

## VANSIL<sup>®</sup> Wollastonite

### Friction Applications

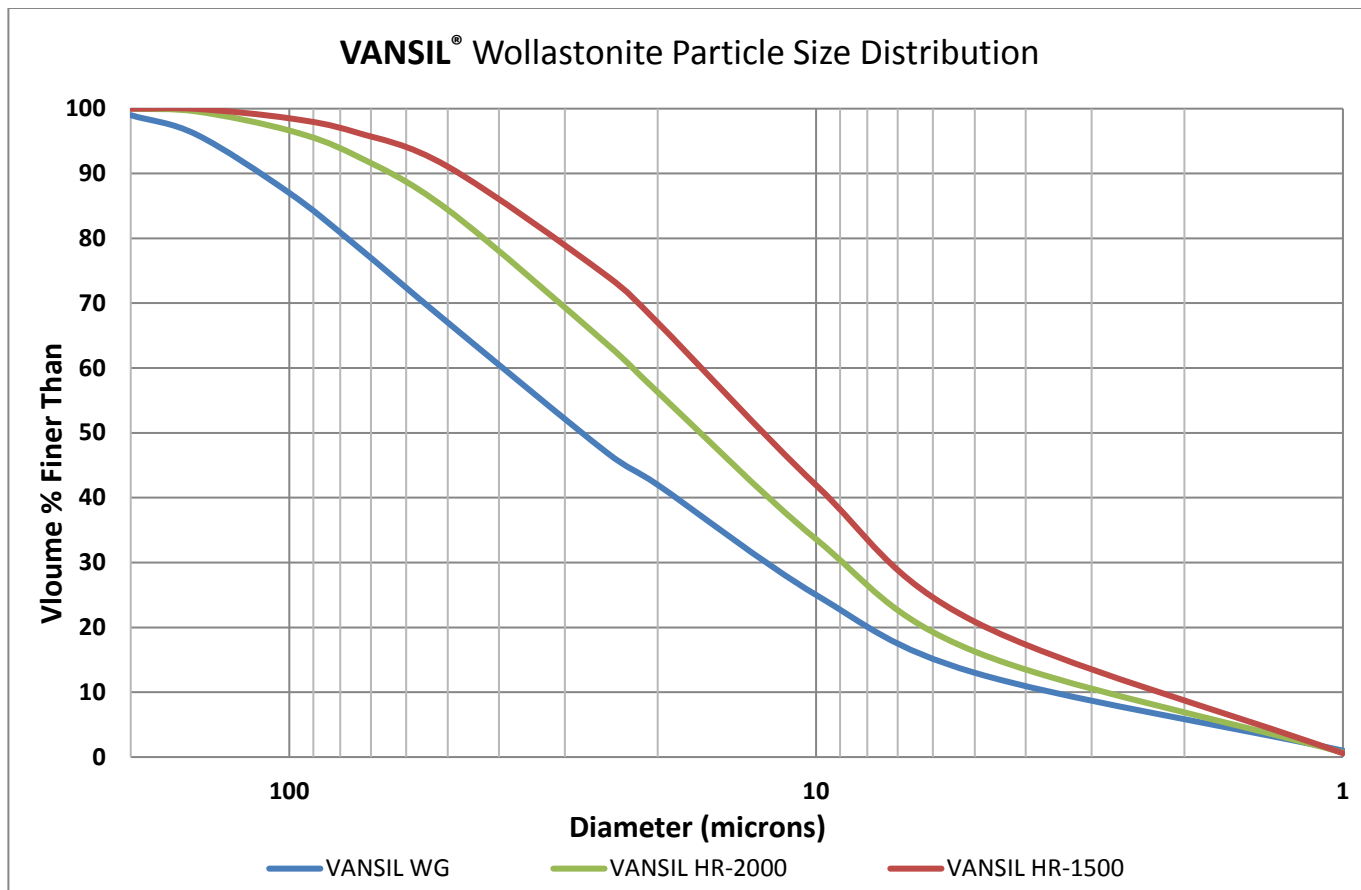
High aspect ratio grades of **VANSIL** wollastonite are use as mineral reinforcements in friction materials such as brake pads and linings. **VANSIL** can be used for the partial replacement of glass, steel or synthetic fibers. The needle-like shape of wollastonite contributes to improved mechanical strength and friction stability, while reducing cracking and rotor wear.

#### Typical Properties:

	VANSIL <sup>®</sup> WG	VANSIL HR-2000	VANSIL HR-1500
Average Aspect Ratio	15:1	12:1	14:1
Average Needle Length, $\mu\text{m}$	90	65	60
200 mesh retention, %	15-20%	<3%	<1%
325 mesh retention, %	30-35%	<20%	5-7%
Bulk Density, loose, lbs./ft <sup>3</sup>	31	25	24
Bulk Density, tapped, lbs./ft <sup>3</sup>	45	39	37
G. E. Brightness	86-88	90-93	90-93
Density, g/cm <sup>3</sup>	2.9	2.9	2.9
Particle Size (Horiba LA-300)			
D10, $\mu\text{m}$	4	4	3
D50, $\mu\text{m}$	28	17	13
D90, $\mu\text{m}$	117	65	50
D95, $\mu\text{m}$	146	88	68

#### Typical Chemical Analysis (calculated as oxides):

Calcium Oxide (CaO)	44.9%
Silicon Dioxide (SiO <sub>2</sub> )	51.3%
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	0.9%
Magnesium Oxide (MgO)	1.6%
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	<0.2%
Sodium Oxide (Na <sub>2</sub> O)	<0.1%
Manganese Oxide (MnO)	<0.1%
Ignition Loss (1000°C)	1.1%



VANSIL is a registered trademark of Vanderbilt Minerals, LLC.

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