Sapphire

Optical

Transmission Range:	170 nm to 5.5 µm
Refractive Index (ordinary) :	1.75449 at 1.06 µm
Refractive Index (Extraordinary) :	1.74663 at 1.06 µm
Reflection Loss:	14 % at 1.06 µm
Absorption Coefficient:	0.3×10^{-3} cm^{-1} at 2.4 µm

Physical

Density:	$3.97\ g/cm^3$
Melting Point:	2040 °C
Thermal Conductivity:	27.21 W m^{-1} K^{-1} at RT
Linear CTE (parallel) :	5.6 x 10-6 /°C
Linear CTE (perpendicular) :	5.0×10^{-6} /°C
Specific Heat Capacity:	763 J Kg^{-1} K^{-1} at RT

Mechanical

Youngs Modulus (E):	335 GPa
Shear Modulus (G):	148.1 GPa
Bulk Modulus (K):	240 GPa
Rupture Modulus :	300 Mpa
Hardness:	2000 Knoop (2kg indenter)
Poisson Ratio:	0.25

Chemical

Chemical formula :	Al_2O_3
Solubility:	98×10^{-6} g/100g water
Molecular Weight:	101.96 g/mole

Notes

Sapphire is very tough and strong. Sapphire is an optical window material for use in the ultraviolet, visible, and near infrared.
Higher quality Sapphire is manufactured by Kyropulos growth and has excellent UV transmission.

Sapphire is slightly birefringent. So-called zero degree exhibits the least birefringence.