



# MULGRAIN® DFS

## CALCINED MULLITE

MULGRAIN DFS is produced from high purity calcined kaolin. A unique process and stringent process controls ensure homogeneous and consistent mineralogy. MULCOA's high mullite content and product uniformity creates the thermal stability to assist the foundry in producing near net shape castings.

### APPLICATION

MULGRAIN DFS is available in 65 and 105 AFS Sands for use in molds and cores MULGRAIN DFS is particularly suited for use with sodium silicate binders giving a relatively inexpensive binder system, which has excellent shake-out characteristics. When compared to zircon sands, MULGRAIN DFS is approximately half the bulk density. This means lighter cores and molds and more cores and molds per pound. The net result is substantially LOWER COSTS.

	MULGRAIN 47		MULGRAIN 60	
CHEMICAL ANALYSIS (%)	TYPICAL	SPECIFICATIONS	TYPICAL	SPECIFICATIONS
Al <sub>2</sub> O <sub>3</sub>	46.8	46.0 Min	58.6	58.0 Min
SiO <sub>2</sub>	50.0	-	37.8	-
TiO <sub>2</sub>	1.89	-	2.21	-
Fe <sub>2</sub> O <sub>3</sub>	0.95	1.0 Max	1.13	1.35 Max
CaO	0.04	-	0.06	-
MgO	0.08	-	0.07	-
Na <sub>2</sub> O	0.09	-	0.07	-
K <sub>2</sub> O	0.09	-	0.04	-
P <sub>2</sub> O <sub>5</sub>	0.09	-	0.10	-
<b>MINERALOGY</b>				
% Mullite	65	-	77	-
% Glass	20	-	23	-
% Cristobalite	15	-	Tr	-
<b>PHYSICAL PROPERTIES</b>				
Bulk density (ASTM C-357, gm/cc)	2.62	2.60 Min	2.78	2.75 Min
Apparent porosity (%)	3.6	-	2.8	-
PCE	35 (3245°F)	-	37 (3308°F)	-
<b>2800°F (1540°C) REHEAT CHANGE</b>				
B.D. (gm/cc)	2.60	-	-	-
Volume (%)	+ 1.5	-	-	-
<b>2910°F (1600°C) REHEAT CHANGE</b>				
B.D. (gm/cc)	-	-	2.78	-
Volume (%)	-	-	0	-

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# MULGRAIN<sup>®</sup> DFS

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### GRAIN SIZE SPECIFICATIONS (% RETAINED)

USS SIEVE GRADE	40 425 µm	50 300 µm	70 212 µm	100 150 µm	140 106 µm	200 75 µm	270 53 µm	PAN*
65 AFS (1) (2)	0 - 5	10 - 30	25 - 53	10 - 35	2 - 15	0 - 10	0 - 3	2 Max
105 AFS(1)		0	0 - 16	36 - 66	13 - 42	3 - 16	0 - 6	2 Max

\*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%

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