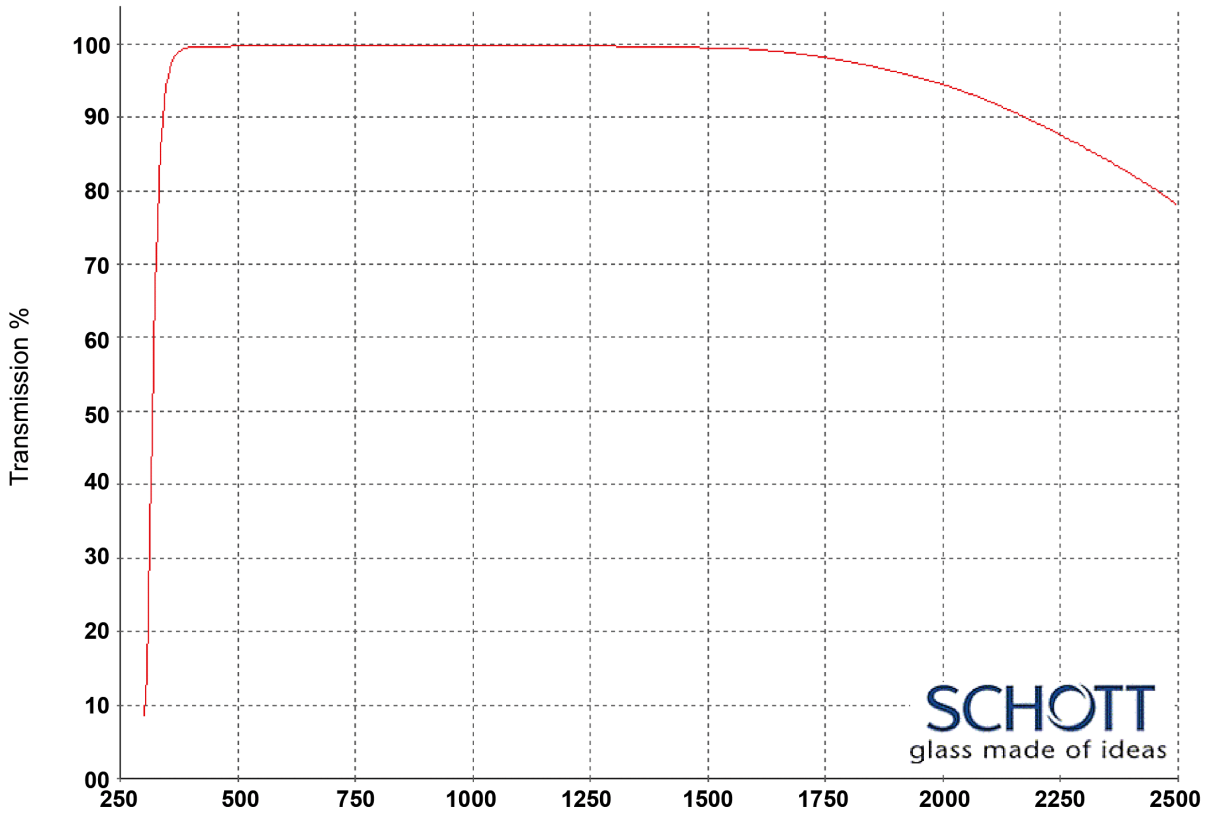
OPTICAL GLASSES: VISIBLE – NEAR INFRA-RED

Title: Optical Glasses - 250-2500nm

Material/Specification: Schott N-K5 for 250nm - 2500nm transmission

Range/Description: OPG-N-K5



Internal transmittance for 10mm thickness

WAVELENGTH	N-K5 (T%)
2500 nm	0.780
2325 nm	0.850
1970 nm	0.950
1530 nm	0.994
1060 nm	0.998
700 nm	0.998
660 nm	0.997
620 nm	0.997
580 nm	0.998
546 nm	0.998
500 nm	0.997
460 nm	0.996
436 nm	0.996
420 nm	0.996
405 nm	0.996
400 nm	0.995
390 nm	0.994
380 nm	0.991
370 nm	0.985
365 nm	0.982
350 nm	0.950
334 nm	0.830
320 nm	0.540
310 nm	0.220
300 nm	0.060
290 nm	0.000
280 nm	0.000
270 nm	0.000
260 nm	0.000
250 nm	0.000

