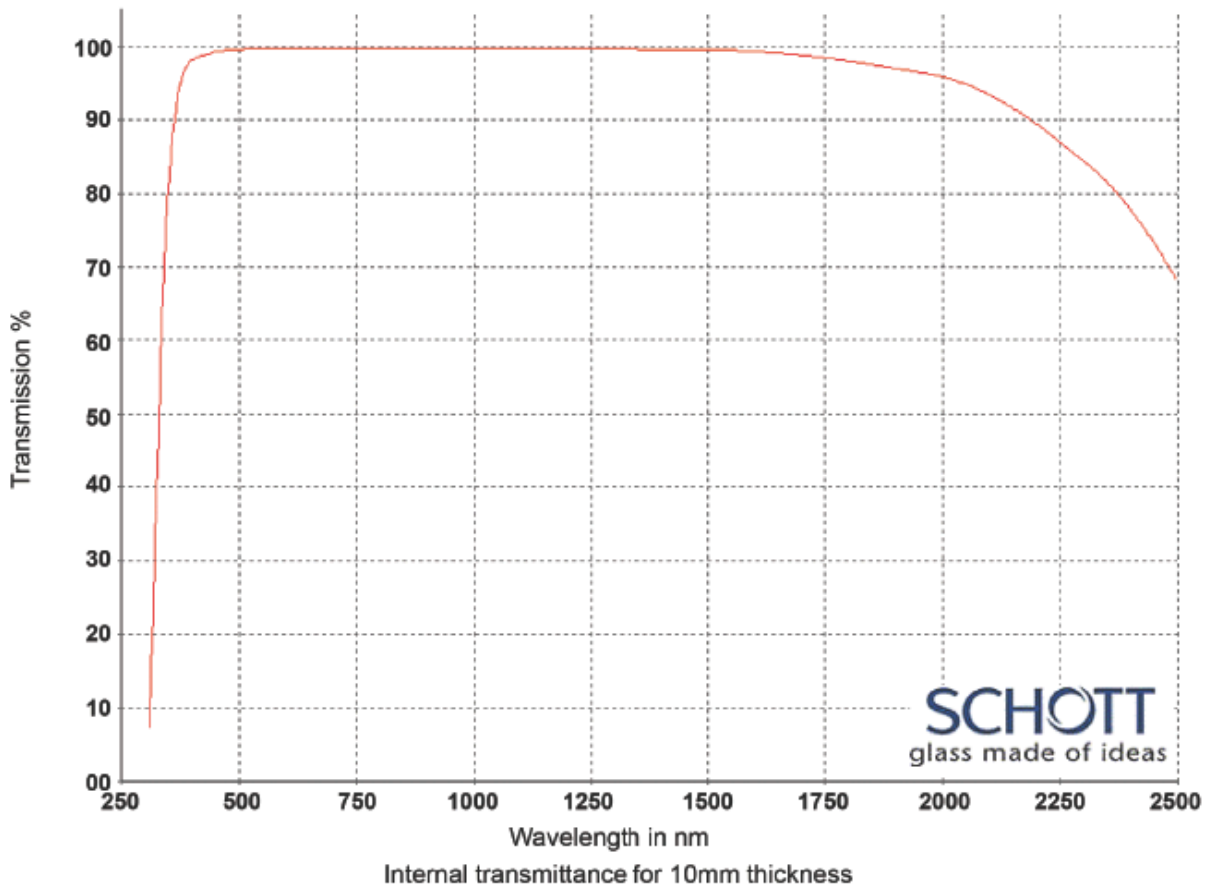


OPTICAL GLASSES: VISIBLE – NEAR INFRA-RED

Title: Optical Glasses - 250-2500nm

Material/Specification: Schott LLF1 for 250nm - 2500nm transmission

Range/Description: OPG-LLF1



WAVELENGTH	LLF1 (T%)
2500 nm	0.760
2325 nm	0.820
1970 nm	0.930
1530 nm	0.996
1060 nm	0.998
700 nm	0.999
660 nm	0.998
620 nm	0.998
580 nm	0.999
546 nm	0.999
500 nm	0.998
460 nm	0.998
436 nm	0.998
420 nm	0.998
405 nm	0.998
400 nm	0.997
390 nm	0.997
380 nm	0.995
370 nm	0.994
365 nm	0.992
350 nm	0.982
334 nm	0.920
320 nm	0.620
310 nm	0.240
300 nm	0.020
290 nm	0.000
280 nm	0.000
270 nm	0.000
260 nm	0.000
250 nm	0.000

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OPTICAL GLASSES: VISIBLE – NEAR INFRA-RED

