

Material Data Sheet

MS 1 00 66 81 - 00

SCHOTT Resistan[®] Transparent / Non Transparent Ceramics

Material: 701 - 8

Optical Characteristics

Appearance		
Appearance	Opaque	
Colour	Grey	
Transmission ¹⁾		
λ [nm]	T (t _{sample} = 4 mm)	
600	[%]	0
700		0.2
1000		29
1600		72
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⁾		
v _e	(546.1 nm)	n/a
v _d	(587.6 nm)	n/a

Mechanical Characteristics

Density ρ	[g/cm ³]	2.51
Young Modulus E	[10 ³ MPa]	87
Poisson Ratio μ	-	0.26
Knoop Hardness	HK 0.1 / 20	678
Bending Strength σ_{bB}	[MPa]	120

Chemical Resistance

Acid	S	1
Alkali	A	1
Hydrolytic	HGB	1

¹⁾ The values are typical averages. In case the material must fulfill 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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Thermal Characteristics

Heat Capacity c _p (20-100°C)	[J/(g·K)]	0.85	
Thermal Conductivity λ (90°C)	[W/(m·K)]	1.6	
Max. Temp. Gradient (MTG)	[K]	680	
Thermal Shock (TSR)	[°C]	> 800	
Linear Expansion Coefficient			
α (-50, 100°C)	[10 ⁻⁶ /K]	on request	
α (0, 50°C)		on request	
α (20, 300°C)		0.65	
α (300, 700°C)		1.24	
Temp. Time Load Capacity (TTLC)		Hom.	Inhom.
Short Heating (1h)	[°C]	1000	700
Continuous Heating (5000h)		800	660

Electrical Characteristics

log ρ (250°C)	[Ω ·cm]	6.9
log ρ (350°C)		5.5
t _{k100}	[°C]	195
ϵ (1MHz, 25°C)	-	6.5
tan δ (1MHz, 25°C)	-	0.003

Acoustical Characteristics

V _{long.}	[m/s]	6560
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Remarks

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Material Data Sheet

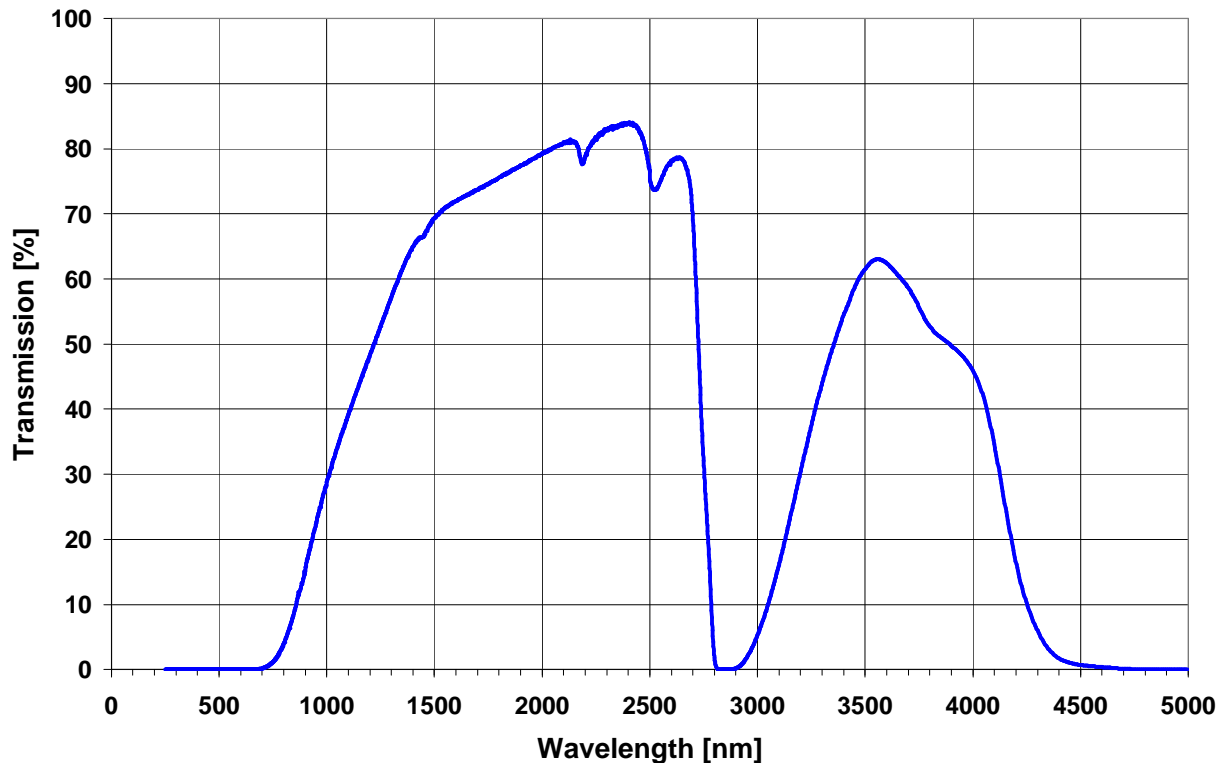
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Transmission

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.



Typical Chemical Composition					
SiO ₂	[%w/w]	67 ± 1		ZnO	2 ± 1
Al ₂ O ₃		21 ± 1		MgO	1 ± 0.5
Li ₂ O		4 ± 1		Na ₂ O + K ₂ O	0.7 ± 0.5
TiO ₂		2 ± 1		SnO ₂	0.2 ± 0.1
ZrO ₂		2 ± 1		V ₂ O ₅	0.1 ± 0.1
Impurities < 1000ppm, e.g. Fe ₂ O ₃ , CaO, P ₂ O ₅					

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