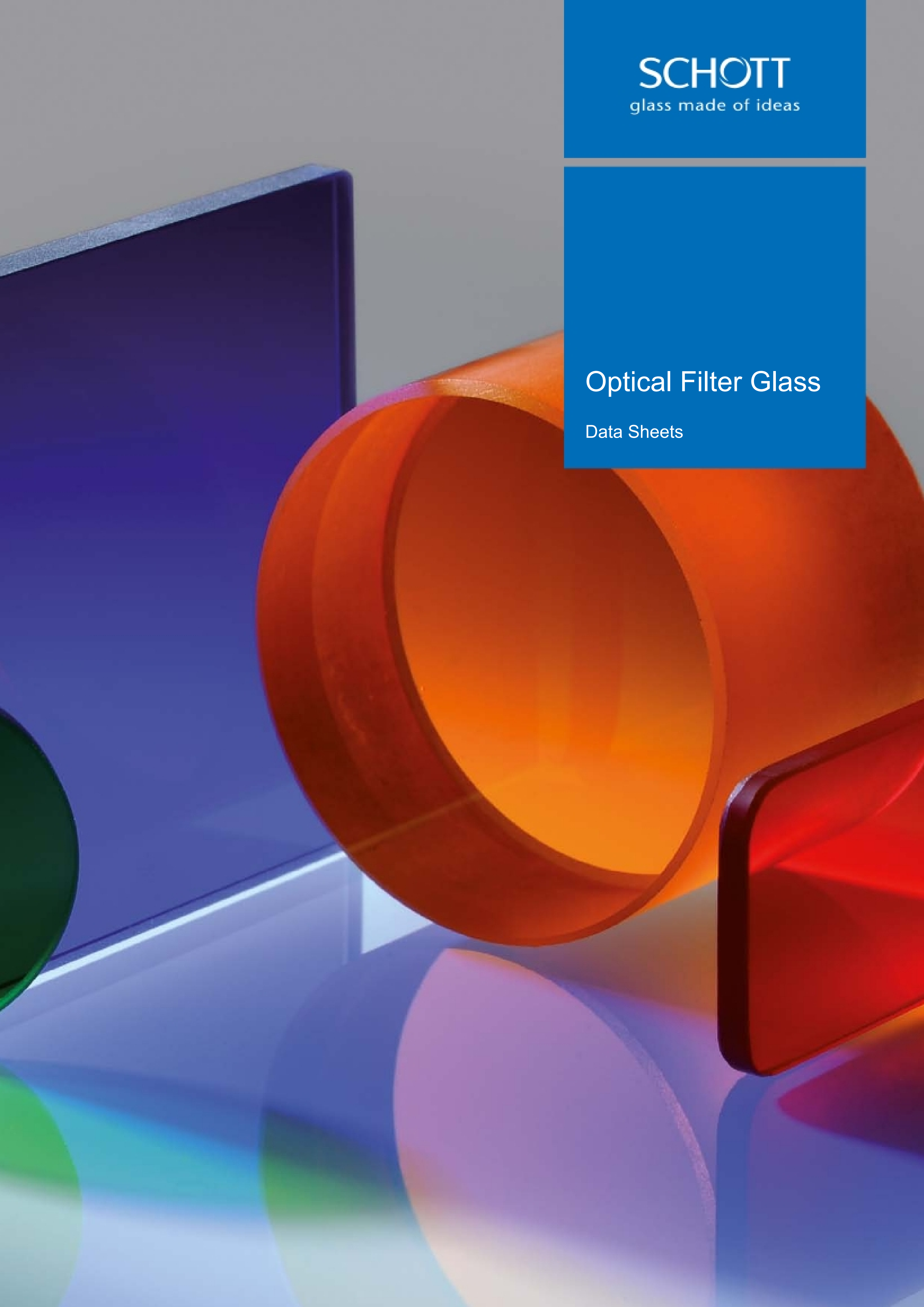


SCHOTT
glass made of ideas

Optical Filter Glass

Data Sheets

Table of Content

Data Sheet

SCHOTT

BG3

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (365nm)	≥	0.94
τ_i (633nm)	≤	0.00005

Refractive Index n
n (302.1 nm) = 1.548
n_g (435.8 nm) = 1.520
$n_{F'}$ (480.0 nm) = 1.516
n_F (486.1 nm) = 1.516
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	478

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.8
$\alpha_{20/300°C}$ [10^{-6}/K]	10.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

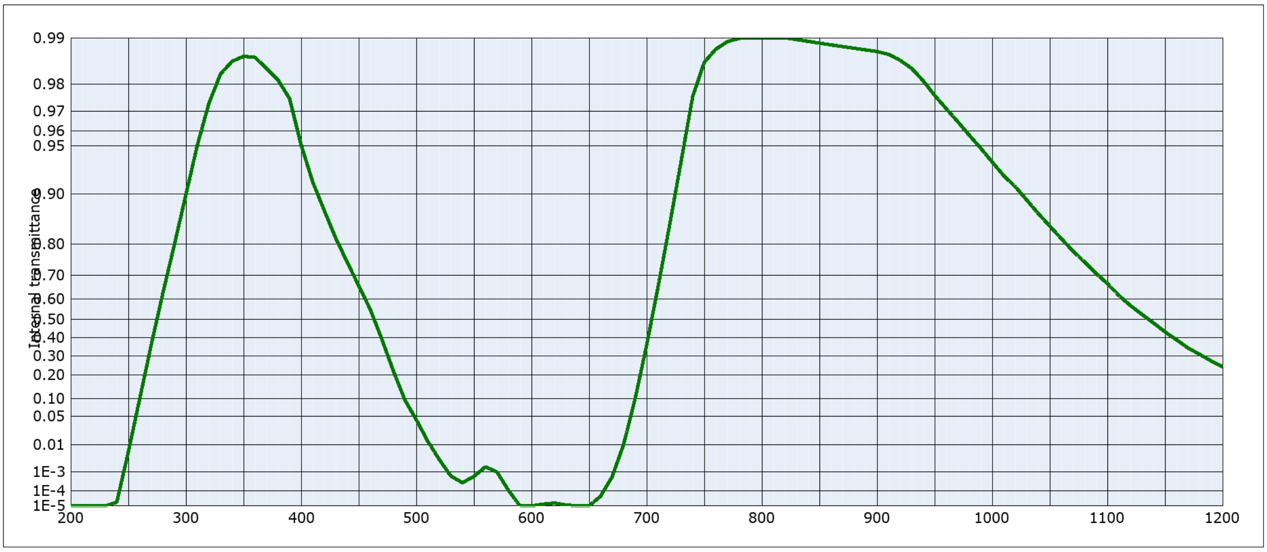
Notes
Ionically colored glass
Bandpass filter
UV
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.160	0.166	0.170
y	0.042	0.024	0.020
Y	1	0	0
λ_d [nm]	458	447	440
P_e	0.96	0.98	0.98

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.157	0.163	0.167
y	0.038	0.022	0.018
Y	1	0	0
λ_d [nm]	457	447	442
P_e	0.97	0.98	0.99

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.154	0.160	0.163
y	0.029	0.018	0.014
Y	2	1	0
λ_d [nm]	455	448	444
P_e	0.98	0.99	1.00



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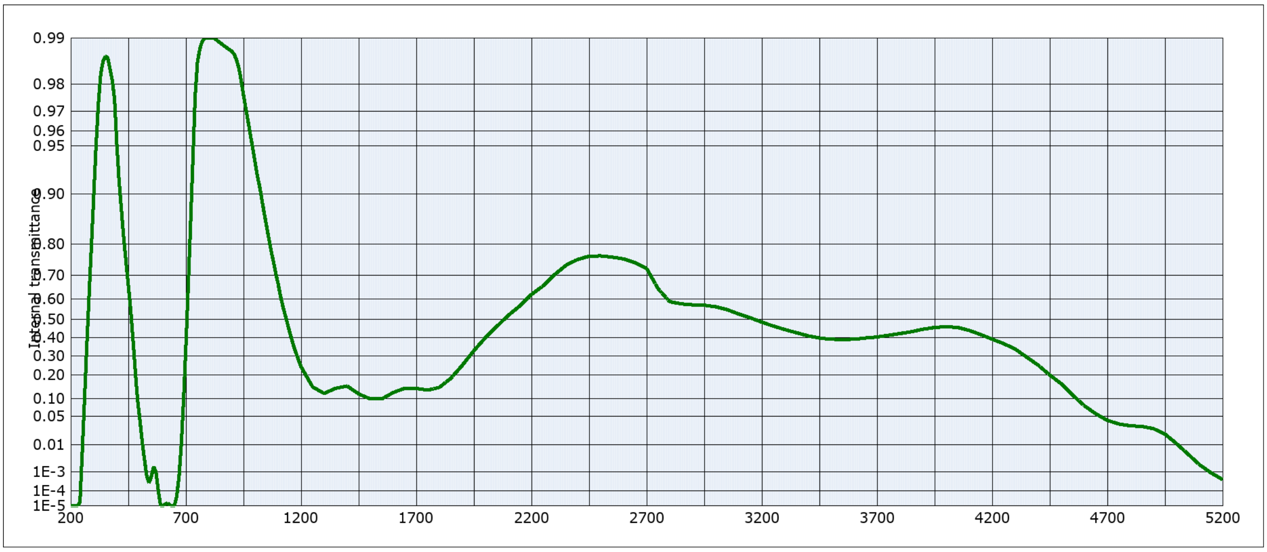
Further explanations see 'Optical Filters 2013' catalogue

BG3



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$4.3\cdot10^{-2}$	800	0.990	1100	0.667	2200	0.620	3700	0.404
210	$< 10^{-5}$	510	$1.3\cdot10^{-2}$	810	0.990	1110	0.615	2250	0.657	3750	0.413
220	$< 10^{-5}$	520	$3.2\cdot10^{-3}$	820	0.990	1120	0.568	2300	0.701	3800	0.423
230	$< 10^{-5}$	530	$6.4\cdot10^{-4}$	830	0.990	1130	0.525	2350	0.735	3850	0.433
240	$1.9\cdot10^{-5}$	540	$3.0\cdot10^{-4}$	840	0.989	1140	0.480	2400	0.754	3900	0.446
250	$6.1\cdot10^{-3}$	550	$6.2\cdot10^{-4}$	850	0.989	1150	0.432	2450	0.764	3950	0.456
260	0.103	560	$1.7\cdot10^{-3}$	860	0.989	1160	0.388	2500	0.765	4000	0.460
270	0.364	570	$1.0\cdot10^{-3}$	870	0.989	1170	0.343	2550	0.761	4050	0.456
280	0.626	580	$1.1\cdot10^{-4}$	880	0.988	1180	0.308	2600	0.756	4100	0.440
290	0.798	590	$< 10^{-5}$	890	0.988	1190	0.273	2650	0.743	4150	0.417
300	0.899	600	$< 10^{-5}$	900	0.988	1200	0.241	2700	0.724	4200	0.392
310	0.951	610	$1.3\cdot10^{-5}$	910	0.987	1250	0.146	2750	0.644	4250	0.367
320	0.973	620	$1.6\cdot10^{-5}$	920	0.986	1300	0.120	2800	0.587	4300	0.337
330	0.983	630	$1.2\cdot10^{-5}$	930	0.984	1350	0.141	2850	0.576	4350	0.293
340	0.986	640	$< 10^{-5}$	940	0.981	1400	0.150	2900	0.572	4400	0.250
350	0.987	650	$< 10^{-5}$	950	0.976	1450	0.118	2950	0.570	4450	0.200
360	0.987	660	$4.7\cdot10^{-5}$	960	0.971	1500	0.100	3000	0.562	4500	0.160
370	0.984	670	$5.9\cdot10^{-4}$	970	0.965	1550	0.100	3050	0.548	4550	0.113
380	0.981	680	$1.0\cdot10^{-2}$	980	0.957	1600	0.124	3100	0.526	4600	$7.8\cdot10^{-2}$
390	0.975	690	0.100	990	0.948	1650	0.141	3150	0.507	4650	$5.6\cdot10^{-2}$
400	0.951	700	0.359	1000	0.937	1700	0.140	3200	0.484	4700	$4.2\cdot10^{-2}$
410	0.916	710	0.655	1010	0.923	1750	0.133	3250	0.463	4750	$3.5\cdot10^{-2}$
420	0.874	720	0.846	1020	0.910	1800	0.144	3300	0.444	4800	$3.2\cdot10^{-2}$
430	0.815	730	0.938	1030	0.891	1850	0.185	3350	0.427	4850	$3.1\cdot10^{-2}$
440	0.745	740	0.976	1040	0.868	1900	0.250	3400	0.410	4900	$2.7\cdot10^{-2}$
450	0.658	750	0.986	1050	0.843	1950	0.328	3450	0.398	4950	$2.0\cdot10^{-2}$
460	0.550	760	0.988	1060	0.813	2000	0.400	3500	0.392	5000	$1.1\cdot10^{-2}$
470	0.393	770	0.989	1070	0.780	2050	0.462	3550	0.390	5050	$5.1\cdot10^{-3}$
480	0.222	780	0.990	1080	0.746	2100	0.520	3600	0.392	5100	$2.0\cdot10^{-3}$
490	$9.7\cdot10^{-2}$	790	0.990	1090	0.706	2150	0.567	3650	0.398	5150	$9.1\cdot10^{-4}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG7

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (365nm)	≥	0.25
τ_i (488nm)	≥	0.78
τ_i (633nm)	≤	0.08

Refractive Index n
n_h (404.7 nm) = 1.540
n_d (587.6 nm) = 1.520

Density	
ρ [g/cm^3]	2.61

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	468

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.5
$\alpha_{20/300°C}$ [10^{-6}/K]	9.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Bandpass filter

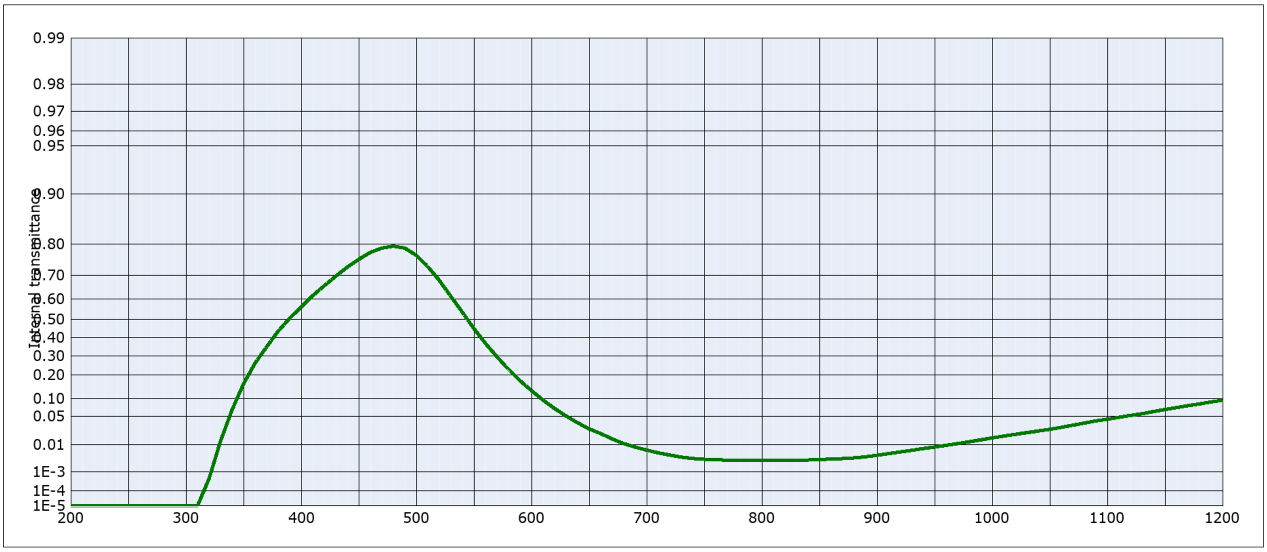
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

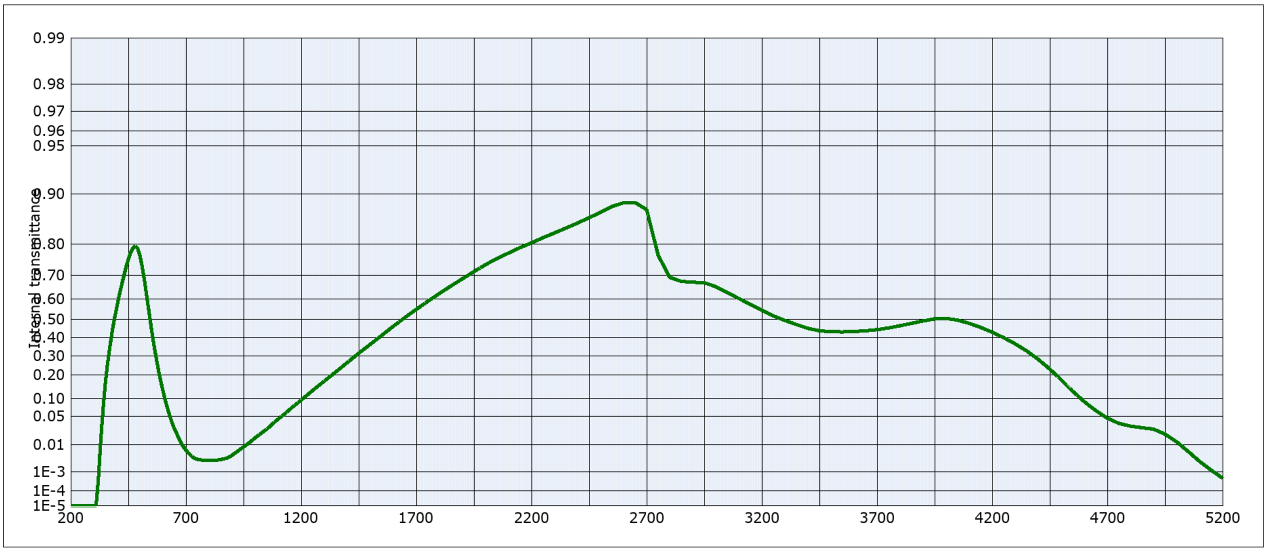
Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.262	0.179	0.145
y	0.406	0.360	0.317
Y	30	14	8
λ_d [nm]	495	492	490
P_e	0.44	0.65	0.76

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.246	0.172	0.143
y	0.382	0.333	0.292
Y	31	16	9
λ_d [nm]	493	490	488
P_e	0.45	0.66	0.76

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.191	0.152	0.138
y	0.272	0.229	0.200
Y	38	21	13
λ_d [nm]	486	484	482
P_e	0.49	0.68	0.76



BG7



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.767	800	$3.0 \cdot 10^{-3}$	1100	$4.4 \cdot 10^{-2}$	2200	0.803	3700	0.444
210	$< 10^{-5}$	510	0.730	810	$3.0 \cdot 10^{-3}$	1110	$4.8 \cdot 10^{-2}$	2250	0.816	3750	0.453
220	$< 10^{-5}$	520	0.679	820	$3.0 \cdot 10^{-3}$	1120	$5.2 \cdot 10^{-2}$	2300	0.827	3800	0.465
230	$< 10^{-5}$	530	0.611	830	$3.0 \cdot 10^{-3}$	1130	$5.6 \cdot 10^{-2}$	2350	0.839	3850	0.478
240	$< 10^{-5}$	540	0.535	840	$3.1 \cdot 10^{-3}$	1140	$6.2 \cdot 10^{-2}$	2400	0.849	3900	0.490
250	$< 10^{-5}$	550	0.450	850	$3.2 \cdot 10^{-3}$	1150	$6.7 \cdot 10^{-2}$	2450	0.860	3950	0.501
260	$< 10^{-5}$	560	0.369	860	$3.4 \cdot 10^{-3}$	1160	$7.3 \cdot 10^{-2}$	2500	0.870	4000	0.503
270	$< 10^{-5}$	570	0.295	870	$3.5 \cdot 10^{-3}$	1170	$7.8 \cdot 10^{-2}$	2550	0.881	4050	0.495
280	$< 10^{-5}$	580	0.229	880	$3.7 \cdot 10^{-3}$	1180	$8.4 \cdot 10^{-2}$	2600	0.887	4100	0.478
290	$< 10^{-5}$	590	0.174	890	$4.1 \cdot 10^{-3}$	1190	$9.0 \cdot 10^{-2}$	2650	0.887	4150	0.456
300	$< 10^{-5}$	600	0.131	900	$4.6 \cdot 10^{-3}$	1200	$9.6 \cdot 10^{-2}$	2700	0.875	4200	0.430
310	$< 10^{-5}$	610	$9.6 \cdot 10^{-2}$	910	$5.3 \cdot 10^{-3}$	1250	0.132	2750	0.767	4250	0.400
320	$4.7 \cdot 10^{-4}$	620	$7.0 \cdot 10^{-2}$	920	$6.0 \cdot 10^{-3}$	1300	0.171	2800	0.691	4300	0.366
330	$1.3 \cdot 10^{-2}$	630	$5.1 \cdot 10^{-2}$	930	$6.8 \cdot 10^{-3}$	1350	0.215	2850	0.675	4350	0.326
340	$6.6 \cdot 10^{-2}$	640	$3.7 \cdot 10^{-2}$	940	$7.7 \cdot 10^{-3}$	1400	0.263	2900	0.672	4400	0.281
350	0.160	650	$2.7 \cdot 10^{-2}$	950	$8.7 \cdot 10^{-3}$	1450	0.314	2950	0.670	4450	0.230
360	0.260	660	$2.1 \cdot 10^{-2}$	960	$9.8 \cdot 10^{-3}$	1500	0.363	3000	0.654	4500	0.177
370	0.349	670	$1.5 \cdot 10^{-2}$	970	$1.1 \cdot 10^{-2}$	1550	0.413	3050	0.628	4550	0.128
380	0.435	680	$1.1 \cdot 10^{-2}$	980	$1.2 \cdot 10^{-2}$	1600	0.462	3100	0.602	4600	$9.0 \cdot 10^{-2}$
390	0.504	690	$8.6 \cdot 10^{-3}$	990	$1.4 \cdot 10^{-2}$	1650	0.508	3150	0.574	4650	$6.4 \cdot 10^{-2}$
400	0.561	700	$6.9 \cdot 10^{-3}$	1000	$1.6 \cdot 10^{-2}$	1700	0.550	3200	0.546	4700	$4.6 \cdot 10^{-2}$
410	0.614	710	$5.6 \cdot 10^{-3}$	1010	$1.8 \cdot 10^{-2}$	1750	0.589	3250	0.517	4750	$3.6 \cdot 10^{-2}$
420	0.657	720	$4.7 \cdot 10^{-3}$	1020	$2.0 \cdot 10^{-2}$	1800	0.624	3300	0.493	4800	$3.1 \cdot 10^{-2}$
430	0.695	730	$4.0 \cdot 10^{-3}$	1030	$2.2 \cdot 10^{-2}$	1850	0.656	3350	0.472	4850	$2.9 \cdot 10^{-2}$
440	0.728	740	$3.6 \cdot 10^{-3}$	1040	$2.4 \cdot 10^{-2}$	1900	0.685	3400	0.451	4900	$2.7 \cdot 10^{-2}$
450	0.754	750	$3.3 \cdot 10^{-3}$	1050	$2.6 \cdot 10^{-2}$	1950	0.712	3450	0.438	4950	$2.0 \cdot 10^{-2}$
460	0.776	760	$3.2 \cdot 10^{-3}$	1060	$2.9 \cdot 10^{-2}$	2000	0.737	3500	0.433	5000	$1.3 \cdot 10^{-2}$
470	0.788	770	$3.1 \cdot 10^{-3}$	1070	$3.3 \cdot 10^{-2}$	2050	0.757	3550	0.432	5050	$6.3 \cdot 10^{-3}$
480	0.794	780	$3.0 \cdot 10^{-3}$	1080	$3.6 \cdot 10^{-2}$	2100	0.774	3600	0.434	5100	$2.8 \cdot 10^{-3}$
490	0.788	790	$3.0 \cdot 10^{-3}$	1090	$4.1 \cdot 10^{-2}$	2150	0.789	3650	0.438	5150	$1.2 \cdot 10^{-3}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG18

Density	
ρ [g/cm^3]	2.68

Notes
Ionically colored glass
Bandpass filter / shortpass filter
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Reflection factor	
P_d	0.914

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	0
SR class	2.0
AR class	2.0

Spectral values guaranteed		
τ_i (350nm)	≥	0.3
τ_i (405nm)	≥	0.65
τ_i (514nm)	≥	0.88
τ_i (633nm)	≤	0.25
τ_i (694nm)	≤	0.03
τ_i (1060nm)	≤	0.0005

Transformation temperature	
Tg [°C]	457

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.4
$\alpha_{20/300°C}$ [10^{-6}/K]	8.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_h (404.7 nm) = 1.550
n_d (587.6 nm) = 1.540

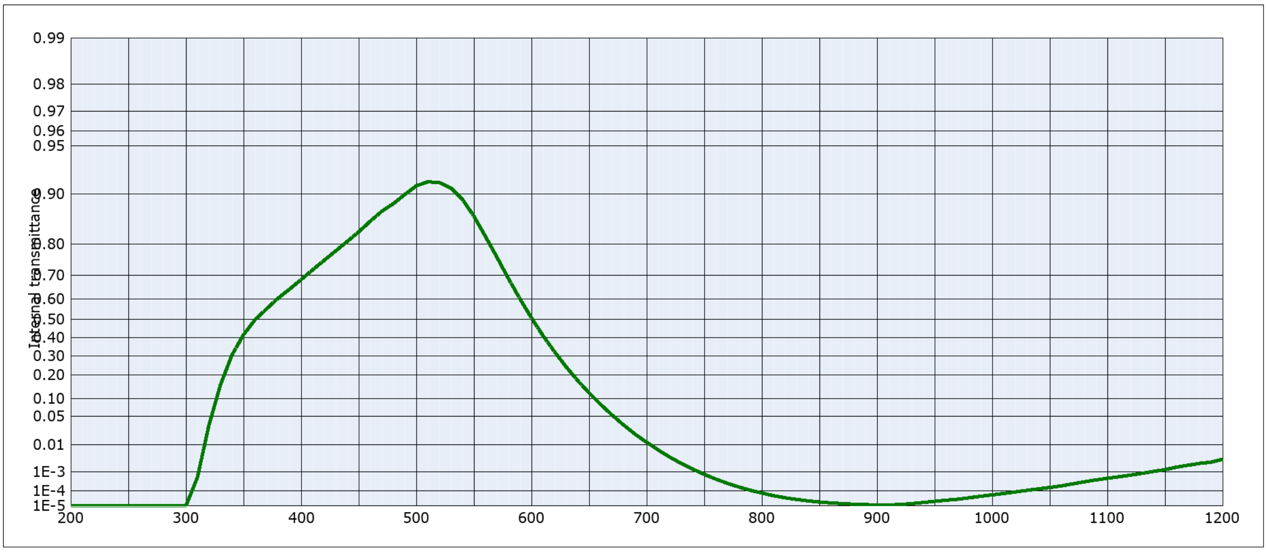
Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.361	0.309	0.275
y	0.441	0.459	0.472
Y	61	46	37
λ_d [nm]	502	501	501
P_e	0.20	0.31	0.39

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.340	0.292	0.260
y	0.426	0.441	0.451
Y	62	48	38
λ_d [nm]	500	500	500
P_e	0.20	0.32	0.39

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.255	0.225	0.206
y	0.335	0.340	0.346
Y	68	54	45
λ_d [nm]	493	493	493
P_e	0.21	0.31	0.38



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Further explanations see 'Optical Filters 2013' catalogue

BG18

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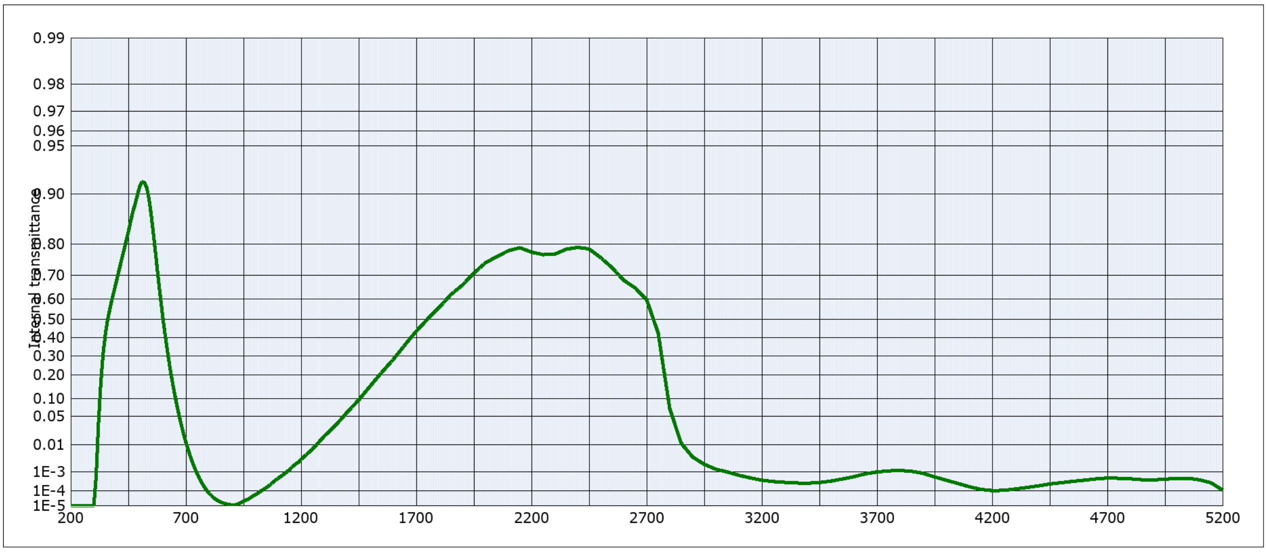


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.911	800	$7.6 \cdot 10^{-5}$	1100	$5.0 \cdot 10^{-4}$	2200	0.777	3700	$1.0 \cdot 10^{-3}$
210	$< 10^{-5}$	510	0.916	810	$5.2 \cdot 10^{-5}$	1110	$6.0 \cdot 10^{-4}$	2250	0.769	3750	$1.1 \cdot 10^{-3}$
220	$< 10^{-5}$	520	0.915	820	$3.8 \cdot 10^{-5}$	1120	$7.1 \cdot 10^{-4}$	2300	0.770	3800	$1.2 \cdot 10^{-3}$
230	$< 10^{-5}$	530	0.908	830	$2.9 \cdot 10^{-5}$	1130	$8.6 \cdot 10^{-4}$	2350	0.785	3850	$1.1 \cdot 10^{-3}$
240	$< 10^{-5}$	540	0.892	840	$2.3 \cdot 10^{-5}$	1140	$1.1 \cdot 10^{-3}$	2400	0.790	3900	$8.6 \cdot 10^{-4}$
250	$< 10^{-5}$	550	0.863	850	$1.9 \cdot 10^{-5}$	1150	$1.3 \cdot 10^{-3}$	2450	0.786	3950	$5.8 \cdot 10^{-4}$
260	$< 10^{-5}$	560	0.819	860	$1.7 \cdot 10^{-5}$	1160	$1.6 \cdot 10^{-3}$	2500	0.760	4000	$4.0 \cdot 10^{-4}$
270	$< 10^{-5}$	570	0.761	870	$1.5 \cdot 10^{-5}$	1170	$1.9 \cdot 10^{-3}$	2550	0.726	4050	$2.7 \cdot 10^{-4}$
280	$< 10^{-5}$	580	0.686	880	$1.3 \cdot 10^{-5}$	1180	$2.3 \cdot 10^{-3}$	2600	0.680	4100	$1.8 \cdot 10^{-4}$
290	$< 10^{-5}$	590	0.600	890	$1.2 \cdot 10^{-5}$	1190	$2.6 \cdot 10^{-3}$	2650	0.648	4150	$1.3 \cdot 10^{-4}$
300	$< 10^{-5}$	600	0.506	900	$1.2 \cdot 10^{-5}$	1200	$3.3 \cdot 10^{-3}$	2700	0.596	4200	$1.1 \cdot 10^{-4}$
310	$5.6 \cdot 10^{-4}$	610	0.411	910	$1.2 \cdot 10^{-5}$	1250	$7.5 \cdot 10^{-3}$	2750	0.426	4250	$1.1 \cdot 10^{-4}$
320	$3.3 \cdot 10^{-2}$	620	0.322	920	$1.3 \cdot 10^{-5}$	1300	$1.8 \cdot 10^{-2}$	2800	$7.0 \cdot 10^{-2}$	4300	$1.3 \cdot 10^{-4}$
330	0.156	630	0.242	930	$1.5 \cdot 10^{-5}$	1350	$3.3 \cdot 10^{-2}$	2850	$1.1 \cdot 10^{-2}$	4350	$1.6 \cdot 10^{-4}$
340	0.305	640	0.175	940	$1.8 \cdot 10^{-5}$	1400	$6.0 \cdot 10^{-2}$	2900	$4.0 \cdot 10^{-3}$	4400	$2.0 \cdot 10^{-4}$
350	0.416	650	0.122	950	$2.1 \cdot 10^{-5}$	1450	$9.6 \cdot 10^{-2}$	2950	$2.1 \cdot 10^{-3}$	4450	$2.6 \cdot 10^{-4}$
360	0.497	660	$8.2 \cdot 10^{-2}$	960	$2.6 \cdot 10^{-5}$	1500	0.150	3000	$1.3 \cdot 10^{-3}$	4500	$3.0 \cdot 10^{-4}$
370	0.552	670	$5.3 \cdot 10^{-2}$	970	$3.0 \cdot 10^{-5}$	1550	0.214	3050	$1.0 \cdot 10^{-3}$	4550	$3.5 \cdot 10^{-4}$
380	0.603	680	$3.3 \cdot 10^{-2}$	980	$3.7 \cdot 10^{-5}$	1600	0.280	3100	$7.0 \cdot 10^{-4}$	4600	$4.0 \cdot 10^{-4}$
390	0.643	690	$2.0 \cdot 10^{-2}$	990	$4.8 \cdot 10^{-5}$	1650	0.359	3150	$5.2 \cdot 10^{-4}$	4650	$4.7 \cdot 10^{-4}$
400	0.682	700	$1.2 \cdot 10^{-2}$	1000	$5.8 \cdot 10^{-5}$	1700	0.436	3200	$4.0 \cdot 10^{-4}$	4700	$5.1 \cdot 10^{-4}$
410	0.719	710	$7.0 \cdot 10^{-3}$	1010	$7.1 \cdot 10^{-5}$	1750	0.502	3250	$3.4 \cdot 10^{-4}$	4750	$5.0 \cdot 10^{-4}$
420	0.751	720	$4.0 \cdot 10^{-3}$	1020	$8.8 \cdot 10^{-5}$	1800	0.560	3300	$3.1 \cdot 10^{-4}$	4800	$4.7 \cdot 10^{-4}$
430	0.780	730	$2.3 \cdot 10^{-3}$	1030	$1.1 \cdot 10^{-4}$	1850	0.619	3350	$2.9 \cdot 10^{-4}$	4850	$4.3 \cdot 10^{-4}$
440	0.806	740	$1.3 \cdot 10^{-3}$	1040	$1.3 \cdot 10^{-4}$	1900	0.660	3400	$2.8 \cdot 10^{-4}$	4900	$4.2 \cdot 10^{-4}$
450	0.830	750	$7.7 \cdot 10^{-4}$	1050	$1.6 \cdot 10^{-4}$	1950	0.707	3450	$3.0 \cdot 10^{-4}$	4950	$4.5 \cdot 10^{-4}$
460	0.853	760	$4.6 \cdot 10^{-4}$	1060	$2.0 \cdot 10^{-4}$	2000	0.743	3500	$3.6 \cdot 10^{-4}$	5000	$5.0 \cdot 10^{-4}$
470	0.872	770	$2.8 \cdot 10^{-4}$	1070	$2.6 \cdot 10^{-4}$	2050	0.763	3550	$4.6 \cdot 10^{-4}$	5050	$5.0 \cdot 10^{-4}$
480	0.885	780	$1.7 \cdot 10^{-4}$	1080	$3.3 \cdot 10^{-4}$	2100	0.781	3600	$6.0 \cdot 10^{-4}$	5100	$4.2 \cdot 10^{-4}$
490	0.899	790	$1.1 \cdot 10^{-4}$	1090	$4.1 \cdot 10^{-4}$	2150	0.789	3650	$8.2 \cdot 10^{-4}$	5150	$2.9 \cdot 10^{-4}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG25

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (334nm)	≤	0.8
τ_i (405nm)	≥	0.93
τ_i (488nm)	≤	0.39
τ_i (725nm)	≤	0.36

Refractive Index n
n_h (404.7 nm) = 1.530
n_d (587.6 nm) = 1.510
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	487

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.7
$\alpha_{20/300°C}$ [10^{-6}/K]	10.1
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

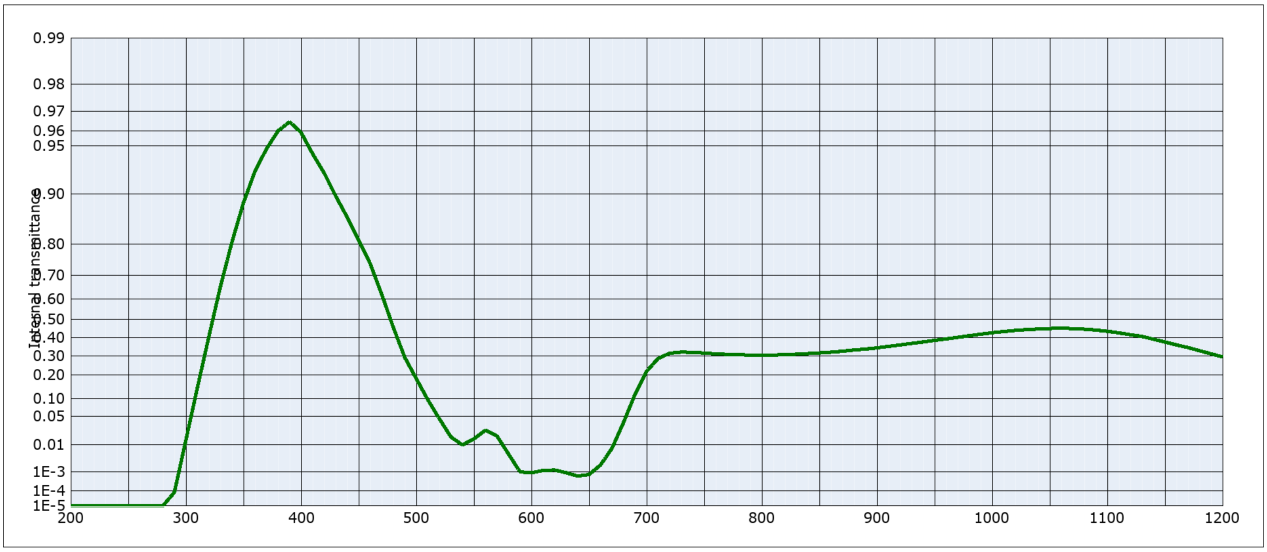
Notes
Ionically colored glass
Bandpass filter
UV
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

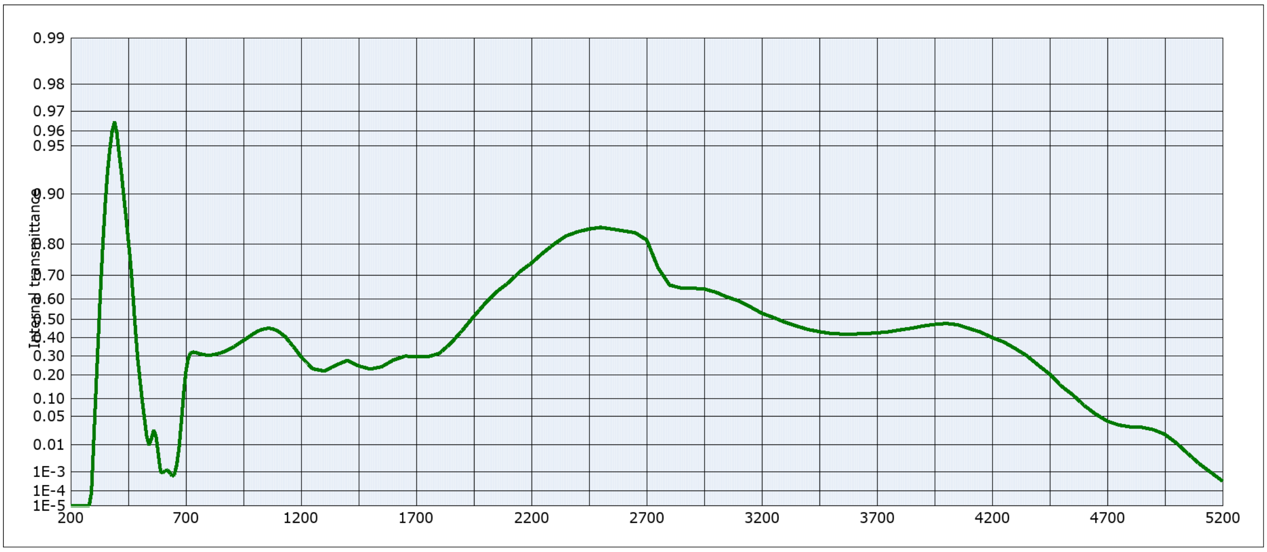
Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.155	0.151	0.155
y	0.093	0.035	0.024
Y	3	1	0
λ_d [nm]	470	459	454
P_e	0.90	0.98	0.99

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.153	0.152	0.155
y	0.083	0.033	0.023
Y	3	1	0
λ_d [nm]	469	458	453
P_e	0.91	0.98	0.99

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.150	0.153	0.157
y	0.055	0.027	0.021
Y	5	2	1
λ_d [nm]	463	455	451
P_e	0.93	0.98	0.99



BG25



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.183	800	0.304	1100	0.435	2200	0.742	3700	0.426
210	$< 10^{-5}$	510	$9.7 \cdot 10^{-2}$	810	0.304	1110	0.426	2250	0.774	3750	0.432
220	$< 10^{-5}$	520	$4.5 \cdot 10^{-2}$	820	0.306	1120	0.416	2300	0.800	3800	0.442
230	$< 10^{-5}$	530	$1.7 \cdot 10^{-2}$	830	0.309	1130	0.407	2350	0.820	3850	0.452
240	$< 10^{-5}$	540	$1.0 \cdot 10^{-2}$	840	0.312	1140	0.392	2400	0.830	3900	0.464
250	$< 10^{-5}$	550	$1.5 \cdot 10^{-2}$	850	0.316	1150	0.376	2450	0.836	3950	0.472
260	$< 10^{-5}$	560	$2.5 \cdot 10^{-2}$	860	0.320	1160	0.360	2500	0.840	4000	0.477
270	$< 10^{-5}$	570	$1.8 \cdot 10^{-2}$	870	0.325	1170	0.345	2550	0.836	4050	0.470
280	$< 10^{-5}$	580	$5.2 \cdot 10^{-3}$	880	0.332	1180	0.328	2600	0.832	4100	0.450
290	$8.5 \cdot 10^{-5}$	590	$1.0 \cdot 10^{-3}$	890	0.337	1190	0.311	2650	0.828	4150	0.431
300	$1.4 \cdot 10^{-2}$	600	$9.1 \cdot 10^{-4}$	900	0.344	1200	0.294	2700	0.810	4200	0.400
310	0.144	610	$1.2 \cdot 10^{-3}$	910	0.352	1250	0.232	2750	0.725	4250	0.376
320	0.408	620	$1.2 \cdot 10^{-3}$	920	0.360	1300	0.220	2800	0.660	4300	0.340
330	0.655	630	$9.3 \cdot 10^{-4}$	930	0.368	1350	0.250	2850	0.648	4350	0.301
340	0.805	640	$6.4 \cdot 10^{-4}$	940	0.376	1400	0.275	2900	0.647	4400	0.250
350	0.887	650	$7.6 \cdot 10^{-4}$	950	0.385	1450	0.246	2950	0.644	4450	0.205
360	0.928	660	$2.0 \cdot 10^{-3}$	960	0.393	1500	0.230	3000	0.630	4500	0.150
370	0.948	670	$8.0 \cdot 10^{-3}$	970	0.402	1550	0.242	3050	0.608	4550	0.115
380	0.960	680	$3.8 \cdot 10^{-2}$	980	0.411	1600	0.277	3100	0.590	4600	$7.8 \cdot 10^{-2}$
390	0.965	690	0.118	990	0.419	1650	0.298	3150	0.562	4650	$5.5 \cdot 10^{-2}$
400	0.959	700	0.219	1000	0.427	1700	0.296	3200	0.530	4700	$4.0 \cdot 10^{-2}$
410	0.944	710	0.286	1010	0.434	1750	0.295	3250	0.509	4750	$3.3 \cdot 10^{-2}$
420	0.926	720	0.314	1020	0.440	1800	0.313	3300	0.484	4800	$3.0 \cdot 10^{-2}$
430	0.897	730	0.320	1030	0.444	1850	0.369	3350	0.464	4850	$2.9 \cdot 10^{-2}$
440	0.861	740	0.319	1040	0.448	1900	0.440	3400	0.445	4900	$2.6 \cdot 10^{-2}$
450	0.809	750	0.315	1050	0.450	1950	0.515	3450	0.433	4950	$2.0 \cdot 10^{-2}$
460	0.740	760	0.311	1060	0.451	2000	0.580	3500	0.423	5000	$1.1 \cdot 10^{-2}$
470	0.620	770	0.308	1070	0.450	2050	0.633	3550	0.420	5050	$5.2 \cdot 10^{-3}$
480	0.457	780	0.306	1080	0.447	2100	0.670	3600	0.420	5100	$2.2 \cdot 10^{-3}$
490	0.291	790	0.304	1090	0.442	2150	0.712	3650	0.423	5150	$9.4 \cdot 10^{-4}$

Data Sheet

BG38

Reflection factor	
P_d	0.916

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (350nm)	≥	0.8
τ_i (405nm)	≥	0.93
τ_i (514nm)	≥	0.95
τ_i (633nm)	≤	0.67
τ_i (694nm)	≤	0.32
τ_i (1060nm)	≤	0.06

Refractive Index n
n_h (404.7 nm) = 1.540
n_d (587.6 nm) = 1.530

Density	
ρ [g/cm^3]	2.66

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	2.0
AR class	2.0

Transformation temperature	
Tg [°C]	482

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.5
$\alpha_{20/300°C}$ [10^{-6}/K]	8.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

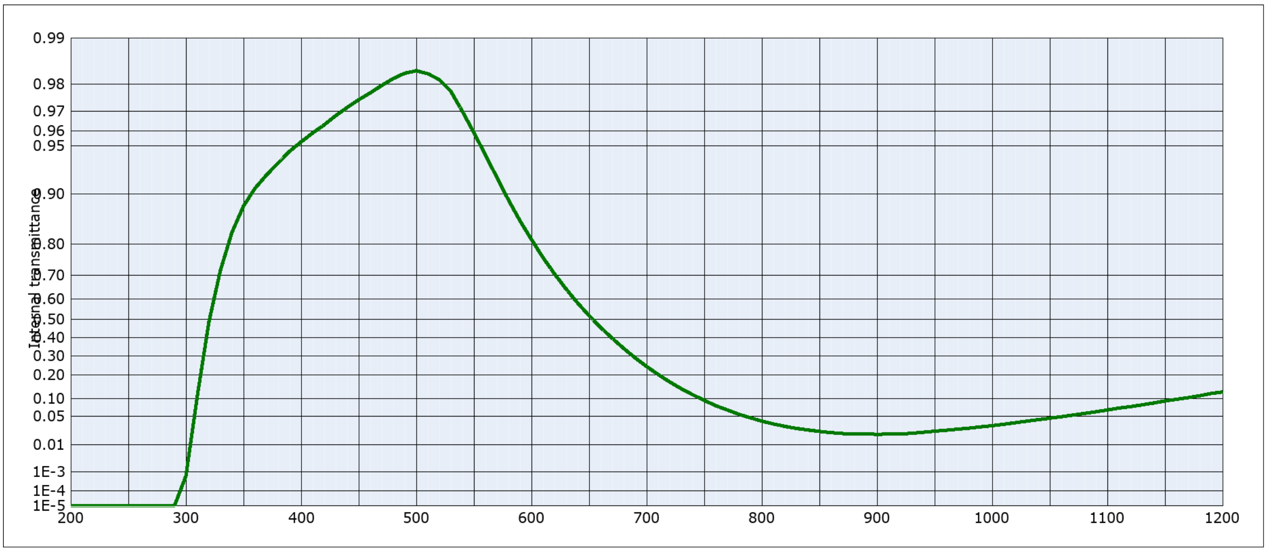
Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Bandpass filter / shortpass filter

All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.413	0.384	0.360	x	0.390	0.362	0.339	x	0.288	0.268	0.253
y	0.419	0.427	0.433	y	0.407	0.413	0.417	y	0.328	0.326	0.323
Y	80	71	64	Y	80	72	65	Y	83	76	71
λ_d [nm]	501	500	500	λ_d [nm]	499	498	498	λ_d [nm]	491	491	490
P_e	0.08	0.14	0.20	P_e	0.08	0.15	0.21	P_e	0.09	0.16	0.22



