



<b>Growth Method:</b>	EFG (Edge-Defined Film-Fed Growth)
<b>Crystal Structure:</b>	hexagonal
<b>Density (25°C):</b>	3.97 g/cm <sup>3</sup>
<b>Lattice Constant:</b>	a = 0.4763 nm c = 1.3003 nm

<b>Standard Orientation:</b>	(0001) ± 0,3° C – Plane (1102) ± 1° R – Plane (1120) ± 1° A – Plane (1010) ± 1° M – Plane
<b>Standard Sizes/Thickness:</b>	Ø 2 inch 330 µm, 430 µm Ø 3 inch 430 µm Ø 100 mm 530 µm 10 x 10 mm <sup>2</sup> , 5 x 5 mm <sup>2</sup> , ...
<b>special shape and size:</b>	on request
<b>surface quality:</b>	one- or both side epipolished

<b>Physical Properties:</b>	
<b>Melting Point:</b>	2053 °C
<b>Hardness:</b>	9 (Mohs)
<b>Tensile Strength:</b>	2250 MPa
<b>Compressive Strength:</b>	2950 MPa
<b>Young Modulus:</b>	4.7 x 10 <sup>5</sup> MPa
<b>Flexural Strength</b>	690 MPa
<b>Specific Heat:</b>	0.75 KJ/kg K (25°C)
<b>Thermal Conductivity:</b>	42 W/m K (25°C) 20 W/m K (300°C) 12 W/m K (800°C)
<b>Thermal Expansion:</b>	5.3 x 10 <sup>-6</sup> K <sup>-1</sup> (25°C) parallel to C-Axis 4.5 x 10 <sup>-6</sup> K <sup>-1</sup> (25°C) perpendicular to C-Axis

# Sapphire

for Research and Development



# CrysTec

KRISTALLTECHNOLOGIE

<b>Dielectric Constant:</b>	11.5 (25°C) parallel to C-Axis 9.3 (25°C) perpendicular to C-Axis
<b>Dielectric Strength:</b>	$4.8 \times 10^4$ KV/m
<b>Loss Tangent:</b>	$<10^{-4}$
<b>Resistivity:</b>	$10^{14}$ Ωm (25°C) $10^9$ Ωm (500°C)
<b>Refractive Index</b>	$N_o = 1.768$ $N_e = 1.760$ (visible range)  1.814 (0.3 μm) 1.623 (5μm)
<b>Transmission Range:</b>	0.2 - 6.0 μm
<b>Dispersion</b>	0.011
<b>Emittance:</b>	0.02 (2.6 - 3.7 μm, 880 °C)

► For further information please feel free to ask.