

PREMIUM GRADE

VIRGINIA MULLITE™ | $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$



KYANITE MINING CORPORATION

Consistent Purity • Abundant Supply • Personalized Service



Scale Bars = 1mm

Premium Grade Virginia Mullite™

Premium Grade Virginia Mullite™ is a low iron mullite with an iron oxide content of <0.19% (0.5% typical). This reduced iron increases high-temperature properties, such as resistance to creep, and increases maximum usage temperature.

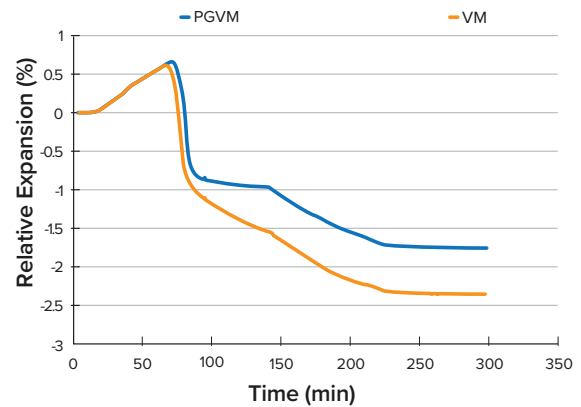
High Aspect Ratio Particles

Premium Grade Virginia Mullite™ is made by calcining Virginia Kyanite™. The crystal structure of kyanite is triclinic, forming a blade-like shape. This shape is maintained when the kyanite is converted to Premium Grade Virginia Mullite™, creating both a stucco and flour with high aspect ratio particles.

Investment Casting Mold Material

Premium Grade Virginia Mullite™ is an excellent investment casting mold material as stucco and flour. Premium Grade Virginia Mullite™ is lower in impurities than other mullite products; this reduces glass formation during sintering and provides cleaner mold release. The needle-like particle shape acts as a fiber in the stucco layer which helps mitigate cracking during dewaxing. Premium Grade Virginia Mullite™ flour works well in direct contact with molten metal temperatures up to about 1,600°C. It can be used as a partial or full substitute for zircon flour in those applications where the temperature is equal to or less than 1,600°C. It is lower in density and has a low thermal expansion. The enhanced creep resistance of Premium Grade Virginia Mullite™ makes it the premium choice for backup slurries and stuccos when dimensional stability is crucial to the success of the castings.

Creep Resistance (ΔL) of Virginia Mullite™



Typical Chemical Analysis (%)

Al ₂ O ₃	57.0 *(55.0 min)
SiO ₂	40.2
TiO ₂	0.65
Fe ₂ O ₃	0.17 (0.19 max)
CaO	<0.04
MgO	<0.03
Na ₂ O	<0.04
K ₂ O	<0.07
P ₂ O ₅	<0.15

Mineralogy (%)

Typical

Mullite	75–85
Amorphous	8–12
Quartz	4–6
Cristobalite	<1

Specific Gravity

3.00 g/cm³

Typical Screen Specification of Premium Grade Virginia Mullite Grains

	20m (800 μm)	30m (600 μm)	40m (420 μm)	50m (300 μm)	70m (245 μm)	100m (150 μm)	140m (106 μm)	Pan
20x50	1 max +20m	93 min			6 max -50m 1 max -140m			
50x100	5 max +50m			89 min			6 max -100m 1 max -140m	

Typical Screen Specification of Premium Grade Virginia Mullite Flour

Premium Grade Virginia Mullite Flour	Typical d50=21 μm
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