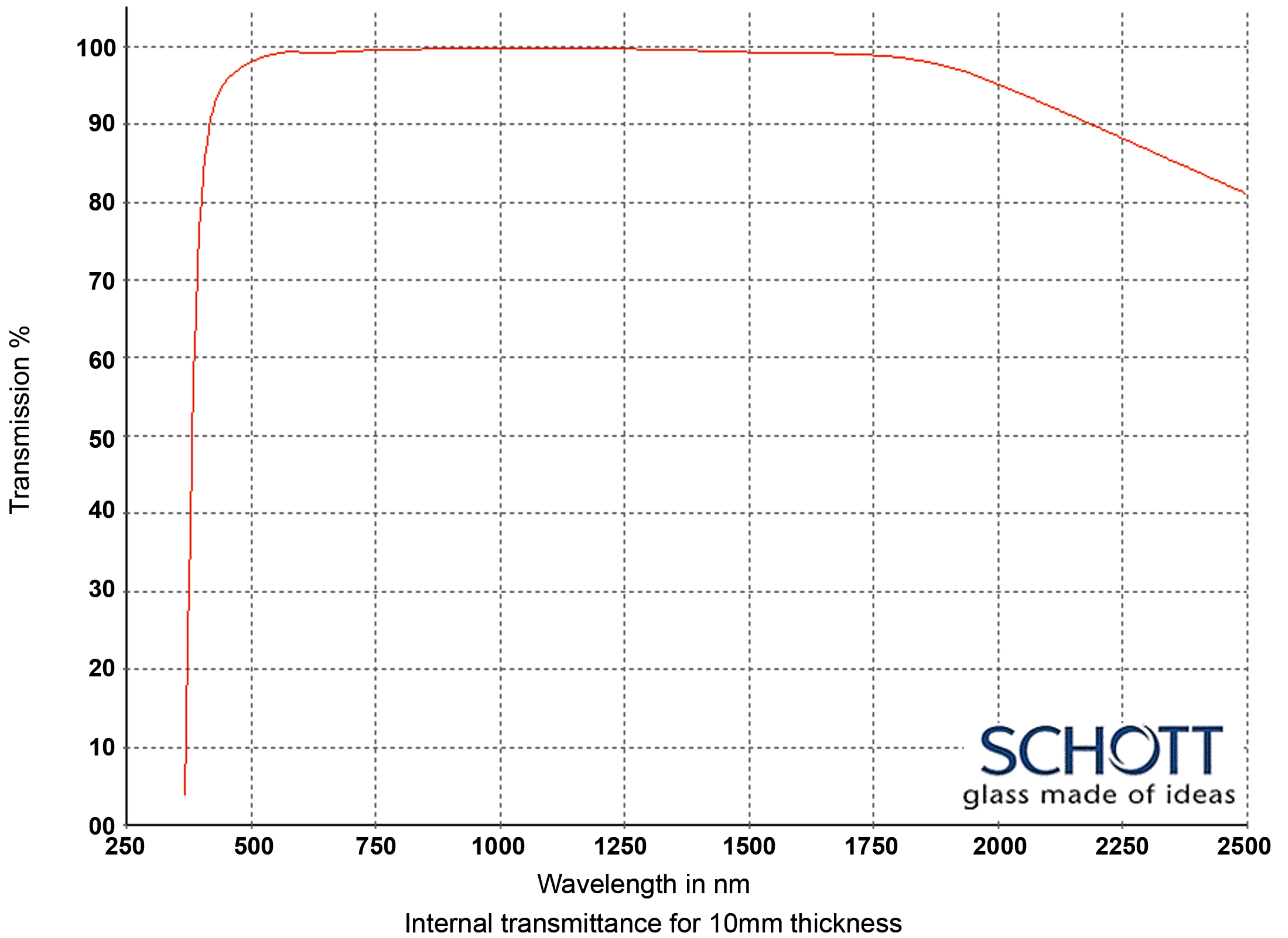




KNIGHT OPTICAL

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Title: Optical Glasses - 250-2500nm
Material: SCHOTT N-SF56 for 250nm - 2500 transmission
Range: OPG - N-SF56



| WAVELENGTH | BASF51 (T%) |
|------------|-------------|
| 2500 nm | 0.810 |
| 2325 nm | 0.860 |
| 1970 nm | 0.959 |
| 1530 nm | 0.992 |
| 1060 nm | 0.998 |
| 700 nm | 0.994 |
| 660 nm | 0.992 |
| 620 nm | 0.992 |
| 580 nm | 0.993 |
| 546 nm | 0.990 |
| 500 nm | 0.980 |
| 460 nm | 0.963 |
| 436 nm | 0.940 |
| 420 nm | 0.910 |
| 405 nm | 0.840 |
| 400 nm | 0.800 |
| 390 nm | 0.670 |
| 380 nm | 0.440 |
| 370 nm | 0.110 |
| 365 nm | 0.020 |
| 350 nm | 0.000 |
| 334 nm | 0.000 |
| 320 nm | 0.000 |
| 310 nm | 0.000 |
| 300 nm | 0.000 |
| 290 nm | 0.000 |
| 280 nm | 0.000 |
| 270 nm | 0.000 |
| 260 nm | 0.000 |
| 250 nm | 0.000 |

