Material Data Sheet

Transparent / Non Transparent Ceramics

Material: 712 - 3

Optical Characteristics

Appearance		
Appearance	Transparent	
Colour	Dark Brown	
Transmission[1)]		
λ [nm]	T (t_{Sample} = 4 mm)	
600	[%]	3
700		18
1000		71
1600		75
Refractive Index[1)]		
n_g	(435.8 nm)	n/a
$n_{F'}$	(480.0 nm)	n/a
n_F	(486.1 nm)	n/a
n_e	(546.1 nm)	n/a
n_d	(587.6 nm)	n/a
$n_{C'}$	(643.8 nm)	n/a
n_C	(656.3 nm)	n/a
Abbé Value[1)]		
ν_e	(546.1 nm)	n/a
ν_d	(587.6 nm)	n/a

Thermal Characteristics

Heat Capacity $c_{p\ (20\text{-}100°C)}$	[J/(g·K)]	0.83	
Thermal Conductivity $\lambda_{\ (90°C)}$	[W/(m·K)]	1.7	
Max. Temp. Gradient (MTG)	[K]	700	
Thermal Shock (TSR)	[°C]	> 800	
Linear Expansion Coefficient			
$\alpha_{\ (-50,\ 100°C)}$	[10^{-6}/K]	on request	
$\alpha_{\ (0,\ 50°C)}$		on request	
$\alpha_{\ (20,\ 300°C)}$		-0.16	
$\alpha_{\ (300,\ 700°C)}$		0.38	
Temp. Time Load Capacity (TTLC)		Hom.	Inhom.
Short Heating (1h)	[°C]	885	750
Continuous Heating (5000h)		710	560

Electrical Characteristics

$\log \rho_{\ (250°C)}$	[Ω·cm]	7.0
$\log \rho_{\ (350°C)}$		5.5
t_{k100}	[°C]	196
ε (1MHz, 25°C)	-	7.8
tan δ (1MHz, 25°C)	-	0.02

Acoustical Characteristics

$v_{long.}$	[m/s]	on request

Mechanical Characteristics

Density ρ	[g/cm^3]	2.55
Young Modulus E	[10^3 MPa]	92
Poisson Ratio μ	-	0.25
Knoop Hardness	HK 0.1 / 20	600
Bending Strength σ_{bB}	[MPa]	168

Chemical Resistance

Acid	S	2
Alkali	A	1
Hydrolytic	HGB	1

Remarks

[1)] The values are typical averages. In case the material must fulfil optical requirements, individual analysis of each batch is possible

All technical data presented on this sheet are to be understood as typical averages

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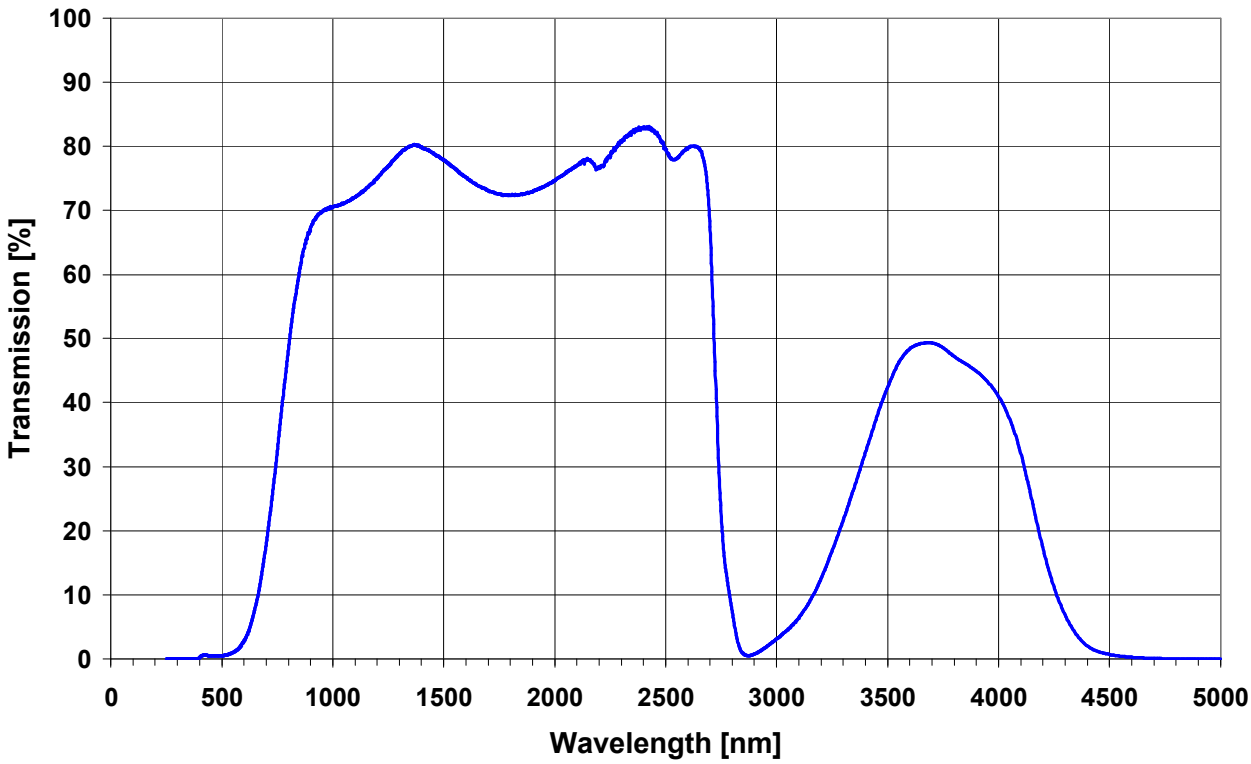
Transmission

The transmission values are measured for a polished sample of a specific thickness. A typical transmission graph with sample thickness of approximately 4 mm is shown below.



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