BG38

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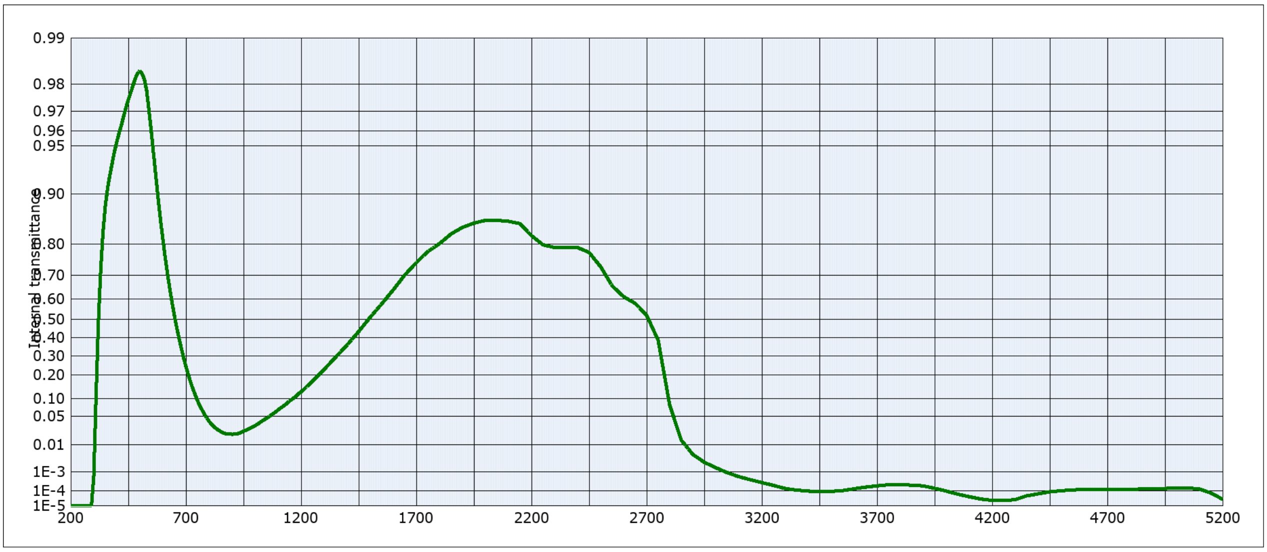


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.984	800	$4.0 \cdot 10^{-2}$	1100	$6.6 \cdot 10^{-2}$	2200	0.821	3700	$2.0 \cdot 10^{-4}$
210	$< 10^{-5}$	510	0.983	810	$3.5 \cdot 10^{-2}$	1110	$7.1 \cdot 10^{-2}$	2250	0.797	3750	$2.3 \cdot 10^{-4}$
220	$< 10^{-5}$	520	0.981	820	$3.1 \cdot 10^{-2}$	1120	$7.5 \cdot 10^{-2}$	2300	0.790	3800	$2.3 \cdot 10^{-4}$
230	$< 10^{-5}$	530	0.978	830	$2.8 \cdot 10^{-2}$	1130	$8.1 \cdot 10^{-2}$	2350	0.791	3850	$2.2 \cdot 10^{-4}$
240	$< 10^{-5}$	540	0.970	840	$2.5 \cdot 10^{-2}$	1140	$8.6 \cdot 10^{-2}$	2400	0.790	3900	$2.0 \cdot 10^{-4}$
250	$< 10^{-5}$	550	0.959	850	$2.3 \cdot 10^{-2}$	1150	$9.3 \cdot 10^{-2}$	2450	0.776	3950	$1.4 \cdot 10^{-4}$
260	$< 10^{-5}$	560	0.943	860	$2.2 \cdot 10^{-2}$	1160	$9.9 \cdot 10^{-2}$	2500	0.730	4000	$1.0 \cdot 10^{-4}$
270	$< 10^{-5}$	570	0.921	870	$2.1 \cdot 10^{-2}$	1170	0.104	2550	0.657	4050	$6.5 \cdot 10^{-5}$
280	$< 10^{-5}$	580	0.891	880	$2.0 \cdot 10^{-2}$	1180	0.111	2600	0.610	4100	$4.4 \cdot 10^{-5}$
290	$< 10^{-5}$	590	0.854	890	$2.0 \cdot 10^{-2}$	1190	0.120	2650	0.579	4150	$3.1 \cdot 10^{-5}$
300	$6.5 \cdot 10^{-4}$	600	0.811	900	$2.0 \cdot 10^{-2}$	1200	0.126	2700	0.520	4200	$2.5 \cdot 10^{-5}$
310	0.114	610	0.760	910	$2.0 \cdot 10^{-2}$	1250	0.172	2750	0.385	4250	$2.4 \cdot 10^{-5}$
320	0.487	620	0.704	920	$2.0 \cdot 10^{-2}$	1300	0.228	2800	$8.0 \cdot 10^{-2}$	4300	$2.8 \cdot 10^{-5}$
330	0.718	630	0.644	930	$2.1 \cdot 10^{-2}$	1350	0.293	2850	$1.4 \cdot 10^{-2}$	4350	$5.0 \cdot 10^{-5}$
340	0.829	640	0.581	940	$2.2 \cdot 10^{-2}$	1400	0.360	2900	$5.0 \cdot 10^{-3}$	4400	$6.8 \cdot 10^{-5}$
350	0.881	650	0.518	950	$2.4 \cdot 10^{-2}$	1450	0.434	2950	$2.5 \cdot 10^{-3}$	4450	$9.0 \cdot 10^{-5}$
360	0.908	660	0.456	960	$2.5 \cdot 10^{-2}$	1500	0.510	3000	$1.5 \cdot 10^{-3}$	4500	$1.0 \cdot 10^{-4}$
370	0.924	670	0.397	970	$2.6 \cdot 10^{-2}$	1550	0.577	3050	$9.3 \cdot 10^{-4}$	4550	$1.2 \cdot 10^{-4}$
380	0.936	680	0.341	980	$2.8 \cdot 10^{-2}$	1600	0.640	3100	$6.0 \cdot 10^{-4}$	4600	$1.2 \cdot 10^{-4}$
390	0.946	690	0.289	990	$3.0 \cdot 10^{-2}$	1650	0.700	3150	$4.2 \cdot 10^{-4}$	4650	$1.3 \cdot 10^{-4}$
400	0.953	700	0.243	1000	$3.2 \cdot 10^{-2}$	1700	0.744	3200	$3.0 \cdot 10^{-4}$	4700	$1.3 \cdot 10^{-4}$
410	0.959	710	0.203	1010	$3.4 \cdot 10^{-2}$	1750	0.778	3250	$2.1 \cdot 10^{-4}$	4750	$1.3 \cdot 10^{-4}$
420	0.963	720	0.168	1020	$3.7 \cdot 10^{-2}$	1800	0.800	3300	$1.4 \cdot 10^{-4}$	4800	$1.3 \cdot 10^{-4}$
430	0.968	730	0.139	1030	$4.0 \cdot 10^{-2}$	1850	0.825	3350	$1.1 \cdot 10^{-4}$	4850	$1.3 \cdot 10^{-4}$
440	0.972	740	0.115	1040	$4.3 \cdot 10^{-2}$	1900	0.840	3400	$1.0 \cdot 10^{-4}$	4900	$1.3 \cdot 10^{-4}$
450	0.975	750	$9.5 \cdot 10^{-2}$	1050	$4.6 \cdot 10^{-2}$	1950	0.849	3450	$9.1 \cdot 10^{-5}$	4950	$1.4 \cdot 10^{-4}$
460	0.977	760	$7.8 \cdot 10^{-2}$	1060	$4.9 \cdot 10^{-2}$	2000	0.855	3500	$9.5 \cdot 10^{-5}$	5000	$1.6 \cdot 10^{-4}$
470	0.980	770	$6.6 \cdot 10^{-2}$	1070	$5.3 \cdot 10^{-2}$	2050	0.855	3550	$1.1 \cdot 10^{-4}$	5050	$1.5 \cdot 10^{-4}$
480	0.982	780	$5.5 \cdot 10^{-2}$	1080	$5.7 \cdot 10^{-2}$	2100	0.853	3600	$1.4 \cdot 10^{-4}$	5100	$1.3 \cdot 10^{-4}$
490	0.983	790	$4.7 \cdot 10^{-2}$	1090	$6.1 \cdot 10^{-2}$	2150	0.848	3650	$1.7 \cdot 10^{-4}$	5150	$7.5 \cdot 10^{-5}$

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG39

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (350nm)	≥	0.6
τ_i (405nm)	≥	0.85
τ_i (514nm)	≥	0.93
τ_i (633nm)	≤	0.3
τ_i (694nm)	≤	0.03
τ_i (1060nm)	≤	0.001

Refractive Index n
n_h (404.7 nm) = 1.550
n_d (587.6 nm) = 1.540

Density	
ρ [g/cm^3]	2.74

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	5.1
AR class	3.0

Transformation temperature	
Tg [°C]	322

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.6
$\alpha_{20/300°C}$ [10^{-6}/K]	
$\alpha_{20/200°C}$ [10^{-6}/K]	13.1

Temperature coefficient	
T_K [nm/°C]	

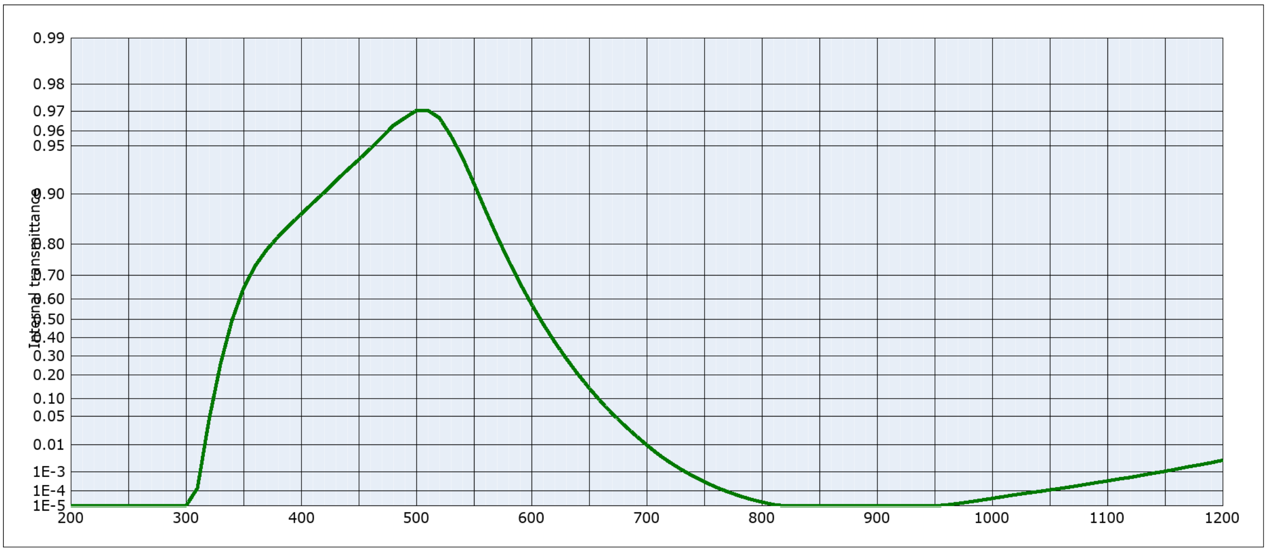
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Long-term changes of the polished
surface are possible.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.365	0.314	0.279
y	0.434	0.445	0.450
Y	66	53	45
λ_d [nm]	500	500	499
P_e	0.19	0.31	0.39

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.344	0.296	0.264
y	0.419	0.425	0.427
Y	67	55	47
λ_d [nm]	498	498	497
P_e	0.19	0.31	0.39

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.257	0.226	0.207
y	0.326	0.322	0.318
Y	73	62	55
λ_d [nm]	491	490	490
P_e	0.21	0.32	0.39



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Further explanations see 'Optical Filters 2013' catalogue

BG39

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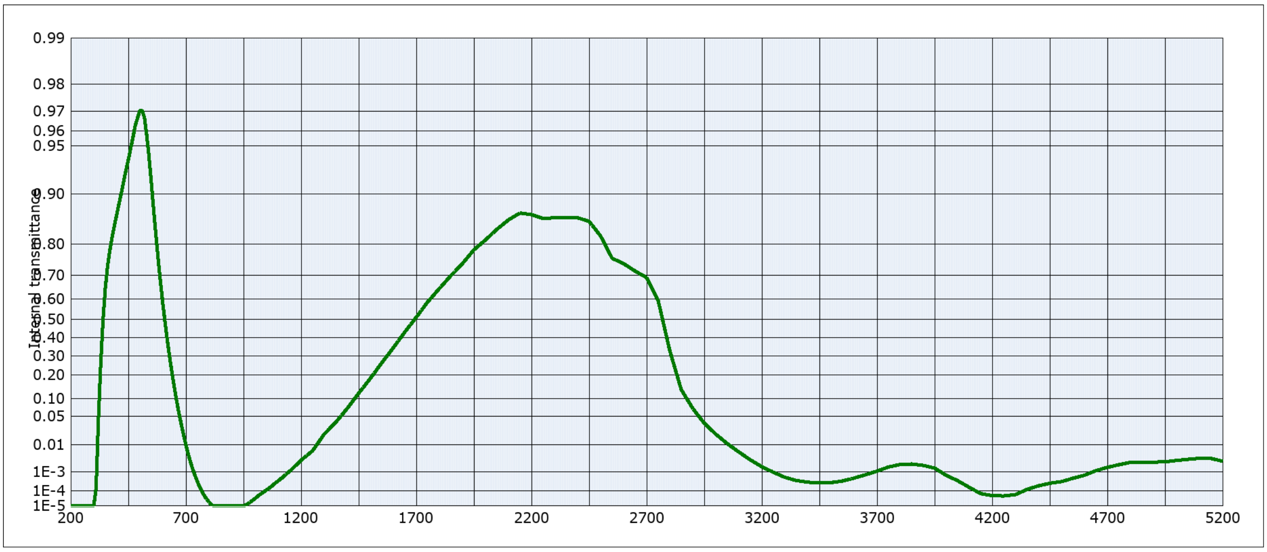


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.970	800	$1.9 \cdot 10^{-5}$	1100	$3.7 \cdot 10^{-4}$	2200	0.866	3700	$1.1 \cdot 10^{-3}$
210	$< 10^{-5}$	510	0.970	810	$1.3 \cdot 10^{-5}$	1110	$4.6 \cdot 10^{-4}$	2250	0.859	3750	$1.6 \cdot 10^{-3}$
220	$< 10^{-5}$	520	0.967	820	$< 10^{-5}$	1120	$5.5 \cdot 10^{-4}$	2300	0.860	3800	$2.1 \cdot 10^{-3}$
230	$< 10^{-5}$	530	0.957	830	$< 10^{-5}$	1130	$7.0 \cdot 10^{-4}$	2350	0.860	3850	$2.2 \cdot 10^{-3}$
240	$< 10^{-5}$	540	0.941	840	$< 10^{-5}$	1140	$8.8 \cdot 10^{-4}$	2400	0.860	3900	$1.9 \cdot 10^{-3}$
250	$< 10^{-5}$	550	0.914	850	$< 10^{-5}$	1150	$1.1 \cdot 10^{-3}$	2450	0.853	3950	$1.5 \cdot 10^{-3}$
260	$< 10^{-5}$	560	0.874	860	$< 10^{-5}$	1160	$1.3 \cdot 10^{-3}$	2500	0.820	4000	$7.0 \cdot 10^{-4}$
270	$< 10^{-5}$	570	0.820	870	$< 10^{-5}$	1170	$1.7 \cdot 10^{-3}$	2550	0.758	4050	$3.8 \cdot 10^{-4}$
280	$< 10^{-5}$	580	0.751	880	$< 10^{-5}$	1180	$2.0 \cdot 10^{-3}$	2600	0.740	4100	$1.7 \cdot 10^{-4}$
290	$< 10^{-5}$	590	0.668	890	$< 10^{-5}$	1190	$2.4 \cdot 10^{-3}$	2650	0.714	4150	$7.0 \cdot 10^{-5}$
300	$< 10^{-5}$	600	0.575	900	$< 10^{-5}$	1200	$3.1 \cdot 10^{-3}$	2700	0.690	4200	$5.2 \cdot 10^{-5}$
310	$1.5 \cdot 10^{-4}$	610	0.476	910	$< 10^{-5}$	1250	$6.6 \cdot 10^{-3}$	2750	0.592	4250	$5.0 \cdot 10^{-5}$
320	$4.2 \cdot 10^{-2}$	620	0.378	920	$< 10^{-5}$	1300	$2.0 \cdot 10^{-2}$	2800	0.330	4300	$6.0 \cdot 10^{-5}$
330	0.256	630	0.287	930	$< 10^{-5}$	1350	$3.8 \cdot 10^{-2}$	2850	0.136	4350	$1.2 \cdot 10^{-4}$
340	0.494	640	0.207	940	$< 10^{-5}$	1400	$7.0 \cdot 10^{-2}$	2900	$7.0 \cdot 10^{-2}$	4400	$2.0 \cdot 10^{-4}$
350	0.647	650	0.142	950	$1.0 \cdot 10^{-5}$	1450	0.121	2950	$3.6 \cdot 10^{-2}$	4450	$2.8 \cdot 10^{-4}$
360	0.732	660	$9.2 \cdot 10^{-2}$	960	$1.2 \cdot 10^{-5}$	1500	0.184	3000	$2.0 \cdot 10^{-2}$	4500	$3.4 \cdot 10^{-4}$
370	0.783	670	$5.7 \cdot 10^{-2}$	970	$1.5 \cdot 10^{-5}$	1550	0.262	3050	$1.1 \cdot 10^{-2}$	4550	$5.0 \cdot 10^{-4}$
380	0.818	680	$3.4 \cdot 10^{-2}$	980	$1.9 \cdot 10^{-5}$	1600	0.344	3100	$6.0 \cdot 10^{-3}$	4600	$7.0 \cdot 10^{-4}$
390	0.845	690	$1.9 \cdot 10^{-2}$	990	$2.6 \cdot 10^{-5}$	1650	0.431	3150	$3.1 \cdot 10^{-3}$	4650	$1.1 \cdot 10^{-3}$
400	0.867	700	$1.0 \cdot 10^{-2}$	1000	$3.4 \cdot 10^{-5}$	1700	0.510	3200	$1.7 \cdot 10^{-3}$	4700	$1.6 \cdot 10^{-3}$
410	0.886	710	$5.0 \cdot 10^{-3}$	1010	$4.5 \cdot 10^{-5}$	1750	0.586	3250	$9.6 \cdot 10^{-4}$	4750	$2.0 \cdot 10^{-3}$
420	0.902	720	$2.6 \cdot 10^{-3}$	1020	$5.9 \cdot 10^{-5}$	1800	0.646	3300	$5.6 \cdot 10^{-4}$	4800	$2.5 \cdot 10^{-3}$
430	0.917	730	$1.3 \cdot 10^{-3}$	1030	$7.5 \cdot 10^{-5}$	1850	0.697	3350	$3.9 \cdot 10^{-4}$	4850	$2.6 \cdot 10^{-3}$
440	0.929	740	$6.5 \cdot 10^{-4}$	1040	$9.2 \cdot 10^{-5}$	1900	0.740	3400	$3.1 \cdot 10^{-4}$	4900	$2.6 \cdot 10^{-3}$
450	0.939	750	$3.3 \cdot 10^{-4}$	1050	$1.2 \cdot 10^{-4}$	1950	0.783	3450	$2.9 \cdot 10^{-4}$	4950	$2.6 \cdot 10^{-3}$
460	0.948	760	$1.7 \cdot 10^{-4}$	1060	$1.5 \cdot 10^{-4}$	2000	0.810	3500	$3.0 \cdot 10^{-4}$	5000	$3.0 \cdot 10^{-3}$
470	0.956	770	$9.3 \cdot 10^{-5}$	1070	$1.8 \cdot 10^{-4}$	2050	0.836	3550	$3.6 \cdot 10^{-4}$	5050	$3.3 \cdot 10^{-3}$
480	0.963	780	$5.1 \cdot 10^{-5}$	1080	$2.3 \cdot 10^{-4}$	2100	0.856	3600	$5.1 \cdot 10^{-4}$	5100	$3.6 \cdot 10^{-3}$
490	0.967	790	$3.0 \cdot 10^{-5}$	1090	$3.0 \cdot 10^{-4}$	2150	0.869	3650	$7.4 \cdot 10^{-4}$	5150	$3.5 \cdot 10^{-3}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG40

Reflection factor	
P_d	0.916

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (350nm)	≥	0.8
τ_i (405nm)	≥	0.93
τ_i (514nm)	≥	0.97
τ_i (633nm)	≤	0.57
τ_i (694nm)	≤	0.16
τ_i (1060nm)	≤	0.02

Refractive Index n
n_g (435.8 nm) = 1.540
$n_{F'}$ (480.0 nm) = 1.536
n_F (486.1 nm) = 1.536
n_e (546.1 nm) = 1.532
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.74

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	5.1
AR class	3.0

Transformation temperature	
Tg [°C]	313

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.9
$\alpha_{20/300°C}$ [10^{-6}/K]	
$\alpha_{20/200°C}$ [10^{-6}/K]	13.7

Temperature coefficient	
T_K [nm/°C]	

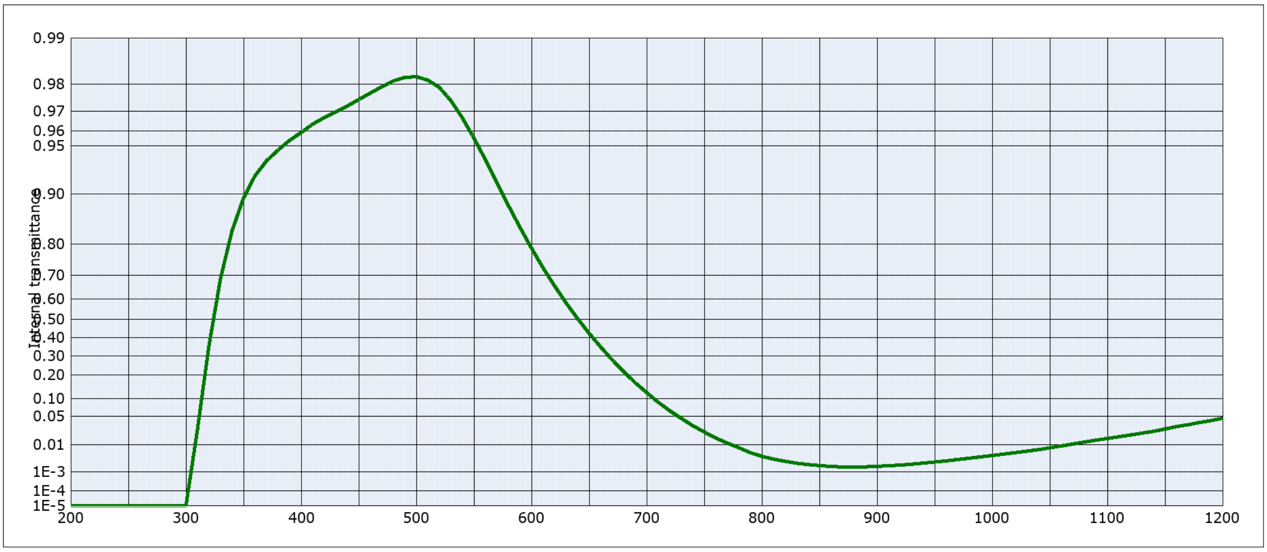
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Long-term changes of the polished surface are possible under some circumstances.
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	**1**	**2**	**3**
x	0.406	0.374	0.348
y	0.421	0.430	0.436
Y	78	68	61
λ_d [nm]	501	500	500
P_e	0.09	0.17	0.23

Illuminant	Planck T = 3200 K		
d [mm]	**1**	**2**	**3**
x	0.383	0.352	0.327
y	0.409	0.415	0.419
Y	79	70	63
λ_d [nm]	499	498	498
P_e	0.10	0.17	0.23

Illuminant	D65 (T_C = 6504 K)		
d [mm]	**1**	**2**	**3**
x	0.283	0.262	0.246
y	0.327	0.324	0.321
Y	82	75	69
λ_d [nm]	491	490	490
P_e	0.11	0.19	0.25



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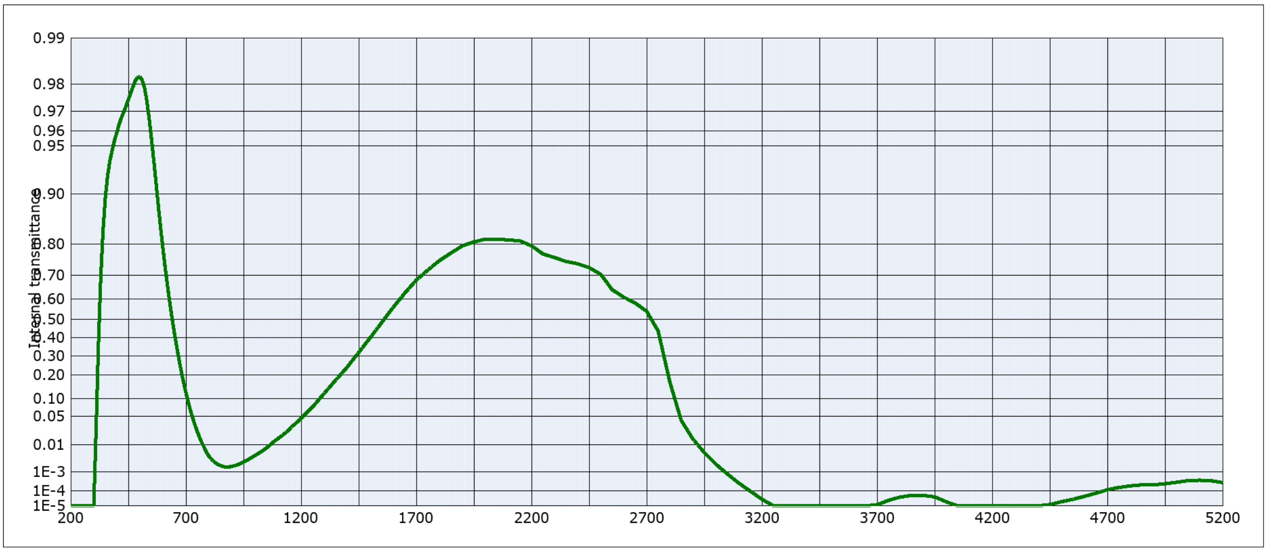
Further explanations see 'Optical Filters 2013' catalogue

BG40



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.982	800	$4.3 \cdot 10^{-3}$	1100	$1.5 \cdot 10^{-2}$	2200	0.795	3700	$1.2 \cdot 10^{-5}$
210	$< 10^{-5}$	510	0.981	810	$3.4 \cdot 10^{-3}$	1110	$1.7 \cdot 10^{-2}$	2250	0.771	3750	$2.5 \cdot 10^{-5}$
220	$< 10^{-5}$	520	0.979	820	$2.8 \cdot 10^{-3}$	1120	$1.9 \cdot 10^{-2}$	2300	0.760	3800	$4.2 \cdot 10^{-5}$
230	$< 10^{-5}$	530	0.974	830	$2.3 \cdot 10^{-3}$	1130	$2.1 \cdot 10^{-2}$	2350	0.747	3850	$5.4 \cdot 10^{-5}$
240	$< 10^{-5}$	540	0.967	840	$2.1 \cdot 10^{-3}$	1140	$2.4 \cdot 10^{-2}$	2400	0.740	3900	$5.3 \cdot 10^{-5}$
250	$< 10^{-5}$	550	0.956	850	$1.9 \cdot 10^{-3}$	1150	$2.7 \cdot 10^{-2}$	2450	0.727	3950	$4.3 \cdot 10^{-5}$
260	$< 10^{-5}$	560	0.939	860	$1.7 \cdot 10^{-3}$	1160	$3.1 \cdot 10^{-2}$	2500	0.703	4000	$2.0 \cdot 10^{-5}$
270	$< 10^{-5}$	570	0.915	870	$1.6 \cdot 10^{-3}$	1170	$3.3 \cdot 10^{-2}$	2550	0.641	4050	$< 10^{-5}$
280	$< 10^{-5}$	580	0.882	880	$1.6 \cdot 10^{-3}$	1180	$3.7 \cdot 10^{-2}$	2600	0.608	4100	$< 10^{-5}$
290	$< 10^{-5}$	590	0.840	890	$1.7 \cdot 10^{-3}$	1190	$4.1 \cdot 10^{-2}$	2650	0.581	4150	$< 10^{-5}$
300	$< 10^{-5}$	600	0.788	900	$1.8 \cdot 10^{-3}$	1200	$4.6 \cdot 10^{-2}$	2700	0.540	4200	$< 10^{-5}$
310	$2.6 \cdot 10^{-2}$	610	0.726	910	$1.8 \cdot 10^{-3}$	1250	$7.4 \cdot 10^{-2}$	2750	0.436	4250	$< 10^{-5}$
320	0.356	620	0.657	920	$2.0 \cdot 10^{-3}$	1300	0.120	2800	0.170	4300	$< 10^{-5}$
330	0.686	630	0.581	930	$2.1 \cdot 10^{-3}$	1350	0.176	2850	$4.2 \cdot 10^{-2}$	4350	$< 10^{-5}$
340	0.832	640	0.503	940	$2.4 \cdot 10^{-3}$	1400	0.240	2900	$1.5 \cdot 10^{-2}$	4400	$< 10^{-5}$
350	0.894	650	0.424	950	$2.6 \cdot 10^{-3}$	1450	0.319	2950	$5.8 \cdot 10^{-3}$	4450	$1.3 \cdot 10^{-5}$
360	0.923	660	0.349	960	$2.9 \cdot 10^{-3}$	1500	0.400	3000	$2.2 \cdot 10^{-3}$	4500	$2.0 \cdot 10^{-5}$
370	0.938	670	0.279	970	$3.2 \cdot 10^{-3}$	1550	0.483	3050	$8.1 \cdot 10^{-4}$	4550	$3.0 \cdot 10^{-5}$
380	0.947	680	0.217	980	$3.6 \cdot 10^{-3}$	1600	0.560	3100	$2.8 \cdot 10^{-4}$	4600	$4.6 \cdot 10^{-5}$
390	0.954	690	0.165	990	$4.1 \cdot 10^{-3}$	1650	0.626	3150	$9.8 \cdot 10^{-5}$	4650	$7.4 \cdot 10^{-5}$
400	0.959	700	0.123	1000	$4.5 \cdot 10^{-3}$	1700	0.680	3200	$3.0 \cdot 10^{-5}$	4700	$1.2 \cdot 10^{-4}$
410	0.964	710	$8.9 \cdot 10^{-2}$	1010	$5.1 \cdot 10^{-3}$	1750	0.718	3250	$1.0 \cdot 10^{-5}$	4750	$1.6 \cdot 10^{-4}$
420	0.967	720	$6.4 \cdot 10^{-2}$	1020	$5.7 \cdot 10^{-3}$	1800	0.750	3300	$< 10^{-5}$	4800	$2.0 \cdot 10^{-4}$
430	0.970	730	$4.6 \cdot 10^{-2}$	1030	$6.4 \cdot 10^{-3}$	1850	0.774	3350	$< 10^{-5}$	4850	$2.3 \cdot 10^{-4}$
440	0.972	740	$3.2 \cdot 10^{-2}$	1040	$7.1 \cdot 10^{-3}$	1900	0.795	3400	$< 10^{-5}$	4900	$2.3 \cdot 10^{-4}$
450	0.975	750	$2.3 \cdot 10^{-2}$	1050	$8.2 \cdot 10^{-3}$	1950	0.805	3450	$< 10^{-5}$	4950	$2.6 \cdot 10^{-4}$
460	0.977	760	$1.6 \cdot 10^{-2}$	1060	$9.4 \cdot 10^{-3}$	2000	0.812	3500	$< 10^{-5}$	5000	$3.1 \cdot 10^{-4}$
470	0.979	770	$1.1 \cdot 10^{-2}$	1070	$1.1 \cdot 10^{-2}$	2050	0.812	3550	$< 10^{-5}$	5050	$3.8 \cdot 10^{-4}$
480	0.981	780	$8.3 \cdot 10^{-3}$	1080	$1.2 \cdot 10^{-2}$	2100	0.810	3600	$< 10^{-5}$	5100	$4.0 \cdot 10^{-4}$
490	0.982	790	$5.7 \cdot 10^{-3}$	1090	$1.4 \cdot 10^{-2}$	2150	0.808	3650	$< 10^{-5}$	5150	$3.8 \cdot 10^{-4}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG42

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (350nm)	≥	0.4
τ_i (405nm)	≥	0.65
τ_i (514nm)	≥	0.88
τ_i (633nm)	≤	0.27
τ_i (694nm)	≤	0.03
τ_i (1060nm)	≤	0.002

Refractive Index n
n_h (404.7 nm) = 1.550
n_d (587.6 nm) = 1.540

Density	
ρ [g/cm^3]	2.69

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	2.0
AR class	2.0

Transformation temperature	
Tg [°C]	475

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.3
$\alpha_{20/300°C}$ [10^{-6}/K]	8.7
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

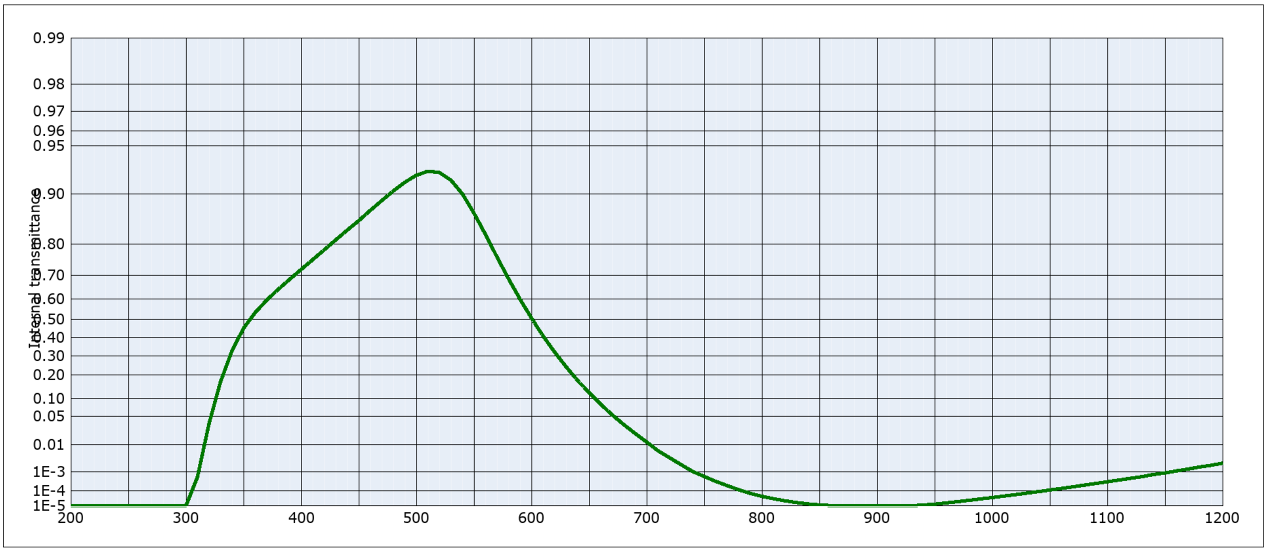
Notes
Ionically colored glass
Bandpass filter / shortpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.359	0.305	0.270
y	0.439	0.456	0.466
Y	61	47	38
λ_d [nm]	501	501	501
P_e	0.20	0.32	0.40

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.338	0.288	0.256
y	0.424	0.437	0.445
Y	63	48	39
λ_d [nm]	499	499	499
P_e	0.21	0.33	0.41

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.254	0.222	0.203
y	0.332	0.334	0.337
Y	68	55	46
λ_d [nm]	492	492	492
P_e	0.21	0.33	0.39



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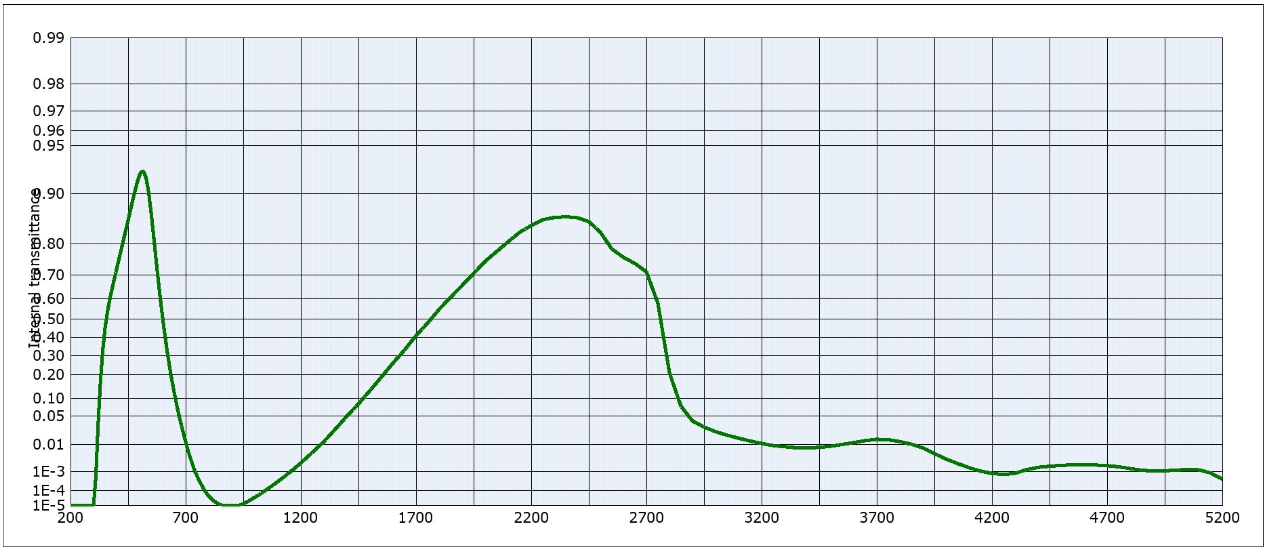
Further explanations see 'Optical Filters 2013' catalogue

BG42



Internal transmittance τ_i at reference thickness d = 1 mm The internal transmittance values, tabulated and graphically represented, are reference values only											
λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	0.923	800	$4.7 \cdot 10^{-5}$	1100	$3.3 \cdot 10^{-4}$	2200	0.844	3700	$1.4 \cdot 10^{-2}$
210	< 10^{-5}	510	0.928	810	$3.3 \cdot 10^{-5}$	1110	$4.1 \cdot 10^{-4}$	2250	0.856	3750	$1.4 \cdot 10^{-2}$
220	< 10^{-5}	520	0.926	820	$2.3 \cdot 10^{-5}$	1120	$5.0 \cdot 10^{-4}$	2300	0.860	3800	$1.2 \cdot 10^{-2}$
230	< 10^{-5}	530	0.918	830	$1.8 \cdot 10^{-5}$	1130	$6.0 \cdot 10^{-4}$	2350	0.861	3850	$1.0 \cdot 10^{-2}$
240	< 10^{-5}	540	0.900	840	$1.4 \cdot 10^{-5}$	1140	$7.7 \cdot 10^{-4}$	2400	0.860	3900	$8.0 \cdot 10^{-3}$
250	< 10^{-5}	550	0.869	850	$1.2 \cdot 10^{-5}$	1150	$9.0 \cdot 10^{-4}$	2450	0.852	3950	$5.2 \cdot 10^{-3}$
260	< 10^{-5}	560	0.824	860	$1.1 \cdot 10^{-5}$	1160	$1.1 \cdot 10^{-3}$	2500	0.828	4000	$3.3 \cdot 10^{-3}$
270	< 10^{-5}	570	0.762	870	< 10^{-5}	1170	$1.3 \cdot 10^{-3}$	2550	0.785	4050	$2.2 \cdot 10^{-3}$
280	< 10^{-5}	580	0.686	880	< 10^{-5}	1180	$1.6 \cdot 10^{-3}$	2600	0.760	4100	$1.5 \cdot 10^{-3}$
290	< 10^{-5}	590	0.599	890	< 10^{-5}	1190	$1.9 \cdot 10^{-3}$	2650	0.740	4150	$1.1 \cdot 10^{-3}$
300	< 10^{-5}	600	0.505	900	< 10^{-5}	1200	$2.3 \cdot 10^{-3}$	2700	0.711	4200	$8.4 \cdot 10^{-4}$
310	$5.7 \cdot 10^{-4}$	610	0.410	910	< 10^{-5}	1250	$5.7 \cdot 10^{-3}$	2750	0.578	4250	$7.4 \cdot 10^{-4}$
320	$3.5 \cdot 10^{-2}$	620	0.321	920	< 10^{-5}	1300	$1.2 \cdot 10^{-2}$	2800	0.210	4300	$8.4 \cdot 10^{-4}$
330	0.168	630	0.242	930	$1.0 \cdot 10^{-5}$	1350	$2.6 \cdot 10^{-2}$	2850	$7.6 \cdot 10^{-2}$	4350	$1.2 \cdot 10^{-3}$
340	0.328	640	0.175	940	$1.2 \cdot 10^{-5}$	1400	$5.0 \cdot 10^{-2}$	2900	$4.0 \cdot 10^{-2}$	4400	$1.5 \cdot 10^{-3}$
350	0.451	650	0.123	950	$1.3 \cdot 10^{-5}$	1450	$8.3 \cdot 10^{-2}$	2950	$2.9 \cdot 10^{-2}$	4450	$1.7 \cdot 10^{-3}$
360	0.533	660	$8.3 \cdot 10^{-2}$	960	$1.6 \cdot 10^{-5}$	1500	0.130	3000	$2.3 \cdot 10^{-2}$	4500	$1.9 \cdot 10^{-3}$
370	0.593	670	$5.4 \cdot 10^{-2}$	970	$2.0 \cdot 10^{-5}$	1550	0.190	3050	$1.9 \cdot 10^{-2}$	4550	$2.0 \cdot 10^{-3}$
380	0.642	680	$3.4 \cdot 10^{-2}$	980	$2.5 \cdot 10^{-5}$	1600	0.260	3100	$1.5 \cdot 10^{-2}$	4600	$2.0 \cdot 10^{-3}$
390	0.683	690	$2.1 \cdot 10^{-2}$	990	$3.2 \cdot 10^{-5}$	1650	0.331	3150	$1.3 \cdot 10^{-2}$	4650	$1.9 \cdot 10^{-3}$
400	0.720	700	$1.2 \cdot 10^{-2}$	1000	$3.9 \cdot 10^{-5}$	1700	0.410	3200	$1.1 \cdot 10^{-2}$	4700	$1.8 \cdot 10^{-3}$
410	0.753	710	$6.5 \cdot 10^{-3}$	1010	$4.8 \cdot 10^{-5}$	1750	0.478	3250	$9.5 \cdot 10^{-3}$	4750	$1.6 \cdot 10^{-3}$
420	0.783	720	$3.7 \cdot 10^{-3}$	1020	$6.0 \cdot 10^{-5}$	1800	0.549	3300	$8.7 \cdot 10^{-3}$	4800	$1.4 \cdot 10^{-3}$
430	0.810	730	$2.0 \cdot 10^{-3}$	1030	$7.4 \cdot 10^{-5}$	1850	0.606	3350	$8.1 \cdot 10^{-3}$	4850	$1.2 \cdot 10^{-3}$
440	0.834	740	$1.0 \cdot 10^{-3}$	1040	$9.2 \cdot 10^{-5}$	1900	0.658	3400	$8.0 \cdot 10^{-3}$	4900	$1.1 \cdot 10^{-3}$
450	0.854	750	$6.1 \cdot 10^{-4}$	1050	$1.2 \cdot 10^{-4}$	1950	0.705	3450	$8.3 \cdot 10^{-3}$	4950	$1.1 \cdot 10^{-3}$
460	0.874	760	$3.5 \cdot 10^{-4}$	1060	$1.4 \cdot 10^{-4}$	2000	0.747	3500	$9.0 \cdot 10^{-3}$	5000	$1.2 \cdot 10^{-3}$
470	0.890	770	$2.0 \cdot 10^{-4}$	1070	$1.8 \cdot 10^{-4}$	2050	0.778	3550	$1.0 \cdot 10^{-2}$	5050	$1.3 \cdot 10^{-3}$
480	0.904	780	$1.2 \cdot 10^{-4}$	1080	$2.2 \cdot 10^{-4}$	2100	0.805	3600	$1.2 \cdot 10^{-2}$	5100	$1.2 \cdot 10^{-3}$
490	0.915	790	$7.2 \cdot 10^{-5}$	1090	$2.7 \cdot 10^{-4}$	2150	0.828	3650	$1.3 \cdot 10^{-2}$	5150	$8.6 \cdot 10^{-4}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

S8612

Reflection factor	
P_d	0.913

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (500nm)	≥	0.96
τ_i (600nm)	≥	0.48
τ_i (700nm)	<	0.02
λ (τ_i .max) [nm]	=	500 ± 5

Refractive Index n
n_e (546.1 nm) = 1.542
n_d (587.6 nm) = 1.540
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.66

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	3.0
AR class	3.0

Transformation temperature	
Tg [°C]	391

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	
$\alpha_{20/300°C}$ [10^{-6}/K]	9.5
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

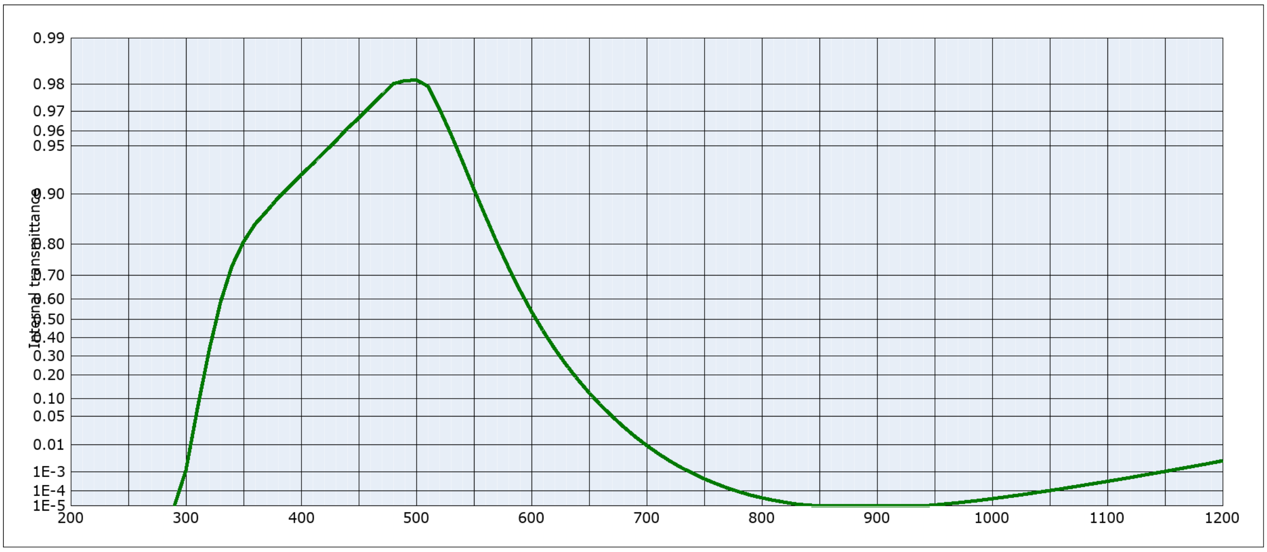
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
Long-term changes of the polished
surface are possible.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.356	0.301	0.265
y	0.433	0.440	0.440
Y	65	52	44
λ_d [nm]	500	499	498
P_e	0.21	0.34	0.42

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.335	0.284	0.250
y	0.417	0.419	0.415
Y	66	54	46
λ_d [nm]	498	497	496
P_e	0.21	0.34	0.43

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.251	0.218	0.198
y	0.321	0.311	0.302
Y	72	62	54
λ_d [nm]	490	489	489
P_e	0.23	0.36	0.44



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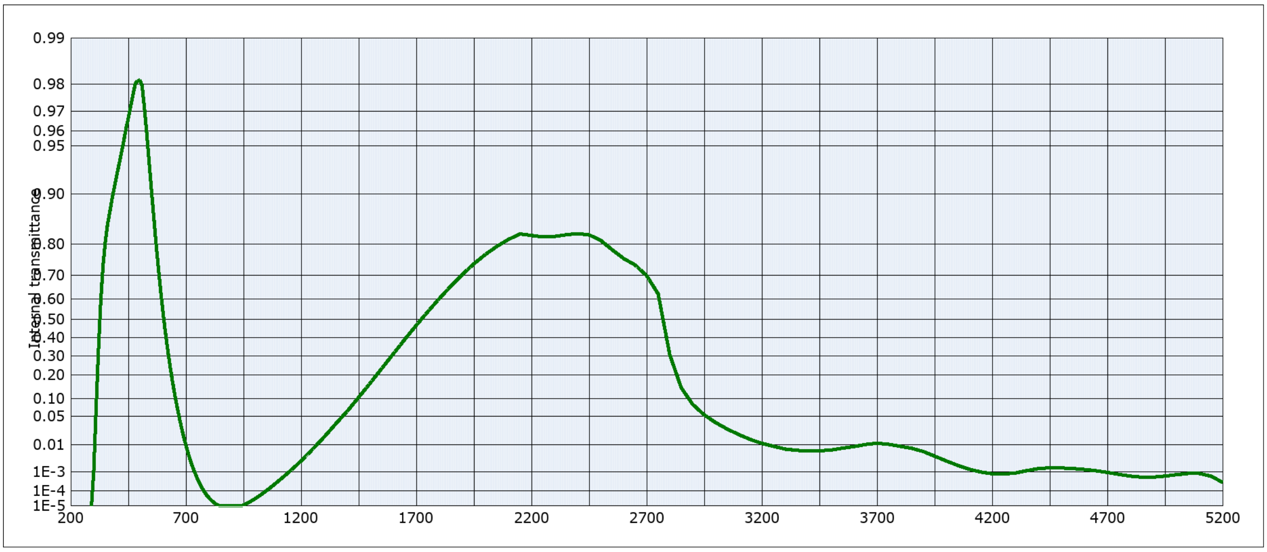
Further explanations see 'Optical Filters 2013' catalogue