SCHOTT
glass made of ideas

Refractive Indices		
	λ [nm]	
$n_{2325.4}$	2325.4	1.51865
$n_{1970.1}$	1970.1	1.52354
$n_{1529.6}$	1529.6	1.52884
$n_{1060.0}$	1060.0	1.53470
n_t	1014.0	1.53541
n_s	852.1	1.53845
n_r	706.5	1.54256
n_C	656.3	1.54457
$n_{C'}$	643.8	1.54513
$n_{632.8}$	632.8	1.54566
n_D	589.3	1.54803
n_d	587.6	1.54814
n_e	546.1	1.55099
n_F	486.1	1.55655
$n_{F'}$	480.0	1.55725
n_g	435.8	1.56333
n_h	404.7	1.56911
n_i	365.0	1.57932
$n_{334.1}$	334.1	1.59092
$n_{312.6}$	312.6	
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

Constants of Dispersion Formula	
B_1	$1.21640125 \cdot 10^{+00}$
B_2	$1.33664540 \cdot 10^{-01}$
B_3	$8.83399468 \cdot 10^{-01}$
C_1	$8.57807248 \cdot 10^{-03}$
C_2	$4.20143003 \cdot 10^{-02}$
C_3	$1.07593060 \cdot 10^{+02}$

Constants of Formula dn/dT	
D_0	$3.25 \cdot 10^{-07}$
D_1	$1.74 \cdot 10^{-08}$
D_2	$-6.12 \cdot 10^{-11}$
E_0	$6.53 \cdot 10^{-07}$
E_1	$2.58 \cdot 10^{-10}$
$\lambda_{TK}[\mu\text{m}]$	0.233

Temperature Coefficients of Refractive Index						
[°C]	$\Delta n_{rel}/\Delta T [10^{-6}/K]$			$\Delta n_{abs}/\Delta T [10^{-6}/K]$		
	1060.0	e	g	1060.0	e	g
-40/-20	1.5	2.4	3.4	-0.6	0.3	1.3
+20/+40	1.9	2.9	3.9	0.6	1.5	2.5
+60/+80	2.0	3.0	4.1	1.0	2.0	3.0

Internal Transmittance τ_i		
λ [nm]	τ_i [10 mm]	τ_i [25 mm]
2500	0.76	0.50
2325	0.82	0.61
1970	0.930	0.84
1530	0.996	0.990
1060	0.998	0.996
700	0.999	0.997
660	0.998	0.996
620	0.998	0.996
580	0.999	0.997
546	0.999	0.997
500	0.998	0.996
460	0.998	0.996
436	0.998	0.996
420	0.998	0.995
405	0.998	0.994
400	0.997	0.993
390	0.997	0.992
380	0.995	0.988
370	0.994	0.984
365	0.992	0.981
350	0.982	0.955
334	0.920	0.81
320	0.62	0.30
310	0.24	0.01
300	0.02	
290	0.00	
280		
270		
260		
250		

Color Code	
λ_{80}/λ_5	33/31
Remarks	

Relative Partial Dispersion	
$P_{s,t}$	0.2537
$P_{C,s}$	0.5108
$P_{d,C}$	0.2983
$P_{e,d}$	0.2376
$P_{g,F}$	0.5660
$P_{i,h}$	0.8520
$P'_{s,t}$	0.2508
$P'_{C,s}$	0.5516
$P'_{d,C'}$	0.2484
$P'_{e,d}$	0.2349
$P'_{g,F'}$	0.5017
$P'_{i,h}$	0.8424

Deviation of Rel. Partial Dispersion ΔP from "Normal Line"	
$\Delta P_{C,t}$	0.0025
$\Delta P_{C,s}$	0.0012
$\Delta P_{F,e}$	-0.0003
$\Delta P_{g,F}$	-0.0009
$\Delta P_{i,g}$	-0.0062

Other Properties	
$\alpha_{-30/+70^\circ\text{C}} [10^{-6}/K]$	8.1
$\alpha_{+20/+300^\circ\text{C}} [10^{-6}/K]$	9.2
$T_g [^\circ\text{C}]$	415
$T_{10}^{13.0} [^\circ\text{C}]$	426
$T_{10}^{7.6} [^\circ\text{C}]$	628
$c_p [J/(g \cdot K)]$	0.650
$\lambda [W/(m \cdot K)]$	
$\rho [g/cm^3]$	2.94
$E [10^3 N/mm^2]$	60
μ	0.208
$K [10^{-6} mm^2/N]$	3.05
$HK_{0.1/20}$	450
HG	3
B	1
CR	1
FR	0
SR	1
AR	2
PR	1

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