Low thermal conductivity, shrinkage and creep
- High resistance to reducing atmosphere
- Uniform pore size and distribution

CUMILAG 23, 25, 26 : Calcined clay and Calcined Alumina based product

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**  
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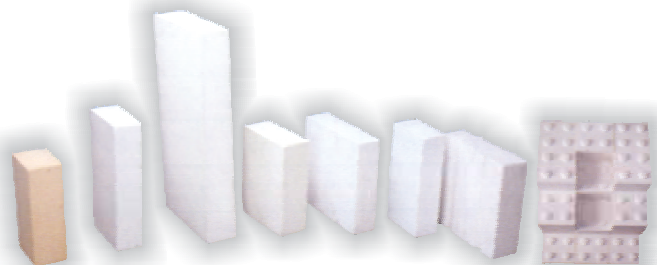
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<ul style="list-style-type: none"> <li>● Iron &amp; Steel</li> <li>● Power generation</li> </ul>	Blast furnace stoves High temperature air pre-heaters



PROPERTIES	UNIT	CUMILAG 28		CUMILAG 29		CUMILAG 30	
		Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1540	1540	1550	1550	1650	1650
Bulk Density	gm/cc	0.95 max.	0.88	1.10 max.	1.05	1.15 max.	1.12
Cold Crushing Strength	Kg/cm <sup>2</sup>	21 min.	25	35 min.	40	45 min.	50
Reheat Change (For 24 hrs.)	%	-0.4max.at1510°C	-0.2at1510°C	-0.7max.at1450°C	-0.4at1450°C	+/-0.5max.at1620°C	-0.3at1620°C
Thermal Conductivity	W/m <sup>2</sup> K						
At 400°C Hot Face Temp.		0.32 max.	0.28	0.40 max.	0.31	0.65 max.	0.60
At 600°C Hot Face Temp.		0.35 max.	0.30	0.40 max.	0.33	0.65 max.	0.60
At 800°C Hot Face Temp.		0.40 max.	0.35	0.45 max.	0.37	0.60 max.	0.55
At 1000°C Hot Face Temp.		0.45 max.	0.38	0.55 max.	0.42	0.65 max.	0.60
At 1200°C Hot Face Temp.	0.50 max.	0.43	0.60 max.	0.46	0.65 max.	0.60	
Chemical Analysis	%						
Al <sub>2</sub> O <sub>3</sub>		67.0 min.	67.21	55.0 min.	57.51	72.0 min.	73.60
SiO <sub>2</sub>		-	31.35	40.0 max.	38.42	26.0 max.	25.45
Fe <sub>2</sub> O <sub>3</sub>		0.65 max.	0.62	1.0 max.	0.72	1.0 max.	0.54
Recommended Laying Mortars		CUMIBOND LK 65		CUMIBOND LK FX		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 guidance only.

CUMILAG insulation exhibit unique combination of chemical, mechanical stability and insulating properties. They are suitable for applications at service temperatures ranging from 1250°C to 1850°C. They can be directly exposed to flame, and combustion products.

### OUTSTANDING FEATURES

- Very high refractoriness, structural strength
- Low thermal conductivity, shrinkage and creep
- High resistance to reducing atmosphere
- Uniform pore size and distribution

CUMILAG 28 : Fused Mullite based product  
 CUMILAG 29 : Calcined clay and Calcined Alumina based product  
 CUMILAG 30 : Fused Mullite based product

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.



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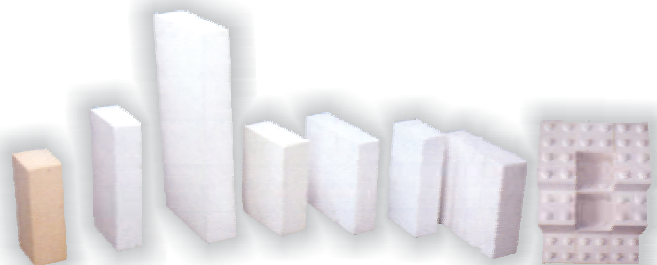
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<ul style="list-style-type: none"> <li>● Ceramic, Metallurgical</li> <li>● Carbon black</li> <li>● Fertiliser</li> </ul>	High temperature kiln hot face & backup lining Back up lining Primary reformer and hydrogen transfer lines back up, Secondary reformer cold face
<ul style="list-style-type: none"> <li>● Iron &amp; Steel</li> <li>● Power generation</li> </ul>	Blast furnace stoves High temperature air pre-heaters



PROPERTIES	UNIT	CUMILAG 32		CUMILAG B201		CUMILAG B101	
		Limit Value	Typical Value	Limit Value	Typical Value	Limit Value	Typical Value
Maximum Hot Face Temperature	°C	1750	1750	1800	1800	1850	1850
Bulk Density	gm/cc	1.35 max.	1.28	1.45 max.	1.40	1.50 max.	1.45
Cold Crushing Strength	Kg/cm <sup>2</sup>	35 min.	50	90 min.	130	60 min.	75
Reheat Change (For 24 hrs.)	%	-0.5max.at1650°C	-0.3at1650°C	+0.5max.at1650°C	+0.15at1650°C	-0.3max.at1650°C	-0.2at1650°C
Thermal Conductivity	W/m <sup>2</sup> K						
At 400°C Hot Face Temp.		0.70 max.	0.59	1.60 max.	1.37	1.60 max.	1.48
At 600°C Hot Face Temp.		0.70 max.	0.59	1.60 max.	1.38	1.55 max.	1.43
At 800°C Hot Face Temp.		0.55 max.	0.47	1.50 max.	1.32	1.30 max.	1.12
At 1000°C Hot Face Temp.		0.65 max.	0.55	1.30 max.	1.17	1.30 max.	1.11
At 1200°C Hot Face Temp.	0.70 max.	0.58	1.30 max.	1.14	1.30 max.	1.05	
Chemical Analysis	%						
Al <sub>2</sub> O <sub>3</sub>		72.0 min.	74.16	90.0 min.	91.06	98.0 min.	98.50
SiO <sub>2</sub>		24.0 max.	23.21	9.0 max.	8.29	1.0 max.	0.70
Fe <sub>2</sub> O <sub>3</sub>		0.5 max.	0.36	0.3 max.	0.14	0.2 max.	0.12
Recommended Laying Mortars		CUMIBOND LM 36		CUMIBOND LA 282 / LA 102		CUMIBOND LA 102	

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.

CUMILAG insulation exhibit unique combination of chemical, mechanical stability and insulating properties. They are suitable for applications at service temperatures ranging from 1250°C to 1850°C. Bubble alumina range of insulating refractories are of light weight, have good load bearing capacity, and low heat capacity. They can be directly exposed to flame, and combustion products.

### OUTSTANDING FEATURES

- Very high refractoriness, structural strength
- Low thermal conductivity, shrinkage and creep
- High resistance to reducing atmosphere
- Uniform pore size and distribution

CUMILAG 32 : Fused Mullite with a secondary mullite bond

CUMILAG B201 : Bubble Alumina with a secondary mullite bond

CUMILAG B101 : Bubble Alumina with a glass free alumina bond

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