S8612



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.981	800	$3.7\cdot10^{-5}$	1100	$3.5\cdot10^{-4}$	2200	0.821	3700	$1.1\cdot10^{-2}$
210	$< 10^{-5}$	510	0.979	810	$2.5\cdot10^{-5}$	1110	$4.4\cdot10^{-4}$	2250	0.818	3750	$1.0\cdot10^{-2}$
220	$< 10^{-5}$	520	0.971	820	$1.8\cdot10^{-5}$	1120	$5.5\cdot10^{-4}$	2300	0.819	3800	$9.1\cdot10^{-3}$
230	$< 10^{-5}$	530	0.958	830	$1.4\cdot10^{-5}$	1130	$6.9\cdot10^{-4}$	2350	0.823	3850	$7.9\cdot10^{-3}$
240	$< 10^{-5}$	540	0.938	840	$1.1\cdot10^{-5}$	1140	$8.5\cdot10^{-4}$	2400	0.826	3900	$6.3\cdot10^{-3}$
250	$< 10^{-5}$	550	0.906	850	$< 10^{-5}$	1150	$1.1\cdot10^{-3}$	2450	0.823	3950	$4.3\cdot10^{-3}$
260	$< 10^{-5}$	560	0.863	860	$< 10^{-5}$	1160	$1.3\cdot10^{-3}$	2500	0.809	4000	$2.9\cdot10^{-3}$
270	$< 10^{-5}$	570	0.803	870	$< 10^{-5}$	1170	$1.6\cdot10^{-3}$	2550	0.783	4050	$1.9\cdot10^{-3}$
280	$< 10^{-5}$	580	0.728	880	$< 10^{-5}$	1180	$1.9\cdot10^{-3}$	2600	0.757	4100	$1.3\cdot10^{-3}$
290	$< 10^{-5}$	590	0.638	890	$< 10^{-5}$	1190	$2.4\cdot10^{-3}$	2650	0.735	4150	$9.9\cdot10^{-4}$
300	$1.2\cdot10^{-3}$	600	0.539	900	$< 10^{-5}$	1200	$2.9\cdot10^{-3}$	2700	0.697	4200	$8.2\cdot10^{-4}$
310	$7.0\cdot10^{-2}$	610	0.438	910	$< 10^{-5}$	1250	$7.4\cdot10^{-3}$	2750	0.622	4250	$8.1\cdot10^{-4}$
320	0.326	620	0.340	920	$< 10^{-5}$	1300	$1.7\cdot10^{-2}$	2800	0.307	4300	$8.9\cdot10^{-4}$
330	0.584	630	0.253	930	$< 10^{-5}$	1350	$3.5\cdot10^{-2}$	2850	0.143	4350	$1.1\cdot10^{-3}$
340	0.732	640	0.181	940	$< 10^{-5}$	1400	$6.3\cdot10^{-2}$	2900	$8.2\cdot10^{-2}$	4400	$1.4\cdot10^{-3}$
350	0.805	650	0.123	950	$1.2\cdot10^{-5}$	1450	0.106	2950	$5.3\cdot10^{-2}$	4450	$1.5\cdot10^{-3}$
360	0.847	660	$8.0\cdot10^{-2}$	960	$1.4\cdot10^{-5}$	1500	0.163	3000	$3.7\cdot10^{-2}$	4500	$1.5\cdot10^{-3}$
370	0.872	670	$5.0\cdot10^{-2}$	970	$1.7\cdot10^{-5}$	1550	0.233	3050	$2.7\cdot10^{-2}$	4550	$1.4\cdot10^{-3}$
380	0.894	680	$3.0\cdot10^{-2}$	980	$2.1\cdot10^{-5}$	1600	0.311	3100	$1.9\cdot10^{-2}$	4600	$1.3\cdot10^{-3}$
390	0.910	690	$1.7\cdot10^{-2}$	990	$2.6\cdot10^{-5}$	1650	0.391	3150	$1.4\cdot10^{-2}$	4650	$1.1\cdot10^{-3}$
400	0.924	700	$9.7\cdot10^{-3}$	1000	$3.3\cdot10^{-5}$	1700	0.467	3200	$1.1\cdot10^{-2}$	4700	$9.5\cdot10^{-4}$
410	0.935	710	$5.3\cdot10^{-3}$	1010	$4.1\cdot10^{-5}$	1750	0.538	3250	$9.2\cdot10^{-3}$	4750	$7.7\cdot10^{-4}$
420	0.945	720	$2.9\cdot10^{-3}$	1020	$5.2\cdot10^{-5}$	1800	0.601	3300	$7.5\cdot10^{-3}$	4800	$6.4\cdot10^{-4}$
430	0.954	730	$1.6\cdot10^{-3}$	1030	$6.6\cdot10^{-5}$	1850	0.656	3350	$6.8\cdot10^{-3}$	4850	$5.7\cdot10^{-4}$
440	0.961	740	$8.7\cdot10^{-4}$	1040	$8.5\cdot10^{-5}$	1900	0.702	3400	$6.4\cdot10^{-3}$	4900	$5.7\cdot10^{-4}$
450	0.967	750	$4.7\cdot10^{-4}$	1050	$1.1\cdot10^{-4}$	1950	0.740	3450	$6.6\cdot10^{-3}$	4950	$6.4\cdot10^{-4}$
460	0.972	760	$2.7\cdot10^{-4}$	1060	$1.4\cdot10^{-4}$	2000	0.770	3500	$6.9\cdot10^{-3}$	5000	$7.5\cdot10^{-4}$
470	0.976	770	$1.5\cdot10^{-4}$	1070	$1.7\cdot10^{-4}$	2050	0.793	3550	$8.0\cdot10^{-3}$	5050	$8.5\cdot10^{-4}$
480	0.980	780	$9.1\cdot10^{-5}$	1080	$2.2\cdot10^{-4}$	2100	0.811	3600	$8.9\cdot10^{-3}$	5100	$8.5\cdot10^{-4}$
490	0.981	790	$5.6\cdot10^{-5}$	1090	$2.8\cdot10^{-4}$	2150	0.825	3650	$1.0\cdot10^{-2}$	5150	$6.3\cdot10^{-4}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG50

Reflection factor	
P_d	0.916

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (500nm)	≥	0.96
τ_i (600nm)	≥	0.68
τ_i (700nm)	≤	0.13

Refractive Index n
n_h (404.7 nm) = 1.550
$n_{F'}$ (480.0 nm) = 1.540
n_e (546.1 nm) = 1.540
n_d (587.6 nm) = 1.530

Density	
ρ [g/cm^3]	2.61

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	2.0
AR class	2.0

Transformation temperature	
Tg [°C]	452

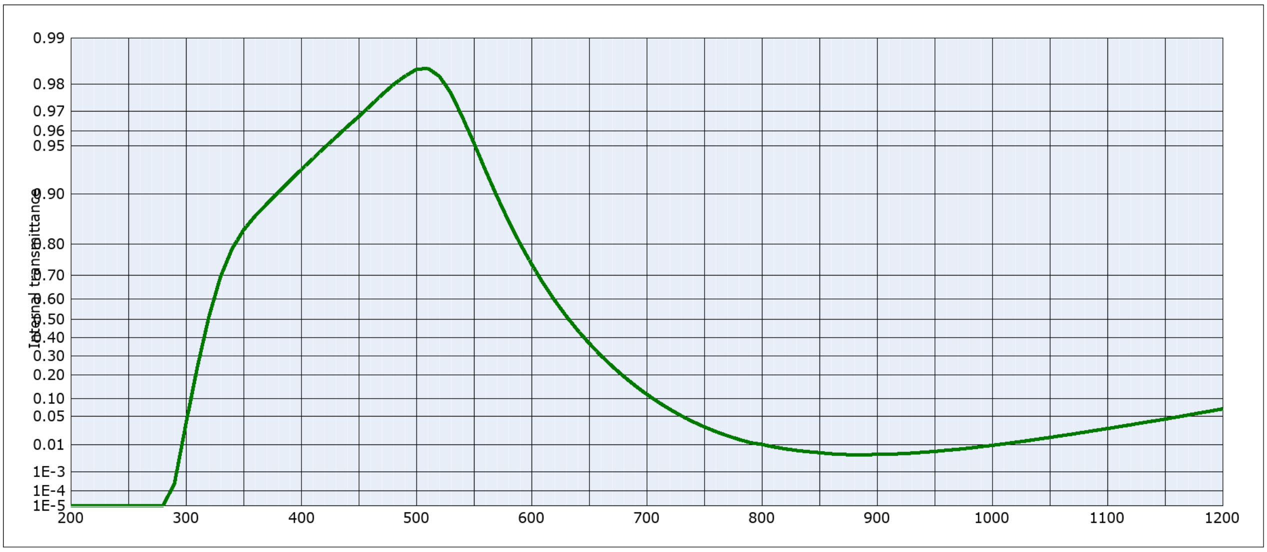
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.3
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

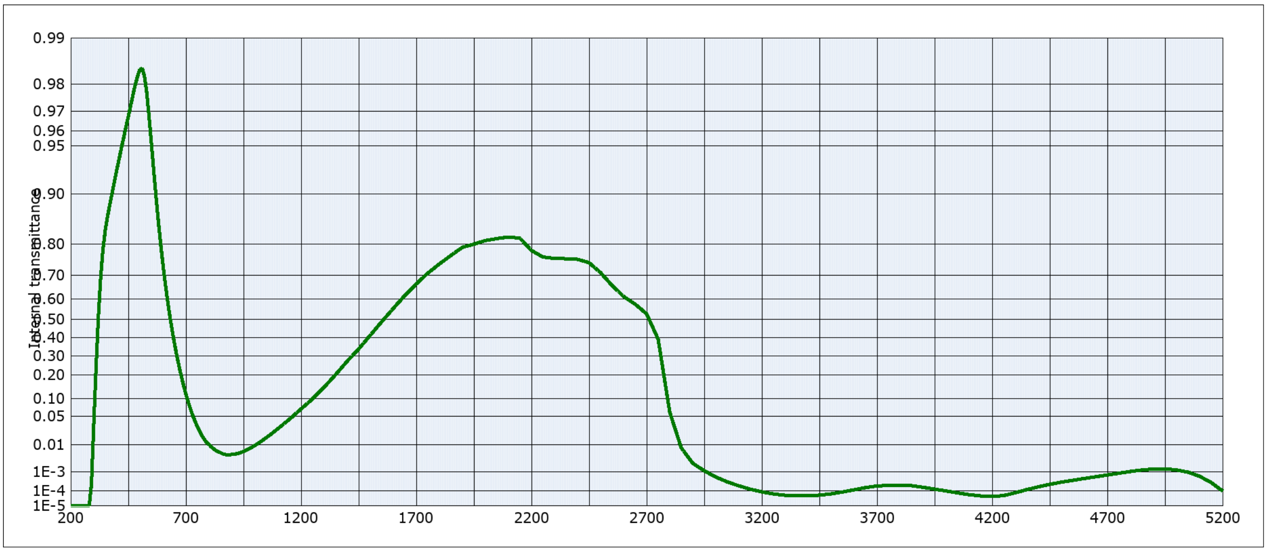
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
Long-term changes of the polished
surface are possible under some
circumstances.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.398	0.360	0.331	x	0.375	0.339	0.311	x	0.278	0.254	0.236
y	0.424	0.435	0.441	y	0.411	0.419	0.423	y	0.328	0.325	0.323
Y	75	65	57	Y	76	66	59	Y	80	72	66
λ_d [nm]	501	500	500	λ_d [nm]	499	498	498	λ_d [nm]	491	491	491
P_e	0.11	0.20	0.27	P_e	0.12	0.20	0.27	P_e	0.13	0.22	0.29



BG50



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.984	800	$1.0 \cdot 10^{-2}$	1100	$2.7 \cdot 10^{-2}$	2200	0.781	3700	$2.0 \cdot 10^{-4}$
210	$< 10^{-5}$	510	0.984	810	$8.8 \cdot 10^{-3}$	1110	$3.0 \cdot 10^{-2}$	2250	0.762	3750	$2.1 \cdot 10^{-4}$
220	$< 10^{-5}$	520	0.982	820	$7.6 \cdot 10^{-3}$	1120	$3.3 \cdot 10^{-2}$	2300	0.757	3800	$2.1 \cdot 10^{-4}$
230	$< 10^{-5}$	530	0.977	830	$6.8 \cdot 10^{-3}$	1130	$3.7 \cdot 10^{-2}$	2350	0.756	3850	$2.1 \cdot 10^{-4}$
240	$< 10^{-5}$	540	0.967	840	$6.1 \cdot 10^{-3}$	1140	$4.0 \cdot 10^{-2}$	2400	0.754	3900	$1.7 \cdot 10^{-4}$
250	$< 10^{-5}$	550	0.952	850	$5.7 \cdot 10^{-3}$	1150	$4.4 \cdot 10^{-2}$	2450	0.743	3950	$1.3 \cdot 10^{-4}$
260	$< 10^{-5}$	560	0.929	860	$5.2 \cdot 10^{-3}$	1160	$4.8 \cdot 10^{-2}$	2500	0.708	4000	$1.0 \cdot 10^{-4}$
270	$< 10^{-5}$	570	0.897	870	$4.9 \cdot 10^{-3}$	1170	$5.3 \cdot 10^{-2}$	2550	0.658	4050	$7.7 \cdot 10^{-5}$
280	$< 10^{-5}$	580	0.854	880	$4.8 \cdot 10^{-3}$	1180	$5.8 \cdot 10^{-2}$	2600	0.611	4100	$6.0 \cdot 10^{-5}$
290	$2.6 \cdot 10^{-4}$	590	0.801	890	$4.9 \cdot 10^{-3}$	1190	$6.3 \cdot 10^{-2}$	2650	0.575	4150	$5.0 \cdot 10^{-5}$
300	$3.5 \cdot 10^{-2}$	600	0.739	900	$4.9 \cdot 10^{-3}$	1200	$6.9 \cdot 10^{-2}$	2700	0.527	4200	$4.5 \cdot 10^{-5}$
310	0.243	610	0.669	910	$5.0 \cdot 10^{-3}$	1250	0.100	2750	0.391	4250	$5.3 \cdot 10^{-5}$
320	0.514	620	0.594	920	$5.2 \cdot 10^{-3}$	1300	0.145	2800	$6.1 \cdot 10^{-2}$	4300	$7.9 \cdot 10^{-5}$
330	0.693	630	0.517	930	$5.5 \cdot 10^{-3}$	1350	0.203	2850	$8.2 \cdot 10^{-3}$	4350	$1.2 \cdot 10^{-4}$
340	0.786	640	0.441	940	$5.9 \cdot 10^{-3}$	1400	0.271	2900	$2.3 \cdot 10^{-3}$	4400	$1.8 \cdot 10^{-4}$
350	0.834	650	0.369	950	$6.2 \cdot 10^{-3}$	1450	0.338	2950	$1.1 \cdot 10^{-3}$	4450	$2.4 \cdot 10^{-4}$
360	0.863	660	0.304	960	$6.8 \cdot 10^{-3}$	1500	0.413	3000	$5.8 \cdot 10^{-4}$	4500	$3.2 \cdot 10^{-4}$
370	0.884	670	0.245	970	$7.3 \cdot 10^{-3}$	1550	0.487	3050	$3.3 \cdot 10^{-4}$	4550	$4.0 \cdot 10^{-4}$
380	0.902	680	0.194	980	$8.0 \cdot 10^{-3}$	1600	0.554	3100	$2.0 \cdot 10^{-4}$	4600	$4.9 \cdot 10^{-4}$
390	0.917	690	0.152	990	$8.9 \cdot 10^{-3}$	1650	0.615	3150	$1.3 \cdot 10^{-4}$	4650	$5.9 \cdot 10^{-4}$
400	0.929	700	0.117	1000	$9.8 \cdot 10^{-3}$	1700	0.665	3200	$8.9 \cdot 10^{-5}$	4700	$7.2 \cdot 10^{-4}$
410	0.940	710	$8.9 \cdot 10^{-2}$	1010	$1.1 \cdot 10^{-2}$	1750	0.707	3250	$6.7 \cdot 10^{-5}$	4750	$8.7 \cdot 10^{-4}$
420	0.949	720	$6.8 \cdot 10^{-2}$	1020	$1.2 \cdot 10^{-2}$	1800	0.739	3300	$5.5 \cdot 10^{-5}$	4800	$1.0 \cdot 10^{-3}$
430	0.956	730	$5.2 \cdot 10^{-2}$	1030	$1.3 \cdot 10^{-2}$	1850	0.766	3350	$5.0 \cdot 10^{-5}$	4850	$1.2 \cdot 10^{-3}$
440	0.962	740	$3.9 \cdot 10^{-2}$	1040	$1.5 \cdot 10^{-2}$	1900	0.790	3400	$5.0 \cdot 10^{-5}$	4900	$1.3 \cdot 10^{-3}$
450	0.968	750	$3.0 \cdot 10^{-2}$	1050	$1.6 \cdot 10^{-2}$	1950	0.799	3450	$5.6 \cdot 10^{-5}$	4950	$1.4 \cdot 10^{-3}$
460	0.972	760	$2.3 \cdot 10^{-2}$	1060	$1.8 \cdot 10^{-2}$	2000	0.809	3500	$6.7 \cdot 10^{-5}$	5000	$1.2 \cdot 10^{-3}$
470	0.977	770	$1.8 \cdot 10^{-2}$	1070	$2.0 \cdot 10^{-2}$	2050	0.814	3550	$8.8 \cdot 10^{-5}$	5050	$9.8 \cdot 10^{-4}$
480	0.980	780	$1.4 \cdot 10^{-2}$	1080	$2.2 \cdot 10^{-2}$	2100	0.818	3600	$1.2 \cdot 10^{-4}$	5100	$6.3 \cdot 10^{-4}$
490	0.982	790	$1.2 \cdot 10^{-2}$	1090	$2.5 \cdot 10^{-2}$	2150	0.814	3650	$1.6 \cdot 10^{-4}$	5150	$3.1 \cdot 10^{-4}$

Data Sheet

SCHOTT

BG55

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	≥	0.76
τ_i (514nm)	≥	0.93
τ_i (633nm)	≥	0.18
τ_i (694nm)	≤	0.016
τ_i (1060nm)	≤	0.0005

Refractive Index n
n_i (365.0 nm) = 1.560
n_h (404.7 nm) = 1.554
n_g (435.8 nm) = 1.550
$n_{F'}$ (480.0 nm) = 1.546
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.65

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	2.0
AR class	2.0

Transformation temperature	
Tg [°C]	453

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.2
$\alpha_{20/300°C}$ [10^{-6}/K]	9.1
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

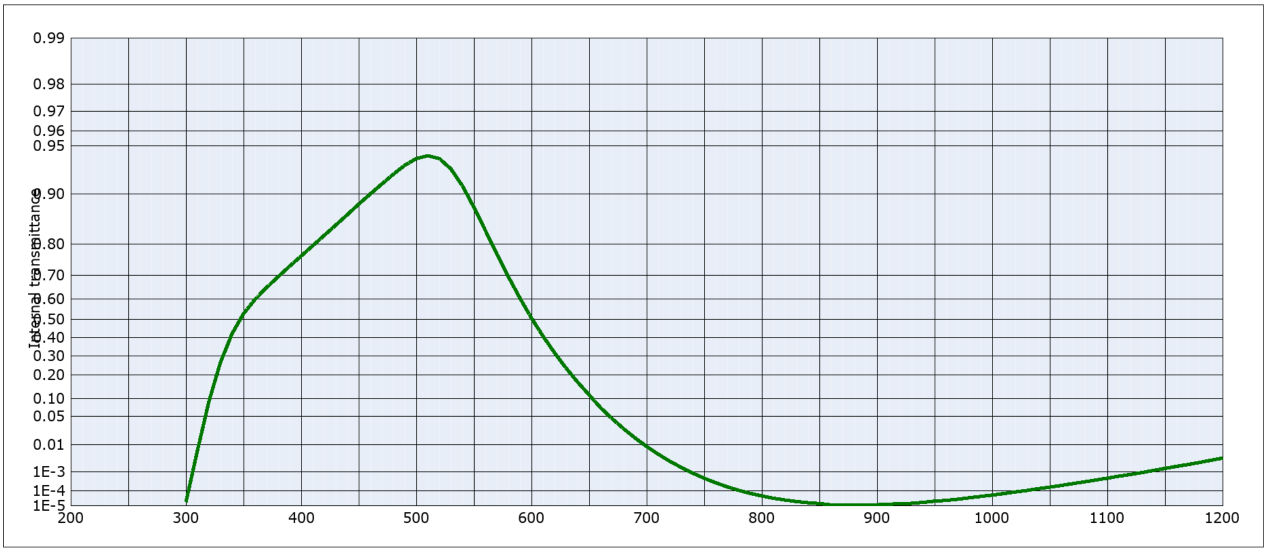
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
Long-term changes of the polished surface are possible under some circumstances.
CR (ISO/WD 13384) = 1
Knoop hardness HK (0.1/20) = 504
cp = 0,83 J/gK
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.356	0.302	0.267
y	0.438	0.452	0.460
Y	62	48	39
λ_d [nm]	501	500	500
P_e	0.21	0.33	0.41

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.336	0.285	0.252
y	0.423	0.432	0.437
Y	63	49	41
λ_d [nm]	499	498	498
P_e	0.21	0.34	0.42

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.252	0.220	0.201
y	0.329	0.328	0.328
Y	69	57	48
λ_d [nm]	492	491	491
P_e	0.22	0.34	0.41



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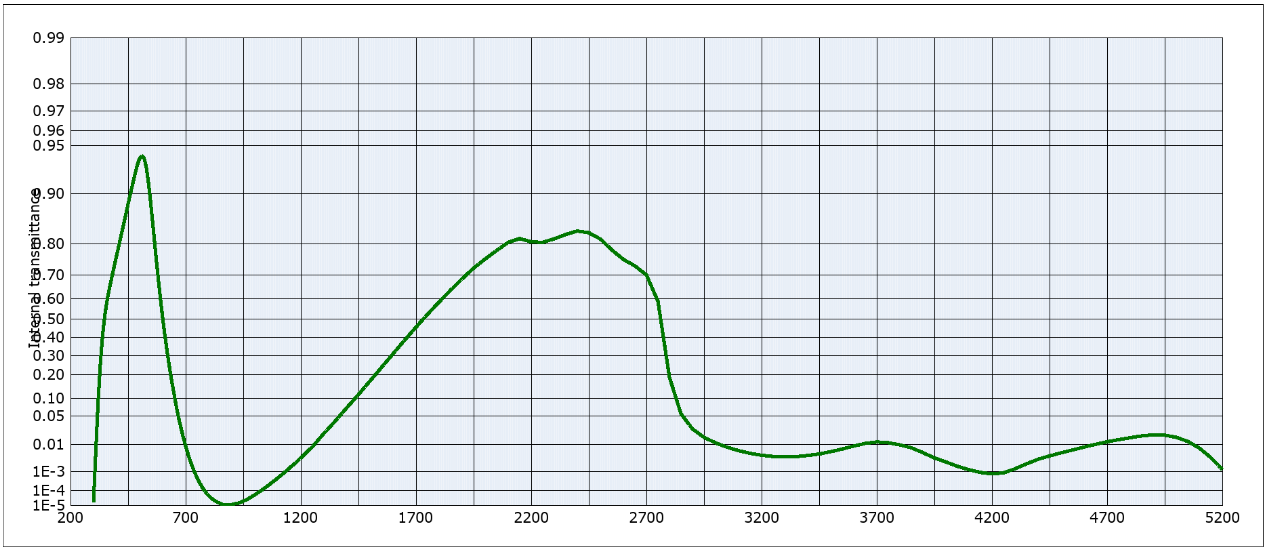
Further explanations see 'Optical Filters 2013' catalogue

BG55

SCHOTT



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.940	800	$4.9\cdot10^{-5}$	1100	$5.1\cdot10^{-4}$	2200	0.804	3700	$1.2\cdot10^{-2}$
210	$< 10^{-5}$	510	0.942	810	$3.5\cdot10^{-5}$	1110	$6.3\cdot10^{-4}$	2250	0.803	3750	$1.1\cdot10^{-2}$
220	$< 10^{-5}$	520	0.940	820	$2.7\cdot10^{-5}$	1120	$7.6\cdot10^{-4}$	2300	0.812	3800	$9.9\cdot10^{-3}$
230	$< 10^{-5}$	530	0.930	830	$2.1\cdot10^{-5}$	1130	$9.4\cdot10^{-4}$	2350	0.823	3850	$8.1\cdot10^{-3}$
240	$< 10^{-5}$	540	0.911	840	$1.7\cdot10^{-5}$	1140	$1.2\cdot10^{-3}$	2400	0.831	3900	$5.6\cdot10^{-3}$
250	$< 10^{-5}$	550	0.879	850	$1.5\cdot10^{-5}$	1150	$1.4\cdot10^{-3}$	2450	0.827	3950	$3.7\cdot10^{-3}$
260	$< 10^{-5}$	560	0.833	860	$1.2\cdot10^{-5}$	1160	$1.7\cdot10^{-3}$	2500	0.812	4000	$2.6\cdot10^{-3}$
270	$< 10^{-5}$	570	0.770	870	$1.2\cdot10^{-5}$	1170	$2.1\cdot10^{-3}$	2550	0.782	4050	$1.7\cdot10^{-3}$
280	$< 10^{-5}$	580	0.693	880	$1.2\cdot10^{-5}$	1180	$2.5\cdot10^{-3}$	2600	0.753	4100	$1.2\cdot10^{-3}$
290	$< 10^{-5}$	590	0.603	890	$1.2\cdot10^{-5}$	1190	$3.0\cdot10^{-3}$	2650	0.732	4150	$9.3\cdot10^{-4}$
300	$1.9\cdot10^{-5}$	600	0.506	900	$1.2\cdot10^{-5}$	1200	$3.7\cdot10^{-3}$	2700	0.699	4200	$7.9\cdot10^{-4}$
310	$6.7\cdot10^{-3}$	610	0.408	910	$1.3\cdot10^{-5}$	1250	$8.7\cdot10^{-3}$	2750	0.588	4250	$8.8\cdot10^{-4}$
320	$9.2\cdot10^{-2}$	620	0.317	920	$1.4\cdot10^{-5}$	1300	$2.1\cdot10^{-2}$	2800	0.189	4300	$1.3\cdot10^{-3}$
330	0.265	630	0.235	930	$1.5\cdot10^{-5}$	1350	$4.0\cdot10^{-2}$	2850	$5.6\cdot10^{-2}$	4350	$2.2\cdot10^{-3}$
340	0.421	640	0.168	940	$1.8\cdot10^{-5}$	1400	$7.2\cdot10^{-2}$	2900	$2.6\cdot10^{-2}$	4400	$3.2\cdot10^{-3}$
350	0.528	650	0.115	950	$2.2\cdot10^{-5}$	1450	0.115	2950	$1.6\cdot10^{-2}$	4450	$4.3\cdot10^{-3}$
360	0.598	660	$7.2\cdot10^{-2}$	960	$2.5\cdot10^{-5}$	1500	0.171	3000	$1.1\cdot10^{-2}$	4500	$5.5\cdot10^{-3}$
370	0.650	670	$4.5\cdot10^{-2}$	970	$3.0\cdot10^{-5}$	1550	0.237	3050	$8.4\cdot10^{-3}$	4550	$6.8\cdot10^{-3}$
380	0.693	680	$2.7\cdot10^{-2}$	980	$3.8\cdot10^{-5}$	1600	0.309	3100	$6.5\cdot10^{-3}$	4600	$8.5\cdot10^{-3}$
390	0.731	690	$1.6\cdot10^{-2}$	990	$4.6\cdot10^{-5}$	1650	0.384	3150	$5.3\cdot10^{-3}$	4650	$1.0\cdot10^{-2}$
400	0.765	700	$9.0\cdot10^{-3}$	1000	$5.6\cdot10^{-5}$	1700	0.456	3200	$4.5\cdot10^{-3}$	4700	$1.2\cdot10^{-2}$
410	0.794	710	$5.1\cdot10^{-3}$	1010	$7.0\cdot10^{-5}$	1750	0.524	3250	$4.1\cdot10^{-3}$	4750	$1.4\cdot10^{-2}$
420	0.821	720	$2.8\cdot10^{-3}$	1020	$8.8\cdot10^{-5}$	1800	0.584	3300	$4.0\cdot10^{-3}$	4800	$1.6\cdot10^{-2}$
430	0.845	730	$1.6\cdot10^{-3}$	1030	$1.1\cdot10^{-4}$	1850	0.638	3350	$4.1\cdot10^{-3}$	4850	$1.8\cdot10^{-2}$
440	0.866	740	$8.8\cdot10^{-4}$	1040	$1.4\cdot10^{-4}$	1900	0.684	3400	$4.5\cdot10^{-3}$	4900	$1.9\cdot10^{-2}$
450	0.884	750	$5.0\cdot10^{-4}$	1050	$1.7\cdot10^{-4}$	1950	0.724	3450	$5.0\cdot10^{-3}$	4950	$1.9\cdot10^{-2}$
460	0.900	760	$2.9\cdot10^{-4}$	1060	$2.1\cdot10^{-4}$	2000	0.754	3500	$6.0\cdot10^{-3}$	5000	$1.6\cdot10^{-2}$
470	0.913	770	$1.8\cdot10^{-4}$	1070	$2.7\cdot10^{-4}$	2050	0.781	3550	$7.4\cdot10^{-3}$	5050	$1.2\cdot10^{-2}$
480	0.925	780	$1.1\cdot10^{-4}$	1080	$3.3\cdot10^{-4}$	2100	0.803	3600	$9.1\cdot10^{-3}$	5100	$7.9\cdot10^{-3}$
490	0.934	790	$7.2\cdot10^{-5}$	1090	$4.1\cdot10^{-4}$	2150	0.813	3650	$1.1\cdot10^{-2}$	5150	$3.8\cdot10^{-3}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG60

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	≥	0.8
τ_i (514nm)	≥	0.91
τ_i (633nm)	≥	0.1
τ_i (694nm)	≤	0.008
τ_i (1060nm)	≤	0.0015

Refractive Index n
n_i (365.0 nm) = 1.559
n_h (404.7 nm) = 1.552
n_g (435.8 nm) = 1.548
$n_{F'}$ (480.0 nm) = 1.544
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.83

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	411

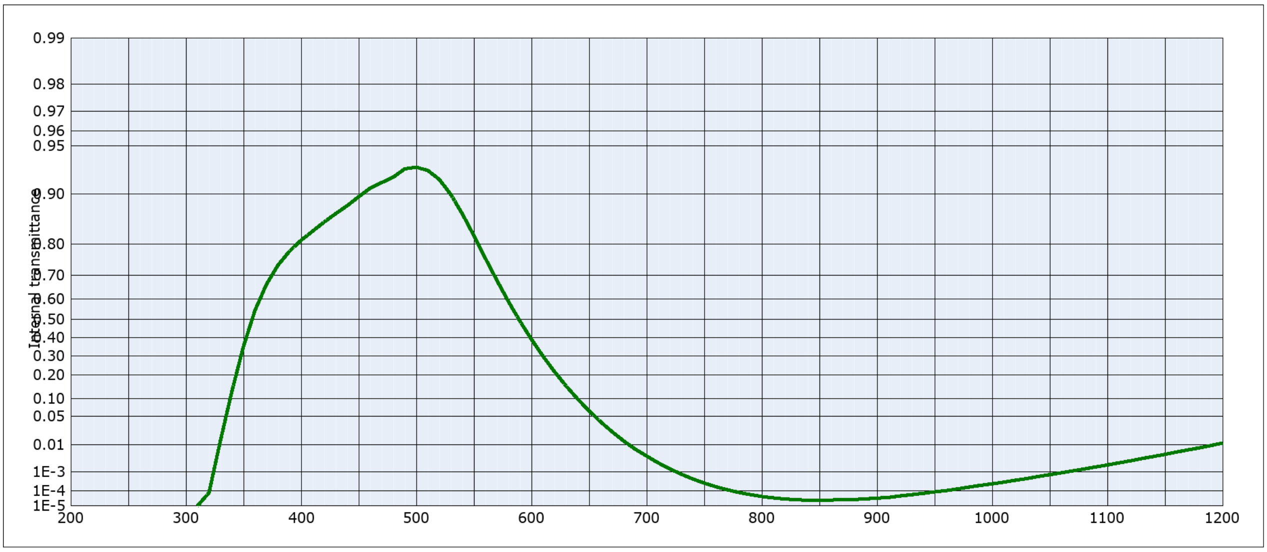
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	12.0
$\alpha_{20/300°C}$ [10^{-6}/K]	13.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.3mm) = 633 nm
Long-term changes of the polished
surface are possible under some
circumstances.
no visible surface damage after 500 h
of humidity test 85 °C / 85 % rh
Knoop hardness HK (0.1/20) = 362
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.334	0.271	0.232	x	0.314	0.256	0.221	x	0.236	0.201	0.181
y	0.436	0.441	0.437	y	0.418	0.417	0.411	y	0.318	0.306	0.297
Y	56	40	32	Y	57	42	33	Y	64	50	41
λ_d [nm]	499	498	497	λ_d [nm]	497	496	495	λ_d [nm]	490	489	489
P_e	0.26	0.41	0.50	P_e	0.27	0.41	0.50	P_e	0.29	0.43	0.51



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Further explanations see 'Optical Filters 2013' catalogue

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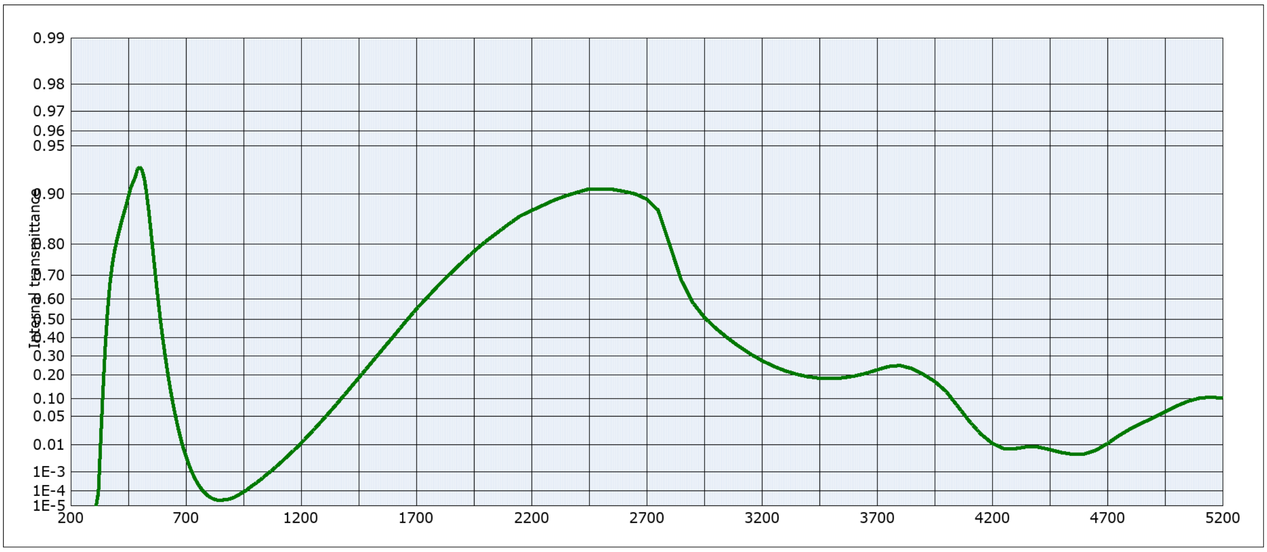

Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.932	800	$4.6\cdot10^{-5}$	1100	$2.0\cdot10^{-3}$	2200	0.873	3700	0.226
210	$< 10^{-5}$	510	0.929	810	$3.7\cdot10^{-5}$	1110	$2.4\cdot10^{-3}$	2250	0.882	3750	0.243
220	$< 10^{-5}$	520	0.919	820	$3.1\cdot10^{-5}$	1120	$2.9\cdot10^{-3}$	2300	0.891	3800	0.248
230	$< 10^{-5}$	530	0.899	830	$2.8\cdot10^{-5}$	1130	$3.5\cdot10^{-3}$	2350	0.897	3850	0.233
240	$< 10^{-5}$	540	0.867	840	$2.6\cdot10^{-5}$	1140	$4.2\cdot10^{-3}$	2400	0.902	3900	0.204
250	$< 10^{-5}$	550	0.821	850	$2.5\cdot10^{-5}$	1150	$5.0\cdot10^{-3}$	2450	0.907	3950	0.171
260	$< 10^{-5}$	560	0.757	860	$2.6\cdot10^{-5}$	1160	$6.0\cdot10^{-3}$	2500	0.906	4000	0.128
270	$< 10^{-5}$	570	0.679	870	$2.9\cdot10^{-5}$	1170	$7.0\cdot10^{-3}$	2550	0.906	4050	$7.7\cdot10^{-2}$
280	$< 10^{-5}$	580	0.587	880	$2.9\cdot10^{-5}$	1180	$8.2\cdot10^{-3}$	2600	0.904	4100	$4.0\cdot10^{-2}$
290	$< 10^{-5}$	590	0.489	890	$3.2\cdot10^{-5}$	1190	$9.7\cdot10^{-3}$	2650	0.900	4150	$2.0\cdot10^{-2}$
300	$< 10^{-5}$	600	0.390	900	$3.6\cdot10^{-5}$	1200	$1.1\cdot10^{-2}$	2700	0.892	4200	$1.1\cdot10^{-2}$
310	$< 10^{-5}$	610	0.298	910	$4.0\cdot10^{-5}$	1250	$2.4\cdot10^{-2}$	2750	0.874	4250	$7.7\cdot10^{-3}$
320	$7.8\cdot10^{-5}$	620	0.217	920	$4.9\cdot10^{-5}$	1300	$4.6\cdot10^{-2}$	2800	0.798	4300	$7.7\cdot10^{-3}$
330	$1.4\cdot10^{-2}$	630	0.151	930	$6.0\cdot10^{-5}$	1350	$8.0\cdot10^{-2}$	2850	0.680	4350	$8.8\cdot10^{-3}$
340	0.130	640	0.100	940	$7.2\cdot10^{-5}$	1400	0.127	2900	0.583	4400	$8.6\cdot10^{-3}$
350	0.352	650	$6.4\cdot10^{-2}$	950	$9.0\cdot10^{-5}$	1450	0.187	2950	0.510	4450	$7.2\cdot10^{-3}$
360	0.545	660	$3.9\cdot10^{-2}$	960	$1.1\cdot10^{-4}$	1500	0.256	3000	0.451	4500	$5.8\cdot10^{-3}$
370	0.664	670	$2.3\cdot10^{-2}$	970	$1.3\cdot10^{-4}$	1550	0.330	3050	0.400	4550	$5.0\cdot10^{-3}$
380	0.736	680	$1.3\cdot10^{-2}$	980	$1.7\cdot10^{-4}$	1600	0.406	3100	0.352	4600	$5.1\cdot10^{-3}$
390	0.779	690	$7.4\cdot10^{-3}$	990	$2.1\cdot10^{-4}$	1650	0.481	3150	0.310	4650	$6.8\cdot10^{-3}$
400	0.809	700	$4.3\cdot10^{-3}$	1000	$2.6\cdot10^{-4}$	1700	0.551	3200	0.274	4700	$1.1\cdot10^{-2}$
410	0.831	710	$2.4\cdot10^{-3}$	1010	$3.2\cdot10^{-4}$	1750	0.609	3250	0.245	4750	$1.8\cdot10^{-2}$
420	0.851	720	$1.4\cdot10^{-3}$	1020	$4.0\cdot10^{-4}$	1800	0.663	3300	0.222	4800	$2.7\cdot10^{-2}$
430	0.868	730	$7.9\cdot10^{-4}$	1030	$4.8\cdot10^{-4}$	1850	0.707	3350	0.204	4850	$3.6\cdot10^{-2}$
440	0.882	740	$4.6\cdot10^{-4}$	1040	$6.1\cdot10^{-4}$	1900	0.746	3400	0.192	4900	$4.7\cdot10^{-2}$
450	0.896	750	$2.8\cdot10^{-4}$	1050	$7.5\cdot10^{-4}$	1950	0.779	3450	0.185	4950	$6.1\cdot10^{-2}$
460	0.908	760	$1.8\cdot10^{-4}$	1060	$9.2\cdot10^{-4}$	2000	0.806	3500	0.183	5000	$7.7\cdot10^{-2}$
470	0.915	770	$1.2\cdot10^{-4}$	1070	$1.1\cdot10^{-3}$	2050	0.827	3550	0.187	5050	$9.2\cdot10^{-2}$
480	0.921	780	$8.2\cdot10^{-5}$	1080	$1.4\cdot10^{-3}$	2100	0.847	3600	0.195	5100	0.103
490	0.930	790	$6.0\cdot10^{-5}$	1090	$1.7\cdot10^{-3}$	2150	0.863	3650	0.208	5150	0.107

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

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BG60HT

Density	
ρ [g/cm³]	2.83

Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.3mm) = 633 nm
Long-term changes of the polished surface are possible under some circumstances.
no visible surface damage after 500 h of humidity test 85 °C / 85 % rh
Knoop hardness HK (0.1/20) = 362
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.914

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	1.0
SR class	52.2
AR class	3.2

Spectral values guaranteed		
τ_i (405nm)	≥	0.85
τ_i (514nm)	≥	0.93
τ_i (633nm)	≥	0.1
τ_i (694nm)	≤	0.008
τ_i (1060nm)	≤	0.0015

Transformation temperature	
Tg [°C]	411

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	12.0
$\alpha_{20/300°C}$ [10^{-6}/K]	13.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_i (365.0 nm) = 1.559
n_h (404.7 nm) = 1.552
n_g (435.8 nm) = 1.548
$n_{F'}$ (480.0 nm) = 1.544
Sellmeier coefficients on request

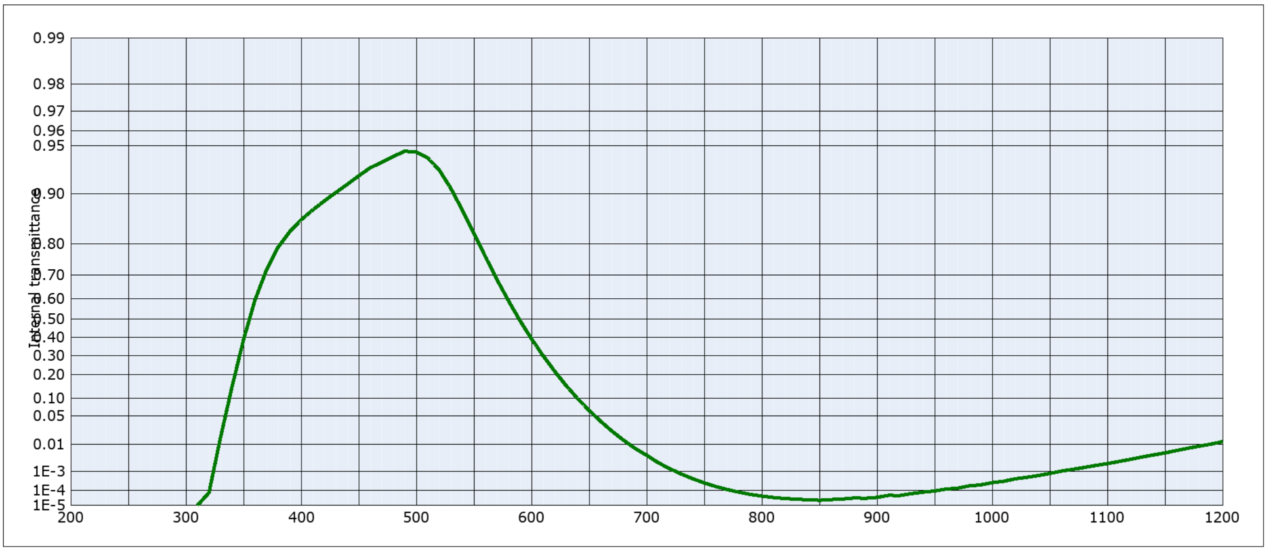
Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.330	0.266	0.227
y	0.435	0.436	0.429
Y	56	41	32
λ_d [nm]	499	498	496
P_e	0.27	0.42	0.51

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.310	0.251	0.216
y	0.416	0.412	0.403
Y	57	43	34
λ_d [nm]	497	496	495
P_e	0.28	0.43	0.52

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.233	0.198	0.178
y	0.315	0.300	0.287
Y	64	51	42
λ_d [nm]	489	488	488
P_e	0.30	0.44	0.52



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Further explanations see 'Optical Filters 2013' catalogue

BG60HT

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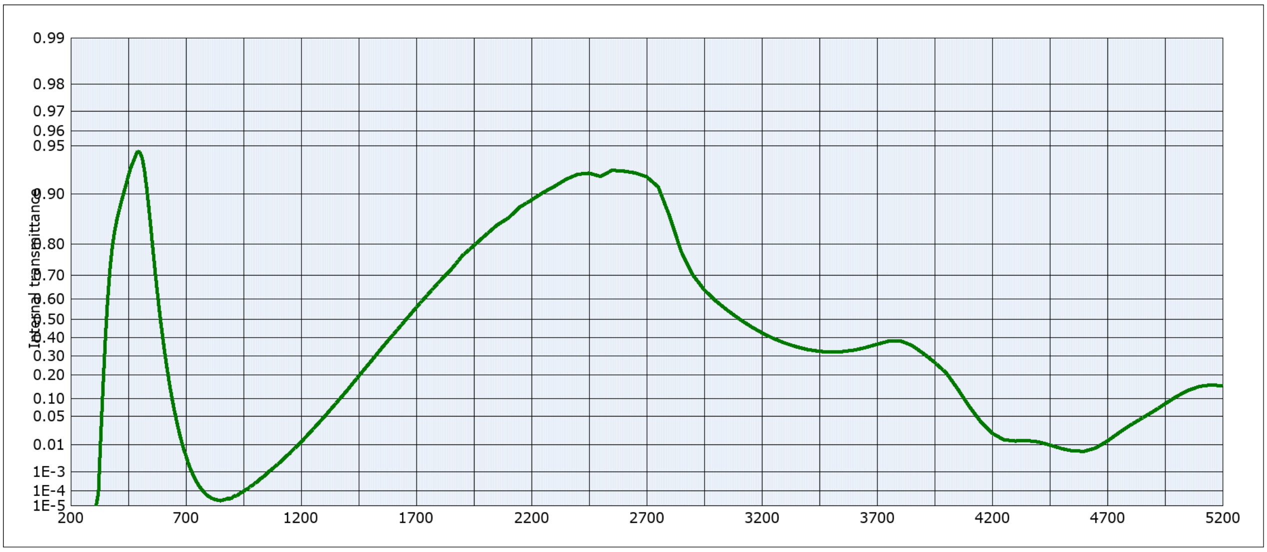

Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.945	800	$4.5 \cdot 10^{-5}$	1100	$2.2 \cdot 10^{-3}$	2200	0.891	3700	0.363
210	$< 10^{-5}$	510	0.940	810	$3.7 \cdot 10^{-5}$	1110	$2.6 \cdot 10^{-3}$	2250	0.902	3750	0.380
220	$< 10^{-5}$	520	0.929	820	$3.1 \cdot 10^{-5}$	1120	$3.2 \cdot 10^{-3}$	2300	0.910	3800	0.383
230	$< 10^{-5}$	530	0.907	830	$2.8 \cdot 10^{-5}$	1130	$3.9 \cdot 10^{-3}$	2350	0.919	3850	0.358
240	$< 10^{-5}$	540	0.874	840	$2.6 \cdot 10^{-5}$	1140	$4.6 \cdot 10^{-3}$	2400	0.925	3900	0.314
250	$< 10^{-5}$	550	0.826	850	$2.4 \cdot 10^{-5}$	1150	$5.4 \cdot 10^{-3}$	2450	0.926	3950	0.265
260	$< 10^{-5}$	560	0.762	860	$2.6 \cdot 10^{-5}$	1160	$6.5 \cdot 10^{-3}$	2500	0.922	4000	0.211
270	$< 10^{-5}$	570	0.682	870	$2.9 \cdot 10^{-5}$	1170	$7.7 \cdot 10^{-3}$	2550	0.929	4050	0.138
280	$< 10^{-5}$	580	0.590	880	$3.4 \cdot 10^{-5}$	1180	$9.0 \cdot 10^{-3}$	2600	0.928	4100	$7.6 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.491	890	$3.2 \cdot 10^{-5}$	1190	$1.0 \cdot 10^{-2}$	2650	0.926	4150	$3.9 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.392	900	$3.7 \cdot 10^{-5}$	1200	$1.2 \cdot 10^{-2}$	2700	0.922	4200	$2.1 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.299	910	$5.0 \cdot 10^{-5}$	1250	$2.6 \cdot 10^{-2}$	2750	0.910	4250	$1.4 \cdot 10^{-2}$
320	$7.4 \cdot 10^{-5}$	620	0.218	920	$5.0 \cdot 10^{-5}$	1300	$4.9 \cdot 10^{-2}$	2800	0.862	4300	$1.3 \cdot 10^{-2}$
330	$1.6 \cdot 10^{-2}$	630	0.151	930	$6.5 \cdot 10^{-5}$	1350	$8.4 \cdot 10^{-2}$	2850	0.778	4350	$1.3 \cdot 10^{-2}$
340	0.145	640	0.100	940	$8.1 \cdot 10^{-5}$	1400	0.132	2900	0.700	4400	$1.2 \cdot 10^{-2}$
350	0.387	650	$6.4 \cdot 10^{-2}$	950	$9.5 \cdot 10^{-5}$	1450	0.195	2950	0.640	4450	$1.0 \cdot 10^{-2}$
360	0.594	660	$3.9 \cdot 10^{-2}$	960	$1.2 \cdot 10^{-4}$	1500	0.266	3000	0.591	4500	$7.8 \cdot 10^{-3}$
370	0.718	670	$2.3 \cdot 10^{-2}$	970	$1.4 \cdot 10^{-4}$	1550	0.343	3050	0.545	4550	$6.5 \cdot 10^{-3}$
380	0.790	680	$1.3 \cdot 10^{-2}$	980	$1.9 \cdot 10^{-4}$	1600	0.418	3100	0.503	4600	$6.3 \cdot 10^{-3}$
390	0.830	690	$7.6 \cdot 10^{-3}$	990	$2.1 \cdot 10^{-4}$	1650	0.490	3150	0.463	4650	$8.1 \cdot 10^{-3}$
400	0.855	700	$4.5 \cdot 10^{-3}$	1000	$2.8 \cdot 10^{-4}$	1700	0.559	3200	0.427	4700	$1.3 \cdot 10^{-2}$
410	0.874	710	$2.4 \cdot 10^{-3}$	1010	$3.4 \cdot 10^{-4}$	1750	0.620	3250	0.396	4750	$2.2 \cdot 10^{-2}$
420	0.889	720	$1.3 \cdot 10^{-3}$	1020	$4.5 \cdot 10^{-4}$	1800	0.674	3300	0.370	4800	$3.3 \cdot 10^{-2}$
430	0.902	730	$7.7 \cdot 10^{-4}$	1030	$5.3 \cdot 10^{-4}$	1850	0.719	3350	0.350	4850	$4.6 \cdot 10^{-2}$
440	0.912	740	$4.5 \cdot 10^{-4}$	1040	$6.5 \cdot 10^{-4}$	1900	0.766	3400	0.334	4900	$6.2 \cdot 10^{-2}$
450	0.923	750	$2.7 \cdot 10^{-4}$	1050	$8.1 \cdot 10^{-4}$	1950	0.795	3450	0.324	4950	$8.4 \cdot 10^{-2}$
460	0.931	760	$1.7 \cdot 10^{-4}$	1060	$1.0 \cdot 10^{-3}$	2000	0.822	3500	0.320	5000	0.109
470	0.936	770	$1.2 \cdot 10^{-4}$	1070	$1.2 \cdot 10^{-3}$	2050	0.845	3550	0.323	5050	0.132
480	0.942	780	$8.0 \cdot 10^{-5}$	1080	$1.5 \cdot 10^{-3}$	2100	0.860	3600	0.331	5100	0.149
490	0.946	790	$5.9 \cdot 10^{-5}$	1090	$1.8 \cdot 10^{-3}$	2150	0.880	3650	0.345	5150	0.155

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

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BG61

Reflection factor	
P_d	0.915

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	≥	0.84
τ_i (514nm)	≥	0.93
τ_i (633nm)	≥	0.18
τ_i (694nm)	≤	0.03
τ_i (1060nm)	≤	0.008

Refractive Index n
n_i (365.0 nm) = 1.556
n_h (404.7 nm) = 1.549
n_g (435.8 nm) = 1.545
$n_{F'}$ (480.0 nm) = 1.541
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.81

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	402

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.9
$\alpha_{20/300°C}$ [10^{-6}/K]	13.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

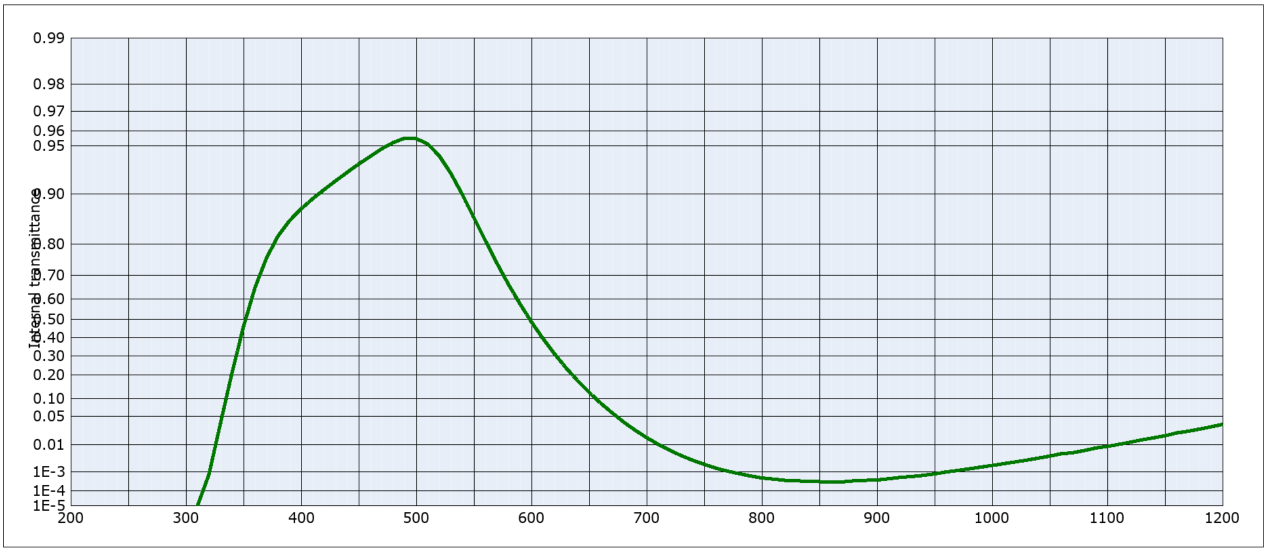
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.3mm) = 648 nm
Long-term changes of the polished
surface are possible under some
circumstances.
no visible surface damage after 500 h
of humidity test 85 °C / 85 % rh
Knoop hardness HK (0.1/20) = 363
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.349	0.289	0.250
y	0.432	0.438	0.435
Y	60	46	37
λ_d [nm]	499	498	497
P_e	0.22	0.37	0.46

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.328	0.272	0.236
y	0.415	0.416	0.410
Y	62	48	39
λ_d [nm]	497	496	495
P_e	0.23	0.37	0.47

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.245	0.210	0.189
y	0.319	0.307	0.296
Y	68	55	47
λ_d [nm]	490	489	488
P_e	0.25	0.39	0.48



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Further explanations see 'Optical Filters 2013' catalogue

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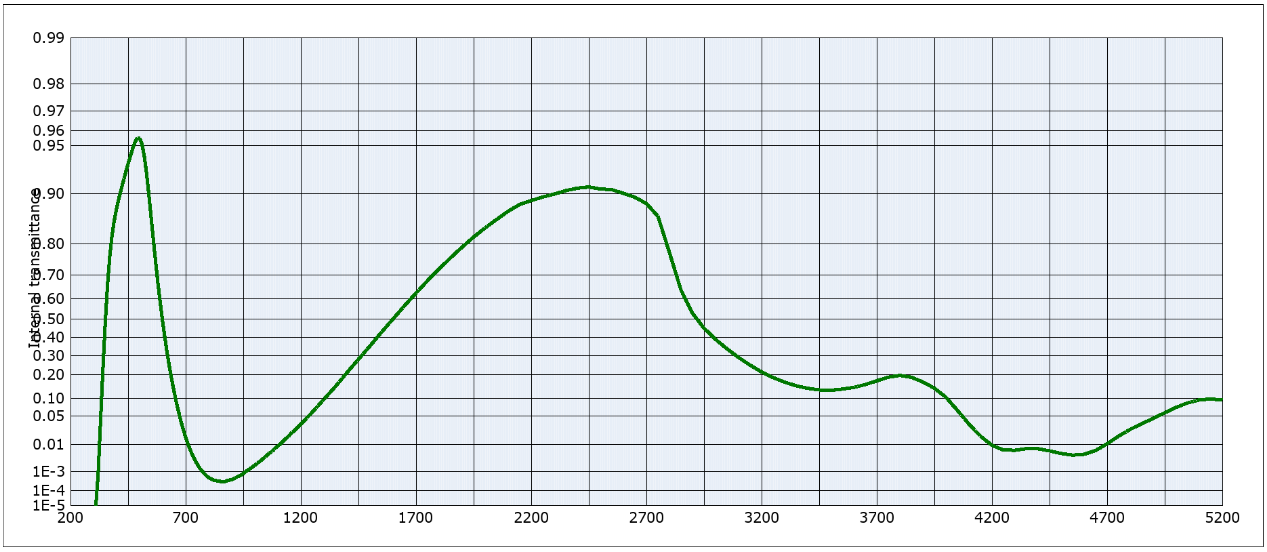


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.955	800	$5.2\cdot10^{-4}$	1100	$9.0\cdot10^{-3}$	2200	0.890	3700	0.172
210	$< 10^{-5}$	510	0.952	810	$4.5\cdot10^{-4}$	1110	$1.0\cdot10^{-2}$	2250	0.895	3750	0.189
220	$< 10^{-5}$	520	0.942	820	$4.0\cdot10^{-4}$	1120	$1.2\cdot10^{-2}$	2300	0.899	3800	0.197
230	$< 10^{-5}$	530	0.926	830	$3.7\cdot10^{-4}$	1130	$1.4\cdot10^{-2}$	2350	0.904	3850	0.189
240	$< 10^{-5}$	540	0.899	840	$3.5\cdot10^{-4}$	1140	$1.6\cdot10^{-2}$	2400	0.908	3900	0.167
250	$< 10^{-5}$	550	0.860	850	$3.4\cdot10^{-4}$	1150	$1.8\cdot10^{-2}$	2450	0.909	3950	0.140
260	$< 10^{-5}$	560	0.808	860	$3.3\cdot10^{-4}$	1160	$2.1\cdot10^{-2}$	2500	0.906	4000	0.105
270	$< 10^{-5}$	570	0.742	870	$3.3\cdot10^{-4}$	1170	$2.4\cdot10^{-2}$	2550	0.906	4050	$6.4\cdot10^{-2}$
280	$< 10^{-5}$	580	0.663	880	$3.7\cdot10^{-4}$	1180	$2.7\cdot10^{-2}$	2600	0.900	4100	$3.4\cdot10^{-2}$
290	$< 10^{-5}$	590	0.577	890	$3.9\cdot10^{-4}$	1190	$3.0\cdot10^{-2}$	2650	0.895	4150	$1.7\cdot10^{-2}$
300	$< 10^{-5}$	600	0.485	900	$4.1\cdot10^{-4}$	1200	$3.4\cdot10^{-2}$	2700	0.885	4200	$9.7\cdot10^{-3}$
310	$< 10^{-5}$	610	0.395	910	$4.7\cdot10^{-4}$	1250	$6.0\cdot10^{-2}$	2750	0.862	4250	$6.8\cdot10^{-3}$
320	$7.7\cdot10^{-4}$	620	0.311	920	$5.6\cdot10^{-4}$	1300	$9.8\cdot10^{-2}$	2800	0.774	4300	$6.7\cdot10^{-3}$
330	$3.6\cdot10^{-2}$	630	0.236	930	$6.1\cdot10^{-4}$	1350	0.147	2850	0.639	4350	$7.6\cdot10^{-3}$
340	0.211	640	0.174	940	$6.9\cdot10^{-4}$	1400	0.211	2900	0.529	4400	$7.5\cdot10^{-3}$
350	0.461	650	0.125	950	$8.1\cdot10^{-4}$	1450	0.280	2950	0.450	4450	$6.4\cdot10^{-3}$
360	0.650	660	$8.6\cdot10^{-2}$	960	$1.0\cdot10^{-3}$	1500	0.353	3000	0.389	4500	$5.2\cdot10^{-3}$
370	0.759	670	$5.9\cdot10^{-2}$	970	$1.2\cdot10^{-3}$	1550	0.429	3050	0.337	4550	$4.6\cdot10^{-3}$
380	0.820	680	$3.8\cdot10^{-2}$	980	$1.4\cdot10^{-3}$	1600	0.499	3100	0.290	4600	$4.9\cdot10^{-3}$
390	0.854	690	$2.5\cdot10^{-2}$	990	$1.6\cdot10^{-3}$	1650	0.566	3150	0.249	4650	$6.6\cdot10^{-3}$
400	0.876	700	$1.6\cdot10^{-2}$	1000	$1.9\cdot10^{-3}$	1700	0.625	3200	0.214	4700	$1.1\cdot10^{-2}$
410	0.893	710	$1.0\cdot10^{-2}$	1010	$2.2\cdot10^{-3}$	1750	0.677	3250	0.187	4750	$1.7\cdot10^{-2}$
420	0.906	720	$6.9\cdot10^{-3}$	1020	$2.6\cdot10^{-3}$	1800	0.721	3300	0.166	4800	$2.6\cdot10^{-2}$
430	0.917	730	$4.5\cdot10^{-3}$	1030	$3.1\cdot10^{-3}$	1850	0.759	3350	0.150	4850	$3.5\cdot10^{-2}$
440	0.927	740	$3.0\cdot10^{-3}$	1040	$3.7\cdot10^{-3}$	1900	0.790	3400	0.139	4900	$4.5\cdot10^{-2}$
450	0.935	750	$2.1\cdot10^{-3}$	1050	$4.3\cdot10^{-3}$	1950	0.817	3450	0.133	4950	$5.8\cdot10^{-2}$
460	0.942	760	$1.5\cdot10^{-3}$	1060	$5.2\cdot10^{-3}$	2000	0.838	3500	0.131	5000	$7.3\cdot10^{-2}$
470	0.948	770	$1.1\cdot10^{-3}$	1070	$5.7\cdot10^{-3}$	2050	0.856	3550	0.136	5050	$8.6\cdot10^{-2}$
480	0.952	780	$8.4\cdot10^{-4}$	1080	$6.7\cdot10^{-3}$	2100	0.872	3600	0.143	5100	$9.6\cdot10^{-2}$
490	0.956	790	$6.5\cdot10^{-4}$	1090	$8.1\cdot10^{-3}$	2150	0.883	3650	0.155	5150	$9.9\cdot10^{-2}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG62

Density	
ρ [g/cm^3]	2.85

Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.21mm) = 644 nm
Long-term changes of the polished
surface are possible under some
circumstances.
no visible surface damage after 500 h
of humidity test 85 °C / 85 % rh
Knoop hardness HK (0.1/20) = 368
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Reflection factor	
P_d	0.915

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Spectral values guaranteed		
τ_i (405nm)	≥	0.73
τ_i (514nm)	≥	0.89
τ_i (633nm)	≥	0.08
τ_i (694nm)	≤	0.005
τ_i (1060nm)	≤	0.0005

Transformation temperature	
Tg [°C]	410

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.9
$\alpha_{20/300°C}$ [10^{-6}/K]	13.6
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_i (365.0 nm) = 1.561
n_h (404.7 nm) = 1.554
n_g (435.8 nm) = 1.550
$n_{F'}$ (480.0 nm) = 1.546
Sellmeier coefficients on request

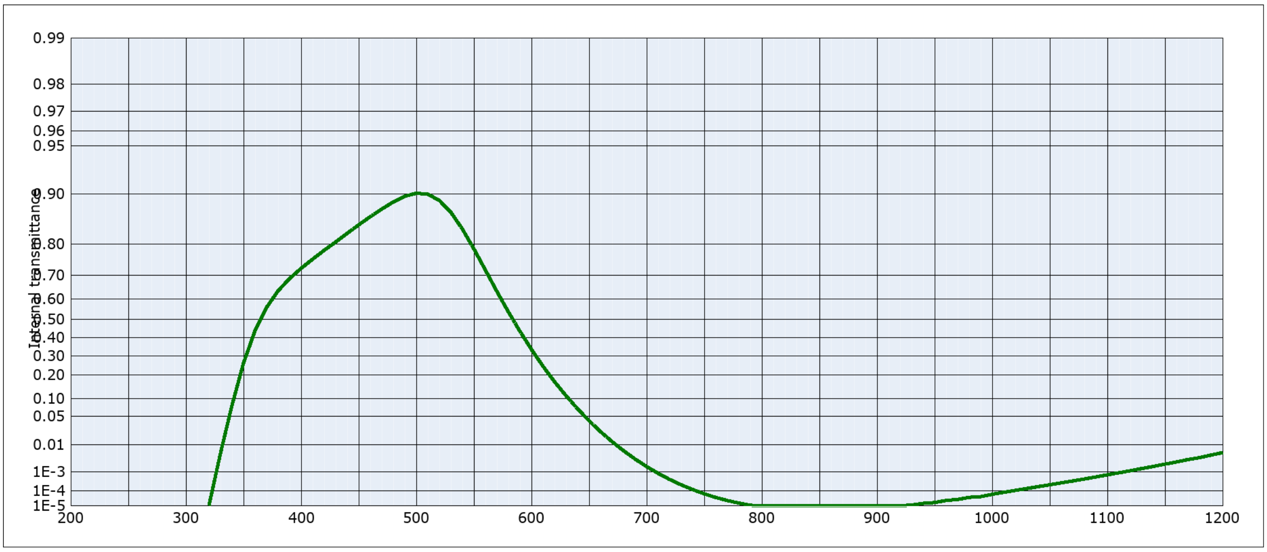
Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.321	0.257	0.220
y	0.441	0.447	0.445
Y	52	36	27
λ_d [nm]	499	498	498
P_e	0.29	0.44	0.52

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.302	0.243	0.210
y	0.422	0.423	0.419
Y	53	38	29
λ_d [nm]	498	497	496
P_e	0.30	0.44	0.53

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.229	0.194	0.175
y	0.320	0.311	0.305
Y	60	45	36
λ_d [nm]	490	490	489
P_e	0.31	0.45	0.52



BG62

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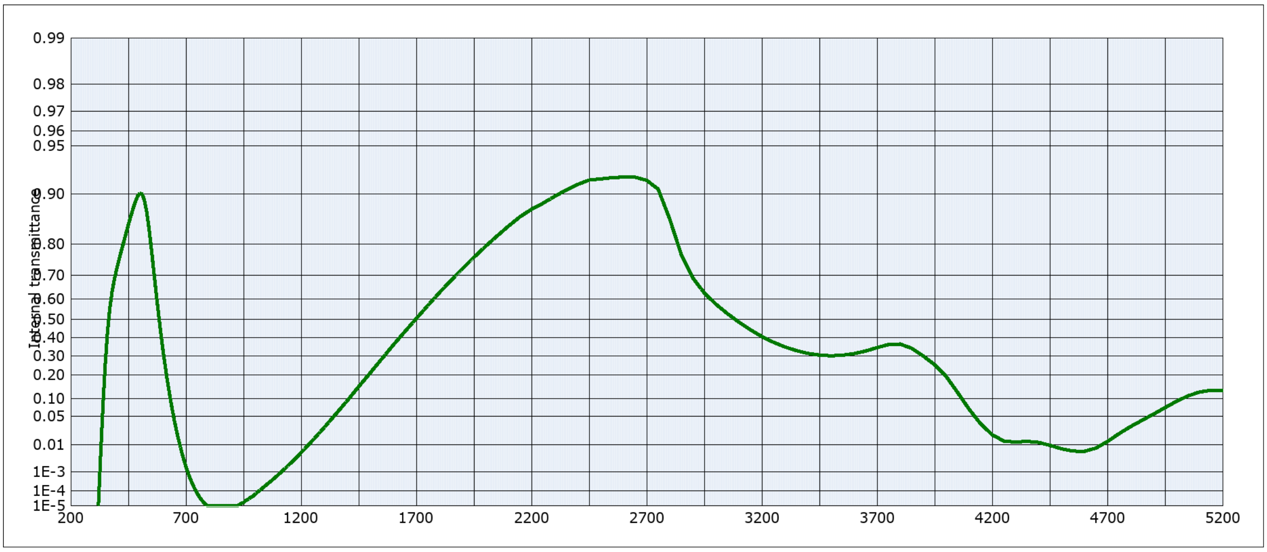


Internal transmittance τ_i at reference thickness d = 1 mm **The internal transmittance values, tabulated and graphically represented, are reference values only**											
λ [nm]	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i
200	< 10^{-5}	500	0.901	800	< 10^{-5}	1100	$7.4 \cdot 10^{-4}$	2200	0.876	3700	0.345
210	< 10^{-5}	510	0.900	810	< 10^{-5}	1110	$9.1 \cdot 10^{-4}$	2250	0.886	3750	0.362
220	< 10^{-5}	520	0.890	820	< 10^{-5}	1120	$1.1 \cdot 10^{-3}$	2300	0.896	3800	0.365
230	< 10^{-5}	530	0.870	830	< 10^{-5}	1130	$1.4 \cdot 10^{-3}$	2350	0.905	3850	0.342
240	< 10^{-5}	540	0.836	840	< 10^{-5}	1140	$1.7 \cdot 10^{-3}$	2400	0.913	3900	0.300
250	< 10^{-5}	550	0.786	850	< 10^{-5}	1150	$2.1 \cdot 10^{-3}$	2450	0.918	3950	0.252
260	< 10^{-5}	560	0.718	860	< 10^{-5}	1160	$2.6 \cdot 10^{-3}$	2500	0.919	4000	0.194
270	< 10^{-5}	570	0.633	870	< 10^{-5}	1170	$3.2 \cdot 10^{-3}$	2550	0.921	4050	0.123
280	< 10^{-5}	580	0.536	880	< 10^{-5}	1180	$3.8 \cdot 10^{-3}$	2600	0.921	4100	$6.8 \cdot 10^{-2}$
290	< 10^{-5}	590	0.435	890	< 10^{-5}	1190	$4.7 \cdot 10^{-3}$	2650	0.921	4150	$3.5 \cdot 10^{-2}$
300	< 10^{-5}	600	0.335	900	< 10^{-5}	1200	$5.7 \cdot 10^{-3}$	2700	0.918	4200	$1.9 \cdot 10^{-2}$
310	< 10^{-5}	610	0.245	910	< 10^{-5}	1250	$1.4 \cdot 10^{-2}$	2750	0.907	4250	$1.3 \cdot 10^{-2}$
320	$1.1 \cdot 10^{-5}$	620	0.169	920	< 10^{-5}	1300	$2.9 \cdot 10^{-2}$	2800	0.858	4300	$1.2 \cdot 10^{-2}$
330	$5.4 \cdot 10^{-3}$	630	0.112	930	$1.2 \cdot 10^{-5}$	1350	$5.5 \cdot 10^{-2}$	2850	0.770	4350	$1.3 \cdot 10^{-2}$
340	$8.0 \cdot 10^{-2}$	640	$6.9 \cdot 10^{-2}$	940	$1.5 \cdot 10^{-5}$	1400	$9.4 \cdot 10^{-2}$	2900	0.689	4400	$1.2 \cdot 10^{-2}$
350	0.261	650	$4.1 \cdot 10^{-2}$	950	$1.8 \cdot 10^{-5}$	1450	0.147	2950	0.627	4450	$9.8 \cdot 10^{-3}$
360	0.438	660	$2.3 \cdot 10^{-2}$	960	$2.5 \cdot 10^{-5}$	1500	0.211	3000	0.575	4500	$7.6 \cdot 10^{-3}$
370	0.559	670	$1.3 \cdot 10^{-2}$	970	$2.9 \cdot 10^{-5}$	1550	0.283	3050	0.529	4550	$6.4 \cdot 10^{-3}$
380	0.636	680	$6.6 \cdot 10^{-3}$	980	$4.0 \cdot 10^{-5}$	1600	0.359	3100	0.485	4600	$6.3 \cdot 10^{-3}$
390	0.686	690	$3.4 \cdot 10^{-3}$	990	$4.5 \cdot 10^{-5}$	1650	0.433	3150	0.443	4650	$8.0 \cdot 10^{-3}$
400	0.724	700	$1.7 \cdot 10^{-3}$	1000	$6.3 \cdot 10^{-5}$	1700	0.503	3200	0.406	4700	$1.3 \cdot 10^{-2}$
410	0.755	710	$8.6 \cdot 10^{-4}$	1010	$8.5 \cdot 10^{-5}$	1750	0.569	3250	0.375	4750	$2.0 \cdot 10^{-2}$
420	0.782	720	$4.4 \cdot 10^{-4}$	1020	$1.1 \cdot 10^{-4}$	1800	0.627	3300	0.349	4800	$3.0 \cdot 10^{-2}$
430	0.805	730	$2.3 \cdot 10^{-4}$	1030	$1.4 \cdot 10^{-4}$	1850	0.678	3350	0.328	4850	$4.2 \cdot 10^{-2}$
440	0.826	740	$1.2 \cdot 10^{-4}$	1040	$1.8 \cdot 10^{-4}$	1900	0.722	3400	0.313	4900	$5.5 \cdot 10^{-2}$
450	0.846	750	$6.8 \cdot 10^{-5}$	1050	$2.3 \cdot 10^{-4}$	1950	0.760	3450	0.304	4950	$7.2 \cdot 10^{-2}$
460	0.862	760	$3.9 \cdot 10^{-5}$	1060	$2.9 \cdot 10^{-4}$	2000	0.793	3500	0.300	5000	$9.2 \cdot 10^{-2}$
470	0.876	770	$2.4 \cdot 10^{-5}$	1070	$3.7 \cdot 10^{-4}$	2050	0.820	3550	0.303	5050	0.111
480	0.888	780	$1.6 \cdot 10^{-5}$	1080	$4.6 \cdot 10^{-4}$	2100	0.843	3600	0.312	5100	0.125
490	0.897	790	$1.1 \cdot 10^{-5}$	1090	$5.8 \cdot 10^{-4}$	2150	0.862	3650	0.326	5150	0.132

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG62HT

Density	
ρ [g/cm³]	2.85

Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.21mm) = 644 nm
Long-term changes of the polished surface are possible under some circumstances.
no visible surface damage after 500 h of humidity test 85 °C / 85 % rh
Knoop hardness HK (0.1/20) = 368
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.914

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Spectral values guaranteed		
τ_i (405nm)	≥	0.8
τ_i (514nm)	≥	0.9
τ_i (633nm)	≥	0.08
τ_i (694nm)	≤	0.004
τ_i (1060nm)	≤	0.0005

Transformation temperature	
Tg [°C]	410

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.8
$\alpha_{20/300°C}$ [10^{-6}/K]	13.7
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_i (365.0 nm) = 1.561
n_h (404.7 nm) = 1.554
n_g (435.8 nm) = 1.550
$n_{F'}$ (480.0 nm) = 1.546
Sellmeier coefficients on request

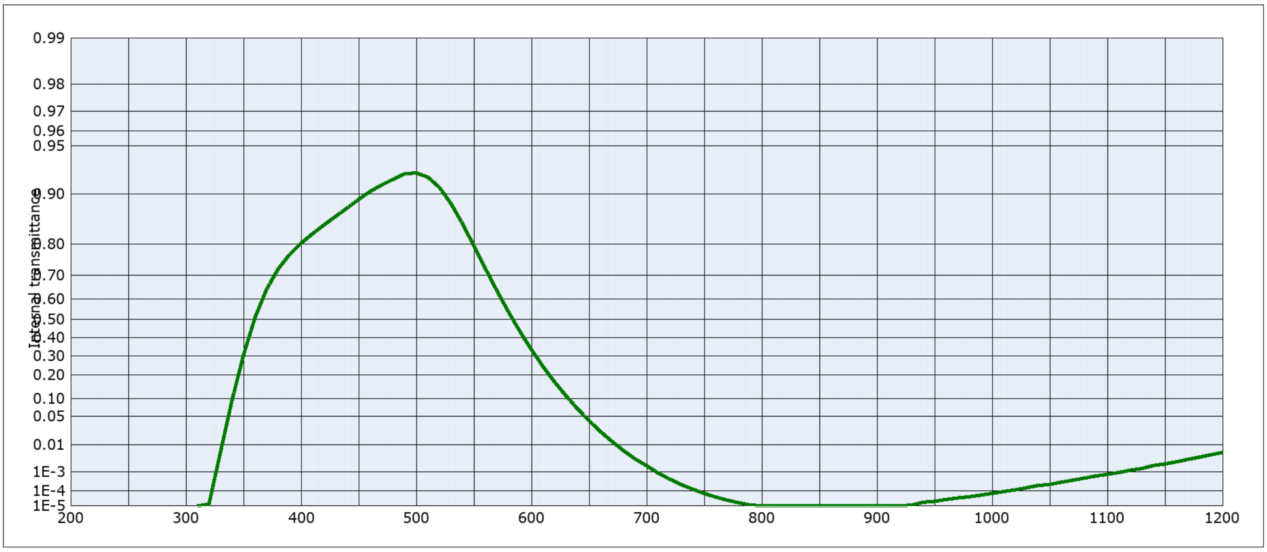
Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.317	0.252	0.215
y	0.438	0.438	0.430
Y	52	37	28
λ_d [nm]	499	497	496
P_e	0.30	0.45	0.54

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.298	0.238	0.205
y	0.418	0.413	0.403
Y	54	39	30
λ_d [nm]	497	496	495
P_e	0.31	0.46	0.55

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.226	0.191	0.172
y	0.314	0.299	0.288
Y	61	47	38
λ_d [nm]	489	489	488
P_e	0.33	0.47	0.55



STATUS: 01.12.14 **Page 1/2**

Further explanations see 'Optical Filters 2013' catalogue

BG62HT

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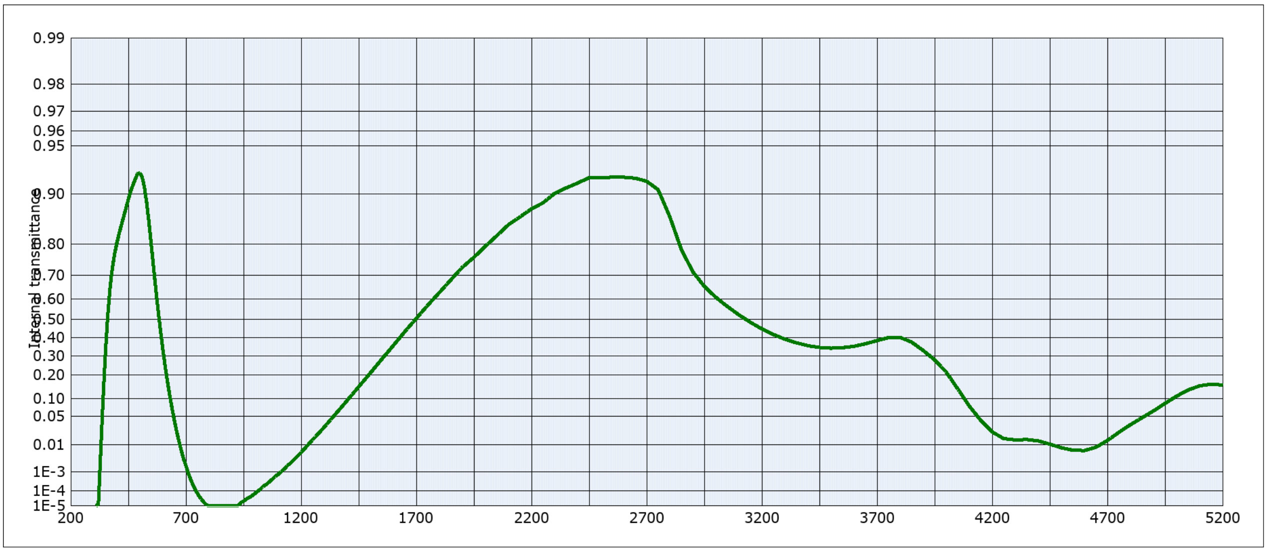


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.926	800	$< 10^{-5}$	1100	$7.7 \cdot 10^{-4}$	2200	0.876	3700	0.384
210	$< 10^{-5}$	510	0.921	810	$< 10^{-5}$	1110	$9.5 \cdot 10^{-4}$	2250	0.886	3750	0.400
220	$< 10^{-5}$	520	0.909	820	$< 10^{-5}$	1120	$1.2 \cdot 10^{-3}$	2300	0.901	3800	0.402
230	$< 10^{-5}$	530	0.886	830	$< 10^{-5}$	1130	$1.4 \cdot 10^{-3}$	2350	0.908	3850	0.375
240	$< 10^{-5}$	540	0.848	840	$< 10^{-5}$	1140	$1.9 \cdot 10^{-3}$	2400	0.914	3900	0.330
250	$< 10^{-5}$	550	0.794	850	$< 10^{-5}$	1150	$2.2 \cdot 10^{-3}$	2450	0.921	3950	0.278
260	$< 10^{-5}$	560	0.723	860	$< 10^{-5}$	1160	$2.7 \cdot 10^{-3}$	2500	0.920	4000	0.215
270	$< 10^{-5}$	570	0.636	870	$< 10^{-5}$	1170	$3.3 \cdot 10^{-3}$	2550	0.921	4050	0.139
280	$< 10^{-5}$	580	0.537	880	$< 10^{-5}$	1180	$4.0 \cdot 10^{-3}$	2600	0.921	4100	$7.8 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.434	890	$< 10^{-5}$	1190	$4.8 \cdot 10^{-3}$	2650	0.920	4150	$4.2 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.334	900	$< 10^{-5}$	1200	$5.8 \cdot 10^{-3}$	2700	0.917	4200	$2.3 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.243	910	$< 10^{-5}$	1250	$1.4 \cdot 10^{-2}$	2750	0.906	4250	$1.5 \cdot 10^{-2}$
320	$1.3 \cdot 10^{-5}$	620	0.168	920	$1.0 \cdot 10^{-5}$	1300	$2.9 \cdot 10^{-2}$	2800	0.863	4300	$1.4 \cdot 10^{-2}$
330	$5.9 \cdot 10^{-3}$	630	0.111	930	$1.1 \cdot 10^{-5}$	1350	$5.6 \cdot 10^{-2}$	2850	0.785	4350	$1.4 \cdot 10^{-2}$
340	$9.5 \cdot 10^{-2}$	640	$6.9 \cdot 10^{-2}$	940	$1.9 \cdot 10^{-5}$	1400	$9.5 \cdot 10^{-2}$	2900	0.712	4400	$1.3 \cdot 10^{-2}$
350	0.304	650	$4.1 \cdot 10^{-2}$	950	$2.2 \cdot 10^{-5}$	1450	0.147	2950	0.655	4450	$1.1 \cdot 10^{-2}$
360	0.509	660	$2.3 \cdot 10^{-2}$	960	$2.9 \cdot 10^{-5}$	1500	0.210	3000	0.607	4500	$8.2 \cdot 10^{-3}$
370	0.642	670	$1.3 \cdot 10^{-2}$	970	$3.7 \cdot 10^{-5}$	1550	0.281	3050	0.564	4550	$6.8 \cdot 10^{-3}$
380	0.721	680	$6.6 \cdot 10^{-3}$	980	$4.4 \cdot 10^{-5}$	1600	0.356	3100	0.522	4600	$6.7 \cdot 10^{-3}$
390	0.769	690	$3.4 \cdot 10^{-3}$	990	$5.6 \cdot 10^{-5}$	1650	0.433	3150	0.483	4650	$8.5 \cdot 10^{-3}$
400	0.802	700	$1.8 \cdot 10^{-3}$	1000	$7.2 \cdot 10^{-5}$	1700	0.504	3200	0.448	4700	$1.4 \cdot 10^{-2}$
410	0.826	710	$8.8 \cdot 10^{-4}$	1010	$9.4 \cdot 10^{-5}$	1750	0.570	3250	0.417	4750	$2.2 \cdot 10^{-2}$
420	0.846	720	$4.5 \cdot 10^{-4}$	1020	$1.2 \cdot 10^{-4}$	1800	0.628	3300	0.392	4800	$3.4 \cdot 10^{-2}$
430	0.863	730	$2.4 \cdot 10^{-4}$	1030	$1.6 \cdot 10^{-4}$	1850	0.681	3350	0.371	4850	$4.7 \cdot 10^{-2}$
440	0.878	740	$1.3 \cdot 10^{-4}$	1040	$2.1 \cdot 10^{-4}$	1900	0.728	3400	0.356	4900	$6.3 \cdot 10^{-2}$
450	0.892	750	$7.1 \cdot 10^{-5}$	1050	$2.4 \cdot 10^{-4}$	1950	0.761	3450	0.346	4950	$8.5 \cdot 10^{-2}$
460	0.904	760	$4.2 \cdot 10^{-5}$	1060	$3.2 \cdot 10^{-4}$	2000	0.794	3500	0.342	5000	0.110
470	0.912	770	$2.6 \cdot 10^{-5}$	1070	$4.0 \cdot 10^{-4}$	2050	0.821	3550	0.345	5050	0.133
480	0.919	780	$1.7 \cdot 10^{-5}$	1080	$5.1 \cdot 10^{-4}$	2100	0.846	3600	0.352	5100	0.151
490	0.925	790	$1.2 \cdot 10^{-5}$	1090	$6.5 \cdot 10^{-4}$	2150	0.862	3650	0.366	5150	0.158

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG63

Reflection factor	
P_d	0.916

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	≥	0.95
τ_i (514nm)	≥	0.96
τ_i (633nm)	≥	0.5
τ_i (694nm)	≤	0.25
τ_i (1060nm)	≤	0.16

Refractive Index n
n_i (365.0 nm) = 1.552
n_h (404.7 nm) = 1.546
n_g (435.8 nm) = 1.542
$n_{F'}$ (480.0 nm) = 1.538
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.79

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	416

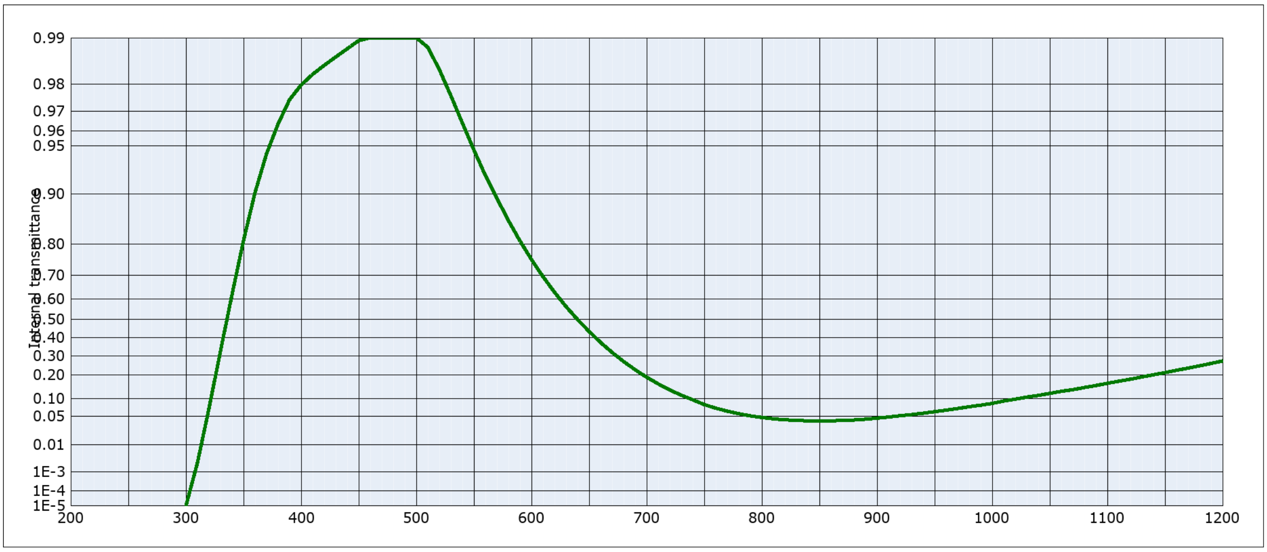
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.9
$\alpha_{20/300°C}$ [10^{-6}/K]	13.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=1.5mm) = 614 nm
Long-term changes of the polished surface are possible under some circumstances.
Knoop hardness HK (0.1/20) = 362
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.403	0.366	0.336	x	0.380	0.344	0.316	x	0.280	0.255	0.237
y	0.420	0.428	0.432	y	0.408	0.412	0.414	y	0.325	0.319	0.313
Y	76	66	59	Y	77	68	60	Y	81	73	67
λ_d [nm]	500	499	499	λ_d [nm]	498	497	497	λ_d [nm]	490	489	489
P_e	0.10	0.19	0.26	P_e	0.11	0.19	0.27	P_e	0.12	0.22	0.29



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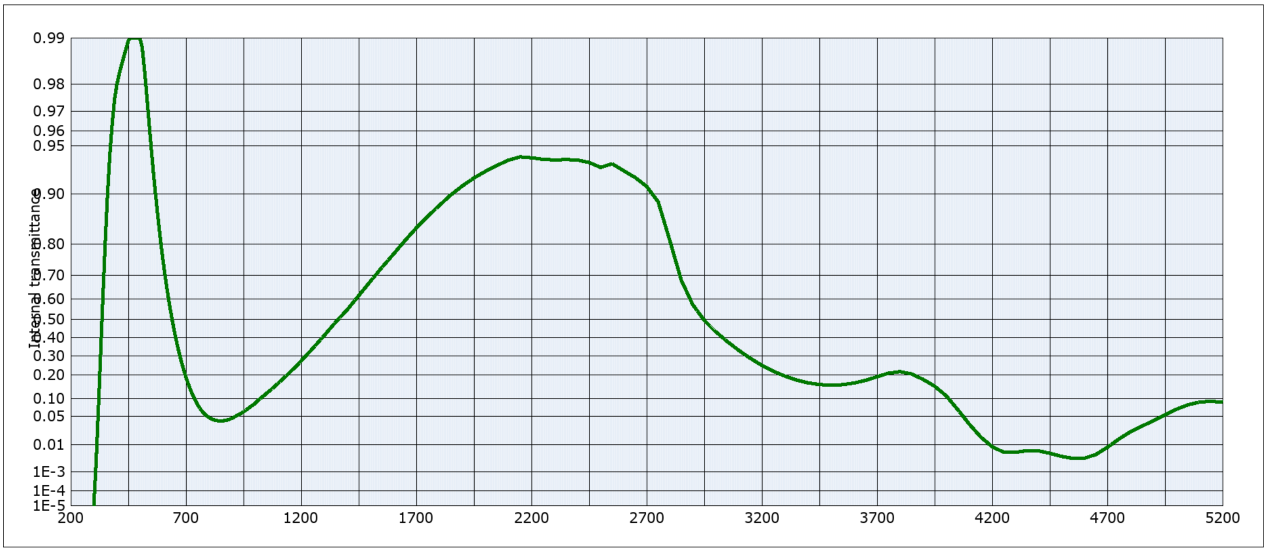


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.991	800	$4.8 \cdot 10^{-2}$	1100	0.162	2200	0.941	3700	0.192
210	$< 10^{-5}$	510	0.988	810	$4.5 \cdot 10^{-2}$	1110	0.171	2250	0.939	3750	0.209
220	$< 10^{-5}$	520	0.984	820	$4.3 \cdot 10^{-2}$	1120	0.181	2300	0.939	3800	0.217
230	$< 10^{-5}$	530	0.976	830	$4.2 \cdot 10^{-2}$	1130	0.191	2350	0.939	3850	0.206
240	$< 10^{-5}$	540	0.964	840	$4.1 \cdot 10^{-2}$	1140	0.202	2400	0.939	3900	0.180
250	$< 10^{-5}$	550	0.947	850	$4.1 \cdot 10^{-2}$	1150	0.212	2450	0.936	3950	0.149
260	$< 10^{-5}$	560	0.923	860	$4.1 \cdot 10^{-2}$	1160	0.224	2500	0.932	4000	0.111
270	$< 10^{-5}$	570	0.893	870	$4.1 \cdot 10^{-2}$	1170	0.235	2550	0.935	4050	$6.7 \cdot 10^{-2}$
280	$< 10^{-5}$	580	0.854	880	$4.2 \cdot 10^{-2}$	1180	0.247	2600	0.928	4100	$3.5 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.808	890	$4.4 \cdot 10^{-2}$	1190	0.259	2650	0.921	4150	$1.7 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.754	900	$4.6 \cdot 10^{-2}$	1200	0.273	2700	0.910	4200	$8.8 \cdot 10^{-3}$
310	$2.4 \cdot 10^{-3}$	610	0.694	910	$4.9 \cdot 10^{-2}$	1250	0.340	2750	0.888	4250	$5.9 \cdot 10^{-3}$
320	$7.0 \cdot 10^{-2}$	620	0.630	920	$5.2 \cdot 10^{-2}$	1300	0.412	2800	0.809	4300	$5.8 \cdot 10^{-3}$
330	0.327	630	0.563	930	$5.4 \cdot 10^{-2}$	1350	0.484	2850	0.681	4350	$6.6 \cdot 10^{-3}$
340	0.619	640	0.498	940	$5.8 \cdot 10^{-2}$	1400	0.548	2900	0.573	4400	$6.6 \cdot 10^{-3}$
350	0.809	650	0.434	950	$6.1 \cdot 10^{-2}$	1450	0.614	2950	0.494	4450	$5.4 \cdot 10^{-3}$
360	0.902	660	0.373	960	$6.5 \cdot 10^{-2}$	1500	0.675	3000	0.433	4500	$4.3 \cdot 10^{-3}$
370	0.944	670	0.318	970	$7.0 \cdot 10^{-2}$	1550	0.727	3050	0.379	4550	$3.6 \cdot 10^{-3}$
380	0.964	680	0.270	980	$7.5 \cdot 10^{-2}$	1600	0.770	3100	0.330	4600	$3.6 \cdot 10^{-3}$
390	0.975	690	0.227	990	$8.0 \cdot 10^{-2}$	1650	0.808	3150	0.286	4650	$4.9 \cdot 10^{-3}$
400	0.980	700	0.190	1000	$8.5 \cdot 10^{-2}$	1700	0.839	3200	0.249	4700	$8.5 \cdot 10^{-3}$
410	0.983	710	0.159	1010	$9.3 \cdot 10^{-2}$	1750	0.863	3250	0.219	4750	$1.5 \cdot 10^{-2}$
420	0.985	720	0.134	1020	$9.9 \cdot 10^{-2}$	1800	0.882	3300	0.195	4800	$2.3 \cdot 10^{-2}$
430	0.987	730	0.113	1030	0.106	1850	0.899	3350	0.177	4850	$3.1 \cdot 10^{-2}$
440	0.988	740	$9.7 \cdot 10^{-2}$	1040	0.112	1900	0.911	3400	0.164	4900	$4.1 \cdot 10^{-2}$
450	0.990	750	$8.2 \cdot 10^{-2}$	1050	0.120	1950	0.920	3450	0.156	4950	$5.4 \cdot 10^{-2}$
460	0.991	760	$7.1 \cdot 10^{-2}$	1060	0.128	2000	0.928	3500	0.153	5000	$6.8 \cdot 10^{-2}$
470	0.992	770	$6.3 \cdot 10^{-2}$	1070	0.135	2050	0.934	3550	0.156	5050	$8.1 \cdot 10^{-2}$
480	0.992	780	$5.6 \cdot 10^{-2}$	1080	0.144	2100	0.939	3600	0.163	5100	$8.9 \cdot 10^{-2}$
490	0.992	790	$5.1 \cdot 10^{-2}$	1090	0.152	2150	0.941	3650	0.175	5150	$9.2 \cdot 10^{-2}$

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG64

Reflection factor	
P_d	0.916

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	≥	0.99
τ_i (514nm)	≥	0.99
τ_i (633nm)	≥	0.72
τ_i (694nm)	≤	0.55
τ_i (1060nm)	≤	0.45

Refractive Index n
n_i (365.0 nm) = 1.549
n_h (404.7 nm) = 1.543
n_g (435.8 nm) = 1.539
$n_{F'}$ (480.0 nm) = 1.536
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.78

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	417

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	12.0
$\alpha_{20/300°C}$ [10^{-6}/K]	13.8
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