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SCHOTT
glass made of ideas

Refractive Indices	λ [nm]	
$n_{2325.4}$	2325.4	1.49656
$n_{1970.1}$	1970.1	1.50146
$n_{1529.6}$	1529.6	1.50664
$n_{1060.0}$	1060.0	1.51197
n_t	1014.0	1.51257
n_s	852.1	1.51507
n_r	706.5	1.51829
n_C	656.3	1.51982
$n_{C'}$	643.8	1.52024
$n_{632.8}$	632.8	1.52064
n_D	589.3	1.52241
n_d	587.6	1.52249
n_e	546.1	1.52458
n_F	486.1	1.52860
$n_{F'}$	480.0	1.52910
n_g	435.8	1.53338
n_h	404.7	1.53734
n_i	365.0	1.54412
$n_{334.1}$	334.1	1.55145
$n_{312.6}$	312.6	1.55821
$n_{296.7}$	296.7	
$n_{280.4}$	280.4	
$n_{248.3}$	248.3	

Constants of Dispersion Formula	
B_1	$1.08511833 \cdot 10^{+00}$
B_2	$1.99562005 \cdot 10^{-01}$
B_3	$9.30511663 \cdot 10^{-01}$
C_1	$6.61099503 \cdot 10^{-03}$
C_2	$2.41108660 \cdot 10^{-02}$
C_3	$1.11982777 \cdot 10^{+02}$

Constants of Formula dn/dT	
D_0	$-4.13 \cdot 10^{-07}$
D_1	$1.03 \cdot 10^{-08}$
D_2	$-3.40 \cdot 10^{-11}$
E_0	$4.73 \cdot 10^{-07}$
E_1	$5.19 \cdot 10^{-10}$
λ_{TK}[µm]	0.213

Internal Transmittance τ_i		
λ [nm]	τ_i [10 mm]	τ_i [25 mm]
2500	0.78	0.53
2325	0.85	0.66
1970	0.950	0.87
1530	0.994	0.986
1060	0.998	0.995
700	0.998	0.994
660	0.997	0.992
620	0.997	0.993
580	0.998	0.995
546	0.998	0.995
500	0.997	0.993
460	0.996	0.991
436	0.996	0.991
420	0.996	0.991
405	0.996	0.989
400	0.995	0.988
390	0.994	0.984
380	0.991	0.977
370	0.985	0.962
365	0.982	0.956
350	0.950	0.88
334	0.83	0.63
320	0.54	0.21
310	0.22	0.02
300	0.06	
290		
280		
270		
260		
250		

Color Code	
λ_{80}/λ_5	34/30

Remarks

Relative Partial Dispersion	
$P_{s,t}$	0.2843
$P_{C,s}$	0.5404
$P_{d,C}$	0.3044
$P_{e,d}$	0.2384
$P_{g,F}$	0.5438
$P_{i,h}$	0.7717
$P'_{s,t}$	0.2819
$P'_{C',s}$	0.5839
$P'_{d,C'}$	0.2538
$P'_{e,d}$	0.2364
$P'_{g,F'}$	0.4828
$P'_{i,h}$	0.7653

Deviation of Rel. Partial Dispersion ΔP from "Normal Line"	
$\Delta P_{C,t}$	-0.0025
$\Delta P_{C,s}$	-0.0012
$\Delta P_{F,e}$	0.0001
$\Delta P_{g,F}$	0.0000
$\Delta P_{i,g}$	-0.0019

Other Properties	
$\alpha_{-30/+70°C}$[10^{-6}/K]	8.2
$\alpha_{+20/+300°C}$[10^{-6}/K]	9.6
Tg[°C]	546
$T_{10^{13.0}}$[°C]	540
$T_{10^{7.6}}$[°C]	720
c_p[J/(g·K)]	0.783
λ[W/(m·K)]	0.950
ρ[g/cm³]	2.59
E[10^3N/mm²]	71
µ	0.224
K[10^{-6}mm²/N]	3.03
$HK_{0.1/20}$	530
HG	3
B	1
CR	1
FR	0
SR	1
AR	1
PR	1

Temperature Coefficients of Refractive Index	$\Delta n_{rel}/\Delta T$[10^{-6}/K]			$\Delta n_{abs}/\Delta T$[10^{-6}/K]		
[°C]	1060.0	e	g	1060.0	e	g
-40/ -20	1.5	2.1	2.6	-0.6	0.0	0.5
+20/+40	1.4	2.1	2.7	0.1	0.7	1.4
+60/+80	1.4	2.1	2.8	0.4	1.1	1.8

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