

PROPERTIES of Quartz (Fused Silica)

MECHANICAL PROPERTIES

Young Modulus	: 71.7 GPa
Shear Modulus	: 31 GPa
Bulk Modulus	: 37 GPa
Knoop Hardness	: 4.5 GPa
Modulus of Rupture	: 50 MPa at 25°C
Poisson's Ratio	: 0.17 at 25°C
Density	: 2.20 g/cm ³

THERMAL PROPERTIES

Softening Point	: 1600 ± 25°C
Strain Point	: 1000 ± 20°C
Annealing Point	: 1100 ± 20°C
Max Service Temperature	: 1150°C - continuous : 1300°C - limited time
Specific Heat	: 670 J/kg.°C
Thermal Expansion Coefficient	: 5.7x10 ⁻⁷ cm/(cm.°C) between 20°C-320°C
Thermal Conductivity	: 1.38 W/(m.°C)
Thermal Diffusion	: 7.5x10 ⁻³ cm ² /sec

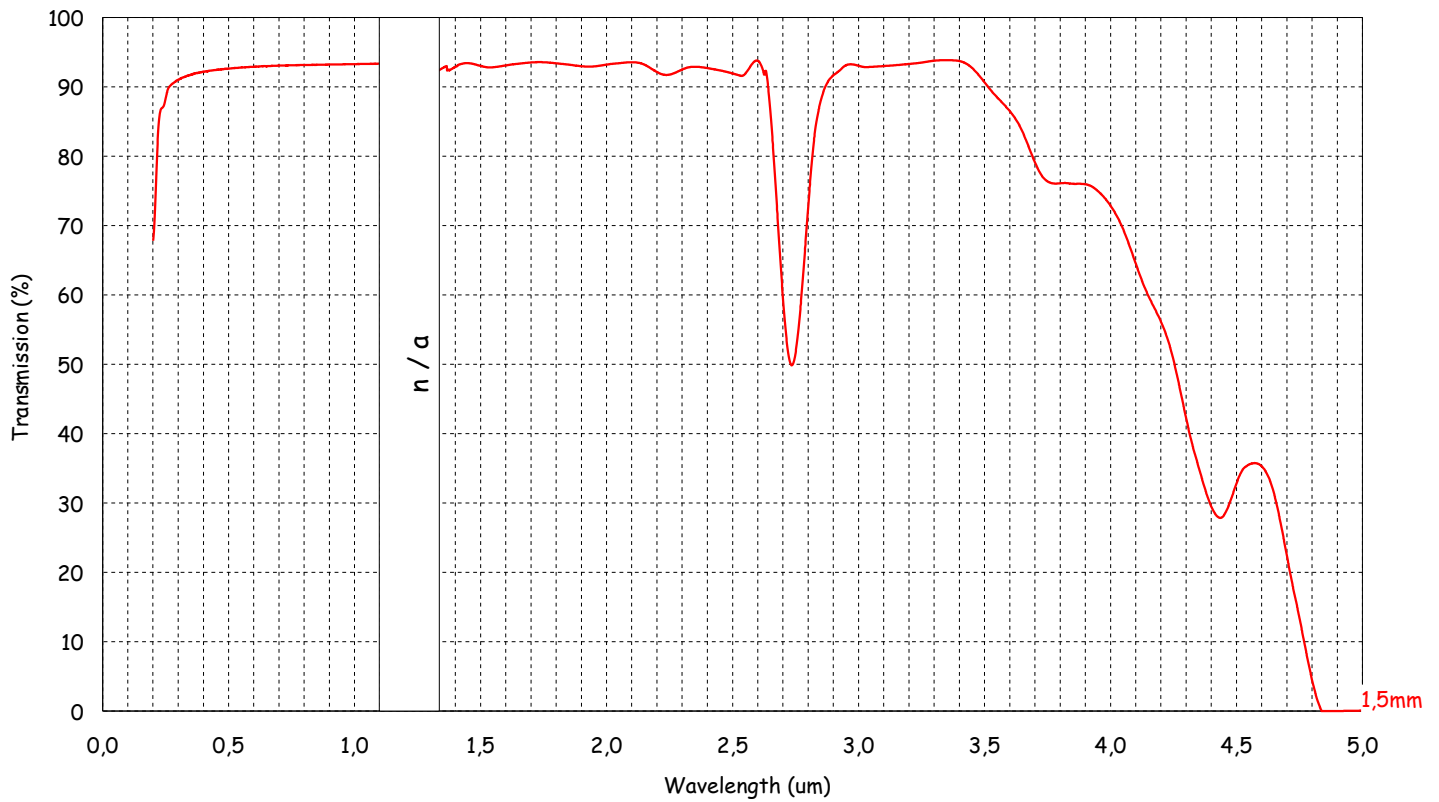
ELECTRICAL PROPERTIES

Electrical Resistivity	: > 10 ¹⁸ Ω × m
Dielectric Strength	: 250 - 400 kV/cm at 20°C
Dielectric Constant for 1 MHz	: 3.75 at 20°C
Resistivity	: 7 × 10 ⁷ ohm-cm at 350°C
Loss Factor	: < 4 × 10 ⁻⁴
Dissipation Factor	: < 4 × 10 ⁻⁴