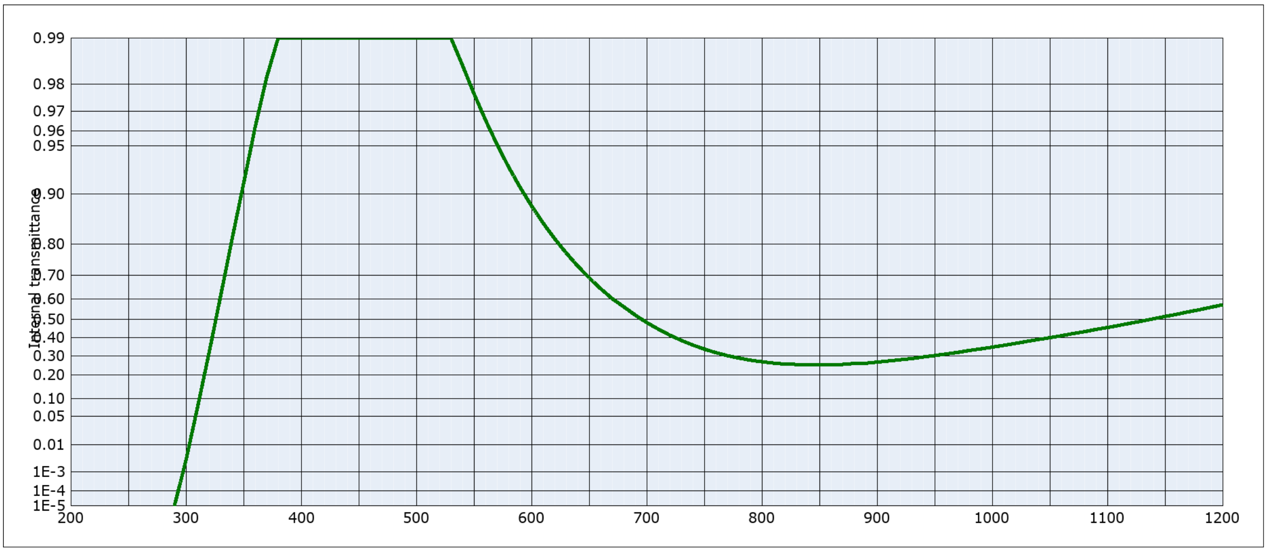
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=3mm) = 619 nm
Long-term changes of the polished
surface are possible under some
circumstances.
Knoop hardness HK (0.1/20) = 371
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.427	0.408	0.391
y	0.414	0.419	0.423
Y	84	78	73
λ_d [nm]	500	500	500
P_e	0.05	0.09	0.13

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.403	0.385	0.368
y	0.403	0.407	0.410
Y	85	79	74
λ_d [nm]	498	498	498
P_e	0.05	0.09	0.13

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.297	0.284	0.272
y	0.327	0.325	0.323
Y	87	82	79
λ_d [nm]	490	490	490
P_e	0.06	0.11	0.15



STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

BG64

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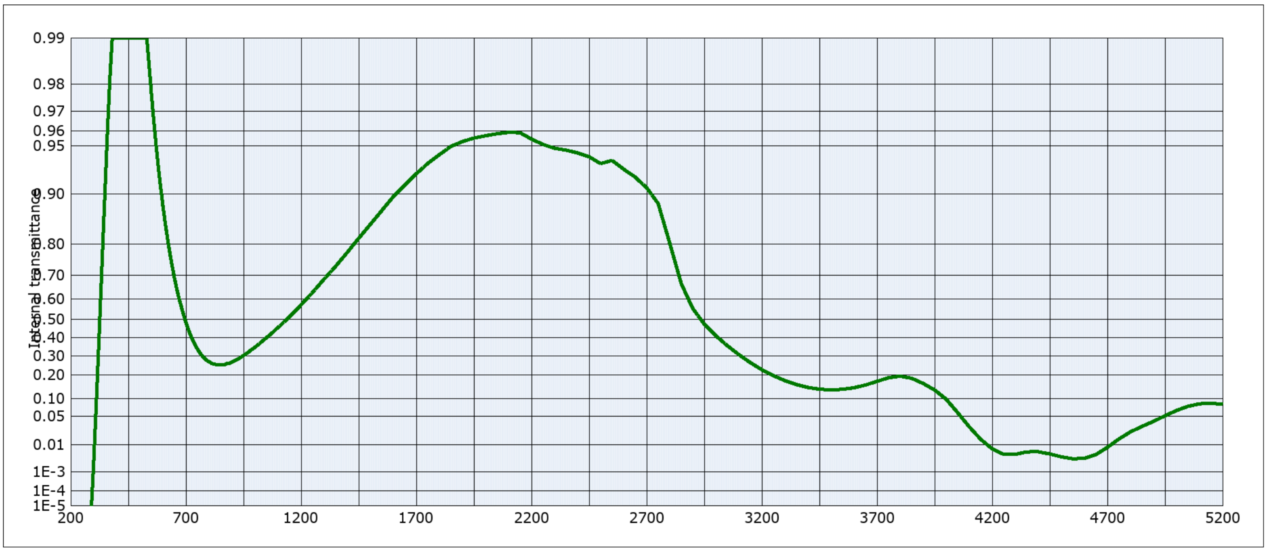


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.997	800	0.268	1100	0.455	2200	0.955	3700	0.171
210	$< 10^{-5}$	510	0.996	810	0.261	1110	0.467	2250	0.951	3750	0.187
220	$< 10^{-5}$	520	0.994	820	0.256	1120	0.479	2300	0.948	3800	0.195
230	$< 10^{-5}$	530	0.990	830	0.254	1130	0.490	2350	0.947	3850	0.185
240	$< 10^{-5}$	540	0.985	840	0.251	1140	0.502	2400	0.945	3900	0.161
250	$< 10^{-5}$	550	0.977	850	0.252	1150	0.514	2450	0.942	3950	0.134
260	$< 10^{-5}$	560	0.966	860	0.252	1160	0.525	2500	0.935	4000	$9.9 \cdot 10^{-2}$
270	$< 10^{-5}$	570	0.951	870	0.254	1170	0.537	2550	0.938	4050	$5.9 \cdot 10^{-2}$
280	$< 10^{-5}$	580	0.932	880	0.259	1180	0.548	2600	0.930	4100	$3.0 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.909	890	0.260	1190	0.560	2650	0.921	4150	$1.5 \cdot 10^{-2}$
300	$3.0 \cdot 10^{-3}$	600	0.882	900	0.266	1200	0.572	2700	0.908	4200	$7.6 \cdot 10^{-3}$
310	$7.2 \cdot 10^{-2}$	610	0.850	910	0.272	1250	0.629	2750	0.885	4250	$5.0 \cdot 10^{-3}$
320	0.314	620	0.814	920	0.279	1300	0.684	2800	0.802	4300	$5.0 \cdot 10^{-3}$
330	0.610	630	0.775	930	0.285	1350	0.731	2850	0.666	4350	$6.1 \cdot 10^{-3}$
340	0.812	640	0.733	940	0.294	1400	0.775	2900	0.554	4400	$6.1 \cdot 10^{-3}$
350	0.913	650	0.689	950	0.301	1450	0.814	2950	0.473	4450	$5.1 \cdot 10^{-3}$
360	0.962	660	0.645	960	0.310	1500	0.846	3000	0.411	4500	$4.1 \cdot 10^{-3}$
370	0.982	670	0.601	970	0.319	1550	0.873	3050	0.356	4550	$3.5 \cdot 10^{-3}$
380	0.990	680	0.562	980	0.329	1600	0.896	3100	0.307	4600	$3.6 \cdot 10^{-3}$
390	0.993	690	0.521	990	0.338	1650	0.912	3150	0.263	4650	$4.9 \cdot 10^{-3}$
400	0.995	700	0.482	1000	0.348	1700	0.925	3200	0.227	4700	$8.5 \cdot 10^{-3}$
410	0.996	710	0.447	1010	0.357	1750	0.936	3250	0.197	4750	$1.5 \cdot 10^{-2}$
420	0.996	720	0.414	1020	0.368	1800	0.943	3300	0.174	4800	$2.3 \cdot 10^{-2}$
430	0.997	730	0.385	1030	0.379	1850	0.950	3350	0.156	4850	$3.1 \cdot 10^{-2}$
440	0.997	740	0.359	1040	0.390	1900	0.953	3400	0.144	4900	$4.0 \cdot 10^{-2}$
450	0.997	750	0.337	1050	0.400	1950	0.956	3450	0.137	4950	$5.1 \cdot 10^{-2}$
460	0.998	760	0.317	1060	0.411	2000	0.957	3500	0.134	5000	$6.5 \cdot 10^{-2}$
470	0.998	770	0.301	1070	0.422	2050	0.958	3550	0.136	5050	$7.6 \cdot 10^{-2}$
480	0.998	780	0.288	1080	0.433	2100	0.959	3600	0.143	5100	$8.4 \cdot 10^{-2}$
490	0.998	790	0.276	1090	0.445	2150	0.959	3650	0.154	5150	$8.6 \cdot 10^{-2}$

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

BG66HS

Reflection factor	
P_d	0.913

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	≥	0.71
τ_i (514nm)	≥	0.85
τ_i (633nm)	≥	0.04
τ_i (694nm)	≤	0.0025
τ_i (1060nm)	≤	0.0004

Refractive Index n
n_e (546.1 nm) = 1.544
n_d (587.6 nm) = 1.542
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.87

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	52.3
AR class	0

Transformation temperature	
Tg [°C]	425

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.5
$\alpha_{20/300°C}$ [10^{-6}/K]	13.3
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

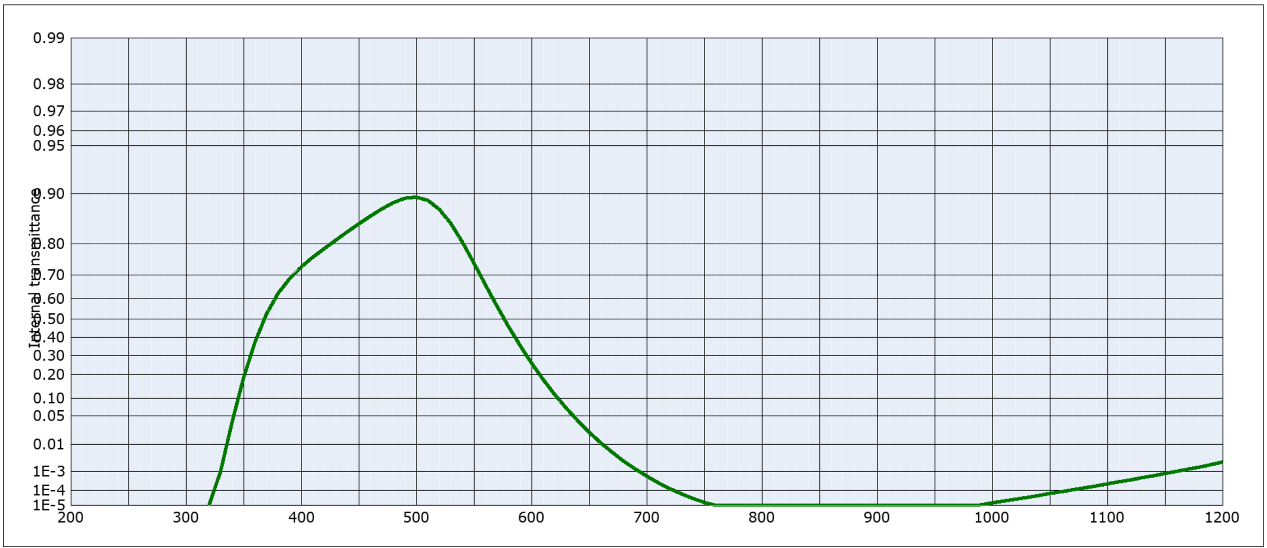
Notes
Ionically colored glass
Bandpass filter / shortpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.21mm) = 634 nm
Long-term changes of the polished
surface are possible under some
circumstances.
no visible surface damage after 500 h
of humidity test 85 °C / 85 % rh
Knoop hardness HK (0.1/20) = 385
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.300	0.234	0.198
y	0.440	0.438	0.430
Y	47	32	23
λ_d [nm]	499	497	496
P_e	0.34	0.49	0.58

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.283	0.222	0.190
y	0.419	0.413	0.403
Y	49	33	25
λ_d [nm]	497	496	495
P_e	0.35	0.50	0.59

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.217	0.182	0.164
y	0.313	0.298	0.288
Y	56	41	32
λ_d [nm]	489	489	488
P_e	0.36	0.50	0.58



STATUS: 24.11.15

Further explanations see 'Optical Filters 2013' catalogue

BG66HS

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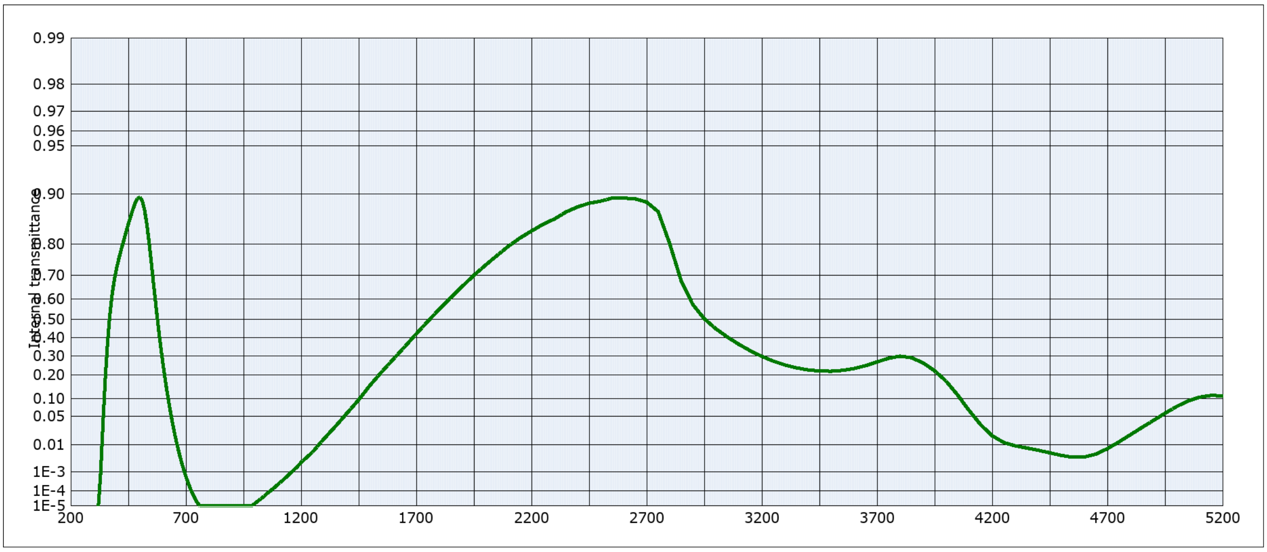

Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.895	800	$< 10^{-5}$	1100	$2.5 \cdot 10^{-4}$	2200	0.832	3700	0.267
210	$< 10^{-5}$	510	0.890	810	$< 10^{-5}$	1110	$3.1 \cdot 10^{-4}$	2250	0.847	3750	0.287
220	$< 10^{-5}$	520	0.875	820	$< 10^{-5}$	1120	$3.9 \cdot 10^{-4}$	2300	0.858	3800	0.298
230	$< 10^{-5}$	530	0.848	830	$< 10^{-5}$	1130	$5.1 \cdot 10^{-4}$	2350	0.871	3850	0.290
240	$< 10^{-5}$	540	0.804	840	$< 10^{-5}$	1140	$6.3 \cdot 10^{-4}$	2400	0.880	3900	0.262
250	$< 10^{-5}$	550	0.741	850	$< 10^{-5}$	1150	$8.1 \cdot 10^{-4}$	2450	0.886	3950	0.222
260	$< 10^{-5}$	560	0.660	860	$< 10^{-5}$	1160	$1.0 \cdot 10^{-3}$	2500	0.889	4000	0.171
270	$< 10^{-5}$	570	0.564	870	$< 10^{-5}$	1170	$1.3 \cdot 10^{-3}$	2550	0.894	4050	0.114
280	$< 10^{-5}$	580	0.460	880	$< 10^{-5}$	1180	$1.6 \cdot 10^{-3}$	2600	0.894	4100	$6.4 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.356	890	$< 10^{-5}$	1190	$2.0 \cdot 10^{-3}$	2650	0.893	4150	$3.3 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.260	900	$< 10^{-5}$	1200	$2.5 \cdot 10^{-3}$	2700	0.888	4200	$1.8 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.179	910	$< 10^{-5}$	1250	$6.0 \cdot 10^{-3}$	2750	0.871	4250	$1.2 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.115	920	$< 10^{-5}$	1300	$1.5 \cdot 10^{-2}$	2800	0.800	4300	$9.4 \cdot 10^{-3}$
330	$9.7 \cdot 10^{-4}$	630	$7.1 \cdot 10^{-2}$	930	$< 10^{-5}$	1350	$3.1 \cdot 10^{-2}$	2850	0.677	4350	$8.1 \cdot 10^{-3}$
340	$3.7 \cdot 10^{-2}$	640	$4.1 \cdot 10^{-2}$	940	$< 10^{-5}$	1400	$5.8 \cdot 10^{-2}$	2900	0.574	4400	$6.8 \cdot 10^{-3}$
350	0.185	650	$2.2 \cdot 10^{-2}$	950	$< 10^{-5}$	1450	$9.7 \cdot 10^{-2}$	2950	0.502	4450	$5.6 \cdot 10^{-3}$
360	0.375	660	$1.1 \cdot 10^{-2}$	960	$< 10^{-5}$	1500	0.154	3000	0.449	4500	$4.6 \cdot 10^{-3}$
370	0.526	670	$5.7 \cdot 10^{-3}$	970	$< 10^{-5}$	1550	0.216	3050	0.404	4550	$4.0 \cdot 10^{-3}$
380	0.623	680	$2.7 \cdot 10^{-3}$	980	$< 10^{-5}$	1600	0.282	3100	0.364	4600	$4.0 \cdot 10^{-3}$
390	0.685	690	$1.3 \cdot 10^{-3}$	990	$1.1 \cdot 10^{-5}$	1650	0.350	3150	0.328	4650	$5.1 \cdot 10^{-3}$
400	0.728	700	$6.1 \cdot 10^{-4}$	1000	$1.6 \cdot 10^{-5}$	1700	0.421	3200	0.297	4700	$7.7 \cdot 10^{-3}$
410	0.760	710	$2.8 \cdot 10^{-4}$	1010	$2.1 \cdot 10^{-5}$	1750	0.488	3250	0.271	4750	$1.2 \cdot 10^{-2}$
420	0.786	720	$1.3 \cdot 10^{-4}$	1020	$2.8 \cdot 10^{-5}$	1800	0.551	3300	0.251	4800	$1.9 \cdot 10^{-2}$
430	0.809	730	$6.3 \cdot 10^{-5}$	1030	$3.7 \cdot 10^{-5}$	1850	0.606	3350	0.236	4850	$2.9 \cdot 10^{-2}$
440	0.829	740	$3.2 \cdot 10^{-5}$	1040	$4.9 \cdot 10^{-5}$	1900	0.655	3400	0.226	4900	$4.1 \cdot 10^{-2}$
450	0.847	750	$1.7 \cdot 10^{-5}$	1050	$6.7 \cdot 10^{-5}$	1950	0.699	3450	0.220	4950	$5.7 \cdot 10^{-2}$
460	0.863	760	$< 10^{-5}$	1060	$8.5 \cdot 10^{-5}$	2000	0.735	3500	0.219	5000	$7.5 \cdot 10^{-2}$
470	0.876	770	$< 10^{-5}$	1070	$1.1 \cdot 10^{-4}$	2050	0.766	3550	0.223	5050	$9.3 \cdot 10^{-2}$
480	0.886	780	$< 10^{-5}$	1080	$1.5 \cdot 10^{-4}$	2100	0.793	3600	0.233	5100	0.106
490	0.893	790	$< 10^{-5}$	1090	$1.9 \cdot 10^{-4}$	2150	0.815	3650	0.247	5150	0.112

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

BG67

Reflection factor	
P_d	0.913

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (450nm)	≥	0.7
τ_i (500nm)	≥	0.8
τ_i (550nm)	≥	0.65
τ_i (600nm)	≤	0.19

Refractive Index n
n_h (404.7 nm) = 1.556
n_g (435.8 nm) = 1.552
$n_{F'}$ (480.0 nm) = 1.547
n_F (486.1 nm) = 1.547
Sellmeier coefficients on request

Density	
ρ [g/cm³]	2.85

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	390

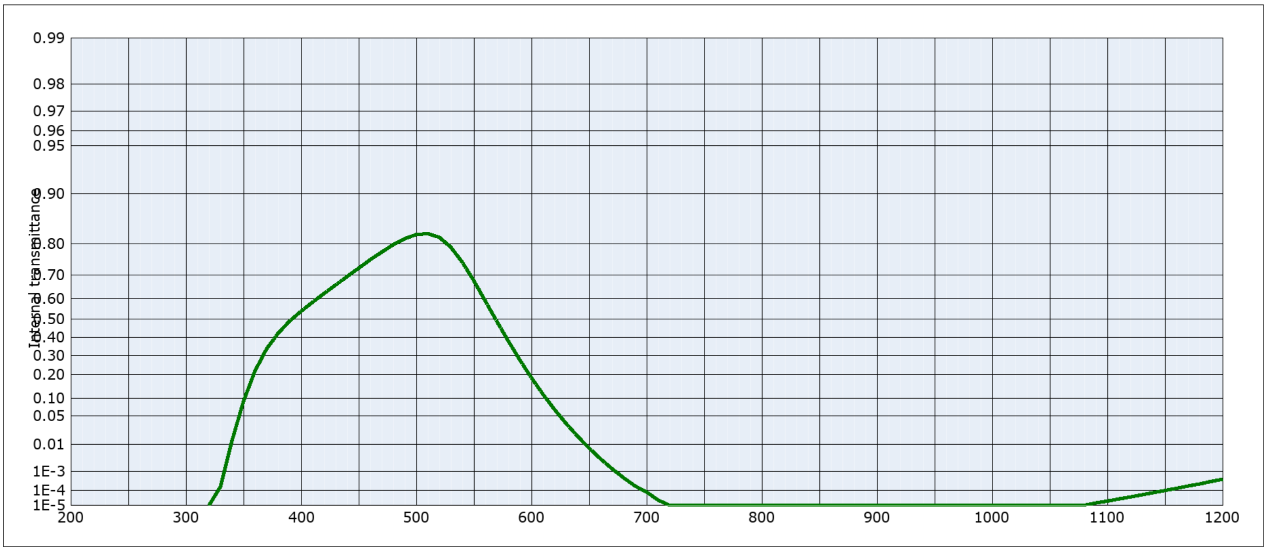
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.8
$\alpha_{20/300°C}$ [10^{-6}/K]	13.7
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Bandpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.145mm) @ 641 nm
Long-term changes in the polished surface are possible under some circumstances.
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

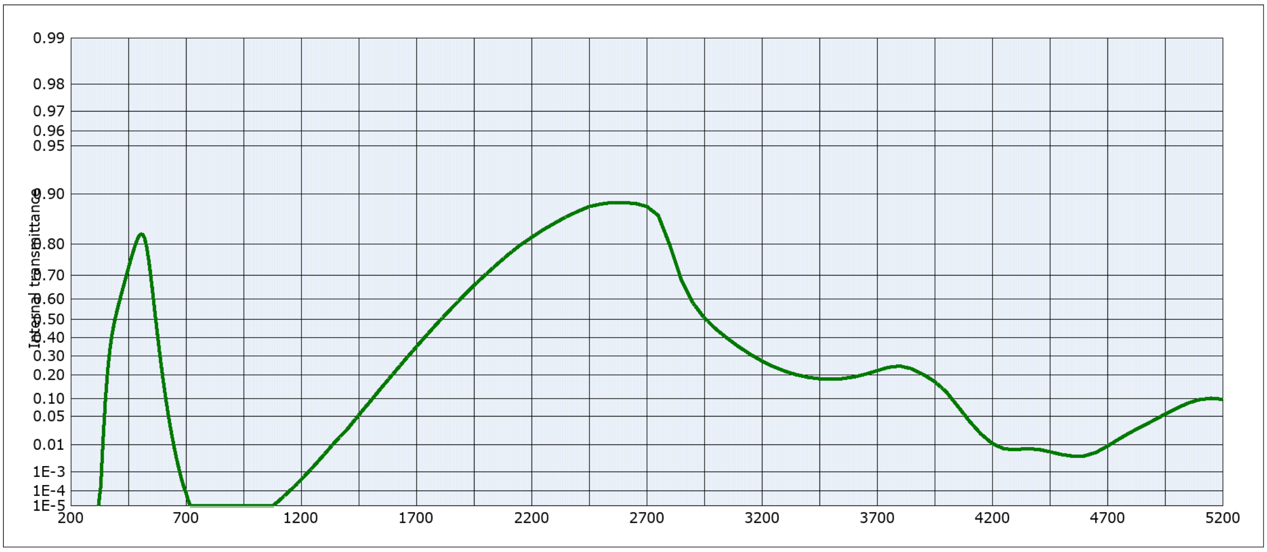
Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.285	0.222	0.189	x	0.269	0.211	0.182	x	0.209	0.176	0.159
y	0.450	0.456	0.457	y	0.429	0.431	0.431	y	0.321	0.317	0.318
Y	41	25	17	Y	43	27	19	Y	50	33	24
λ_d [nm]	499	498	498	λ_d [nm]	498	497	497	λ_d [nm]	491	490	491
P_e	0.37	0.52	0.59	P_e	0.38	0.52	0.60	P_e	0.38	0.51	0.57



STATUS: 01.12.14 **Page 1/2**

Further explanations see 'Optical Filters 2013' catalogue

BG67



Internal transmittance τ_i at reference thickness d = 1 mm The internal transmittance values, tabulated and graphically represented, are reference values only											
λ [nm]	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i
200	$< 10^{-5}$	500	0.823	800	$< 10^{-5}$	1100	$2.1 \cdot 10^{-5}$	2200	0.816	3700	0.222
210	$< 10^{-5}$	510	0.825	810	$< 10^{-5}$	1110	$2.9 \cdot 10^{-5}$	2250	0.834	3750	0.239
220	$< 10^{-5}$	520	0.816	820	$< 10^{-5}$	1120	$4.0 \cdot 10^{-5}$	2300	0.849	3800	0.246
230	$< 10^{-5}$	530	0.790	830	$< 10^{-5}$	1130	$5.5 \cdot 10^{-5}$	2350	0.862	3850	0.232
240	$< 10^{-5}$	540	0.744	840	$< 10^{-5}$	1140	$7.5 \cdot 10^{-5}$	2400	0.872	3900	0.204
250	$< 10^{-5}$	550	0.676	850	$< 10^{-5}$	1150	$1.0 \cdot 10^{-4}$	2450	0.880	3950	0.170
260	$< 10^{-5}$	560	0.588	860	$< 10^{-5}$	1160	$1.4 \cdot 10^{-4}$	2500	0.884	4000	0.127
270	$< 10^{-5}$	570	0.486	870	$< 10^{-5}$	1170	$1.9 \cdot 10^{-4}$	2550	0.887	4050	$7.7 \cdot 10^{-2}$
280	$< 10^{-5}$	580	0.379	880	$< 10^{-5}$	1180	$2.4 \cdot 10^{-4}$	2600	0.887	4100	$4.1 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.275	890	$< 10^{-5}$	1190	$3.3 \cdot 10^{-4}$	2650	0.886	4150	$2.1 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.185	900	$< 10^{-5}$	1200	$4.3 \cdot 10^{-4}$	2700	0.881	4200	$1.1 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.115	910	$< 10^{-5}$	1250	$1.6 \cdot 10^{-3}$	2750	0.865	4250	$7.6 \cdot 10^{-3}$
320	$< 10^{-5}$	620	$6.6 \cdot 10^{-2}$	920	$< 10^{-5}$	1300	$4.9 \cdot 10^{-3}$	2800	0.797	4300	$7.2 \cdot 10^{-3}$
330	$1.7 \cdot 10^{-4}$	630	$3.5 \cdot 10^{-2}$	930	$< 10^{-5}$	1350	$1.3 \cdot 10^{-2}$	2850	0.682	4350	$7.7 \cdot 10^{-3}$
340	$1.3 \cdot 10^{-2}$	640	$1.7 \cdot 10^{-2}$	940	$< 10^{-5}$	1400	$2.6 \cdot 10^{-2}$	2900	0.582	4400	$7.3 \cdot 10^{-3}$
350	$9.1 \cdot 10^{-2}$	650	$7.8 \cdot 10^{-3}$	950	$< 10^{-5}$	1450	$5.3 \cdot 10^{-2}$	2950	0.507	4450	$6.1 \cdot 10^{-3}$
360	0.220	660	$3.3 \cdot 10^{-3}$	960	$< 10^{-5}$	1500	$9.2 \cdot 10^{-2}$	3000	0.448	4500	$4.9 \cdot 10^{-3}$
370	0.336	670	$1.3 \cdot 10^{-3}$	970	$< 10^{-5}$	1550	0.145	3050	0.396	4550	$4.3 \cdot 10^{-3}$
380	0.423	680	$5.0 \cdot 10^{-4}$	980	$< 10^{-5}$	1600	0.207	3100	0.350	4600	$4.4 \cdot 10^{-3}$
390	0.488	690	$1.8 \cdot 10^{-4}$	990	$< 10^{-5}$	1650	0.277	3150	0.308	4650	$5.8 \cdot 10^{-3}$
400	0.539	700	$8.1 \cdot 10^{-5}$	1000	$< 10^{-5}$	1700	0.349	3200	0.272	4700	$9.2 \cdot 10^{-3}$
410	0.583	710	$2.4 \cdot 10^{-5}$	1010	$< 10^{-5}$	1750	0.421	3250	0.243	4750	$1.5 \cdot 10^{-2}$
420	0.623	720	$< 10^{-5}$	1020	$< 10^{-5}$	1800	0.490	3300	0.219	4800	$2.2 \cdot 10^{-2}$
430	0.659	730	$< 10^{-5}$	1030	$< 10^{-5}$	1850	0.552	3350	0.202	4850	$3.1 \cdot 10^{-2}$
440	0.693	740	$< 10^{-5}$	1040	$< 10^{-5}$	1900	0.608	3400	0.190	4900	$4.1 \cdot 10^{-2}$
450	0.724	750	$< 10^{-5}$	1050	$< 10^{-5}$	1950	0.658	3450	0.183	4950	$5.5 \cdot 10^{-2}$
460	0.752	760	$< 10^{-5}$	1060	$< 10^{-5}$	2000	0.701	3500	0.180	5000	$7.1 \cdot 10^{-2}$
470	0.776	770	$< 10^{-5}$	1070	$< 10^{-5}$	2050	0.738	3550	0.183	5050	$8.6 \cdot 10^{-2}$
480	0.797	780	$< 10^{-5}$	1080	$1.0 \cdot 10^{-5}$	2100	0.770	3600	0.191	5100	$9.8 \cdot 10^{-2}$
490	0.813	790	$< 10^{-5}$	1090	$1.5 \cdot 10^{-5}$	2150	0.796	3650	0.204	5150	0.102

Data Sheet

SCHOTT

BG67HT

Reflection factor	
P_d	0.913

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (450nm)	≥	0.75
τ_i (500nm)	≥	0.83
τ_i (550nm)	≥	0.65
τ_i (600nm)	≤	0.19

Refractive Index n
n_h (404.7 nm) = 1.556
n_g (435.8 nm) = 1.552
$n_{F'}$ (480.0 nm) = 1.547
n_F (486.1 nm) = 1.547
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.85

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	390

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.8
$\alpha_{20/300°C}$ [10^{-6}/K]	13.7
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

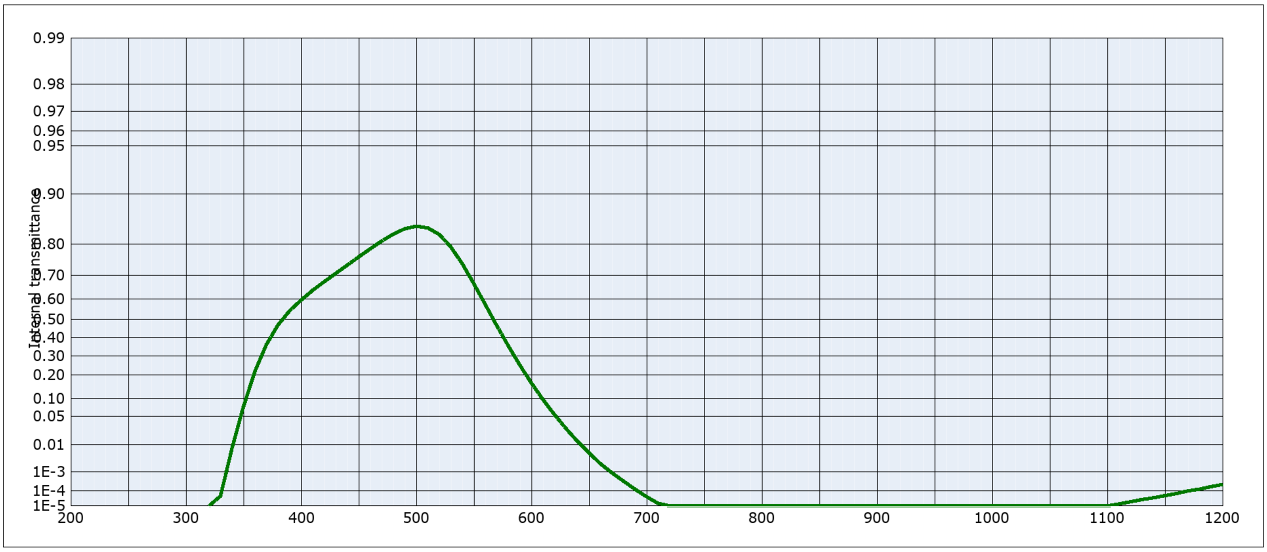
Notes
Ionically colored glass
Bandpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.145mm) @ 641 nm
Long-term changes of the polished
surface are possible under some
circumstances.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.274	0.211	0.179
y	0.445	0.441	0.434
Y	40	25	17
λ_d [nm]	499	497	496
P_e	0.40	0.55	0.63

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.259	0.201	0.173
y	0.422	0.415	0.407
Y	42	26	18
λ_d [nm]	497	496	495
P_e	0.41	0.55	0.63

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.203	0.170	0.154
y	0.312	0.300	0.294
Y	49	33	24
λ_d [nm]	490	489	489
P_e	0.41	0.54	0.61



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Further explanations see 'Optical Filters 2013' catalogue

BG67HT

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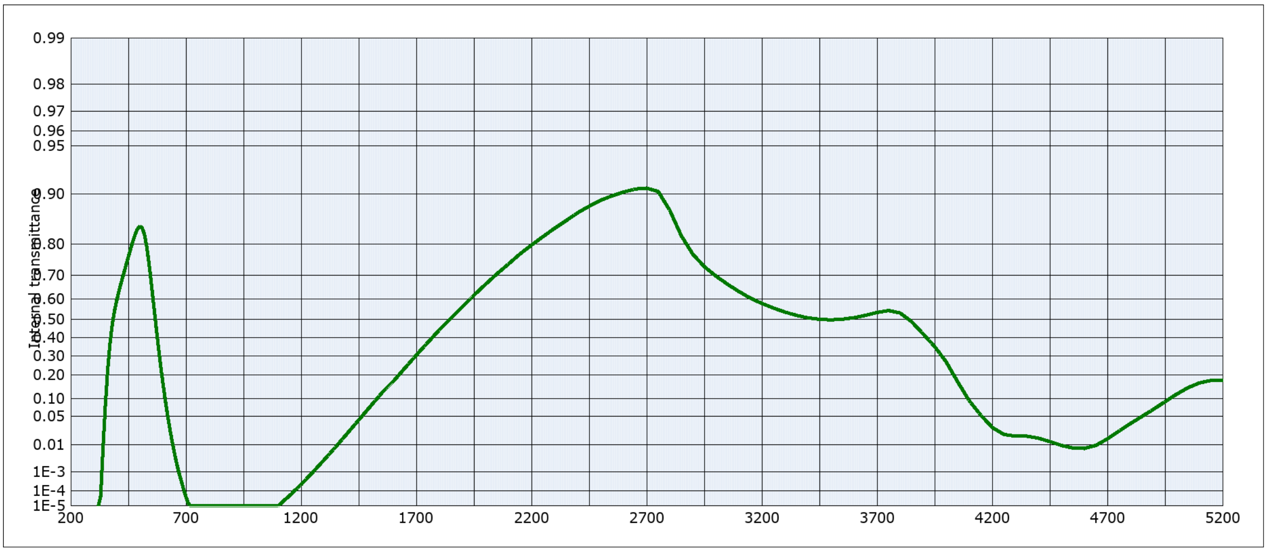


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.843	800	$< 10^{-5}$	1100	$< 10^{-5}$	2200	0.796	3700	0.534
210	$< 10^{-5}$	510	0.839	810	$< 10^{-5}$	1110	$1.4 \cdot 10^{-5}$	2250	0.818	3750	0.544
220	$< 10^{-5}$	520	0.824	820	$< 10^{-5}$	1120	$2.0 \cdot 10^{-5}$	2300	0.838	3800	0.532
230	$< 10^{-5}$	530	0.791	830	$< 10^{-5}$	1130	$2.8 \cdot 10^{-5}$	2350	0.854	3850	0.487
240	$< 10^{-5}$	540	0.739	840	$< 10^{-5}$	1140	$3.8 \cdot 10^{-5}$	2400	0.869	3900	0.421
250	$< 10^{-5}$	550	0.665	850	$< 10^{-5}$	1150	$5.2 \cdot 10^{-5}$	2450	0.881	3950	0.351
260	$< 10^{-5}$	560	0.572	860	$< 10^{-5}$	1160	$7.1 \cdot 10^{-5}$	2500	0.891	4000	0.268
270	$< 10^{-5}$	570	0.464	870	$< 10^{-5}$	1170	$1.0 \cdot 10^{-4}$	2550	0.897	4050	0.169
280	$< 10^{-5}$	580	0.353	880	$< 10^{-5}$	1180	$1.3 \cdot 10^{-4}$	2600	0.903	4100	$9.4 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.249	890	$< 10^{-5}$	1190	$1.8 \cdot 10^{-4}$	2650	0.907	4150	$5.3 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.163	900	$< 10^{-5}$	1200	$2.4 \cdot 10^{-4}$	2700	0.908	4200	$2.9 \cdot 10^{-2}$
310	$< 10^{-5}$	610	$9.8 \cdot 10^{-2}$	910	$< 10^{-5}$	1250	$9.6 \cdot 10^{-4}$	2750	0.903	4250	$2.0 \cdot 10^{-2}$
320	$< 10^{-5}$	620	$5.4 \cdot 10^{-2}$	920	$< 10^{-5}$	1300	$3.2 \cdot 10^{-3}$	2800	0.874	4300	$1.8 \cdot 10^{-2}$
330	$4.9 \cdot 10^{-5}$	630	$2.7 \cdot 10^{-2}$	930	$< 10^{-5}$	1350	$8.7 \cdot 10^{-3}$	2850	0.821	4350	$1.8 \cdot 10^{-2}$
340	$7.9 \cdot 10^{-3}$	640	$1.3 \cdot 10^{-2}$	940	$< 10^{-5}$	1400	$2.1 \cdot 10^{-2}$	2900	0.771	4400	$1.6 \cdot 10^{-2}$
350	$7.6 \cdot 10^{-2}$	650	$5.6 \cdot 10^{-3}$	950	$< 10^{-5}$	1450	$4.2 \cdot 10^{-2}$	2950	0.730	4450	$1.3 \cdot 10^{-2}$
360	0.220	660	$2.2 \cdot 10^{-3}$	960	$< 10^{-5}$	1500	$7.6 \cdot 10^{-2}$	3000	0.696	4500	$9.7 \cdot 10^{-3}$
370	0.363	670	$9.0 \cdot 10^{-4}$	970	$< 10^{-5}$	1550	0.122	3050	0.664	4550	$8.1 \cdot 10^{-3}$
380	0.470	680	$3.6 \cdot 10^{-4}$	980	$< 10^{-5}$	1600	0.170	3100	0.633	4600	$7.8 \cdot 10^{-3}$
390	0.543	690	$1.3 \cdot 10^{-4}$	990	$< 10^{-5}$	1650	0.235	3150	0.603	4650	$9.8 \cdot 10^{-3}$
400	0.594	700	$4.4 \cdot 10^{-5}$	1000	$< 10^{-5}$	1700	0.304	3200	0.578	4700	$1.5 \cdot 10^{-2}$
410	0.638	710	$1.5 \cdot 10^{-5}$	1010	$< 10^{-5}$	1750	0.374	3250	0.556	4750	$2.4 \cdot 10^{-2}$
420	0.674	720	$< 10^{-5}$	1020	$< 10^{-5}$	1800	0.442	3300	0.536	4800	$3.6 \cdot 10^{-2}$
430	0.706	730	$< 10^{-5}$	1030	$< 10^{-5}$	1850	0.504	3350	0.520	4850	$5.0 \cdot 10^{-2}$
440	0.735	740	$< 10^{-5}$	1040	$< 10^{-5}$	1900	0.563	3400	0.506	4900	$6.8 \cdot 10^{-2}$
450	0.762	750	$< 10^{-5}$	1050	$< 10^{-5}$	1950	0.617	3450	0.499	4950	$9.1 \cdot 10^{-2}$
460	0.786	760	$< 10^{-5}$	1060	$< 10^{-5}$	2000	0.663	3500	0.496	5000	0.117
470	0.807	770	$< 10^{-5}$	1070	$< 10^{-5}$	2050	0.704	3550	0.500	5050	0.143
480	0.824	780	$< 10^{-5}$	1080	$< 10^{-5}$	2100	0.739	3600	0.507	5100	0.164
490	0.837	790	$< 10^{-5}$	1090	$< 10^{-5}$	2150	0.771	3650	0.520	5150	0.175

Data Sheet

SCHOTT

VG9

Density	
ρ [g/cm³]	2.87

Notes
Ionically colored glass
Bandpass filter

Reflection factor	
P_d	0.911

Bubble content	
Bubble class	1

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Spectral values guaranteed		
τ_i (450nm)	≤	0.21
τ_i (514nm)	≥	0.67
τ_i (633nm)	≤	0.15
τ_i (725nm)	≤	0.07
τ_i (1060nm)	≤	0.18

Transformation temperature	
Tg [°C]	462

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	9.2
$\alpha_{20/300°C}$ [10^{-6}/K]	10.6
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
$n_{F'}$ (480.0 nm) = 1.560
n_d (587.6 nm) = 1.550

Temperature coefficient	
T_K [nm/°C]	

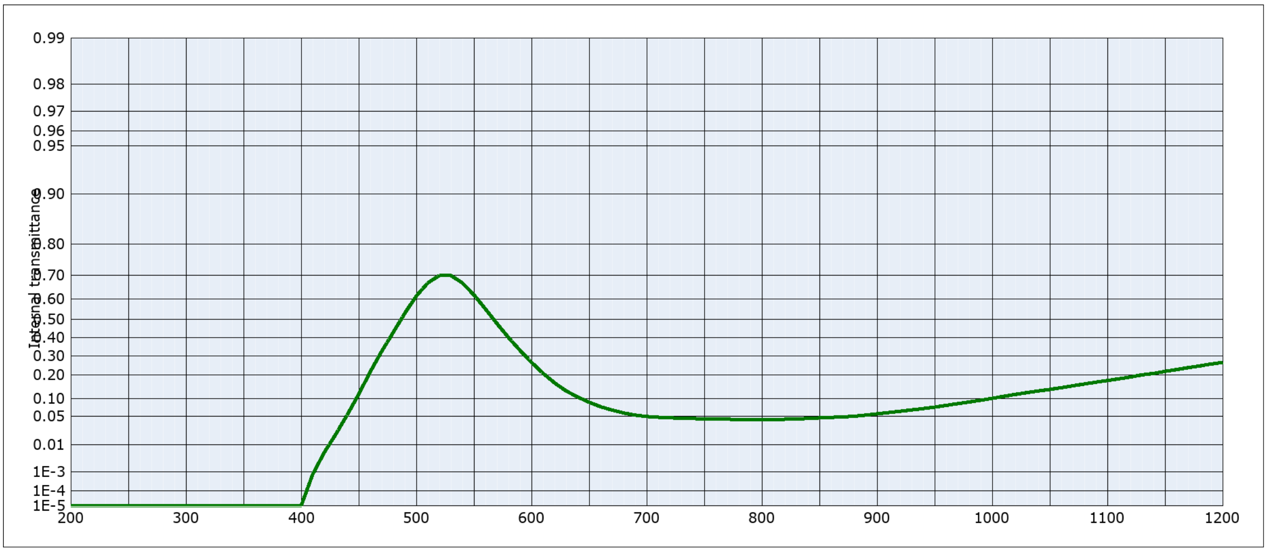
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.370	0.306	0.265
y	0.522	0.596	0.645
Y	40	21	12
λ_d [nm]	535	529	527
P_e	0.31	0.47	0.58

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.354	0.295	0.256
y	0.521	0.596	0.645
Y	41	22	13
λ_d [nm]	538	531	528
P_e	0.33	0.49	0.59

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.284	0.246	0.220
y	0.493	0.582	0.637
Y	45	25	15
λ_d [nm]	541	535	532
P_e	0.39	0.56	0.66



Further explanations see 'Optical Filters 2013' catalogue

VG9

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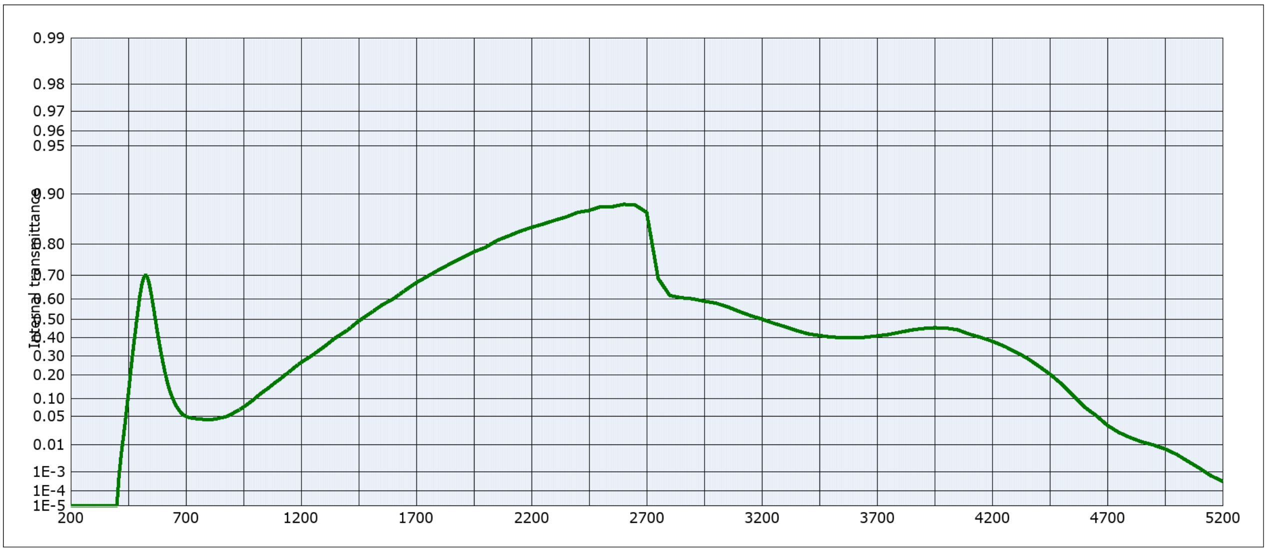


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.613	800	$4.3 \cdot 10^{-2}$	1100	0.174	2200	0.840	3700	0.410
210	$< 10^{-5}$	510	0.669	810	$4.3 \cdot 10^{-2}$	1110	0.182	2250	0.847	3750	0.418
220	$< 10^{-5}$	520	0.698	820	$4.4 \cdot 10^{-2}$	1120	0.191	2300	0.855	3800	0.430
230	$< 10^{-5}$	530	0.698	830	$4.5 \cdot 10^{-2}$	1130	0.201	2350	0.861	3850	0.442
240	$< 10^{-5}$	540	0.669	840	$4.5 \cdot 10^{-2}$	1140	0.208	2400	0.870	3900	0.450
250	$< 10^{-5}$	550	0.618	850	$4.7 \cdot 10^{-2}$	1150	0.218	2450	0.874	3950	0.454
260	$< 10^{-5}$	560	0.552	860	$4.8 \cdot 10^{-2}$	1160	0.227	2500	0.880	4000	0.452
270	$< 10^{-5}$	570	0.477	870	$4.9 \cdot 10^{-2}$	1170	0.237	2550	0.880	4050	0.443
280	$< 10^{-5}$	580	0.401	880	$5.0 \cdot 10^{-2}$	1180	0.246	2600	0.884	4100	0.420
290	$< 10^{-5}$	590	0.330	890	$5.3 \cdot 10^{-2}$	1190	0.256	2650	0.883	4150	0.402
300	$< 10^{-5}$	600	0.265	900	$5.6 \cdot 10^{-2}$	1200	0.264	2700	0.870	4200	0.380
310	$< 10^{-5}$	610	0.209	910	$5.9 \cdot 10^{-2}$	1250	0.304	2750	0.687	4250	0.354
320	$< 10^{-5}$	620	0.164	920	$6.3 \cdot 10^{-2}$	1300	0.350	2800	0.615	4300	0.322
330	$< 10^{-5}$	630	0.130	930	$6.6 \cdot 10^{-2}$	1350	0.400	2850	0.605	4350	0.288
340	$< 10^{-5}$	640	0.107	940	$7.0 \cdot 10^{-2}$	1400	0.440	2900	0.600	4400	0.247
350	$< 10^{-5}$	650	$8.9 \cdot 10^{-2}$	950	$7.4 \cdot 10^{-2}$	1450	0.490	2950	0.589	4450	0.205
360	$< 10^{-5}$	660	$7.5 \cdot 10^{-2}$	960	$7.9 \cdot 10^{-2}$	1500	0.530	3000	0.580	4500	0.160
370	$< 10^{-5}$	670	$6.6 \cdot 10^{-2}$	970	$8.4 \cdot 10^{-2}$	1550	0.570	3050	0.563	4550	0.114
380	$< 10^{-5}$	680	$5.8 \cdot 10^{-2}$	980	$9.0 \cdot 10^{-2}$	1600	0.600	3100	0.540	4600	$7.4 \cdot 10^{-2}$
390	$< 10^{-5}$	690	$5.3 \cdot 10^{-2}$	990	$9.5 \cdot 10^{-2}$	1650	0.637	3150	0.518	4650	$5.2 \cdot 10^{-2}$
400	$< 10^{-5}$	700	$5.0 \cdot 10^{-2}$	1000	0.102	1700	0.670	3200	0.500	4700	$3.3 \cdot 10^{-2}$
410	$7.6 \cdot 10^{-4}$	710	$4.8 \cdot 10^{-2}$	1010	0.109	1750	0.696	3250	0.479	4750	$2.2 \cdot 10^{-2}$
420	$5.7 \cdot 10^{-3}$	720	$4.7 \cdot 10^{-2}$	1020	0.116	1800	0.720	3300	0.460	4800	$1.6 \cdot 10^{-2}$
430	$2.0 \cdot 10^{-2}$	730	$4.6 \cdot 10^{-2}$	1030	0.123	1850	0.741	3350	0.439	4850	$1.2 \cdot 10^{-2}$
440	$5.3 \cdot 10^{-2}$	740	$4.5 \cdot 10^{-2}$	1040	0.130	1900	0.760	3400	0.421	4900	$1.0 \cdot 10^{-2}$
450	0.117	750	$4.5 \cdot 10^{-2}$	1050	0.136	1950	0.778	3450	0.412	4950	$7.5 \cdot 10^{-3}$
460	0.216	760	$4.4 \cdot 10^{-2}$	1060	0.143	2000	0.790	3500	0.403	5000	$5.0 \cdot 10^{-3}$
470	0.325	770	$4.4 \cdot 10^{-2}$	1070	0.151	2050	0.809	3550	0.400	5050	$2.8 \cdot 10^{-3}$
480	0.429	780	$4.4 \cdot 10^{-2}$	1080	0.159	2100	0.820	3600	0.400	5100	$1.5 \cdot 10^{-3}$
490	0.530	790	$4.3 \cdot 10^{-2}$	1090	0.167	2150	0.831	3650	0.402	5150	$6.6 \cdot 10^{-4}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

VG20

Reflection factor	
P_d	0.913

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (450nm)	≥	0.75
τ_i (500nm)	≥	0.83
τ_i (550nm)	≥	0.65
τ_i (600nm)	≤	0.19

Refractive Index n
n_h (404.7 nm) = 1.556
n_g (435.8 nm) = 1.552
$n_{F'}$ (480.0 nm) = 1.547
n_F (486.1 nm) = 1.547
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.85

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	52.3
AR class	3.3

Transformation temperature	
Tg [°C]	390

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	11.8
$\alpha_{20/300°C}$ [10^{-6}/K]	13.7
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Bandpass filter
Color compensating filter / IR cut filter
lambda_50%(thickness=0.3mm) @ 604 nm
Long-term changes of the polished surface are possible under some circumstances.

