

# MATERIAL PROPERTIES

## DURAFRAX<sup>®</sup> 2000

Durafrax<sup>®</sup> 2000, Saint-Gobain's ultra fine-grain, high grade alumina, is made from exceptionally pure, uniformly controlled alpha aluminum oxide and is engineered to be one of the best wear materials available for fine particle abrasion. Durafrax<sup>®</sup> 2000 is our most economical and frequently specified wear resistant material. Durafrax<sup>®</sup> 2000 offers excellent mechanical properties, superior wear resistance, and good corrosion performance.

Pre-engineering and advanced processing techniques enable Saint-Gobain to manufacture Durafrax<sup>®</sup> 2000 in a variety of geometries from simple to complex shapes. Combined with the appropriate attachment method, Durafrax<sup>®</sup> 2000 can overcome temperature limitations, impact, and abrasion problems in many different industrial environments.

To learn more about Durafrax<sup>®</sup> 2000 wear systems and products, please contact your Saint-Gobain representative.

Property		SI Units	English Units
<b>Chemical Analysis</b>			
Alumina Oxide (Al <sub>2</sub> O <sub>3</sub> )		90%	90%
Silicon Oxide (SiO <sub>2</sub> )		6%	6%
Others		4%	4%
Grain Size		3.4 μm	118—158 μin
Bulk Density		3.52 g/cm <sup>3</sup>	215 lbs./ft. <sup>3</sup>
Young's Modulus (MoE)	20 °C	270 GPa	39 × 10 <sup>6</sup> psi
Vickers Hardness	20 °C	9 GPa	1.31 × 10 <sup>6</sup> psi
Shear Modulus	20 °C	110 GPa	16 × 10 <sup>6</sup> psi
Modulus of Rupture	RT	275 MPa	39.9 × 10 <sup>3</sup> psi
Compressive Strength	20 °C	1.77 GPa	256 × 10 <sup>3</sup> psi
Fracture Toughness	20 °C	3.75 MP3a·m <sup>1/2</sup>	
Thermal Conductivity	20 °C	18.0 W/m·K	124 (BTU·in)/(hr·ft <sup>2</sup> ·°F)
Thermal Expansion	30 °C—1500 °C	8.3 × 10 <sup>-6</sup> /°C	4.6 × 10 <sup>-6</sup> /°F
Thermal Shock Resistance	ΔTc	250 °C	482 °F
Maximum Use Temperature		1,250 °C	2,282 °F
Apparent Porosity		0%	0%
Surface Finish (As Fired)		1.6 μm	63 μin

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