

DURATEC® MACHINABLE CERAMIC FOR ENGINEERING APPLICATIONS

Duratec® materials are versatile, asbestos free, machinable technical ceramics manufactured from calcium silicate. With a maximum service temperature of 1000°C, these materials provide excellent thermal and electrical insulation. Duratec® materials have been designed to be easily machined with appropriate tooling to give high definition finishes without chipping or breaking. High speed steel, carbide or diamond tipped tools can all be used to machine Duratec®, by following traditional engineering techniques.

Goodfellow Ceramic and Glass Division can offer Duratec® materials as rods, bars, sheets and finished components.

CHARACTERISTICS	Duratec® 750	Duratec® 1000	
Maximum available size	1220x1500x75mm	1220x1500x50mm	
Nominal Density	1400kg/m ³	1400kg/m ³	
Flexural Strength	23MPa	16MPa	
Hardness	80 (Shore D)	70 (Shore D)	
Compressive strength at 10% compaction	55MPa	31MPa	
Maximum service temperature	1000°C	1000°C	
Thermal conductivity at 750°C	0.49W/mK	0.37W/mK	
Shrinkage at 750°C for 12 hours (length, width, thickness)	0.14/1.1%	0.12/0.8%	
Loss on ignition	7.3%	5.3%	
Coefficient of thermal expansion at 100-750°C	6.6 x 10 ⁻⁶	6.4 x 10 ⁻⁶	
Flatwise electrical strength	7300kV/m	4700kV/m	
Arc resistance, Stage 40 (40mA)	>420 seconds	>420 seconds	
Volume resistivity	25°C 600°C	9.0 x 10 ¹⁰ Ωcm 1.0 x 10 ¹⁰ Ωcm	7.5 x 10 ¹⁰ Ωcm 3.1 x 10 ¹⁰ Ωcm
Surface resistivity	25°C 600°C	10.0 x 10 ¹⁰ Ωcm 7.0 x 10 ⁹ Ωcm	4.1 x 10 ¹⁰ Ωcm 3.9 x 10 ⁹ Ωcm
Relative permittivity	25°C 600°C	7.6 21.0	4.7 4.0
Dissipation factor	25°C 600°C	250 400	640 510

Properties shown are typical values, they are not absolute material properties, and should be used for guidance only. It is recommended that materials and components are tested for their suitability for a specific application.

For more information and advice please discuss your application with our sales staff.

Typical applications:	Arc shields and chutes	Heater housings
	Electrical formers	Component mounting plates
	Element supports	Furnace door linings and gaskets

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