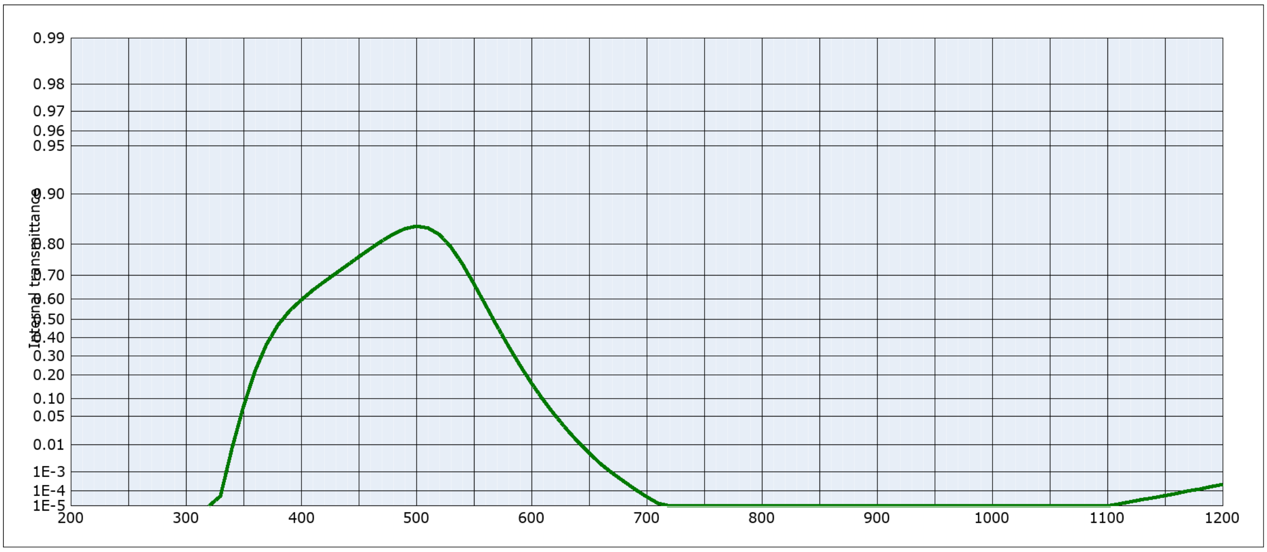
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.274	0.211	0.179
y	0.445	0.441	0.434
Y	40	25	17
λ_d [nm]	499	497	496
P_e	0.40	0.55	0.63

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.259	0.201	0.173
y	0.422	0.415	0.407
Y	42	26	18
λ_d [nm]	497	496	495
P_e	0.41	0.55	0.63

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.203	0.170	0.154
y	0.312	0.300	0.294
Y	49	33	24
λ_d [nm]	490	489	489
P_e	0.41	0.54	0.61



Further explanations see 'Optical Filters 2013' catalogue

VG20

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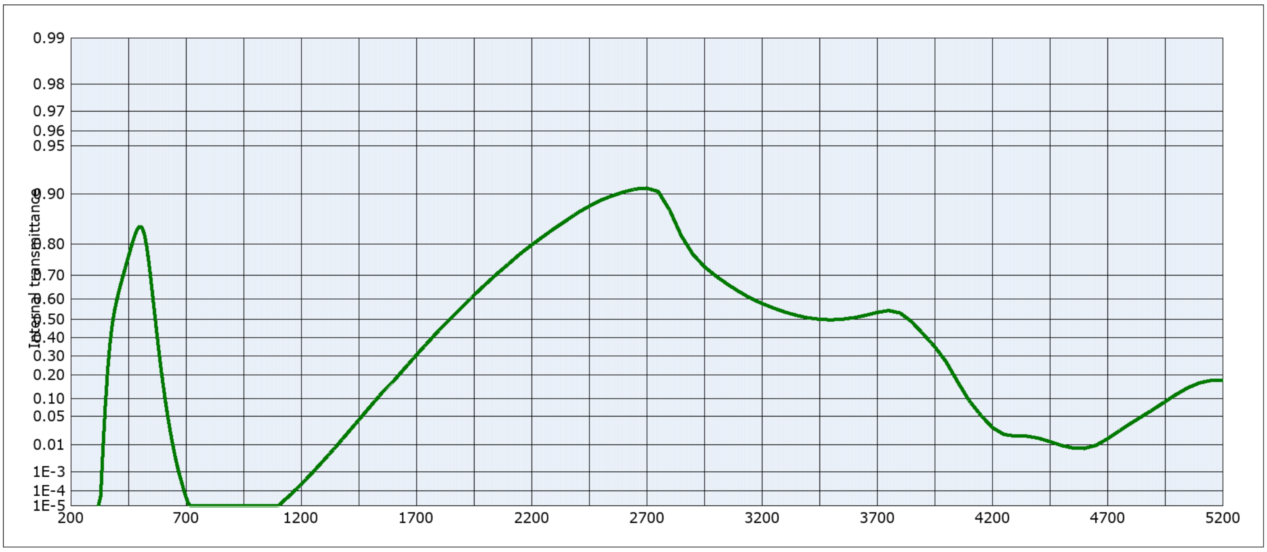


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.843	800	$< 10^{-5}$	1100	$< 10^{-5}$	2200	0.796	3700	0.534
210	$< 10^{-5}$	510	0.839	810	$< 10^{-5}$	1110	$1.4 \cdot 10^{-5}$	2250	0.818	3750	0.544
220	$< 10^{-5}$	520	0.824	820	$< 10^{-5}$	1120	$2.0 \cdot 10^{-5}$	2300	0.838	3800	0.532
230	$< 10^{-5}$	530	0.791	830	$< 10^{-5}$	1130	$2.8 \cdot 10^{-5}$	2350	0.854	3850	0.487
240	$< 10^{-5}$	540	0.739	840	$< 10^{-5}$	1140	$3.8 \cdot 10^{-5}$	2400	0.869	3900	0.421
250	$< 10^{-5}$	550	0.665	850	$< 10^{-5}$	1150	$5.2 \cdot 10^{-5}$	2450	0.881	3950	0.351
260	$< 10^{-5}$	560	0.572	860	$< 10^{-5}$	1160	$7.1 \cdot 10^{-5}$	2500	0.891	4000	0.268
270	$< 10^{-5}$	570	0.464	870	$< 10^{-5}$	1170	$1.0 \cdot 10^{-4}$	2550	0.897	4050	0.169
280	$< 10^{-5}$	580	0.353	880	$< 10^{-5}$	1180	$1.3 \cdot 10^{-4}$	2600	0.903	4100	$9.4 \cdot 10^{-2}$
290	$< 10^{-5}$	590	0.249	890	$< 10^{-5}$	1190	$1.8 \cdot 10^{-4}$	2650	0.907	4150	$5.3 \cdot 10^{-2}$
300	$< 10^{-5}$	600	0.163	900	$< 10^{-5}$	1200	$2.4 \cdot 10^{-4}$	2700	0.908	4200	$2.9 \cdot 10^{-2}$
310	$< 10^{-5}$	610	$9.8 \cdot 10^{-2}$	910	$< 10^{-5}$	1250	$9.6 \cdot 10^{-4}$	2750	0.903	4250	$2.0 \cdot 10^{-2}$
320	$< 10^{-5}$	620	$5.4 \cdot 10^{-2}$	920	$< 10^{-5}$	1300	$3.2 \cdot 10^{-3}$	2800	0.874	4300	$1.8 \cdot 10^{-2}$
330	$4.9 \cdot 10^{-5}$	630	$2.7 \cdot 10^{-2}$	930	$< 10^{-5}$	1350	$8.7 \cdot 10^{-3}$	2850	0.821	4350	$1.8 \cdot 10^{-2}$
340	$7.9 \cdot 10^{-3}$	640	$1.3 \cdot 10^{-2}$	940	$< 10^{-5}$	1400	$2.1 \cdot 10^{-2}$	2900	0.771	4400	$1.6 \cdot 10^{-2}$
350	$7.6 \cdot 10^{-2}$	650	$5.6 \cdot 10^{-3}$	950	$< 10^{-5}$	1450	$4.2 \cdot 10^{-2}$	2950	0.730	4450	$1.3 \cdot 10^{-2}$
360	0.220	660	$2.2 \cdot 10^{-3}$	960	$< 10^{-5}$	1500	$7.6 \cdot 10^{-2}$	3000	0.696	4500	$9.7 \cdot 10^{-3}$
370	0.363	670	$9.0 \cdot 10^{-4}$	970	$< 10^{-5}$	1550	0.122	3050	0.664	4550	$8.1 \cdot 10^{-3}$
380	0.470	680	$3.6 \cdot 10^{-4}$	980	$< 10^{-5}$	1600	0.170	3100	0.633	4600	$7.8 \cdot 10^{-3}$
390	0.543	690	$1.3 \cdot 10^{-4}$	990	$< 10^{-5}$	1650	0.235	3150	0.603	4650	$9.8 \cdot 10^{-3}$
400	0.594	700	$4.4 \cdot 10^{-5}$	1000	$< 10^{-5}$	1700	0.304	3200	0.578	4700	$1.5 \cdot 10^{-2}$
410	0.638	710	$1.5 \cdot 10^{-5}$	1010	$< 10^{-5}$	1750	0.374	3250	0.556	4750	$2.4 \cdot 10^{-2}$
420	0.674	720	$< 10^{-5}$	1020	$< 10^{-5}$	1800	0.442	3300	0.536	4800	$3.6 \cdot 10^{-2}$
430	0.706	730	$< 10^{-5}$	1030	$< 10^{-5}$	1850	0.504	3350	0.520	4850	$5.0 \cdot 10^{-2}$
440	0.735	740	$< 10^{-5}$	1040	$< 10^{-5}$	1900	0.563	3400	0.506	4900	$6.8 \cdot 10^{-2}$
450	0.762	750	$< 10^{-5}$	1050	$< 10^{-5}$	1950	0.617	3450	0.499	4950	$9.1 \cdot 10^{-2}$
460	0.786	760	$< 10^{-5}$	1060	$< 10^{-5}$	2000	0.663	3500	0.496	5000	0.117
470	0.807	770	$< 10^{-5}$	1070	$< 10^{-5}$	2050	0.704	3550	0.500	5050	0.143
480	0.824	780	$< 10^{-5}$	1080	$< 10^{-5}$	2100	0.739	3600	0.507	5100	0.164
490	0.837	790	$< 10^{-5}$	1090	$< 10^{-5}$	2150	0.771	3650	0.520	5150	0.175

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

S8022

Reflection factor	
P_d	0.910

Reference thickness	
d [mm]	2

Spectral values guaranteed

Refractive Index n
n_d (587.6 nm) = 1.555

Density	
ρ [g/cm^3]	2.77

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	4.0
AR class	3.0

Transformation temperature	
Tg [°C]	453

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.8
$\alpha_{20/300°C}$ [10^{-6}/K]	8.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

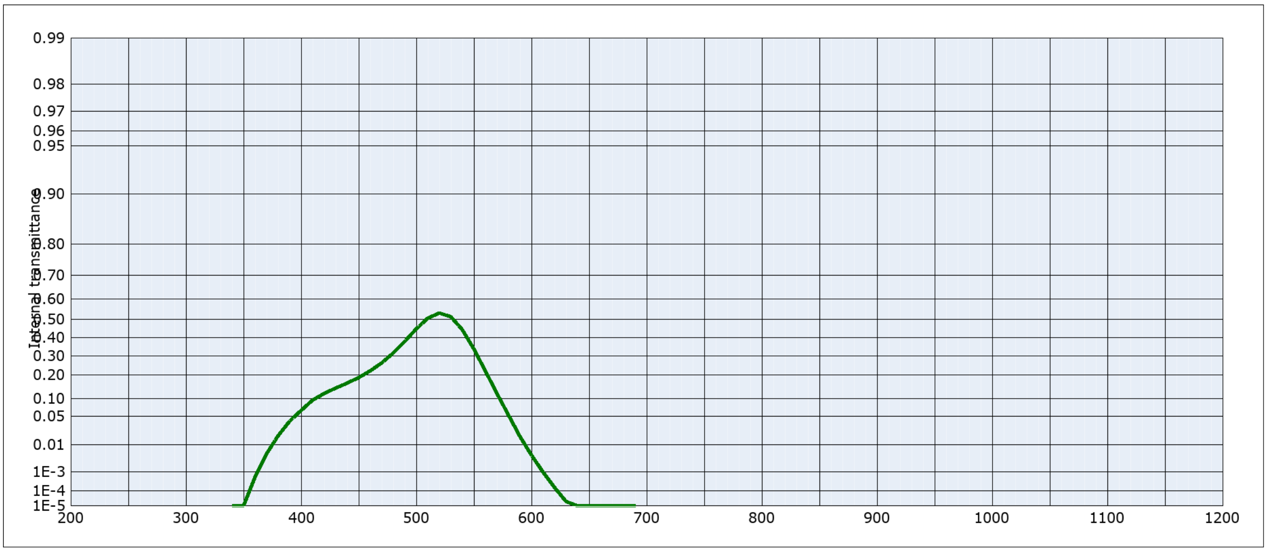
Notes
Ionically colored glass
Bandpass filter
NVIS-Green A - 2 mm bandpass Filter
according to MIL-STD-3009
Long-term changes of the polished
surface are possible.
passed thermal shock test as per
MIL-STD-202F method 107F, Condition A
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.253	0.203	0.178
y	0.498	0.549	0.593
Y	30	16	9
λ_d [nm]	503	505	508
P_e	0.44	0.55	0.61

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.241	0.196	0.173
y	0.478	0.530	0.577
Y	31	16	10
λ_d [nm]	502	504	507
P_e	0.44	0.54	0.60

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.196	0.169	0.154
y	0.374	0.432	0.492
Y	37	21	12
λ_d [nm]	496	500	505
P_e	0.40	0.47	0.51



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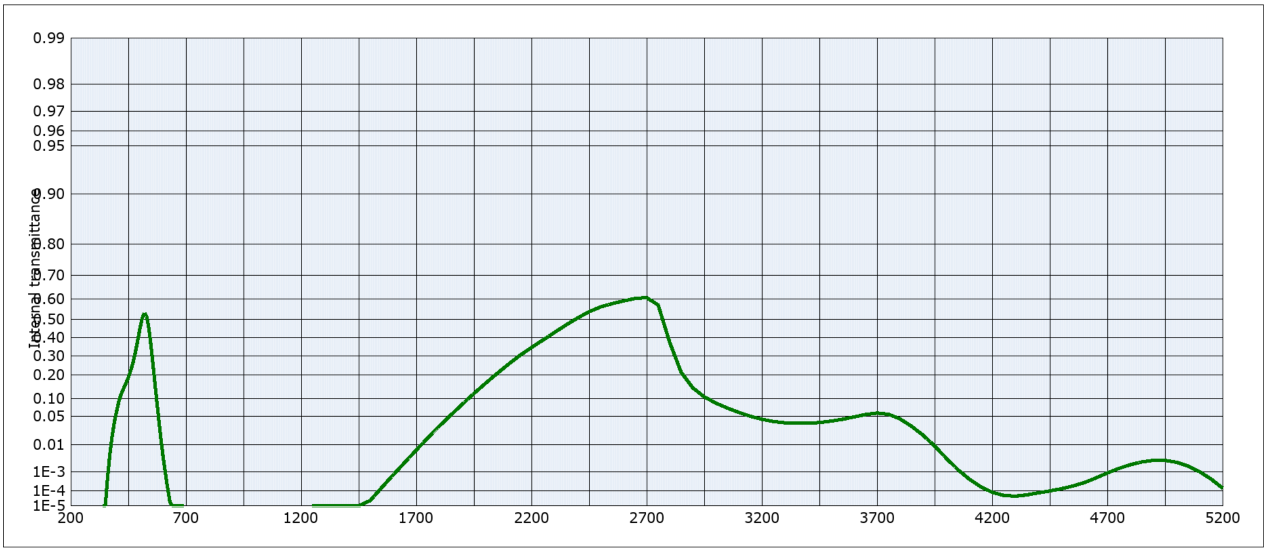
Further explanations see 'Optical Filters 2013' catalogue

S8022



Internal transmittance τ_i at reference thickness d = 2 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	0.448	800	< 10^{-5}	1100	< 10^{-5}	2200	0.345	3700	$5.8 \cdot 10^{-2}$
210	< 10^{-5}	510	0.505	810	< 10^{-5}	1110	< 10^{-5}	2250	0.387	3750	$5.5 \cdot 10^{-2}$
220	< 10^{-5}	520	0.531	820	< 10^{-5}	1120	< 10^{-5}	2300	0.429	3800	$4.4 \cdot 10^{-2}$
230	< 10^{-5}	530	0.512	830	< 10^{-5}	1130	< 10^{-5}	2350	0.469	3850	$3.1 \cdot 10^{-2}$
240	< 10^{-5}	540	0.443	840	< 10^{-5}	1140	< 10^{-5}	2400	0.506	3900	$1.9 \cdot 10^{-2}$
250	< 10^{-5}	550	0.337	850	< 10^{-5}	1150	< 10^{-5}	2450	0.538	3950	$9.3 \cdot 10^{-3}$
260	< 10^{-5}	560	0.220	860	< 10^{-5}	1160	< 10^{-5}	2500	0.562	4000	$3.7 \cdot 10^{-3}$
270	< 10^{-5}	570	0.120	870	< 10^{-5}	1170	< 10^{-5}	2550	0.577	4050	$1.3 \cdot 10^{-3}$
280	< 10^{-5}	580	$5.3 \cdot 10^{-2}$	880	< 10^{-5}	1180	< 10^{-5}	2600	0.590	4100	$4.6 \cdot 10^{-4}$
290	< 10^{-5}	590	$1.7 \cdot 10^{-2}$	890	< 10^{-5}	1190	< 10^{-5}	2650	0.602	4150	$1.8 \cdot 10^{-4}$
300	< 10^{-5}	600	$4.7 \cdot 10^{-3}$	900	< 10^{-5}	1200	< 10^{-5}	2700	0.606	4200	$8.4 \cdot 10^{-5}$
310	< 10^{-5}	610	$9.9 \cdot 10^{-4}$	910	< 10^{-5}	1250	< 10^{-5}	2750	0.571	4250	$5.4 \cdot 10^{-5}$
320	< 10^{-5}	620	$1.6 \cdot 10^{-4}$	920	< 10^{-5}	1300	< 10^{-5}	2800	0.374	4300	$4.8 \cdot 10^{-5}$
330	< 10^{-5}	630	$2.1 \cdot 10^{-5}$	930	< 10^{-5}	1350	< 10^{-5}	2850	0.213	4350	$5.8 \cdot 10^{-5}$
340	< 10^{-5}	640	< 10^{-5}	940	< 10^{-5}	1400	< 10^{-5}	2900	0.142	4400	$7.8 \cdot 10^{-5}$
350	< 10^{-5}	650	< 10^{-5}	950	< 10^{-5}	1450	< 10^{-5}	2950	0.107	4450	$1.0 \cdot 10^{-4}$
360	$5.7 \cdot 10^{-4}$	660	< 10^{-5}	960	< 10^{-5}	1500	$2.4 \cdot 10^{-5}$	3000	$8.6 \cdot 10^{-2}$	4500	$1.4 \cdot 10^{-4}$
370	$5.2 \cdot 10^{-3}$	670	< 10^{-5}	970	< 10^{-5}	1550	$1.6 \cdot 10^{-4}$	3050	$7.1 \cdot 10^{-2}$	4550	$2.0 \cdot 10^{-4}$
380	$1.8 \cdot 10^{-2}$	680	< 10^{-5}	980	< 10^{-5}	1600	$7.4 \cdot 10^{-4}$	3100	$5.9 \cdot 10^{-2}$	4600	$3.0 \cdot 10^{-4}$
390	$4.0 \cdot 10^{-2}$	690	< 10^{-5}	990	< 10^{-5}	1650	$2.5 \cdot 10^{-3}$	3150	$5.0 \cdot 10^{-2}$	4650	$5.2 \cdot 10^{-4}$
400	$6.5 \cdot 10^{-2}$	700	< 10^{-5}	1000	< 10^{-5}	1700	$6.9 \cdot 10^{-3}$	3200	$4.4 \cdot 10^{-2}$	4700	$9.0 \cdot 10^{-4}$
410	$9.6 \cdot 10^{-2}$	710	< 10^{-5}	1010	< 10^{-5}	1750	$1.6 \cdot 10^{-2}$	3250	$3.9 \cdot 10^{-2}$	4750	$1.4 \cdot 10^{-3}$
420	0.120	720	< 10^{-5}	1020	< 10^{-5}	1800	$3.1 \cdot 10^{-2}$	3300	$3.7 \cdot 10^{-2}$	4800	$2.0 \cdot 10^{-3}$
430	0.141	730	< 10^{-5}	1030	< 10^{-5}	1850	$5.3 \cdot 10^{-2}$	3350	$3.6 \cdot 10^{-2}$	4850	$2.6 \cdot 10^{-3}$
440	0.163	740	< 10^{-5}	1040	< 10^{-5}	1900	$8.3 \cdot 10^{-2}$	3400	$3.6 \cdot 10^{-2}$	4900	$3.0 \cdot 10^{-3}$
450	0.188	750	< 10^{-5}	1050	< 10^{-5}	1950	0.120	3450	$3.7 \cdot 10^{-2}$	4950	$3.0 \cdot 10^{-3}$
460	0.221	760	< 10^{-5}	1060	< 10^{-5}	2000	0.162	3500	$4.0 \cdot 10^{-2}$	5000	$2.5 \cdot 10^{-3}$
470	0.262	770	< 10^{-5}	1070	< 10^{-5}	2050	0.207	3550	$4.4 \cdot 10^{-2}$	5050	$1.8 \cdot 10^{-3}$
480	0.316	780	< 10^{-5}	1080	< 10^{-5}	2100	0.255	3600	$4.9 \cdot 10^{-2}$	5100	$1.0 \cdot 10^{-3}$
490	0.380	790	< 10^{-5}	1090	< 10^{-5}	2150	0.302	3650	$5.4 \cdot 10^{-2}$	5150	$4.6 \cdot 10^{-4}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

S8023

Density	
ρ [g/cm³]	2.75

Reflection factor	
P_d	0.913

Reference thickness	
d [mm]	3

Spectral values guaranteed

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	4.0
AR class	3.0

Transformation temperature	
Tg [°C]	444

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	
$\alpha_{20/300°C}$ [10^{-6}/K]	
$\alpha_{20/200°C}$ [10^{-6}/K]	9.7

Refractive Index n
n_d (587.6 nm) = 1.541

Temperature coefficient	
T_K [nm/°C]	

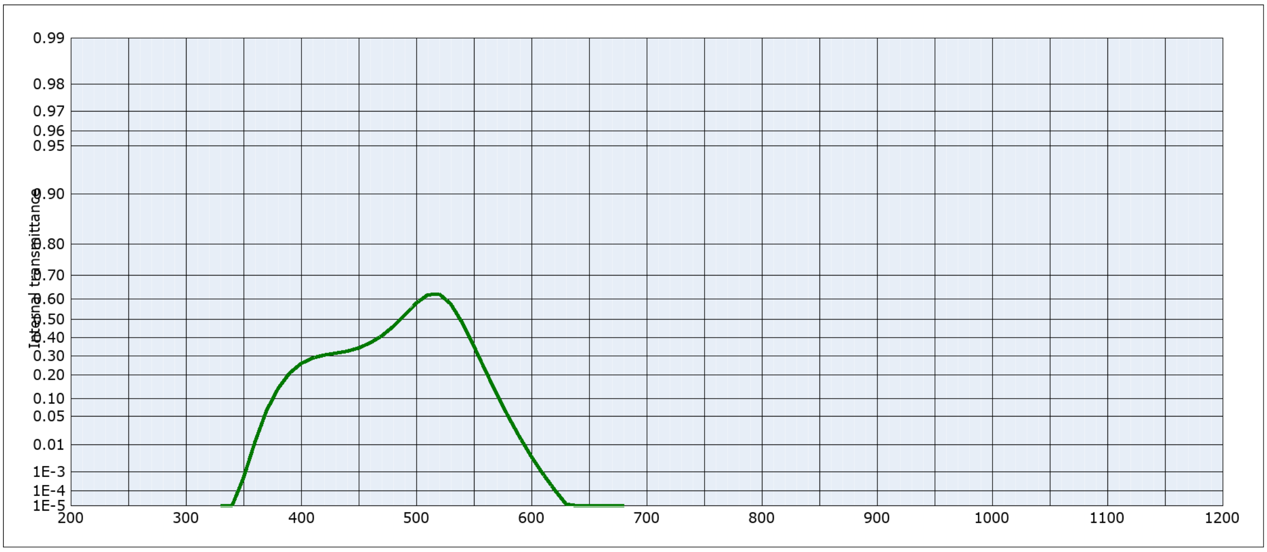
Notes
Ionically colored glass
Bandpass filter
NVIS-Green A - 3 mm bandpass Filter
according to MIL-STD-3009
Long-term changes of the polished
surface are possible.
passed thermal shock test as per
MIL-STD-202F method 107F, Condition A
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.277	0.218	0.189
y	0.459	0.474	0.486
Y	41	27	19
λ_d [nm]	500	500	500
P_e	0.39	0.52	0.59

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.262	0.209	0.182
y	0.437	0.449	0.460
Y	43	28	21
λ_d [nm]	498	498	499
P_e	0.39	0.52	0.59

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.206	0.176	0.160
y	0.328	0.334	0.346
Y	51	35	26
λ_d [nm]	491	492	493
P_e	0.39	0.50	0.54



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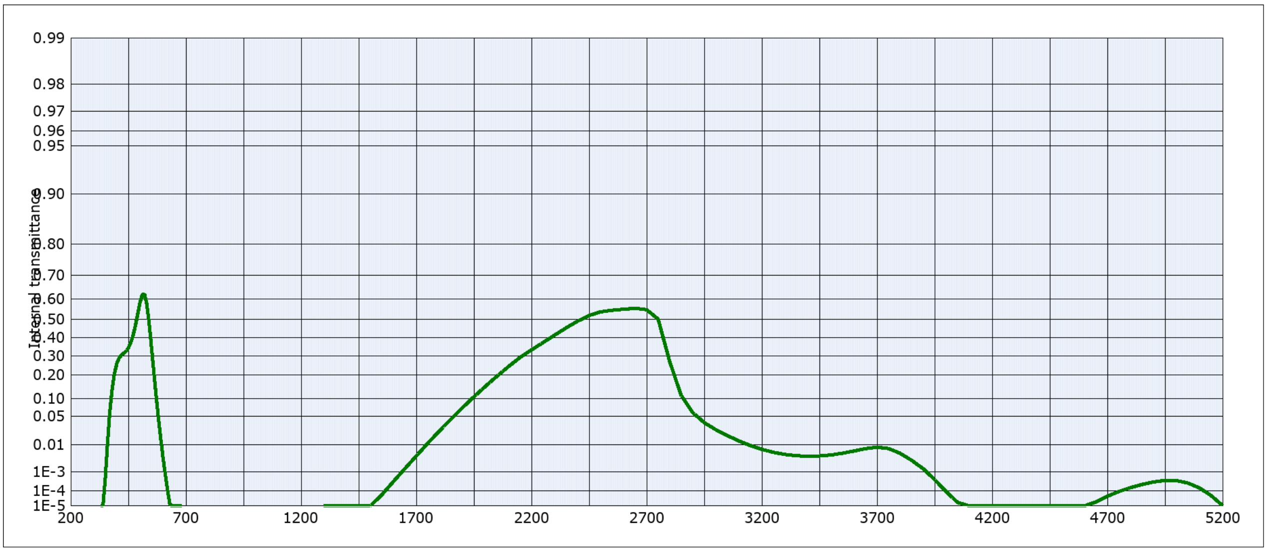
Further explanations see 'Optical Filters 2013' catalogue

S8023

SCHOTT



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.580	800	$< 10^{-5}$	1100	$< 10^{-5}$	2200	0.332	3700	$8.5\cdot10^{-3}$
210	$< 10^{-5}$	510	0.619	810	$< 10^{-5}$	1110	$< 10^{-5}$	2250	0.373	3750	$7.8\cdot10^{-3}$
220	$< 10^{-5}$	520	0.622	820	$< 10^{-5}$	1120	$< 10^{-5}$	2300	0.414	3800	$5.4\cdot10^{-3}$
230	$< 10^{-5}$	530	0.575	830	$< 10^{-5}$	1130	$< 10^{-5}$	2350	0.453	3850	$3.0\cdot10^{-3}$
240	$< 10^{-5}$	540	0.480	840	$< 10^{-5}$	1140	$< 10^{-5}$	2400	0.489	3900	$1.4\cdot10^{-3}$
250	$< 10^{-5}$	550	0.353	850	$< 10^{-5}$	1150	$< 10^{-5}$	2450	0.519	3950	$4.3\cdot10^{-4}$
260	$< 10^{-5}$	560	0.222	860	$< 10^{-5}$	1160	$< 10^{-5}$	2500	0.537	4000	$9.2\cdot10^{-5}$
270	$< 10^{-5}$	570	0.116	870	$< 10^{-5}$	1170	$< 10^{-5}$	2550	0.545	4050	$1.8\cdot10^{-5}$
280	$< 10^{-5}$	580	$4.9\cdot10^{-2}$	880	$< 10^{-5}$	1180	$< 10^{-5}$	2600	0.550	4100	$< 10^{-5}$
290	$< 10^{-5}$	590	$1.6\cdot10^{-2}$	890	$< 10^{-5}$	1190	$< 10^{-5}$	2650	0.555	4150	$< 10^{-5}$
300	$< 10^{-5}$	600	$4.1\cdot10^{-3}$	900	$< 10^{-5}$	1200	$< 10^{-5}$	2700	0.548	4200	$< 10^{-5}$
310	$< 10^{-5}$	610	$8.1\cdot10^{-4}$	910	$< 10^{-5}$	1250	$< 10^{-5}$	2750	0.499	4250	$< 10^{-5}$
320	$< 10^{-5}$	620	$1.2\cdot10^{-4}$	920	$< 10^{-5}$	1300	$< 10^{-5}$	2800	0.269	4300	$< 10^{-5}$
330	$< 10^{-5}$	630	$1.4\cdot10^{-5}$	930	$< 10^{-5}$	1350	$< 10^{-5}$	2850	0.112	4350	$< 10^{-5}$
340	$< 10^{-5}$	640	$< 10^{-5}$	940	$< 10^{-5}$	1400	$< 10^{-5}$	2900	$5.9\cdot10^{-2}$	4400	$< 10^{-5}$
350	$5.3\cdot10^{-4}$	650	$< 10^{-5}$	950	$< 10^{-5}$	1450	$< 10^{-5}$	2950	$3.7\cdot10^{-2}$	4450	$< 10^{-5}$
360	$1.2\cdot10^{-2}$	660	$< 10^{-5}$	960	$< 10^{-5}$	1500	$< 10^{-5}$	3000	$2.6\cdot10^{-2}$	4500	$< 10^{-5}$
370	$6.4\cdot10^{-2}$	670	$< 10^{-5}$	970	$< 10^{-5}$	1550	$5.8\cdot10^{-5}$	3050	$1.8\cdot10^{-2}$	4550	$< 10^{-5}$
380	0.140	680	$< 10^{-5}$	980	$< 10^{-5}$	1600	$3.3\cdot10^{-4}$	3100	$1.3\cdot10^{-2}$	4600	$< 10^{-5}$
390	0.210	690	$< 10^{-5}$	990	$< 10^{-5}$	1650	$1.4\cdot10^{-3}$	3150	$9.6\cdot10^{-3}$	4650	$1.9\cdot10^{-5}$
400	0.259	700	$< 10^{-5}$	1000	$< 10^{-5}$	1700	$4.4\cdot10^{-3}$	3200	$7.3\cdot10^{-3}$	4700	$4.7\cdot10^{-5}$
410	0.288	710	$< 10^{-5}$	1010	$< 10^{-5}$	1750	$1.1\cdot10^{-2}$	3250	$5.8\cdot10^{-3}$	4750	$9.5\cdot10^{-5}$
420	0.304	720	$< 10^{-5}$	1020	$< 10^{-5}$	1800	$2.4\cdot10^{-2}$	3300	$4.9\cdot10^{-3}$	4800	$1.6\cdot10^{-4}$
430	0.314	730	$< 10^{-5}$	1030	$< 10^{-5}$	1850	$4.4\cdot10^{-2}$	3350	$4.5\cdot10^{-3}$	4850	$2.4\cdot10^{-4}$
440	0.325	740	$< 10^{-5}$	1040	$< 10^{-5}$	1900	$7.2\cdot10^{-2}$	3400	$4.3\cdot10^{-3}$	4900	$3.3\cdot10^{-4}$
450	0.343	750	$< 10^{-5}$	1050	$< 10^{-5}$	1950	0.107	3450	$4.4\cdot10^{-3}$	4950	$3.9\cdot10^{-4}$
460	0.372	760	$< 10^{-5}$	1060	$< 10^{-5}$	2000	0.149	3500	$4.7\cdot10^{-3}$	5000	$3.8\cdot10^{-4}$
470	0.410	770	$< 10^{-5}$	1070	$< 10^{-5}$	2050	0.195	3550	$5.4\cdot10^{-3}$	5050	$2.8\cdot10^{-4}$
480	0.461	780	$< 10^{-5}$	1080	$< 10^{-5}$	2100	0.243	3600	$6.4\cdot10^{-3}$	5100	$1.5\cdot10^{-4}$
490	0.521	790	$< 10^{-5}$	1090	$< 10^{-5}$	2150	0.291	3650	$7.7\cdot10^{-3}$	5150	$5.3\cdot10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

N-WG280

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	2

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	280 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	230
λ_p ($\tau_{i,L}$ = 0.99) [nm]	=	380

Refractive Index n
n (296.7 nm) = 1.550
n_d (587.6 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.51

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	2.0

Transformation temperature	
Tg [°C]	558

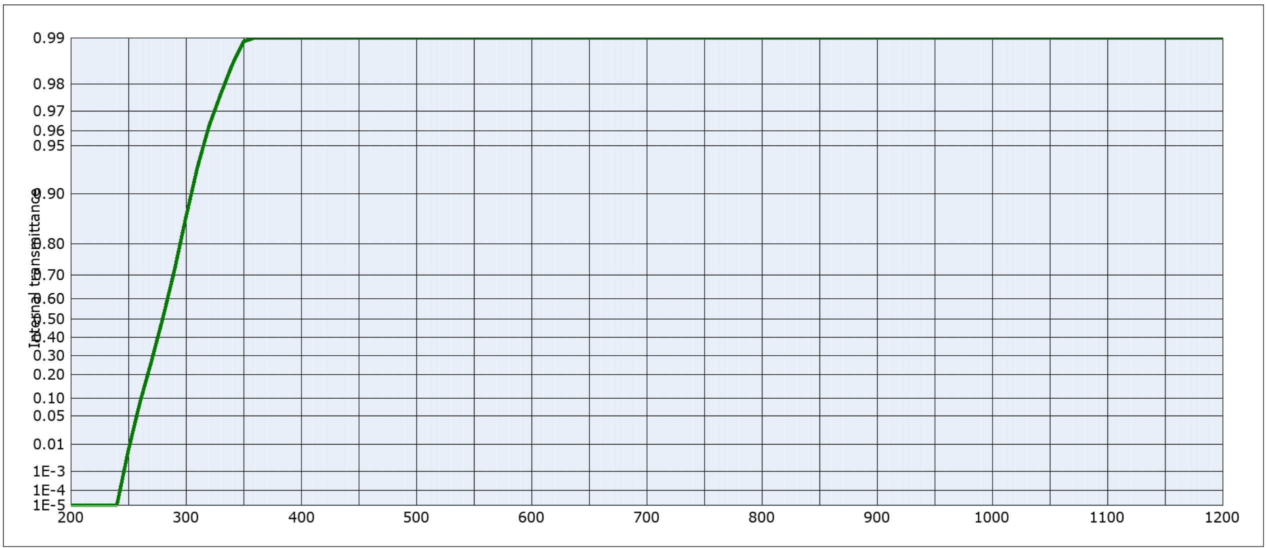
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.1
$\alpha_{20/300°C}$ [10^{-6}/K]	8.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.06

Notes
Base glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x				x				x			
y				y				y			
Y				Y				Y			
λ_d [nm]				λ_d [nm]				λ_d [nm]			
P_e				P_e				P_e			



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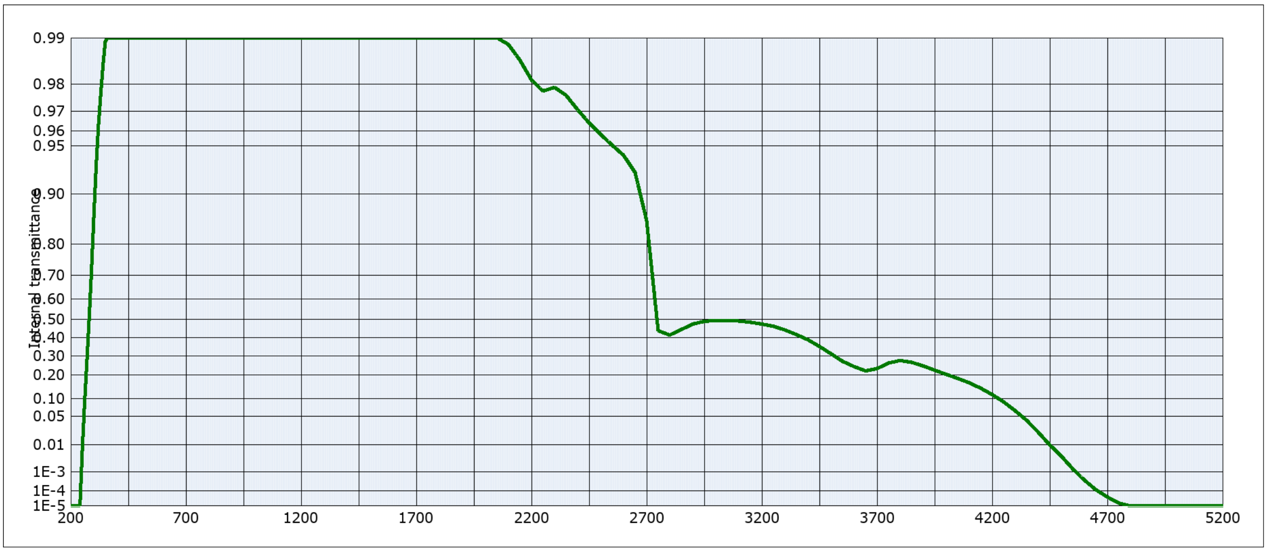
Further explanations see 'Optical Filters 2013' catalogue

N-WG280



Internal transmittance τ_i at reference thickness d = 2 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.997	800	1.000	1100	1.000	2200	0.981	3700	0.233
210	$< 10^{-5}$	510	0.998	810	1.000	1110	1.000	2250	0.978	3750	0.261
220	$< 10^{-5}$	520	0.998	820	1.000	1120	1.000	2300	0.979	3800	0.275
230	$< 10^{-5}$	530	0.998	830	1.000	1130	1.000	2350	0.976	3850	0.265
240	$< 10^{-5}$	540	0.998	840	1.000	1140	1.000	2400	0.971	3900	0.246
250	$6.6\cdot10^{-3}$	550	0.998	850	1.000	1150	1.000	2450	0.964	3950	0.225
260	$8.6\cdot10^{-2}$	560	0.998	860	1.000	1160	1.000	2500	0.958	4000	0.204
270	0.268	570	0.999	870	1.000	1170	1.000	2550	0.951	4050	0.184
280	0.505	580	0.999	880	1.000	1180	1.000	2600	0.943	4100	0.165
290	0.716	590	0.999	890	1.000	1190	1.000	2650	0.926	4150	0.141
300	0.861	600	0.999	900	1.000	1200	1.000	2700	0.854	4200	0.116
310	0.932	610	0.999	910	1.000	1250	1.000	2750	0.438	4250	$9.0\cdot10^{-2}$
320	0.963	620	0.999	920	1.000	1300	1.000	2800	0.415	4300	$6.4\cdot10^{-2}$
330	0.977	630	0.999	930	1.000	1350	1.000	2850	0.444	4350	$4.1\cdot10^{-2}$
340	0.985	640	1.000	940	1.000	1400	0.999	2900	0.474	4400	$2.2\cdot10^{-2}$
350	0.989	650	1.000	950	1.000	1450	1.000	2950	0.488	4450	$1.0\cdot10^{-2}$
360	0.992	660	1.000	960	1.000	1500	1.000	3000	0.493	4500	$4.3\cdot10^{-3}$
370	0.993	670	1.000	970	1.000	1550	1.000	3050	0.493	4550	$1.4\cdot10^{-3}$
380	0.994	680	1.000	980	1.000	1600	1.000	3100	0.490	4600	$4.1\cdot10^{-4}$
390	0.994	690	1.000	990	1.000	1650	1.000	3150	0.484	4650	$1.2\cdot10^{-4}$
400	0.995	700	1.000	1000	1.000	1700	1.000	3200	0.474	4700	$4.2\cdot10^{-5}$
410	0.995	710	1.000	1010	1.000	1750	1.000	3250	0.462	4750	$1.6\cdot10^{-5}$
420	0.995	720	1.000	1020	1.000	1800	1.000	3300	0.442	4800	$< 10^{-5}$
430	0.996	730	1.000	1030	1.000	1850	0.999	3350	0.417	4850	$< 10^{-5}$
440	0.996	740	1.000	1040	1.000	1900	0.998	3400	0.389	4900	$< 10^{-5}$
450	0.996	750	1.000	1050	1.000	1950	0.997	3450	0.352	4950	$< 10^{-5}$
460	0.996	760	1.000	1060	1.000	2000	0.996	3500	0.311	5000	$< 10^{-5}$
470	0.997	770	1.000	1070	1.000	2050	0.994	3550	0.271	5050	$< 10^{-5}$
480	0.997	780	1.000	1080	1.000	2100	0.989	3600	0.243	5100	$< 10^{-5}$
490	0.997	790	1.000	1090	1.000	2150	0.986	3650	0.221	5150	$< 10^{-5}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

N-WG295

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	2

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	295 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	250
λ_p ($\tau_{i,L}$ = 0.99) [nm]	=	400

Refractive Index n
n (296.7 nm) = 1.550
n_d (587.6 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm³]	2.51

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	2.0

Transformation temperature	
Tg [°C]	565

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.2
$\alpha_{20/300°C}$ [10^{-6}/K]	8.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.06

Notes
Base glass
Longpass filter

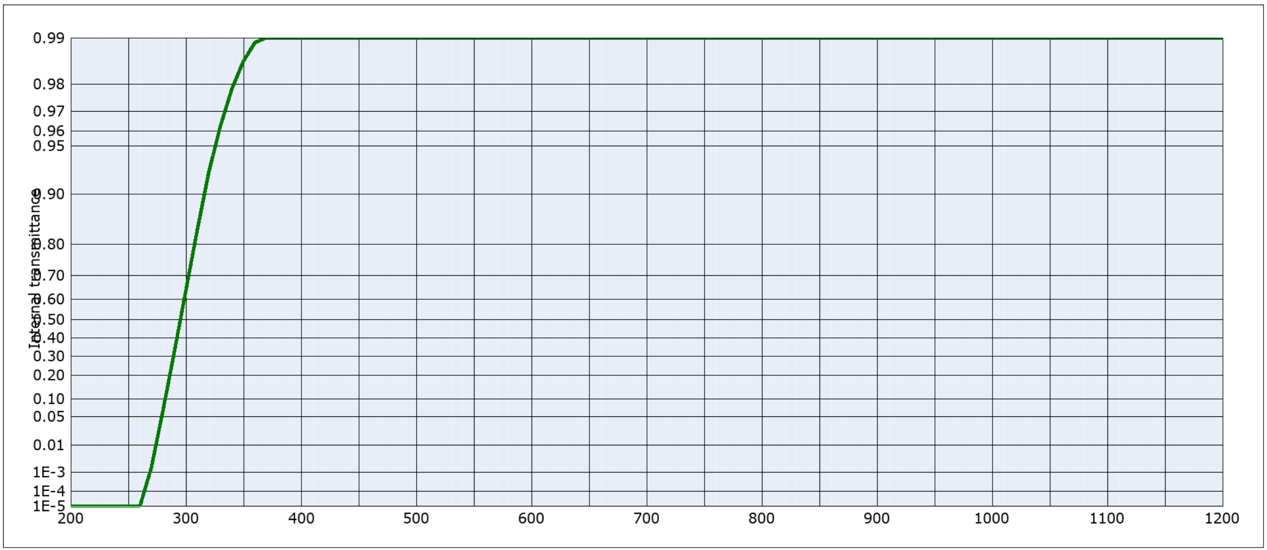
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