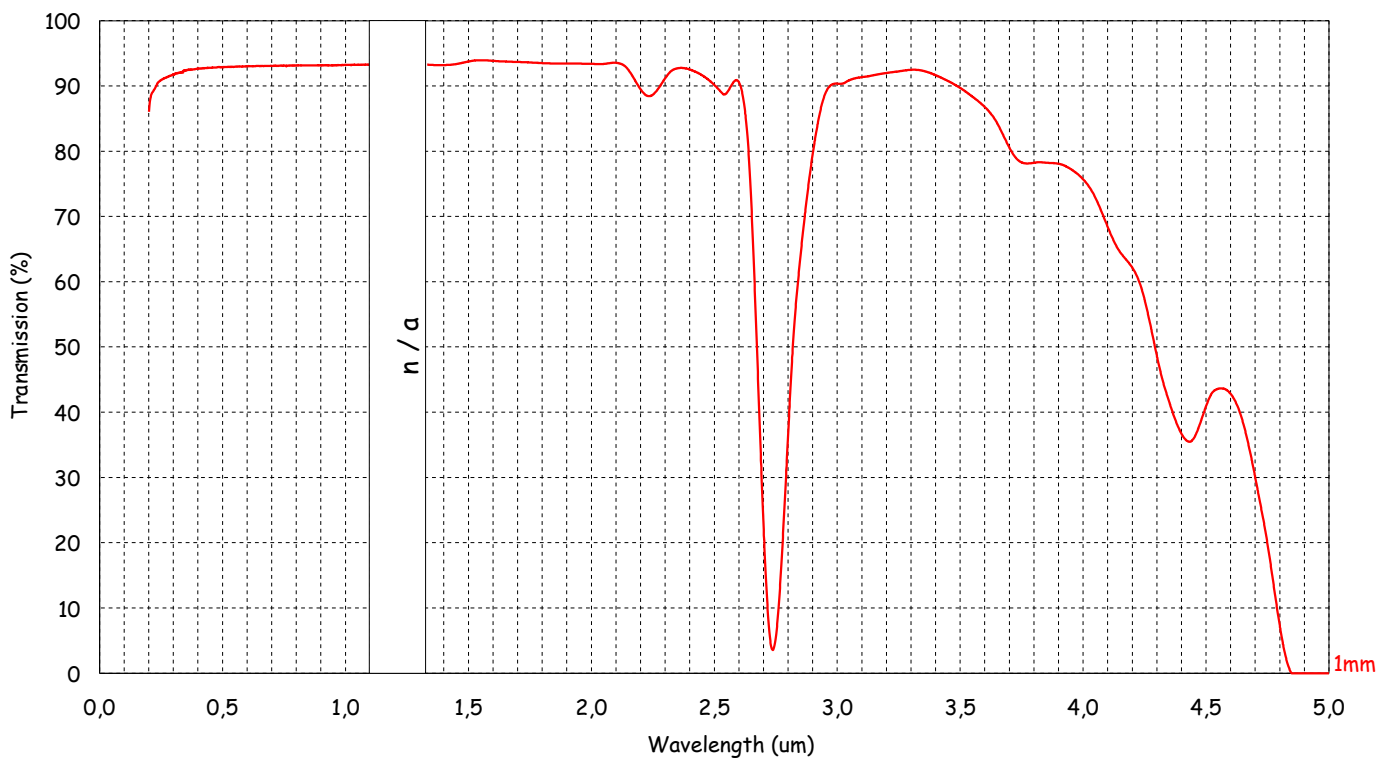
OPTICAL PROPERTIES

Transmittance:	
UV Fused Silica	: >90% from 180nm...2.5µm (2mm thick)
IR Fused Silica	: > 90% from 250nm...3.5µm (2mm thick)
Refraction Index	: 1.45840 at 589.3nm
Abbe Constant	: 67.6

FUSED SILICA (Q2) TRASMISSION CURVE



UV FUSED SILICA (Q2) TRASMISSION CURVE



IR FUSED SILICA (Q3) TRANSMISSION CURVE