| Refractive Indices | | |
|--------------------|----------------|---------|
| | λ [nm] | |
| $n_{2325.4}$ | 2325.4 | 1.73010 |
| $n_{1970.1}$ | 1970.1 | 1.73664 |
| $n_{1529.6}$ | 1529.6 | 1.74431 |
| $n_{1060.0}$ | 1060.0 | 1.75442 |
| n_t | 1014.0 | 1.75581 |
| n_s | 852.1 | 1.76213 |
| n_r | 706.5 | 1.77137 |
| n_C | 656.3 | 1.77607 |
| $n_{C'}$ | 643.8 | 1.77741 |
| $n_{632.8}$ | 632.8 | 1.77868 |
| n_D | 589.3 | 1.78444 |
| n_d | 587.6 | 1.78470 |
| n_e | 546.1 | 1.79179 |
| n_F | 486.1 | 1.80614 |
| $n_{F'}$ | 480.0 | 1.80800 |
| n_g | 435.8 | 1.82460 |
| n_h | 404.7 | 1.84126 |
| n_i | 365.0 | |
| $n_{334.1}$ | 334.1 | |
| $n_{312.6}$ | 312.6 | |
| $n_{296.7}$ | 296.7 | |
| $n_{280.4}$ | 280.4 | |
| $n_{248.3}$ | 248.3 | |

| Constants of Dispersion Formula | |
|---------------------------------|-----------------------------|
| B_1 | $1.73562085 \cdot 10^{+00}$ |
| B_2 | $3.17487012 \cdot 10^{-01}$ |
| B_3 | $1.95398203 \cdot 10^{+00}$ |
| C_1 | $1.29624742 \cdot 10^{-02}$ |
| C_2 | $6.12884288 \cdot 10^{-02}$ |
| C_3 | $1.61559441 \cdot 10^{+02}$ |

| Constants of Formula dn/dT | |
|------------------------------|------------------------|
| D_0 | $-4.13 \cdot 10^{-06}$ |
| D_1 | $7.65 \cdot 10^{-09}$ |
| D_2 | $-1.12 \cdot 10^{-11}$ |
| E_0 | $9.90 \cdot 10^{-07}$ |
| E_1 | $1.57 \cdot 10^{-09}$ |
| $\lambda_{TK}[\mu m]$ | 0.287 |

| 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 | -0.1 | 1.7 | 4.3 | -2.5 | -0.7 | 1.8 |
| +20/+40 | -0.3 | 2.0 | 5.1 | -1.8 | 0.5 | 3.5 |
| +60/+80 | -0.2 | 2.4 | 5.9 | -1.4 | 1.2 | 4.6 |

| Internal Transmittance τ_i | | |
|---------------------------------|------------------|------------------|
| λ [nm] | τ_i [10 mm] | τ_i [25 mm] |
| 2500 | 0.81 | 0.59 |
| 2325 | 0.86 | 0.68 |
| 1970 | 0.959 | 0.900 |
| 1530 | 0.992 | 0.981 |
| 1060 | 0.998 | 0.996 |
| 700 | 0.994 | 0.986 |
| 660 | 0.992 | 0.981 |
| 620 | 0.992 | 0.981 |
| 580 | 0.993 | 0.983 |
| 546 | 0.990 | 0.976 |
| 500 | 0.980 | 0.950 |
| 460 | 0.963 | 0.910 |
| 436 | 0.940 | 0.86 |
| 420 | 0.910 | 0.78 |
| 405 | 0.84 | 0.64 |
| 400 | 0.80 | 0.57 |
| 390 | 0.67 | 0.37 |
| 380 | 0.44 | 0.13 |
| 370 | 0.11 | |
| 365 | 0.02 | |
| 350 | | |
| 334 | | |
| 320 | | |
| 310 | | |
| 300 | | |
| 290 | | |
| 280 | | |
| 270 | | |
| 260 | | |
| 250 | | |

| Color Code | |
|--------------------------|-------|
| λ_{80}/λ_5 | 44/37 |
| Remarks | |
| | |
| | |
| | |

| Relative Partial Dispersion | |
|-----------------------------|--------|
| $P_{s,t}$ | 0.2101 |
| $P_{C,s}$ | 0.4635 |
| $P_{d,C}$ | 0.2872 |
| $P_{e,d}$ | 0.2356 |
| $P_{g,F}$ | 0.6139 |
| $P_{i,h}$ | |
| | |
| $P'_{s,t}$ | 0.2065 |
| $P'_{C's}$ | 0.4996 |
| $P'_{d,C'}$ | 0.2384 |
| $P'_{e,d}$ | 0.2316 |
| $P'_{g,F'}$ | 0.5427 |
| $P'_{i,h}$ | |

| Deviation of Rel. Partial Dispersion ΔP from "Normal Line" | |
|--|---------|
| $\Delta P_{C,t}$ | 0.0048 |
| $\Delta P_{C,s}$ | -0.0002 |
| $\Delta P_{F,e}$ | 0.0026 |
| $\Delta P_{g,F}$ | 0.0140 |
| $\Delta P_{i,g}$ | |

| Other Properties | |
|---|-------|
| $\alpha_{-30/+70^\circ C} [10^{-6}/K]$ | 8.7 |
| $\alpha_{+20/+300^\circ C} [10^{-6}/K]$ | 10.0 |
| $T_g [^\circ C]$ | 592 |
| $T_{10}^{13.0} [^\circ C]$ | 585 |
| $T_{10}^{7.6} [^\circ C]$ | 691 |
| $c_p [J/(g \cdot K)]$ | 0.700 |
| $\lambda [W/(m \cdot K)]$ | 0.940 |
| | |
| $\rho [g/cm^3]$ | 3.28 |
| $E [10^3 N/mm^2]$ | 91 |
| μ | 0.255 |
| $K [10^{-6} mm^2/N]$ | 2.87 |
| $HK_{0.1/20}$ | 560 |
| HG | 5 |
| | |
| B | 1 |
| | |
| CR | 1 |
| FR | 0 |
| SR | 1 |
| AR | 1.3 |
| PR | 1 |



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