N-WG295

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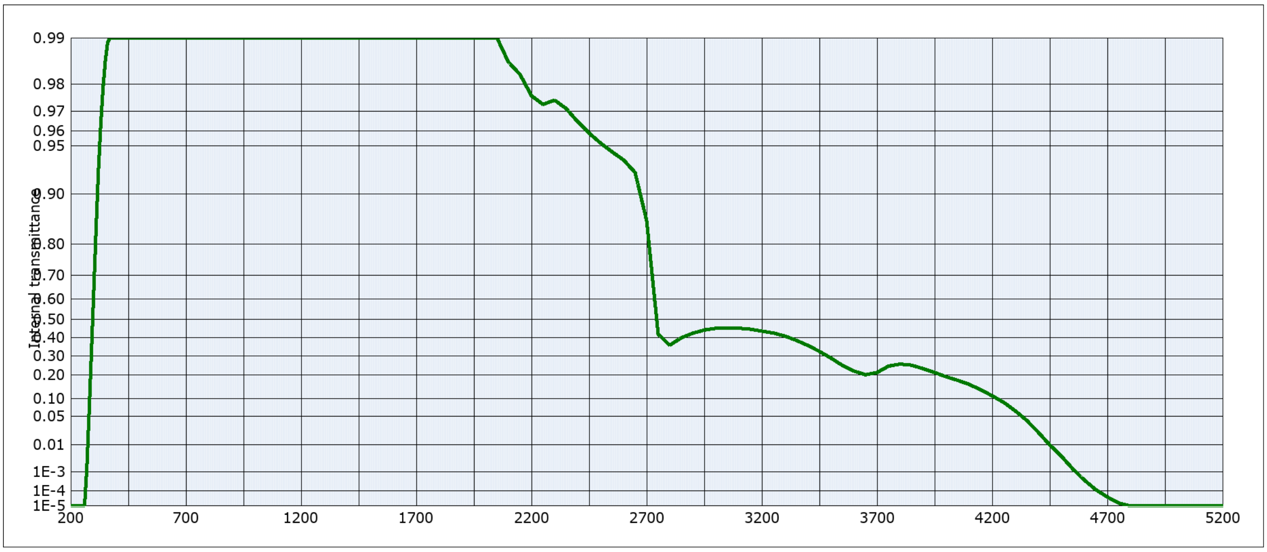

Internal transmittance τ_i at reference thickness d = 2 mm The internal transmittance values, tabulated and graphically represented, are reference values only											
λ [nm]	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i
200	$< 10^{-5}$	500	0.997	800	1.000	1100	1.000	2200	0.976	3700	0.213
210	$< 10^{-5}$	510	0.997	810	1.000	1110	1.000	2250	0.973	3750	0.245
220	$< 10^{-5}$	520	0.997	820	1.000	1120	1.000	2300	0.975	3800	0.256
230	$< 10^{-5}$	530	0.997	830	1.000	1130	1.000	2350	0.971	3850	0.250
240	$< 10^{-5}$	540	0.997	840	1.000	1140	1.000	2400	0.965	3900	0.232
250	$< 10^{-5}$	550	0.998	850	1.000	1150	1.000	2450	0.959	3950	0.213
260	$< 10^{-5}$	560	0.998	860	1.000	1160	1.000	2500	0.952	4000	0.192
270	$1.6 \cdot 10^{-3}$	570	0.998	870	1.000	1170	1.000	2550	0.946	4050	0.175
280	$6.4 \cdot 10^{-2}$	580	0.998	880	1.000	1180	1.000	2600	0.939	4100	0.157
290	0.326	590	0.998	890	1.000	1190	1.000	2650	0.926	4150	0.134
300	0.639	600	0.998	900	1.000	1200	1.000	2700	0.854	4200	0.111
310	0.837	610	0.998	910	1.000	1250	1.000	2750	0.420	4250	$8.8 \cdot 10^{-2}$
320	0.928	620	0.999	920	1.000	1300	1.000	2800	0.358	4300	$6.4 \cdot 10^{-2}$
330	0.963	630	0.999	930	1.000	1350	1.000	2850	0.399	4350	$4.1 \cdot 10^{-2}$
340	0.979	640	0.999	940	1.000	1400	0.999	2900	0.424	4400	$2.2 \cdot 10^{-2}$
350	0.986	650	0.999	950	1.000	1450	1.000	2950	0.442	4450	$1.0 \cdot 10^{-2}$
360	0.989	660	0.999	960	1.000	1500	1.000	3000	0.451	4500	$4.3 \cdot 10^{-3}$
370	0.991	670	0.999	970	1.000	1550	1.000	3050	0.454	4550	$1.4 \cdot 10^{-3}$
380	0.992	680	0.999	980	1.000	1600	1.000	3100	0.452	4600	$4.1 \cdot 10^{-4}$
390	0.993	690	0.999	990	1.000	1650	1.000	3150	0.447	4650	$1.2 \cdot 10^{-4}$
400	0.993	700	1.000	1000	1.000	1700	1.000	3200	0.436	4700	$4.2 \cdot 10^{-5}$
410	0.994	710	1.000	1010	1.000	1750	1.000	3250	0.426	4750	$1.6 \cdot 10^{-5}$
420	0.994	720	1.000	1020	1.000	1800	0.999	3300	0.409	4800	$< 10^{-5}$
430	0.995	730	1.000	1030	1.000	1850	0.998	3350	0.385	4850	$< 10^{-5}$
440	0.995	740	1.000	1040	1.000	1900	0.996	3400	0.357	4900	$< 10^{-5}$
450	0.995	750	1.000	1050	1.000	1950	0.995	3450	0.324	4950	$< 10^{-5}$
460	0.995	760	1.000	1060	1.000	2000	0.993	3500	0.288	5000	$< 10^{-5}$
470	0.996	770	1.000	1070	1.000	2050	0.991	3550	0.249	5050	$< 10^{-5}$
480	0.996	780	1.000	1080	1.000	2100	0.986	3600	0.220	5100	$< 10^{-5}$
490	0.996	790	1.000	1090	1.000	2150	0.983	3650	0.202	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

N-WG305

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	2

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	305 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	260
λ_p ($\tau_{i,L}$ = 0.99) [nm]	=	420

Refractive Index n
n_i (365.0 nm) = 1.540
n_d (587.6 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.51

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	2.0

Transformation temperature	
Tg [°C]	562

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.1
$\alpha_{20/300°C}$ [10^{-6}/K]	8.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.06

Notes
Base glass
Longpass filter

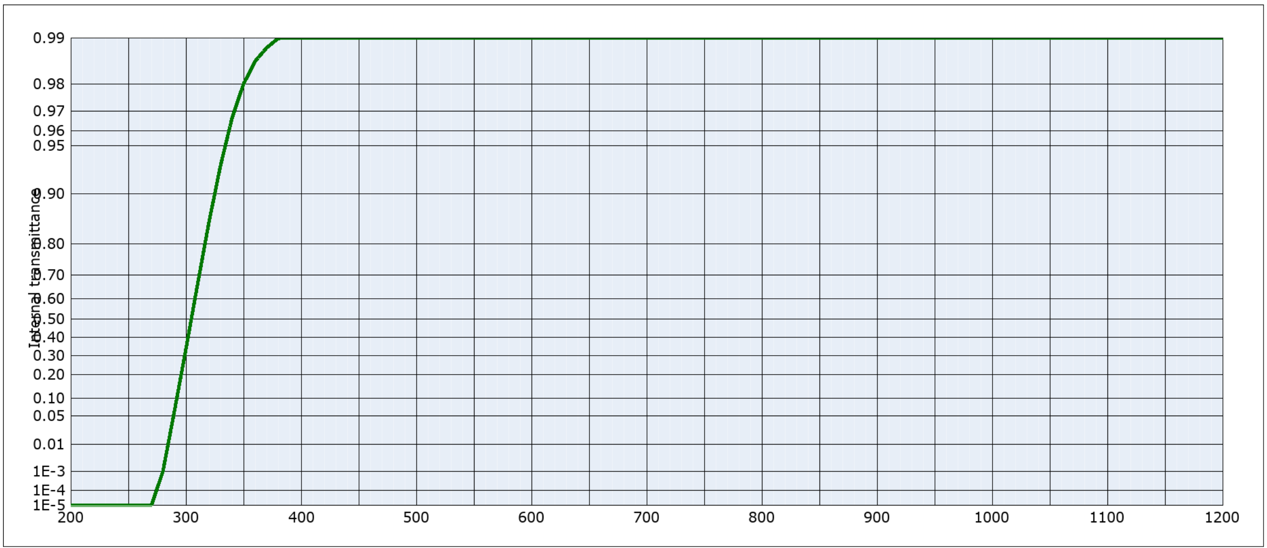
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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Further explanations see 'Optical Filters 2013' catalogue

N-WG305

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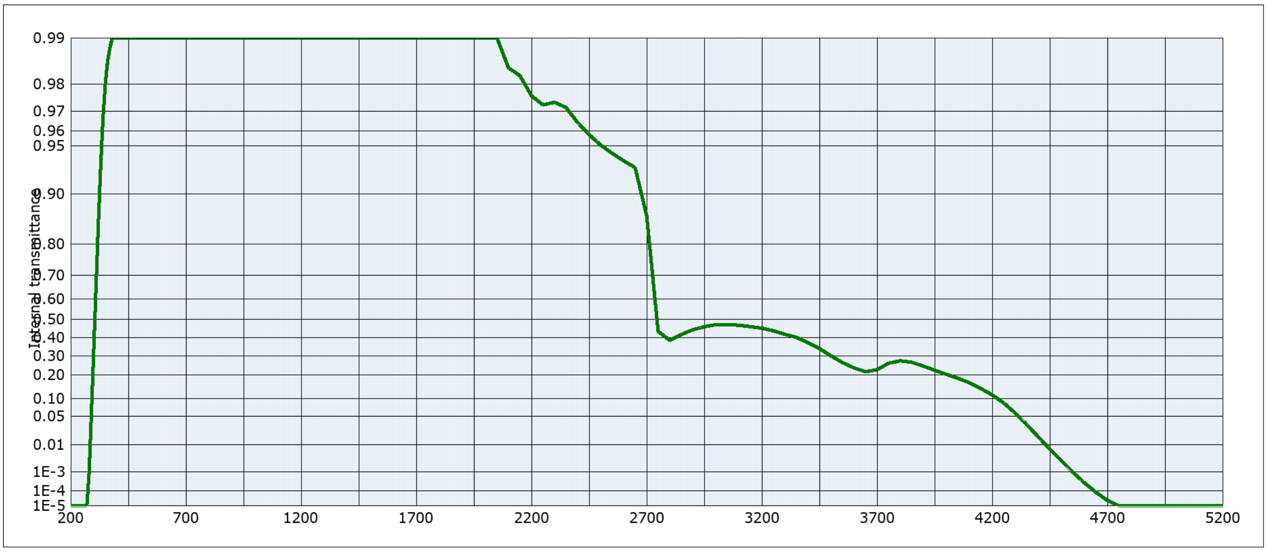


Internal transmittance τ_i at reference thickness d = 2 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.995	800	0.999	1100	1.000	2200	0.976	3700	0.227
210	$< 10^{-5}$	510	0.995	810	0.999	1110	1.000	2250	0.973	3750	0.260
220	$< 10^{-5}$	520	0.995	820	0.999	1120	1.000	2300	0.974	3800	0.273
230	$< 10^{-5}$	530	0.996	830	0.999	1130	1.000	2350	0.972	3850	0.266
240	$< 10^{-5}$	540	0.996	840	0.999	1140	1.000	2400	0.965	3900	0.246
250	$< 10^{-5}$	550	0.996	850	0.999	1150	1.000	2450	0.958	3950	0.224
260	$< 10^{-5}$	560	0.996	860	0.999	1160	1.000	2500	0.951	4000	0.204
270	$< 10^{-5}$	570	0.996	870	0.999	1170	1.000	2550	0.944	4050	0.185
280	$1.0 \cdot 10^{-3}$	580	0.997	880	0.999	1180	1.000	2600	0.938	4100	0.165
290	$6.2 \cdot 10^{-2}$	590	0.997	890	0.999	1190	1.000	2650	0.932	4150	0.140
300	0.335	600	0.997	900	0.999	1200	1.000	2700	0.864	4200	0.114
310	0.660	610	0.997	910	0.999	1250	1.000	2750	0.434	4250	$8.7 \cdot 10^{-2}$
320	0.851	620	0.997	920	0.999	1300	1.000	2800	0.386	4300	$5.8 \cdot 10^{-2}$
330	0.933	630	0.997	930	0.999	1350	1.000	2850	0.417	4350	$3.4 \cdot 10^{-2}$
340	0.967	640	0.997	940	0.999	1400	0.997	2900	0.443	4400	$1.7 \cdot 10^{-2}$
350	0.980	650	0.997	950	1.000	1450	0.999	2950	0.459	4450	$7.4 \cdot 10^{-3}$
360	0.986	660	0.998	960	1.000	1500	1.000	3000	0.471	4500	$2.9 \cdot 10^{-3}$
370	0.988	670	0.998	970	1.000	1550	1.000	3050	0.471	4550	$9.6 \cdot 10^{-4}$
380	0.990	680	0.998	980	1.000	1600	1.000	3100	0.468	4600	$2.9 \cdot 10^{-4}$
390	0.991	690	0.998	990	1.000	1650	1.000	3150	0.460	4650	$8.5 \cdot 10^{-5}$
400	0.991	700	0.998	1000	1.000	1700	0.999	3200	0.452	4700	$2.5 \cdot 10^{-5}$
410	0.992	710	0.998	1010	1.000	1750	0.998	3250	0.438	4750	$< 10^{-5}$
420	0.992	720	0.998	1020	1.000	1800	0.997	3300	0.419	4800	$< 10^{-5}$
430	0.993	730	0.998	1030	1.000	1850	0.996	3350	0.402	4850	$< 10^{-5}$
440	0.993	740	0.998	1040	1.000	1900	0.994	3400	0.372	4900	$< 10^{-5}$
450	0.993	750	0.998	1050	1.000	1950	0.993	3450	0.340	4950	$< 10^{-5}$
460	0.994	760	0.998	1060	1.000	2000	0.992	3500	0.300	5000	$< 10^{-5}$
470	0.994	770	0.998	1070	1.000	2050	0.990	3550	0.264	5050	$< 10^{-5}$
480	0.994	780	0.999	1080	1.000	2100	0.984	3600	0.236	5100	$< 10^{-5}$
490	0.995	790	0.999	1090	1.000	2150	0.982	3650	0.216	5150	$< 10^{-5}$

Data Sheet

SCHOTT

N-WG320

Density	
ρ [g/cm^3]	2.51

Notes
Base glass
Longpass filter

Reflection factor	
P_d	0.918

Bubble content	
Bubble class	1

Reference thickness	
d [mm]	2

Chemical Resistance	
FR class	0
SR class	1.0
AR class	2.0

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	320 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	280
λ_p ($\tau_{i,L}$ = 0.99) [nm]	=	470

Transformation temperature	
Tg [°C]	563

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.1
$\alpha_{20/300°C}$ [10^{-6}/K]	8.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_i (365.0 nm) = 1.540
n_d (587.6 nm) = 1.520
n_t (1014.0 nm) = 1.510

Temperature coefficient	
T_K [nm/°C]	0.06

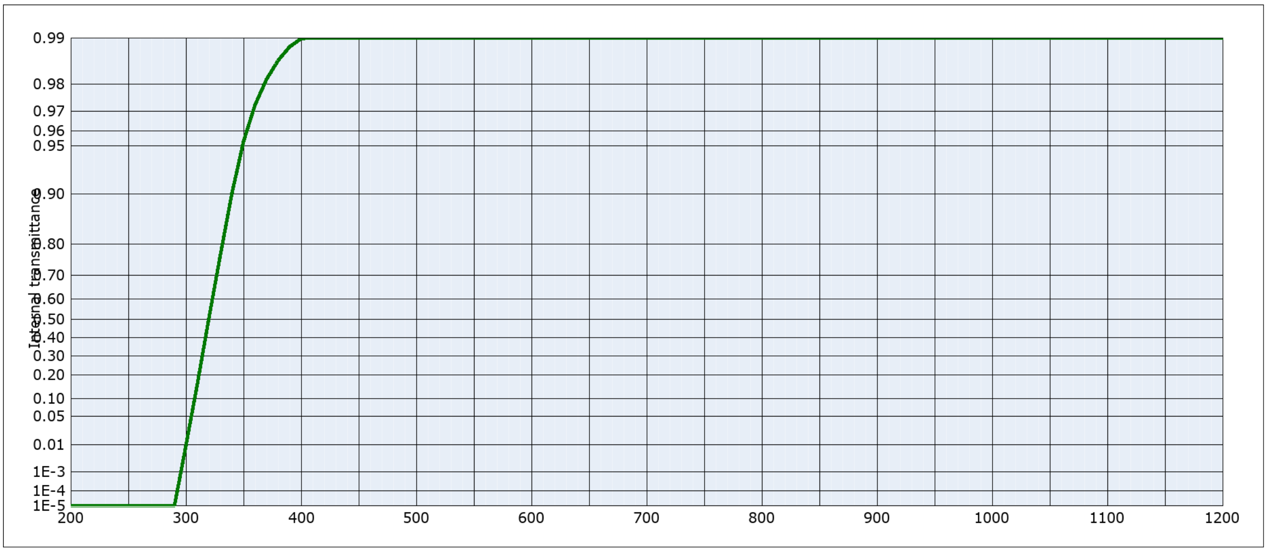
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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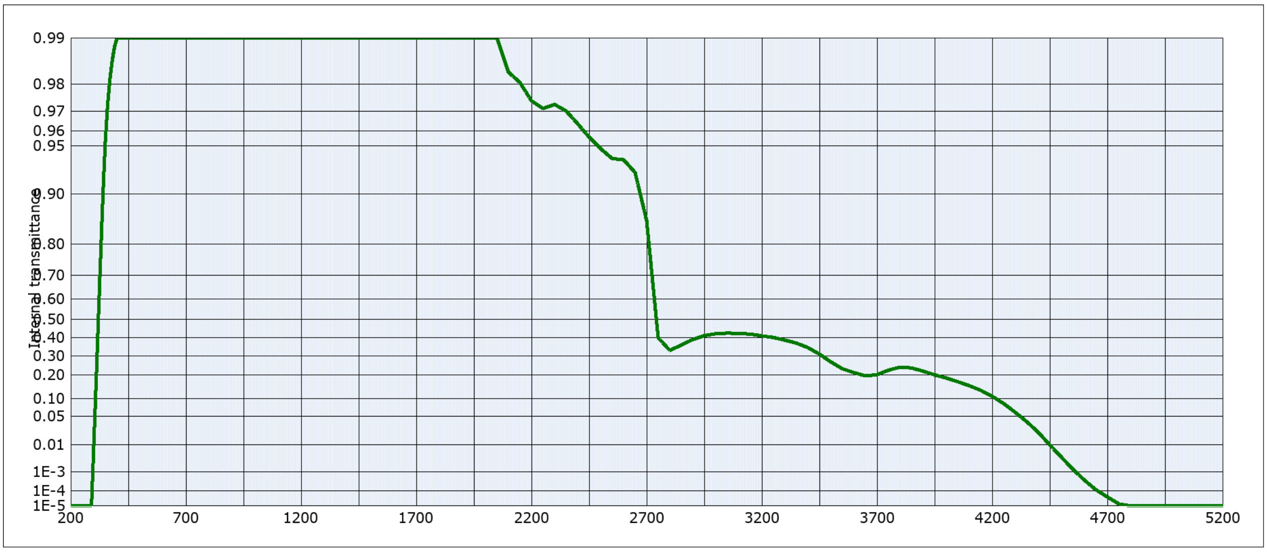
Further explanations see 'Optical Filters 2013' catalogue

N-WG320



Internal transmittance τ_i at reference thickness d = 2 mm The internal transmittance values, tabulated and graphically represented, are reference values only											
λ [nm]	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i
200	$< 10^{-5}$	500	0.994	800	0.998	1100	1.000	2200	0.974	3700	0.202
210	$< 10^{-5}$	510	0.994	810	0.998	1110	1.000	2250	0.971	3750	0.225
220	$< 10^{-5}$	520	0.995	820	0.998	1120	1.000	2300	0.973	3800	0.240
230	$< 10^{-5}$	530	0.995	830	0.999	1130	1.000	2350	0.970	3850	0.236
240	$< 10^{-5}$	540	0.995	840	0.999	1140	1.000	2400	0.964	3900	0.220
250	$< 10^{-5}$	550	0.995	850	0.999	1150	1.000	2450	0.956	3950	0.201
260	$< 10^{-5}$	560	0.996	860	0.999	1160	1.000	2500	0.948	4000	0.186
270	$< 10^{-5}$	570	0.996	870	0.999	1170	1.000	2550	0.940	4050	0.169
280	$< 10^{-5}$	580	0.996	880	0.999	1180	1.000	2600	0.939	4100	0.152
290	$< 10^{-5}$	590	0.996	890	0.999	1190	1.000	2650	0.926	4150	0.132
300	$9.6\cdot10^{-3}$	600	0.996	900	0.999	1200	1.000	2700	0.854	4200	0.109
310	0.161	610	0.996	910	0.999	1250	1.000	2750	0.400	4250	$8.4\cdot10^{-2}$
320	0.507	620	0.997	920	0.999	1300	1.000	2800	0.330	4300	$6.0\cdot10^{-2}$
330	0.770	630	0.997	930	0.999	1350	1.000	2850	0.359	4350	$3.9\cdot10^{-2}$
340	0.901	640	0.997	940	0.999	1400	0.998	2900	0.390	4400	$2.2\cdot10^{-2}$
350	0.953	650	0.997	950	0.999	1450	1.000	2950	0.411	4450	$1.0\cdot10^{-2}$
360	0.973	660	0.997	960	0.999	1500	1.000	3000	0.422	4500	$4.0\cdot10^{-3}$
370	0.981	670	0.997	970	0.999	1550	1.000	3050	0.425	4550	$1.3\cdot10^{-3}$
380	0.986	680	0.997	980	0.999	1600	1.000	3100	0.424	4600	$4.1\cdot10^{-4}$
390	0.989	690	0.997	990	0.999	1650	1.000	3150	0.419	4650	$1.2\cdot10^{-4}$
400	0.990	700	0.997	1000	0.999	1700	1.000	3200	0.410	4700	$4.2\cdot10^{-5}$
410	0.991	710	0.998	1010	0.999	1750	0.999	3250	0.401	4750	$1.4\cdot10^{-5}$
420	0.991	720	0.998	1020	0.999	1800	0.998	3300	0.386	4800	$< 10^{-5}$
430	0.992	730	0.998	1030	0.999	1850	0.997	3350	0.370	4850	$< 10^{-5}$
440	0.992	740	0.998	1040	1.000	1900	0.996	3400	0.345	4900	$< 10^{-5}$
450	0.992	750	0.998	1050	1.000	1950	0.994	3450	0.309	4950	$< 10^{-5}$
460	0.993	760	0.998	1060	1.000	2000	0.993	3500	0.267	5000	$< 10^{-5}$
470	0.993	770	0.998	1070	1.000	2050	0.990	3550	0.231	5050	$< 10^{-5}$
480	0.993	780	0.998	1080	1.000	2100	0.983	3600	0.212	5100	$< 10^{-5}$
490	0.994	790	0.998	1090	1.000	2150	0.980	3650	0.196	5150	$< 10^{-5}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

GG395

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	395 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	340
λ_p ($\tau_{i,L}$ = 0.92) [nm]	=	480

Refractive Index n
n_e (546.1 nm) = 1.520
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.55

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	538

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.8
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.07

Notes
Colloidally colored glass
Longpass filter

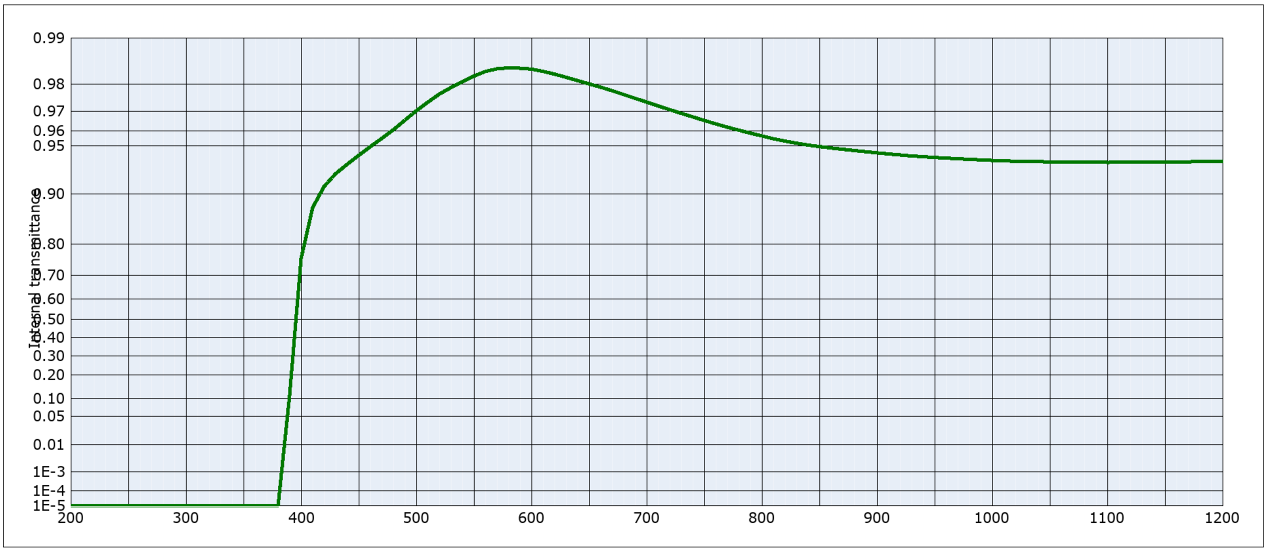
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.448	0.449	0.450
y	0.408	0.409	0.410
Y	91	91	90
λ_d [nm]	581	581	581
P_e	0.01	0.02	0.03

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.424	0.425	0.426
y	0.400	0.401	0.402
Y	91	91	90
λ_d [nm]	579	579	579
P_e	0.01	0.02	0.03

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.314	0.315	0.316
y	0.331	0.332	0.334
Y	91	90	90
λ_d [nm]	570	570	571
P_e	0.01	0.02	0.02



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Further explanations see 'Optical Filters 2013' catalogue

GG395

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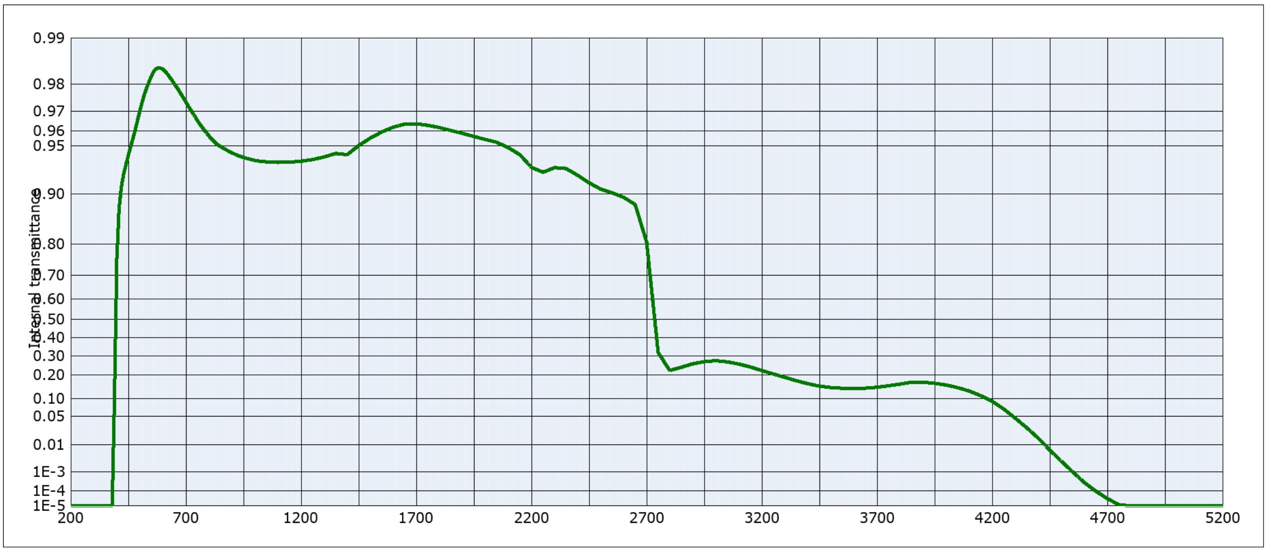

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.970	800	0.957	1100	0.937	2200	0.932	3700	0.145
210	$< 10^{-5}$	510	0.974	810	0.955	1110	0.937	2250	0.927	3750	0.151
220	$< 10^{-5}$	520	0.977	820	0.954	1120	0.937	2300	0.931	3800	0.158
230	$< 10^{-5}$	530	0.979	830	0.952	1130	0.937	2350	0.931	3850	0.167
240	$< 10^{-5}$	540	0.981	840	0.951	1140	0.937	2400	0.924	3900	0.167
250	$< 10^{-5}$	550	0.982	850	0.950	1150	0.937	2450	0.915	3950	0.162
260	$< 10^{-5}$	560	0.983	860	0.949	1160	0.937	2500	0.907	4000	0.154
270	$< 10^{-5}$	570	0.984	870	0.948	1170	0.937	2550	0.901	4050	0.143
280	$< 10^{-5}$	580	0.984	880	0.947	1180	0.937	2600	0.895	4100	0.130
290	$< 10^{-5}$	590	0.984	890	0.946	1190	0.937	2650	0.884	4150	0.112
300	$< 10^{-5}$	600	0.984	900	0.945	1200	0.938	2700	0.804	4200	$9.2 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.983	910	0.944	1250	0.939	2750	0.318	4250	$6.8 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.983	920	0.943	1300	0.941	2800	0.223	4300	$4.6 \cdot 10^{-2}$
330	$< 10^{-5}$	630	0.982	930	0.942	1350	0.944	2850	0.239	4350	$2.9 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.981	940	0.942	1400	0.943	2900	0.257	4400	$1.6 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.980	950	0.941	1450	0.950	2950	0.269	4450	$6.9 \cdot 10^{-3}$
360	$< 10^{-5}$	660	0.979	960	0.940	1500	0.955	3000	0.274	4500	$2.8 \cdot 10^{-3}$
370	$< 10^{-5}$	670	0.978	970	0.940	1550	0.959	3050	0.268	4550	$9.9 \cdot 10^{-4}$
380	$< 10^{-5}$	680	0.977	980	0.939	1600	0.962	3100	0.256	4600	$3.0 \cdot 10^{-4}$
390	0.113	690	0.975	990	0.939	1650	0.964	3150	0.241	4650	$9.9 \cdot 10^{-5}$
400	0.757	700	0.974	1000	0.938	1700	0.964	3200	0.222	4700	$3.3 \cdot 10^{-5}$
410	0.878	710	0.972	1010	0.938	1750	0.963	3250	0.205	4750	$1.2 \cdot 10^{-5}$
420	0.910	720	0.971	1020	0.938	1800	0.962	3300	0.189	4800	$< 10^{-5}$
430	0.925	730	0.969	1030	0.937	1850	0.960	3350	0.173	4850	$< 10^{-5}$
440	0.935	740	0.967	1040	0.937	1900	0.959	3400	0.160	4900	$< 10^{-5}$
450	0.943	750	0.966	1050	0.937	1950	0.957	3450	0.149	4950	$< 10^{-5}$
460	0.950	760	0.964	1060	0.937	2000	0.955	3500	0.144	5000	$< 10^{-5}$
470	0.955	770	0.962	1070	0.937	2050	0.953	3550	0.141	5050	$< 10^{-5}$
480	0.961	780	0.960	1080	0.937	2100	0.949	3600	0.140	5100	$< 10^{-5}$
490	0.966	790	0.959	1090	0.937	2150	0.943	3650	0.141	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

GG400

Density	
ρ [g/cm^3]	2.55

Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.918

Bubble content	
Bubble class	3

Reference thickness	
d [mm]	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	400 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	340
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	480

Transformation temperature	
Tg [°C]	537

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.1
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_e (546.1 nm) = 1.530
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

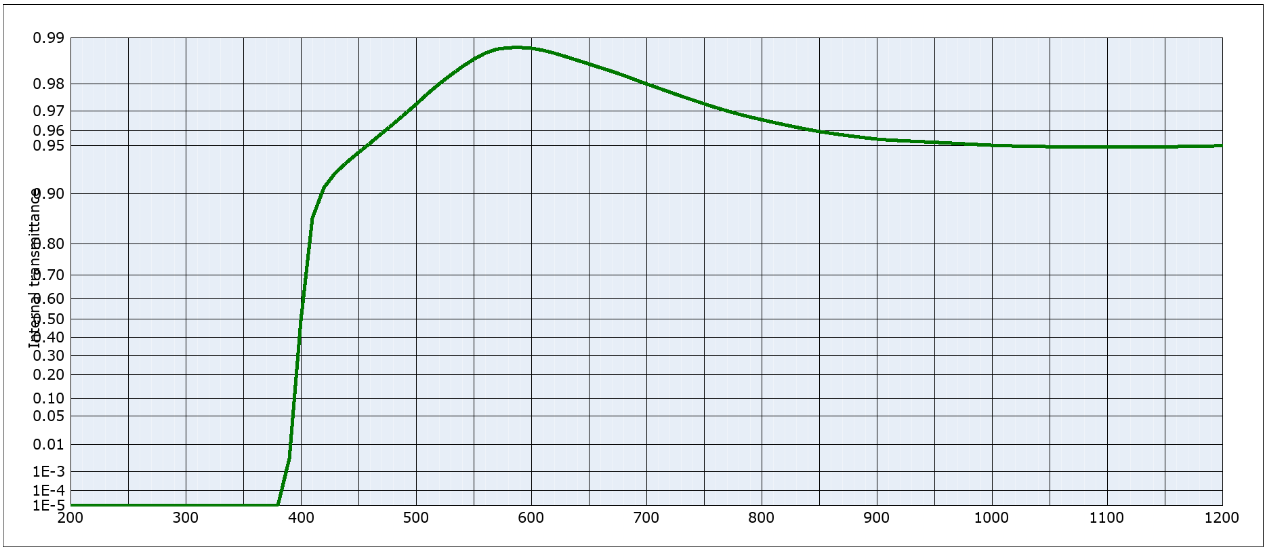
Temperature coefficient	
T_K [nm/°C]	0.07

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.448	0.449	0.450
y	0.408	0.409	0.410
Y	91	91	90
λ_d [nm]	581	581	581
P_e	0.01	0.02	0.03

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.424	0.425	0.426
y	0.400	0.401	0.402
Y	91	91	90
λ_d [nm]	579	579	579
P_e	0.01	0.02	0.03

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.314	0.315	0.316
y	0.331	0.333	0.335
Y	91	91	90
λ_d [nm]	570	571	571
P_e	0.01	0.02	0.03



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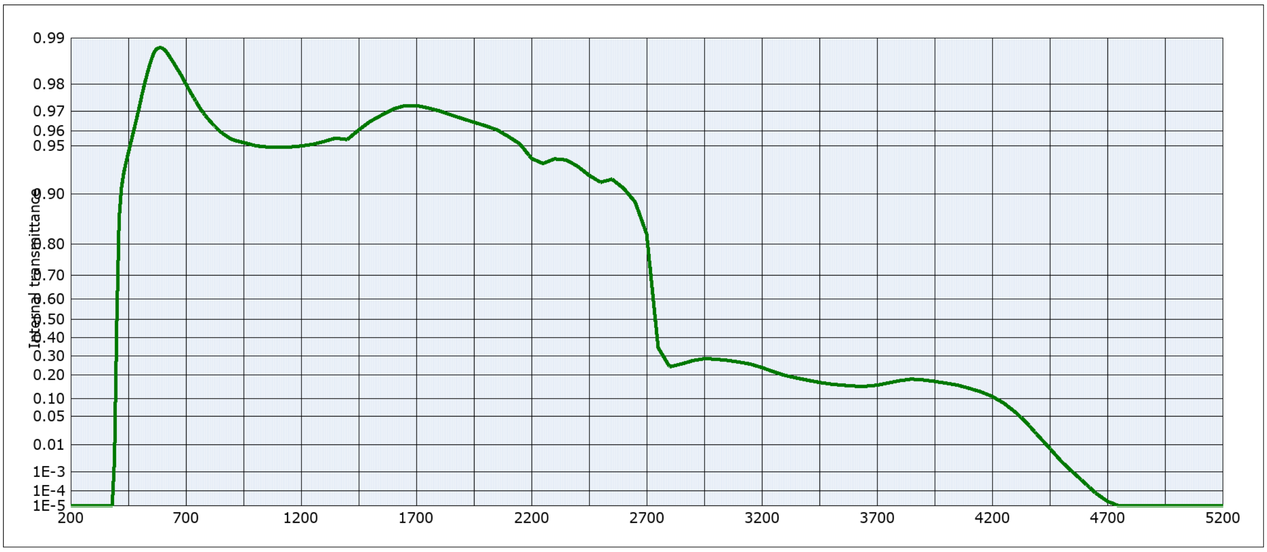
Further explanations see 'Optical Filters 2013' catalogue

GG400



Internal transmittance τ_i at reference thickness d = 3 mm The internal transmittance values, tabulated and graphically represented, are reference values only											
λ [nm]	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i
200	$< 10^{-5}$	500	0.973	800	0.966	1100	0.949	2200	0.940	3700	0.154
210	$< 10^{-5}$	510	0.977	810	0.965	1110	0.949	2250	0.935	3750	0.164
220	$< 10^{-5}$	520	0.980	820	0.963	1120	0.949	2300	0.940	3800	0.174
230	$< 10^{-5}$	530	0.982	830	0.962	1130	0.949	2350	0.939	3850	0.181
240	$< 10^{-5}$	540	0.985	840	0.961	1140	0.949	2400	0.933	3900	0.177
250	$< 10^{-5}$	550	0.986	850	0.959	1150	0.949	2450	0.923	3950	0.170
260	$< 10^{-5}$	560	0.987	860	0.958	1160	0.949	2500	0.915	4000	0.163
270	$< 10^{-5}$	570	0.988	870	0.957	1170	0.950	2550	0.919	4050	0.154
280	$< 10^{-5}$	580	0.988	880	0.956	1180	0.950	2600	0.908	4100	0.140
290	$< 10^{-5}$	590	0.988	890	0.956	1190	0.950	2650	0.888	4150	0.127
300	$< 10^{-5}$	600	0.988	900	0.955	1200	0.950	2700	0.825	4200	0.109
310	$< 10^{-5}$	610	0.988	910	0.954	1250	0.951	2750	0.344	4250	$8.6\cdot10^{-2}$
320	$< 10^{-5}$	620	0.987	920	0.954	1300	0.953	2800	0.242	4300	$6.0\cdot10^{-2}$
330	$< 10^{-5}$	630	0.987	930	0.953	1350	0.956	2850	0.256	4350	$3.7\cdot10^{-2}$
340	$< 10^{-5}$	640	0.986	940	0.953	1400	0.955	2900	0.274	4400	$1.8\cdot10^{-2}$
350	$< 10^{-5}$	650	0.985	950	0.953	1450	0.961	2950	0.285	4450	$7.9\cdot10^{-3}$
360	$< 10^{-5}$	660	0.984	960	0.952	1500	0.965	3000	0.282	4500	$2.8\cdot10^{-3}$
370	$< 10^{-5}$	670	0.983	970	0.952	1550	0.968	3050	0.276	4550	$9.8\cdot10^{-4}$
380	$< 10^{-5}$	680	0.982	980	0.951	1600	0.971	3100	0.267	4600	$3.0\cdot10^{-4}$
390	$3.4\cdot10^{-3}$	690	0.981	990	0.951	1650	0.972	3150	0.256	4650	$7.3\cdot10^{-5}$
400	0.491	700	0.980	1000	0.950	1700	0.973	3200	0.238	4700	$2.2\cdot10^{-5}$
410	0.859	710	0.979	1010	0.950	1750	0.972	3250	0.217	4750	$< 10^{-5}$
420	0.908	720	0.977	1020	0.950	1800	0.970	3300	0.199	4800	$< 10^{-5}$
430	0.926	730	0.976	1030	0.950	1850	0.968	3350	0.186	4850	$< 10^{-5}$
440	0.936	740	0.975	1040	0.950	1900	0.967	3400	0.176	4900	$< 10^{-5}$
450	0.945	750	0.973	1050	0.949	1950	0.965	3450	0.166	4950	$< 10^{-5}$
460	0.952	760	0.972	1060	0.949	2000	0.963	3500	0.159	5000	$< 10^{-5}$
470	0.958	770	0.970	1070	0.949	2050	0.961	3550	0.154	5050	$< 10^{-5}$
480	0.964	780	0.969	1080	0.949	2100	0.957	3600	0.150	5100	$< 10^{-5}$
490	0.969	790	0.967	1090	0.949	2150	0.951	3650	0.149	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

GG420

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	420 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	360
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	530

Refractive Index n
n_e (546.1 nm) = 1.530
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.55

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	535

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.8
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.07

Notes
Colloidally colored glass
Longpass filter

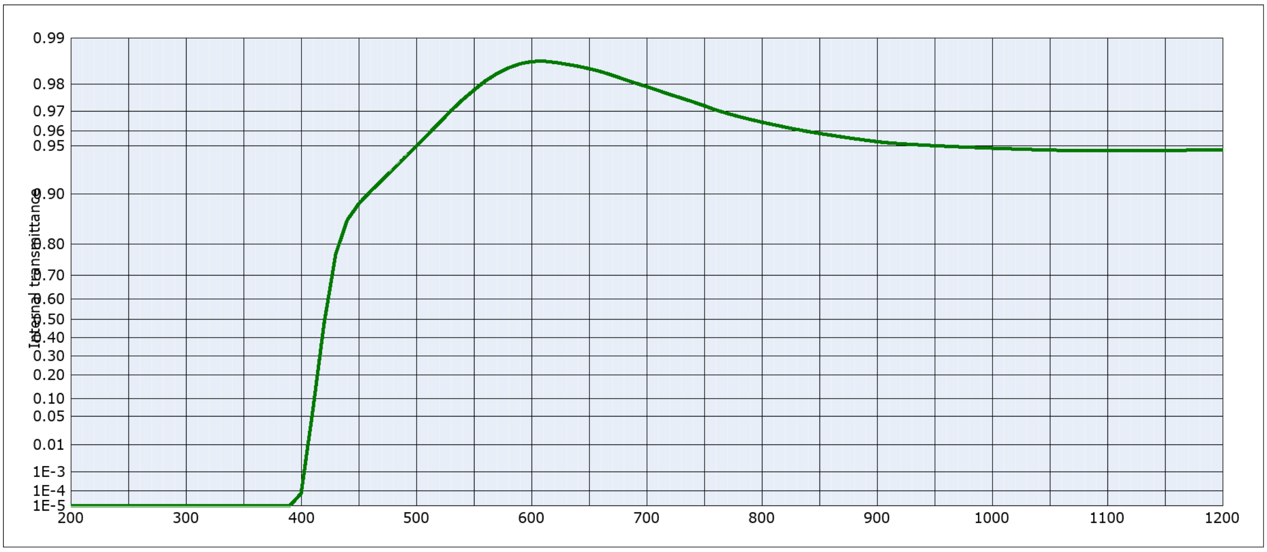
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.450	0.453	0.455
y	0.410	0.412	0.414
Y	91	90	90
λ_d [nm]	581	581	581
P_e	0.04	0.07	0.10

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.426	0.429	0.432
y	0.403	0.405	0.408
Y	91	90	90
λ_d [nm]	579	579	579
P_e	0.04	0.07	0.10

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.317	0.320	0.324
y	0.337	0.342	0.348
Y	91	90	89
λ_d [nm]	569	570	570
P_e	0.03	0.06	0.08



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Further explanations see 'Optical Filters 2013' catalogue

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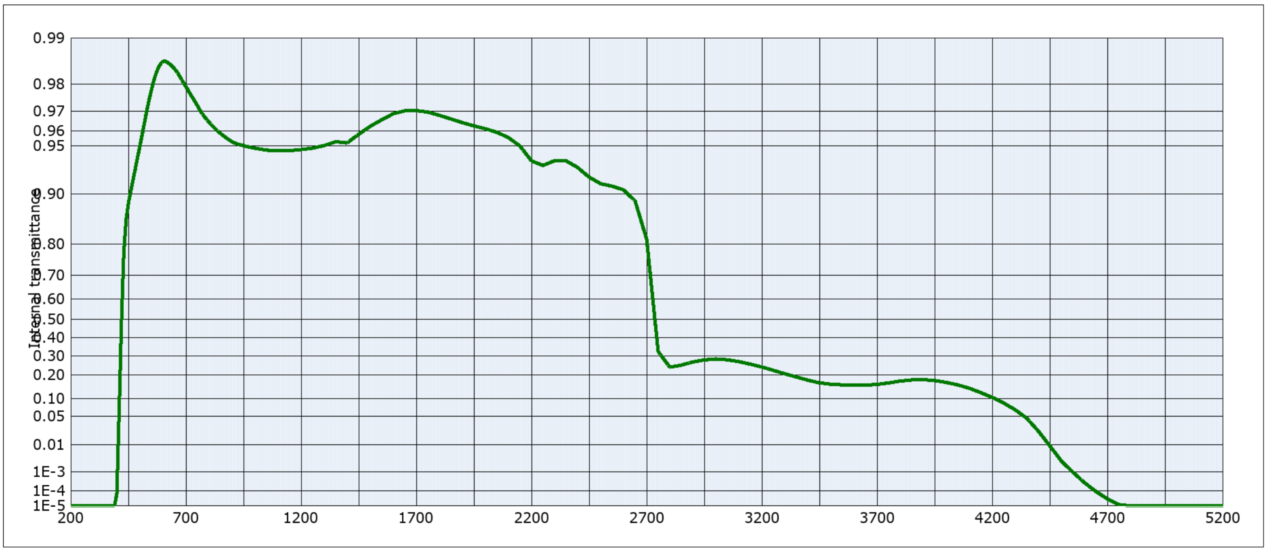

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	0.950	800	0.965	1100	0.946	2200	0.938	3700	0.157
210	< 10^{-5}	510	0.958	810	0.964	1110	0.946	2250	0.934	3750	0.164
220	< 10^{-5}	520	0.964	820	0.962	1120	0.946	2300	0.938	3800	0.172
230	< 10^{-5}	530	0.970	830	0.961	1130	0.947	2350	0.938	3850	0.177
240	< 10^{-5}	540	0.975	840	0.960	1140	0.947	2400	0.932	3900	0.179
250	< 10^{-5}	550	0.978	850	0.958	1150	0.947	2450	0.921	3950	0.174
260	< 10^{-5}	560	0.981	860	0.957	1160	0.947	2500	0.914	4000	0.166
270	< 10^{-5}	570	0.983	870	0.956	1170	0.947	2550	0.910	4050	0.155
280	< 10^{-5}	580	0.984	880	0.955	1180	0.947	2600	0.906	4100	0.141
290	< 10^{-5}	590	0.985	890	0.954	1190	0.947	2650	0.889	4150	0.123
300	< 10^{-5}	600	0.986	900	0.953	1200	0.947	2700	0.812	4200	0.105
310	< 10^{-5}	610	0.986	910	0.952	1250	0.948	2750	0.324	4250	$8.6\cdot10^{-2}$
320	< 10^{-5}	620	0.986	920	0.952	1300	0.950	2800	0.240	4300	$6.6\cdot10^{-2}$
330	< 10^{-5}	630	0.985	930	0.951	1350	0.953	2850	0.250	4350	$4.6\cdot10^{-2}$
340	< 10^{-5}	640	0.985	940	0.951	1400	0.952	2900	0.267	4400	$2.4\cdot10^{-2}$
350	< 10^{-5}	650	0.984	950	0.950	1450	0.958	2950	0.278	4450	$9.5\cdot10^{-3}$
360	< 10^{-5}	660	0.983	960	0.950	1500	0.963	3000	0.283	4500	$2.9\cdot10^{-3}$
370	< 10^{-5}	670	0.983	970	0.949	1550	0.966	3050	0.279	4550	$9.8\cdot10^{-4}$
380	< 10^{-5}	680	0.981	980	0.949	1600	0.969	3100	0.269	4600	$3.0\cdot10^{-4}$
390	< 10^{-5}	690	0.980	990	0.949	1650	0.970	3150	0.255	4650	$9.5\cdot10^{-5}$
400	$7.0\cdot10^{-5}$	700	0.979	1000	0.948	1700	0.970	3200	0.240	4700	$3.1\cdot10^{-5}$
410	$6.1\cdot10^{-2}$	710	0.978	1010	0.948	1750	0.970	3250	0.224	4750	$1.3\cdot10^{-5}$
420	0.479	720	0.977	1020	0.948	1800	0.968	3300	0.206	4800	< 10^{-5}
430	0.770	730	0.975	1030	0.948	1850	0.966	3350	0.191	4850	< 10^{-5}
440	0.855	740	0.974	1040	0.947	1900	0.965	3400	0.176	4900	< 10^{-5}
450	0.885	750	0.972	1050	0.947	1950	0.963	3450	0.164	4950	< 10^{-5}
460	0.903	760	0.971	1060	0.947	2000	0.961	3500	0.158	5000	< 10^{-5}
470	0.918	770	0.969	1070	0.947	2050	0.959	3550	0.155	5050	< 10^{-5}
480	0.930	780	0.968	1080	0.947	2100	0.956	3600	0.154	5100	< 10^{-5}
490	0.941	790	0.966	1090	0.946	2150	0.950	3650	0.154	5150	< 10^{-5}

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

GG435

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	435 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	370
λ_p ($\tau_{i,L}$ = 0.92) [nm]	=	520

Refractive Index n
n_e (546.1 nm) = 1.520
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm³]	2.55

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	537

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.8
$\alpha_{20/300°C}$ [10^{-6}/K]	9.1
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.08

