

ALUMINOSILICATE



Aluminosilicate is produced from a naturally occurring mineral, calcined mullite, that is precisely sized as either flour or grain. It is available in three alumina contents: 47%, 60% and 70%. The standard alumina content in the investment casting industry is 47%; which provides a very economical and consistent product. These products are low in iron, alkaline and alkaline earth elements.

In the investment casting industry, the main use of aluminosilicate is in backup slurries and as a backup stucco. A wide variety of grain and flour sizes are available to fit your needs.

Typical Material Properties*

Chemical Analysis (%)	M47		M60		M70	
	Typical	Specifications	Typical	Specifications	Typical	Specifications
Aluminum Oxide (Al ₂ O ₃)	46.8	46.0 min	58.6	58.0 min	68.8	68.0 min
Silicon Dioxide (SiO ₂)	50.0		37.8		26.8	
Titanium Dioxide (TiO ₂)	1.89		2.21		2.82	
Ferric Oxide (Fe ₂ O ₃)	0.95	1.0 max	1.13	1.35 max	1.22	1.50 max
Calcium Oxide (CaO)	0.04		0.06		0.06	
Magnesium Oxide (MgO)	0.08		0.07		0.08	
Sodium Oxide (Na ₂ O)	0.09		0.07		0.07	
Potassium Oxide (K ₂ O)	0.09		0.04		0.05	
Phosphorous Pentoxide (P ₂ O ₅)	0.09		0.10		0.11	

Mineralogy	M47		M60		M70	
	Typical	Specifications	Typical	Specifications	Typical	Specifications
% Mullite	65		77		87	
% Glass	20		23		13	
% Cristobalite	15		Tr			

Physical Properties	M47		M60		M70	
	Typical	Specifications	Typical	Specifications	Typical	Specifications
Bulk Density (ASTM C-357, gm/cc)	2.58	2.60 min	2.72	2.78 min	2.81	2.80 min
Apparent Porosity (%)	4.0		3.8		4.2	
PCE	35 (3245 °F)		37 (3308 °F)		39 (3390 °F)	

*These results are based on the testing methods, frequency and procedures of Ransom & Randolph or its approved suppliers. The levels referenced herein are only for general guidance and do not constitute a firm specification.



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Grain Size Specifications (% Retained)

USS Sieve Grade	8 2.36 mm	12 1.70 mm	14 1.40 mm	20 850 µm	30 600 µm	40 425 µm	50 300 µm	70 212 µm	100 150 µm	140 106 µm	200 75 µm	270 53 µm	325 45 µm	PAN**
10 x 18 (1)	0 - 3	10 - 25		60 - 82	0 - 15									0 - 5
14 x 28 (1)		0	1 Max	30 - 55	35 - 45	10 - 25	5 Max							1.5 Max
16 x 30 (1,2)			0 - 3	65 - 75		4 Max								1 Max
22S (1,2)			TR	15 - 25	32 - 47	27 - 37	4 - 10						3 Max	TR
35S (1,2)			TR	1 - 5	21 - 38	40 - 54		9 - 19		2 - 8				3 Max
50S (1,2)				0	1 - 9	22 - 37	26 - 40	12 - 22	6 - 16	1 - 6				3 Max
60S (1,2)					0	0 - 5	30 - 48	30 - 44	9 - 22	2 - 7				3 Max
20 x 50 (1,2)			TR	0 - 8	20 - 50		50 - 72						2 Max	TR
25 x 80 (1,2)				0 - 5	20 Min 30 Avg	20 Min 30 Avg	80 - 93	7 - 12						3 Max
50 x 100 (1)						TR	5 - 20		70 - 86	0 - 15	3 Max		1 Max	TR
60 x 200 (1)							0	0 - 11		65 - 90	5 - 20	0 - 6		3 Max
200 IC-C (1,2,3)									TR		15 - 25			75 - 85
325 IC-C (1,2,3)									TR				5 - 15	85 - 95

**PAN designates the percentage of material passing the last reported screen for each size.

Grade available in Al₂O₃ content (1) 47% (2) 60% (3) 70%.

IMERYS Refractory Minerals has determined test method and provided analysis as noted herein.

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