

# MULGRAIN<sup>®</sup> GRAINS AND FLOURS

## CALCINED MULLITE

MULGRAIN grains and flours are produced from custom calcined Mulcoa aggregates that are precisely sized through a series of screens, and custom blended to obtain a series of coarse to fine sizes. During screening the grains are de-dusted to ensure a virtually dust free stucco.

### APPLICATION

MULGRAIN grains and flours are superior ceramic refractory mold media. These precision sized products are specially designed to meet today's demanding investment casting requirements.

	MULGRAIN 47		MULGRAIN 60		MULGRAIN 70	
CHEMICAL ANALYSIS (%)	TYPICAL	SPECIFICATIONS	TYPICAL	SPECIFICATIONS	TYPICAL	SPECIFICATIONS
Al <sub>2</sub> O <sub>3</sub>	46.8	46.0 Min	58.6	58.0 Min	68.8	68.0 Min
SiO <sub>2</sub>	50.0	-	37.8	-	26.8	-
TiO <sub>2</sub>	1.89	-	2.21	-	2.82	-
Fe <sub>2</sub> O <sub>3</sub>	0.95	1.0 Max	1.13	1.35 Max	1.22	1.50 Max
CaO	0.04	-	0.06	-	0.06	-
MgO	0.08	-	0.07	-	0.08	-
Na <sub>2</sub> O	0.09	-	0.07	-	0.07	-
K <sub>2</sub> O	0.09	-	0.04	-	0.05	-
P <sub>2</sub> O <sub>5</sub>	0.09	-	0.10	-	0.11	-
<b>MINERALOGY</b>						
% Mullite	65	-	77	-	87	-
% Glass	20	-	23	-	13	-
% Cristobalite	15	-	Tr	-	-	-
<b>PHYSICAL PROPERTIES</b>						
Bulk density (ASTM C-357, gm/cc)	2.62	2.60 Min	2.78	2.75 Min	2.88	2.80 Min
Apparent porosity (%)	4.0	-	3.8	-	4.2	-
PCE	35 (3245°F)	-	37 (3308°F)	-	39 (3390°F)	-
<b>2800°F (1540°C) REHEAT CHANGE</b>						
B.D. (gm/cc)	2.6	-	-	-	-	-
Volume (%)	+1.5	-	-	-	-	-
<b>2910°F (1600°C) REHEAT CHANGE</b>						
B.D. (gm/cc)	-	-	2.78	-	2.88	-

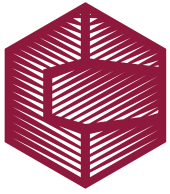
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### GRAIN SIZE SPECIFICATIONS (% RETAINED)

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		80 - 93	7 - 12						3 Max
30 X 70 (1,2)					3 Max	25 - 38	45 - 65	5 - 15			3 Max			0.5 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 AL<sub>2</sub>O<sub>3</sub> content (1) 47% (2) 60% (3) 70%

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