Notes
Colloidally colored glass
Longpass filter

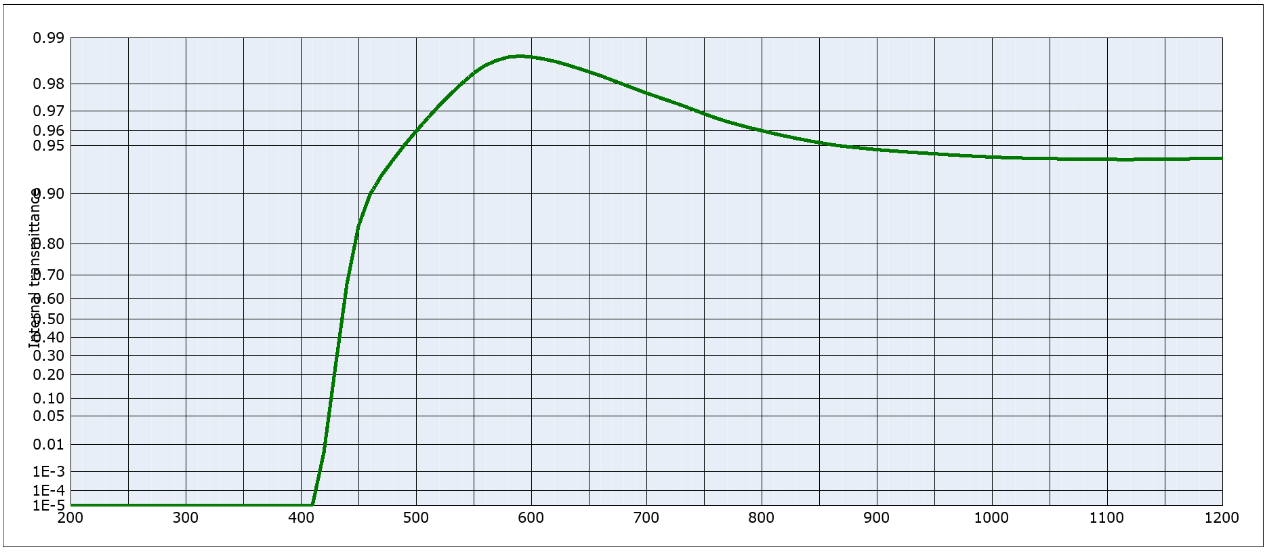
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.453	0.457	0.459
y	0.415	0.419	0.422
Y	91	91	90
λ_d [nm]	580	580	580
P_e	0.09	0.14	0.18

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.430	0.434	0.437
y	0.409	0.414	0.418
Y	91	90	90
λ_d [nm]	578	578	578
P_e	0.10	0.15	0.19

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.323	0.328	0.333
y	0.350	0.361	0.369
Y	91	90	90
λ_d [nm]	568	568	568
P_e	0.09	0.13	0.17



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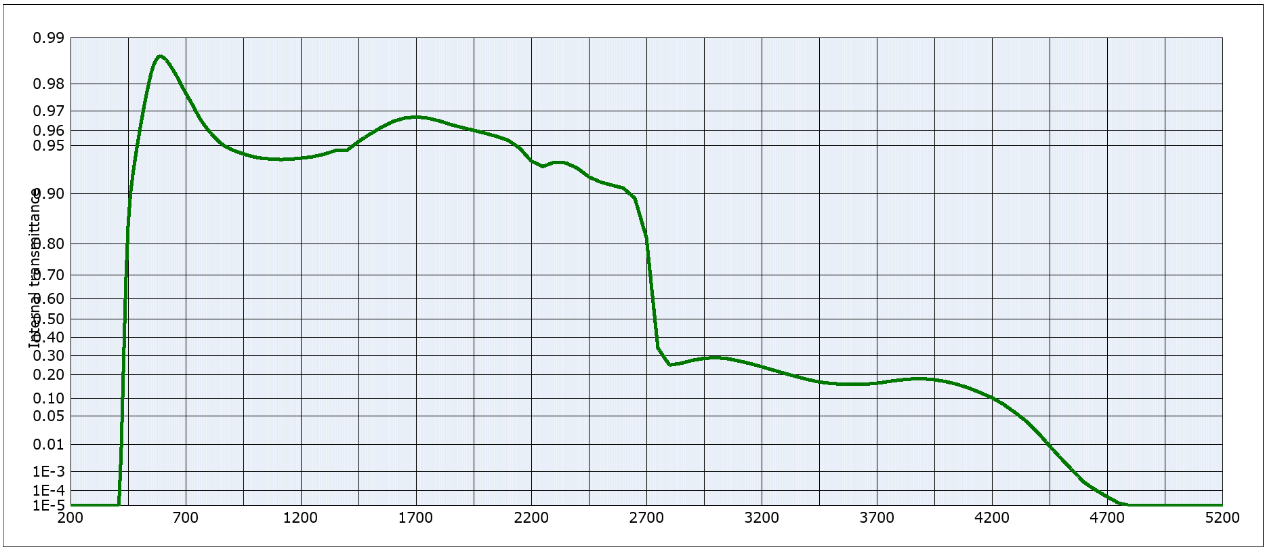


Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.960	800	0.960	1100	0.939	2200	0.938	3700	0.161
210	$< 10^{-5}$	510	0.967	810	0.958	1110	0.939	2250	0.932	3750	0.169
220	$< 10^{-5}$	520	0.972	820	0.957	1120	0.939	2300	0.936	3800	0.176
230	$< 10^{-5}$	530	0.977	830	0.955	1130	0.939	2350	0.936	3850	0.180
240	$< 10^{-5}$	540	0.980	840	0.954	1140	0.939	2400	0.931	3900	0.182
250	$< 10^{-5}$	550	0.983	850	0.952	1150	0.939	2450	0.921	3950	0.177
260	$< 10^{-5}$	560	0.985	860	0.951	1160	0.939	2500	0.915	4000	0.168
270	$< 10^{-5}$	570	0.986	870	0.950	1170	0.940	2550	0.911	4050	0.156
280	$< 10^{-5}$	580	0.987	880	0.949	1180	0.940	2600	0.908	4100	0.140
290	$< 10^{-5}$	590	0.987	890	0.948	1190	0.940	2650	0.893	4150	0.122
300	$< 10^{-5}$	600	0.987	900	0.947	1200	0.940	2700	0.815	4200	0.103
310	$< 10^{-5}$	610	0.986	910	0.946	1250	0.941	2750	0.341	4250	$8.2\cdot10^{-2}$
320	$< 10^{-5}$	620	0.986	920	0.946	1300	0.943	2800	0.249	4300	$5.9\cdot10^{-2}$
330	$< 10^{-5}$	630	0.985	930	0.945	1350	0.946	2850	0.258	4350	$3.9\cdot10^{-2}$
340	$< 10^{-5}$	640	0.984	940	0.944	1400	0.947	2900	0.274	4400	$2.1\cdot10^{-2}$
350	$< 10^{-5}$	650	0.983	950	0.944	1450	0.953	2950	0.285	4450	$9.2\cdot10^{-3}$
360	$< 10^{-5}$	660	0.982	960	0.943	1500	0.958	3000	0.289	4500	$3.5\cdot10^{-3}$
370	$< 10^{-5}$	670	0.981	970	0.943	1550	0.962	3050	0.284	4550	$1.1\cdot10^{-3}$
380	$< 10^{-5}$	680	0.980	980	0.942	1600	0.965	3100	0.271	4600	$3.0\cdot10^{-4}$
390	$< 10^{-5}$	690	0.978	990	0.942	1650	0.967	3150	0.257	4650	$1.1\cdot10^{-4}$
400	$< 10^{-5}$	700	0.977	1000	0.941	1700	0.967	3200	0.241	4700	$4.2\cdot10^{-5}$
410	$< 10^{-5}$	710	0.976	1010	0.941	1750	0.967	3250	0.224	4750	$1.6\cdot10^{-5}$
420	$5.7\cdot10^{-3}$	720	0.974	1020	0.940	1800	0.965	3300	0.207	4800	$< 10^{-5}$
430	0.240	730	0.973	1030	0.940	1850	0.963	3350	0.192	4850	$< 10^{-5}$
440	0.664	740	0.971	1040	0.940	1900	0.962	3400	0.178	4900	$< 10^{-5}$
450	0.842	750	0.969	1050	0.940	1950	0.960	3450	0.167	4950	$< 10^{-5}$
460	0.899	760	0.967	1060	0.940	2000	0.958	3500	0.161	5000	$< 10^{-5}$
470	0.923	770	0.965	1070	0.939	2050	0.956	3550	0.157	5050	$< 10^{-5}$
480	0.939	780	0.963	1080	0.939	2100	0.954	3600	0.156	5100	$< 10^{-5}$
490	0.951	790	0.962	1090	0.939	2150	0.948	3650	0.157	5150	$< 10^{-5}$

Data Sheet

SCHOTT

GG455

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	455 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	390
λ_p ($\tau_{i,L}$ = 0.92) [nm]	=	530

Refractive Index n
n_e (546.1 nm) = 1.530
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	529

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.2
$\alpha_{20/300°C}$ [10^{-6}/K]	9.5
$\alpha_{20/200°C}$ [10^{-6}/K]	

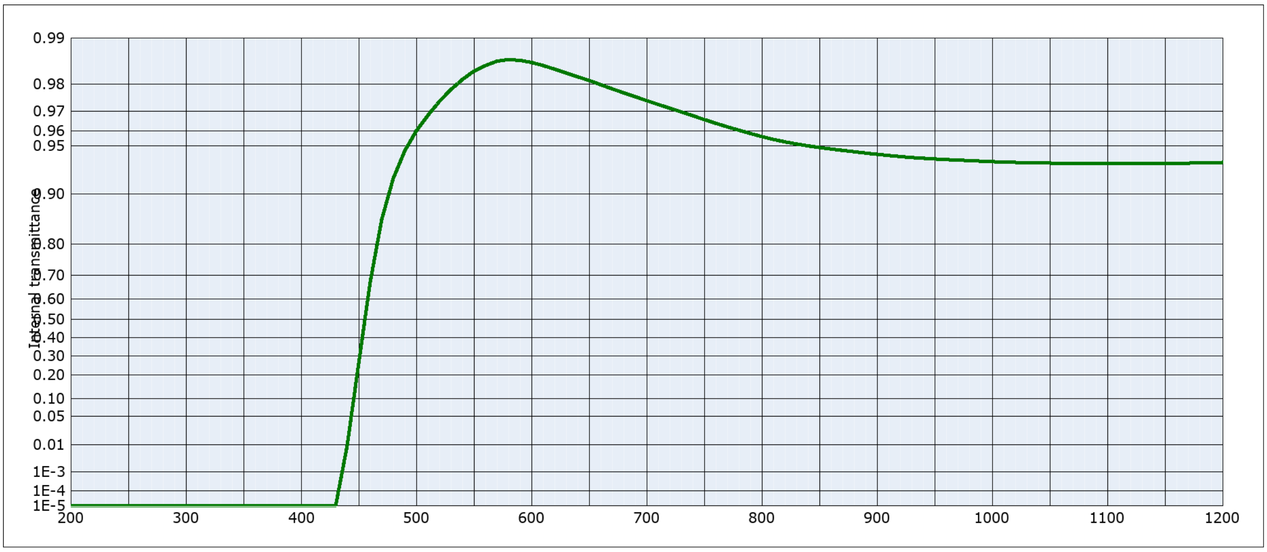
Temperature coefficient	
T_K [nm/°C]	0.09

Notes
Colloidally colored glass
Longpass filter

All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.465	0.470	0.473	x	0.444	0.451	0.455	x	0.344	0.354	0.361
y	0.431	0.437	0.441	y	0.429	0.438	0.443	y	0.394	0.414	0.426
Y	91	90	90	Y	91	90	90	Y	91	90	89
λ_d [nm]	579	580	580	λ_d [nm]	577	578	578	λ_d [nm]	568	568	568
P_e	0.28	0.36	0.41	P_e	0.29	0.37	0.42	P_e	0.27	0.36	0.41



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Further explanations see 'Optical Filters 2013' catalogue

GG455

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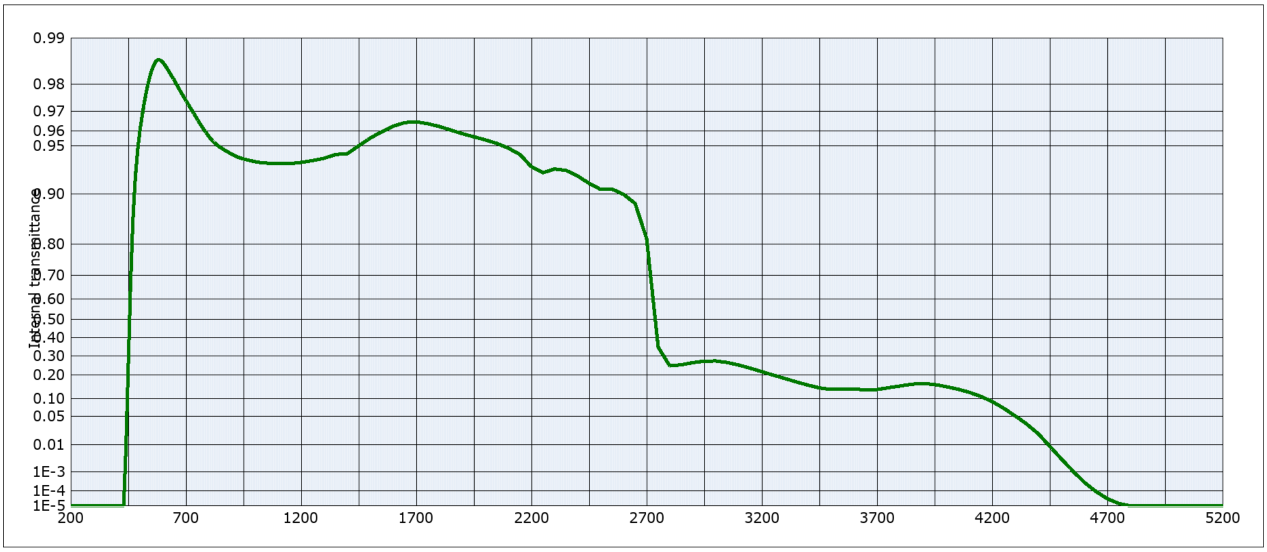

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.960	800	0.956	1100	0.935	2200	0.932	3700	0.135
210	$< 10^{-5}$	510	0.968	810	0.955	1110	0.935	2250	0.926	3750	0.143
220	$< 10^{-5}$	520	0.974	820	0.953	1120	0.935	2300	0.930	3800	0.150
230	$< 10^{-5}$	530	0.978	830	0.951	1130	0.935	2350	0.929	3850	0.158
240	$< 10^{-5}$	540	0.981	840	0.950	1140	0.935	2400	0.923	3900	0.161
250	$< 10^{-5}$	550	0.984	850	0.949	1150	0.936	2450	0.914	3950	0.157
260	$< 10^{-5}$	560	0.985	860	0.948	1160	0.936	2500	0.906	4000	0.147
270	$< 10^{-5}$	570	0.986	870	0.947	1170	0.936	2550	0.907	4050	0.137
280	$< 10^{-5}$	580	0.986	880	0.946	1180	0.936	2600	0.899	4100	0.124
290	$< 10^{-5}$	590	0.986	890	0.945	1190	0.936	2650	0.885	4150	0.109
300	$< 10^{-5}$	600	0.986	900	0.944	1200	0.937	2700	0.813	4200	$9.1 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.985	910	0.943	1250	0.938	2750	0.348	4250	$7.1 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.984	920	0.942	1300	0.940	2800	0.247	4300	$5.1 \cdot 10^{-2}$
330	$< 10^{-5}$	630	0.983	930	0.941	1350	0.943	2850	0.252	4350	$3.5 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.982	940	0.940	1400	0.944	2900	0.263	4400	$2.0 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.981	950	0.940	1450	0.950	2950	0.271	4450	$9.1 \cdot 10^{-3}$
360	$< 10^{-5}$	660	0.980	960	0.939	1500	0.956	3000	0.272	4500	$3.4 \cdot 10^{-3}$
370	$< 10^{-5}$	670	0.979	970	0.939	1550	0.959	3050	0.264	4550	$1.1 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.977	980	0.938	1600	0.963	3100	0.251	4600	$3.1 \cdot 10^{-4}$
390	$< 10^{-5}$	690	0.976	990	0.938	1650	0.965	3150	0.234	4650	$9.5 \cdot 10^{-5}$
400	$< 10^{-5}$	700	0.974	1000	0.937	1700	0.965	3200	0.217	4700	$3.2 \cdot 10^{-5}$
410	$< 10^{-5}$	710	0.973	1010	0.937	1750	0.964	3250	0.200	4750	$1.5 \cdot 10^{-5}$
420	$< 10^{-5}$	720	0.971	1020	0.937	1800	0.963	3300	0.184	4800	$< 10^{-5}$
430	$< 10^{-5}$	730	0.970	1030	0.936	1850	0.960	3350	0.168	4850	$< 10^{-5}$
440	$9.6 \cdot 10^{-3}$	740	0.968	1040	0.936	1900	0.958	3400	0.154	4900	$< 10^{-5}$
450	0.260	750	0.966	1050	0.936	1950	0.956	3450	0.142	4950	$< 10^{-5}$
460	0.673	760	0.964	1060	0.936	2000	0.954	3500	0.136	5000	$< 10^{-5}$
470	0.857	770	0.962	1070	0.936	2050	0.952	3550	0.136	5050	$< 10^{-5}$
480	0.920	780	0.960	1080	0.935	2100	0.948	3600	0.138	5100	$< 10^{-5}$
490	0.946	790	0.958	1090	0.935	2150	0.943	3650	0.133	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

GG475

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	475 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	410
λ_p ($\tau_{i,L}$ = 0.92) [nm]	=	550

Refractive Index n
n_e (546.1 nm) = 1.530
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	531

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.2
$\alpha_{20/300°C}$ [10^{-6}/K]	9.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.09

Notes
Colloidally colored glass
Longpass filter

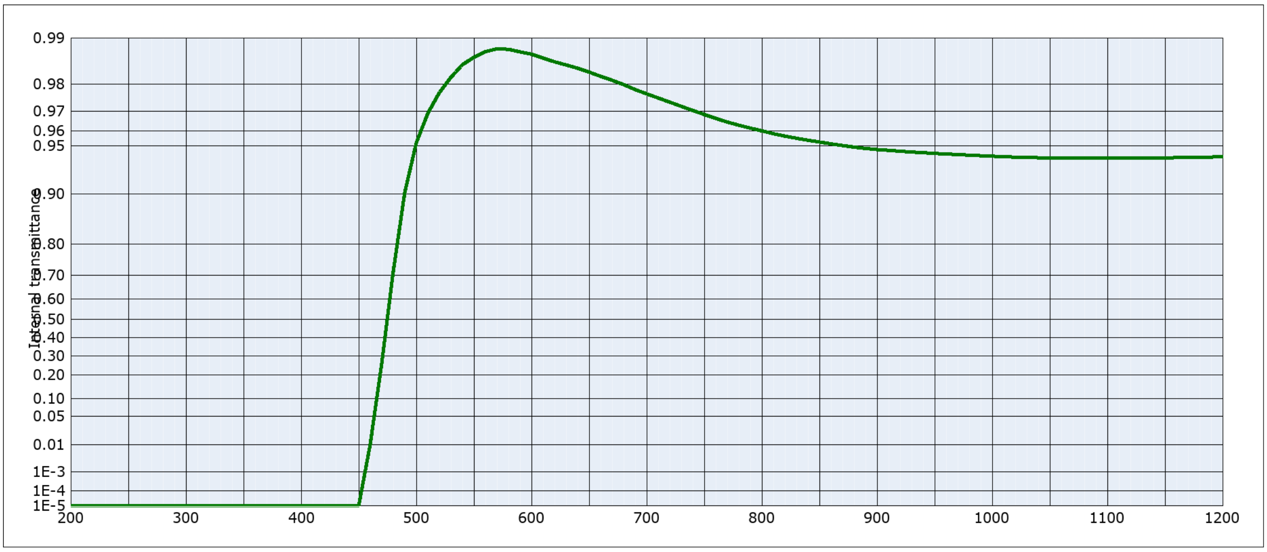
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.483	0.489	0.492
y	0.453	0.460	0.463
Y	91	90	89
λ_d [nm]	580	580	580
P_e	0.56	0.65	0.69

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.465	0.473	0.476
y	0.458	0.466	0.470
Y	91	90	89
λ_d [nm]	578	578	578
P_e	0.57	0.66	0.70

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.381	0.394	0.401
y	0.463	0.485	0.494
Y	89	88	88
λ_d [nm]	568	569	569
P_e	0.57	0.66	0.71



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Further explanations see 'Optical Filters 2013' catalogue

GG475

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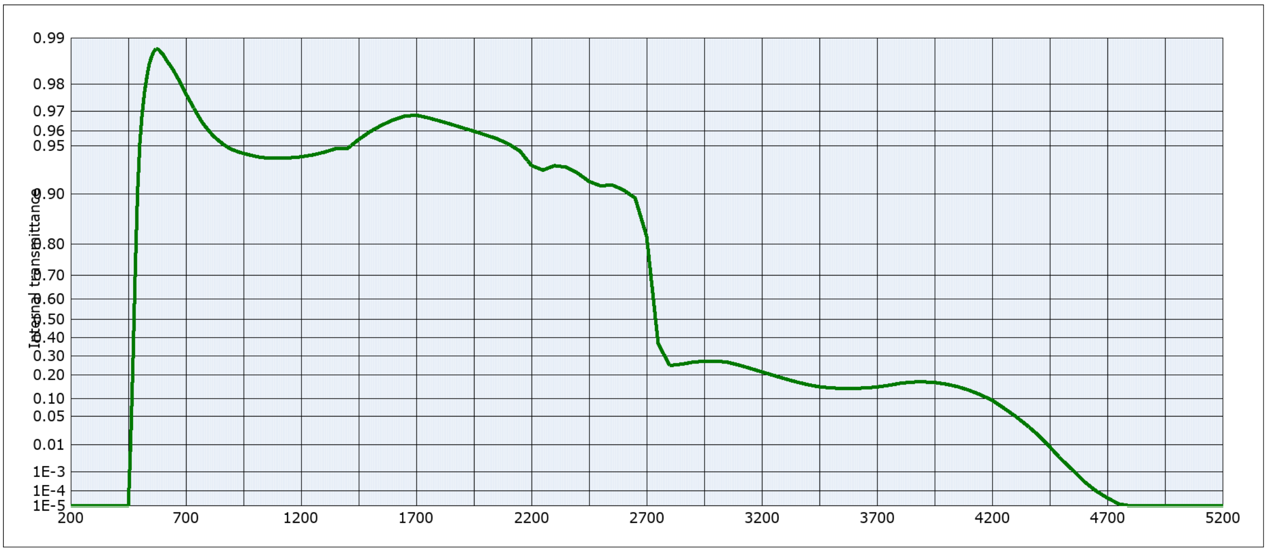


Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.952	800	0.960	1100	0.940	2200	0.934	3700	0.146
210	$< 10^{-5}$	510	0.969	810	0.958	1110	0.940	2250	0.929	3750	0.153
220	$< 10^{-5}$	520	0.977	820	0.957	1120	0.940	2300	0.933	3800	0.162
230	$< 10^{-5}$	530	0.982	830	0.955	1130	0.940	2350	0.932	3850	0.167
240	$< 10^{-5}$	540	0.985	840	0.954	1140	0.941	2400	0.926	3900	0.169
250	$< 10^{-5}$	550	0.987	850	0.953	1150	0.941	2450	0.916	3950	0.166
260	$< 10^{-5}$	560	0.988	860	0.952	1160	0.941	2500	0.911	4000	0.158
270	$< 10^{-5}$	570	0.988	870	0.950	1170	0.941	2550	0.912	4050	0.147
280	$< 10^{-5}$	580	0.988	880	0.949	1180	0.941	2600	0.905	4100	0.133
290	$< 10^{-5}$	590	0.988	890	0.948	1190	0.941	2650	0.894	4150	0.115
300	$< 10^{-5}$	600	0.987	900	0.947	1200	0.942	2700	0.819	4200	$9.5\cdot10^{-2}$
310	$< 10^{-5}$	610	0.986	910	0.947	1250	0.943	2750	0.367	4250	$7.1\cdot10^{-2}$
320	$< 10^{-5}$	620	0.986	920	0.946	1300	0.945	2800	0.249	4300	$5.1\cdot10^{-2}$
330	$< 10^{-5}$	630	0.985	930	0.945	1350	0.948	2850	0.255	4350	$3.3\cdot10^{-2}$
340	$< 10^{-5}$	640	0.984	940	0.945	1400	0.948	2900	0.266	4400	$1.9\cdot10^{-2}$
350	$< 10^{-5}$	650	0.983	950	0.944	1450	0.955	2950	0.271	4450	$8.8\cdot10^{-3}$
360	$< 10^{-5}$	660	0.982	960	0.944	1500	0.960	3000	0.272	4500	$3.3\cdot10^{-3}$
370	$< 10^{-5}$	670	0.981	970	0.943	1550	0.963	3050	0.266	4550	$1.2\cdot10^{-3}$
380	$< 10^{-5}$	680	0.980	980	0.943	1600	0.966	3100	0.251	4600	$3.4\cdot10^{-4}$
390	$< 10^{-5}$	690	0.978	990	0.942	1650	0.968	3150	0.233	4650	$1.0\cdot10^{-4}$
400	$< 10^{-5}$	700	0.977	1000	0.942	1700	0.968	3200	0.216	4700	$3.7\cdot10^{-5}$
410	$< 10^{-5}$	710	0.975	1010	0.942	1750	0.967	3250	0.199	4750	$1.4\cdot10^{-5}$
420	$< 10^{-5}$	720	0.974	1020	0.941	1800	0.965	3300	0.183	4800	$< 10^{-5}$
430	$< 10^{-5}$	730	0.972	1030	0.941	1850	0.964	3350	0.168	4850	$< 10^{-5}$
440	$< 10^{-5}$	740	0.970	1040	0.941	1900	0.962	3400	0.156	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.969	1050	0.941	1950	0.960	3450	0.147	4950	$< 10^{-5}$
460	$1.0\cdot10^{-2}$	760	0.967	1060	0.940	2000	0.958	3500	0.142	5000	$< 10^{-5}$
470	0.261	770	0.965	1070	0.940	2050	0.955	3550	0.140	5050	$< 10^{-5}$
480	0.713	780	0.963	1080	0.940	2100	0.952	3600	0.140	5100	$< 10^{-5}$
490	0.902	790	0.962	1090	0.940	2150	0.946	3650	0.142	5150	$< 10^{-5}$

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

GG495

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	495 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	430
λ_p ($\tau_{i,L}$ = 0.92) [nm]	=	560

Refractive Index n
n_e (546.1 nm) = 1.530
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	535

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.1
$\alpha_{20/300°C}$ [10^{-6}/K]	9.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.10

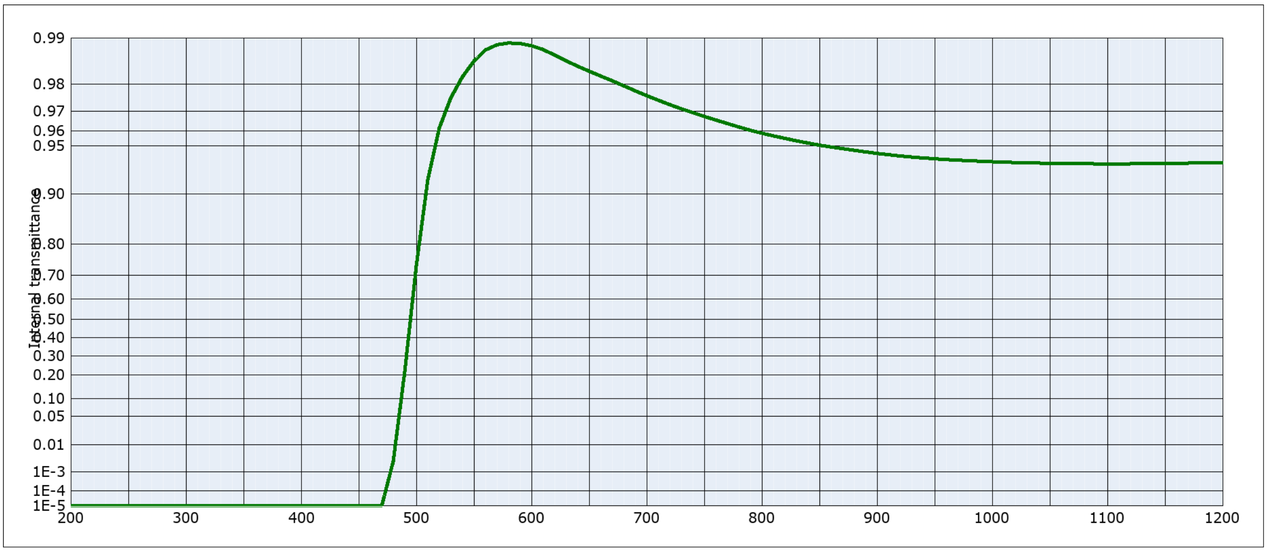
Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.502	0.507	0.509
y	0.469	0.472	0.472
Y	89	88	88
λ_d [nm]	580	581	581
P_e	0.81	0.86	0.88

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.488	0.494	0.497
y	0.478	0.482	0.482
Y	89	88	87
λ_d [nm]	579	579	579
P_e	0.82	0.87	0.89

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.422	0.433	0.438
y	0.514	0.525	0.527
Y	87	85	84
λ_d [nm]	570	571	571
P_e	0.82	0.89	0.90



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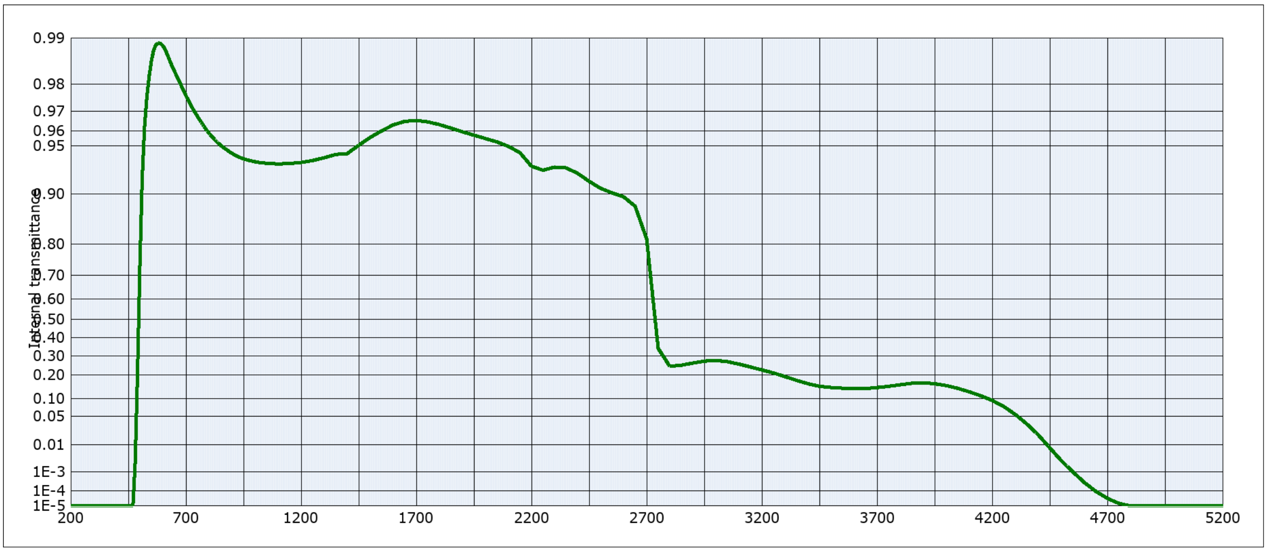
Further explanations see 'Optical Filters 2013' catalogue

GG495



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.732	800	0.959	1100	0.935	2200	0.933	3700	0.143
210	$< 10^{-5}$	510	0.918	810	0.957	1110	0.935	2250	0.929	3750	0.149
220	$< 10^{-5}$	520	0.962	820	0.955	1120	0.935	2300	0.932	3800	0.155
230	$< 10^{-5}$	530	0.976	830	0.954	1130	0.935	2350	0.931	3850	0.162
240	$< 10^{-5}$	540	0.982	840	0.952	1140	0.935	2400	0.926	3900	0.164
250	$< 10^{-5}$	550	0.986	850	0.951	1150	0.936	2450	0.917	3950	0.160
260	$< 10^{-5}$	560	0.988	860	0.949	1160	0.936	2500	0.908	4000	0.152
270	$< 10^{-5}$	570	0.989	870	0.948	1170	0.936	2550	0.901	4050	0.141
280	$< 10^{-5}$	580	0.989	880	0.947	1180	0.936	2600	0.896	4100	0.127
290	$< 10^{-5}$	590	0.989	890	0.946	1190	0.936	2650	0.881	4150	0.111
300	$< 10^{-5}$	600	0.989	900	0.944	1200	0.936	2700	0.813	4200	$9.5 \cdot 10^{-2}$
310	$< 10^{-5}$	610	0.988	910	0.943	1250	0.938	2750	0.341	4250	$7.6 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.987	920	0.942	1300	0.941	2800	0.244	4300	$5.5 \cdot 10^{-2}$
330	$< 10^{-5}$	630	0.986	930	0.941	1350	0.943	2850	0.250	4350	$3.5 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.985	940	0.941	1400	0.944	2900	0.261	4400	$1.9 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.984	950	0.940	1450	0.951	2950	0.271	4450	$8.1 \cdot 10^{-3}$
360	$< 10^{-5}$	660	0.982	960	0.939	1500	0.956	3000	0.275	4500	$2.9 \cdot 10^{-3}$
370	$< 10^{-5}$	670	0.981	970	0.939	1550	0.960	3050	0.269	4550	$1.0 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.980	980	0.938	1600	0.963	3100	0.256	4600	$3.0 \cdot 10^{-4}$
390	$< 10^{-5}$	690	0.978	990	0.938	1650	0.965	3150	0.241	4650	$9.6 \cdot 10^{-5}$
400	$< 10^{-5}$	700	0.976	1000	0.937	1700	0.966	3200	0.226	4700	$3.4 \cdot 10^{-5}$
410	$< 10^{-5}$	710	0.975	1010	0.937	1750	0.965	3250	0.211	4750	$1.5 \cdot 10^{-5}$
420	$< 10^{-5}$	720	0.973	1020	0.936	1800	0.964	3300	0.193	4800	$< 10^{-5}$
430	$< 10^{-5}$	730	0.971	1030	0.936	1850	0.962	3350	0.175	4850	$< 10^{-5}$
440	$< 10^{-5}$	740	0.969	1040	0.936	1900	0.959	3400	0.160	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.968	1050	0.936	1950	0.957	3450	0.149	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.966	1060	0.936	2000	0.955	3500	0.144	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.964	1070	0.935	2050	0.953	3550	0.141	5050	$< 10^{-5}$
480	$2.8 \cdot 10^{-3}$	780	0.962	1080	0.935	2100	0.950	3600	0.139	5100	$< 10^{-5}$
490	0.218	790	0.960	1090	0.935	2150	0.945	3650	0.140	5150	$< 10^{-5}$

Data Sheet

SCHOTT

OG515

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	515 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	440
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	580

Refractive Index n
n_e (546.1 nm) = 1.510
n_d (587.6 nm) = 1.510
n_s (852.1 nm) = 1.510
n_t (1014.0 nm) = 1.500

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	509

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.11

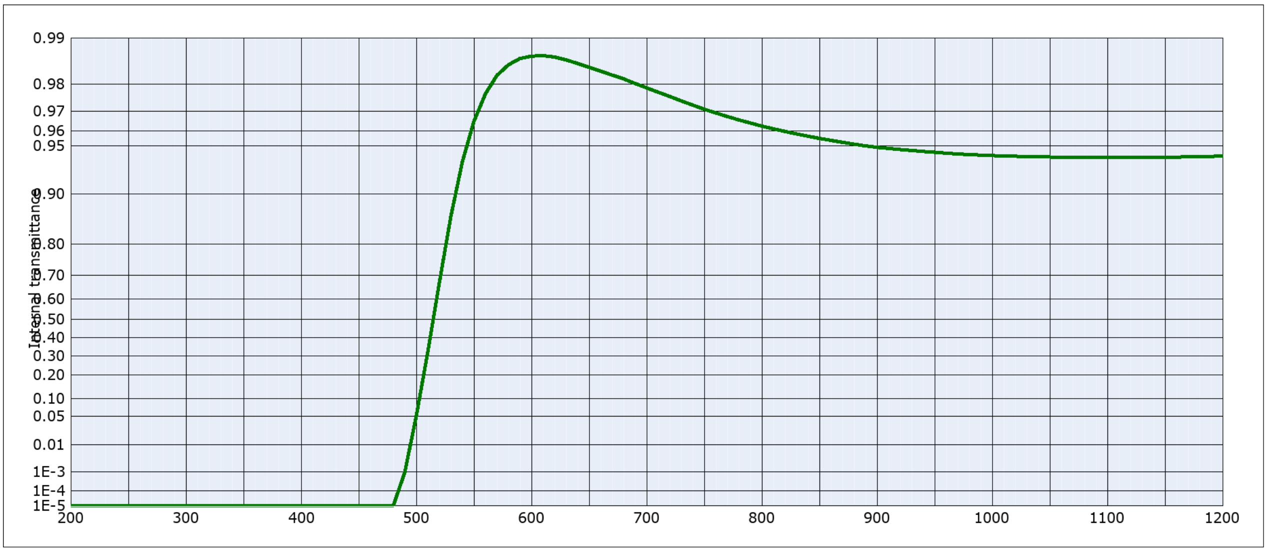
Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.516	0.525	0.530
y	0.468	0.466	0.463
Y	87	84	82
λ_d [nm]	582	583	583
P_e	0.90	0.94	0.96

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.505	0.515	0.520
y	0.477	0.475	0.472
Y	86	83	81
λ_d [nm]	580	581	582
P_e	0.90	0.95	0.96

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.448	0.465	0.473
y	0.516	0.519	0.515
Y	81	78	75
λ_d [nm]	573	574	575
P_e	0.90	0.96	0.97



OG515

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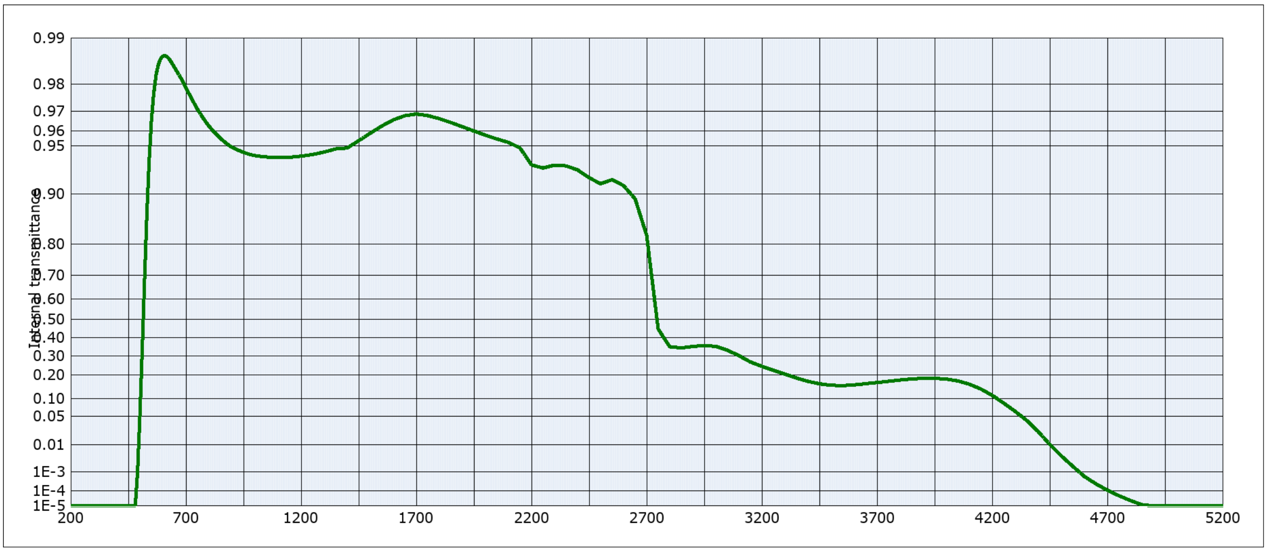

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$5.1\cdot10^{-2}$	800	0.963	1100	0.941	2200	0.934	3700	0.165
210	$< 10^{-5}$	510	0.322	810	0.961	1110	0.941	2250	0.931	3750	0.171
220	$< 10^{-5}$	520	0.669	820	0.960	1120	0.941	2300	0.934	3800	0.177
230	$< 10^{-5}$	530	0.863	830	0.958	1130	0.941	2350	0.933	3850	0.182
240	$< 10^{-5}$	540	0.937	840	0.957	1140	0.941	2400	0.929	3900	0.185
250	$< 10^{-5}$	550	0.965	850	0.955	1150	0.941	2450	0.921	3950	0.185
260	$< 10^{-5}$	560	0.977	860	0.954	1160	0.941	2500	0.914	4000	0.181
270	$< 10^{-5}$	570	0.982	870	0.953	1170	0.941	2550	0.918	4050	0.173
280	$< 10^{-5}$	580	0.985	880	0.951	1180	0.942	2600	0.911	4100	0.158
290	$< 10^{-5}$	590	0.986	890	0.950	1190	0.942	2650	0.893	4150	0.138
300	$< 10^{-5}$	600	0.987	900	0.949	1200	0.942	2700	0.822	4200	0.113
310	$< 10^{-5}$	610	0.987	910	0.948	1250	0.943	2750	0.447	4250	$8.6\cdot10^{-2}$
320	$< 10^{-5}$	620	0.987	920	0.947	1300	0.945	2800	0.350	4300	$6.2\cdot10^{-2}$
330	$< 10^{-5}$	630	0.986	930	0.947	1350	0.948	2850	0.343	4350	$4.1\cdot10^{-2}$
340	$< 10^{-5}$	640	0.985	940	0.946	1400	0.949	2900	0.351	4400	$2.3\cdot10^{-2}$
350	$< 10^{-5}$	650	0.984	950	0.945	1450	0.954	2950	0.357	4450	$1.0\cdot10^{-2}$
360	$< 10^{-5}$	660	0.984	960	0.945	1500	0.959	3000	0.352	4500	$4.4\cdot10^{-3}$
370	$< 10^{-5}$	670	0.983	970	0.944	1550	0.963	3050	0.331	4550	$1.7\cdot10^{-3}$
380	$< 10^{-5}$	680	0.982	980	0.943	1600	0.966	3100	0.301	4600	$6.2\cdot10^{-4}$
390	$< 10^{-5}$	690	0.980	990	0.943	1650	0.968	3150	0.267	4650	$2.6\cdot10^{-4}$
400	$< 10^{-5}$	700	0.979	1000	0.943	1700	0.969	3200	0.244	4700	$1.1\cdot10^{-4}$
410	$< 10^{-5}$	710	0.977	1010	0.942	1750	0.968	3250	0.224	4750	$5.1\cdot10^{-5}$
420	$< 10^{-5}$	720	0.976	1020	0.942	1800	0.967	3300	0.205	4800	$2.4\cdot10^{-5}$
430	$< 10^{-5}$	730	0.974	1030	0.942	1850	0.965	3350	0.186	4850	$1.2\cdot10^{-5}$
440	$< 10^{-5}$	740	0.973	1040	0.942	1900	0.962	3400	0.171	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.971	1050	0.941	1950	0.960	3450	0.160	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.969	1060	0.941	2000	0.957	3500	0.153	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.968	1070	0.941	2050	0.955	3550	0.152	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.966	1080	0.941	2100	0.953	3600	0.155	5100	$< 10^{-5}$
490	$9.7\cdot10^{-4}$	790	0.964	1090	0.941	2150	0.949	3650	0.160	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

OG530

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	530 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	460
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	600

Refractive Index n
n_e (546.1 nm) = 1.510
n_d (587.6 nm) = 1.510
n_s (852.1 nm) = 1.510
n_t (1014.0 nm) = 1.500

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	506

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.11

Notes
Colloidally colored glass
Longpass filter

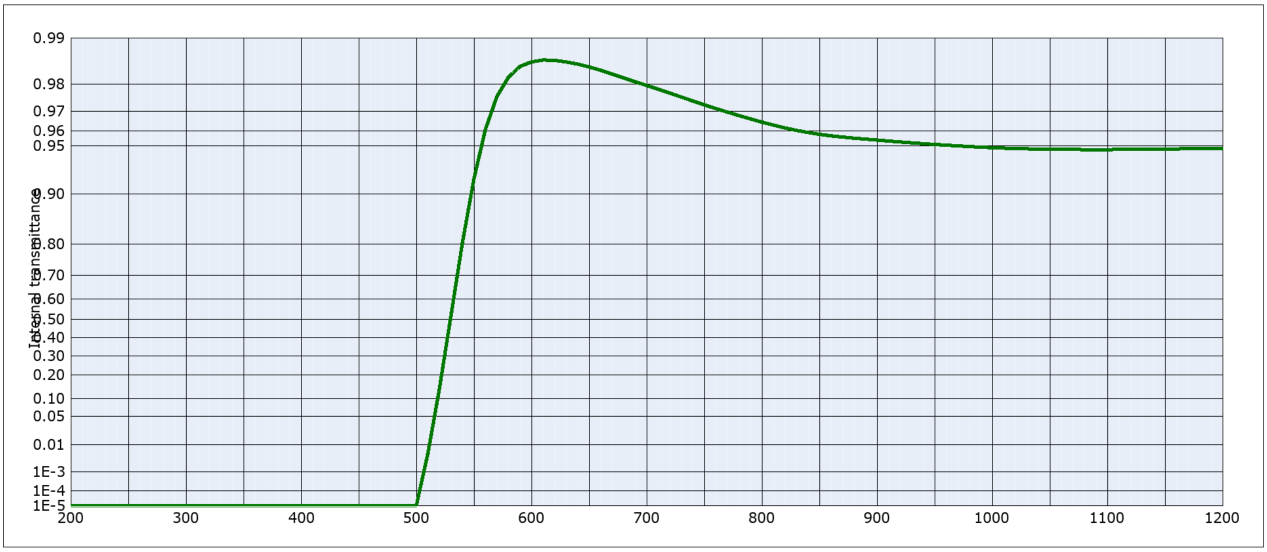
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	**1**	**2**	**3**
x	0.534	0.545	0.550
y	0.457	0.452	0.447
Y	81	78	75
λ_d [nm]	584	585	586
P_e	0.94	0.98	0.98

Illuminant	Planck T = 3200 K		
d [mm]	**1**	**2**	**3**
x	0.524	0.536	0.542
y	0.466	0.460	0.454
Y	80	76	74
λ_d [nm]	583	584	585
P_e	0.94	0.98	0.99

Illuminant	D65 (T_C = 6504 K)		
d [mm]	**1**	**2**	**3**
x	0.476	0.496	0.505
y	0.501	0.498	0.490
Y	74	69	66
λ_d [nm]	576	578	579
P_e	0.94	0.99	0.99



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Further explanations see 'Optical Filters 2013' catalogue

OG530

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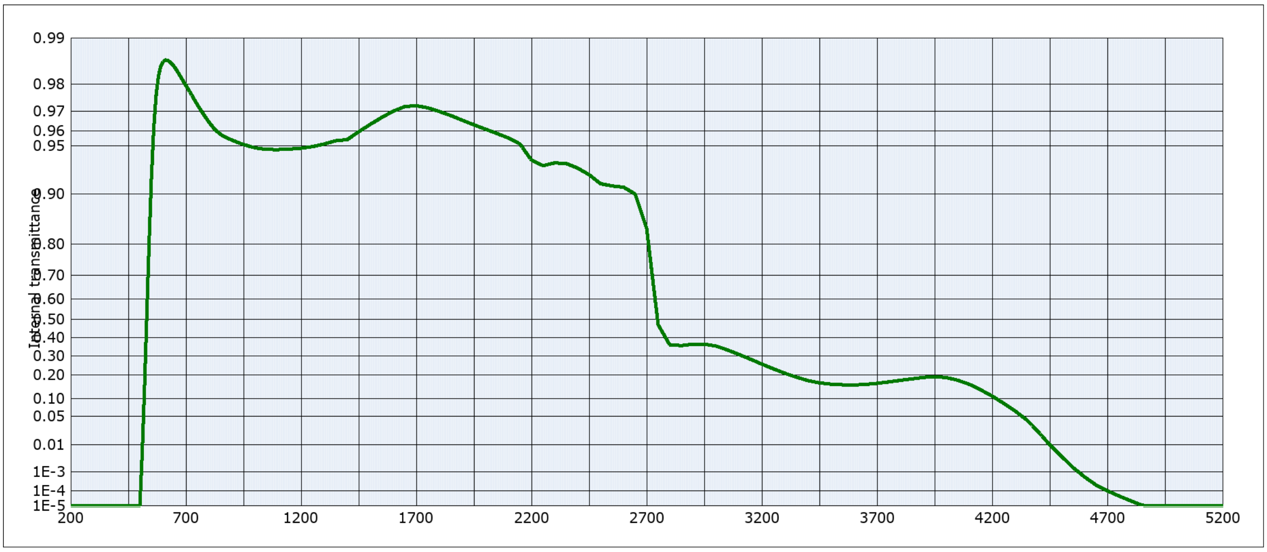


Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.965	1100	0.947	2200	0.939	3700	0.162
210	$< 10^{-5}$	510	$5.2\cdot10^{-3}$	810	0.963	1110	0.947	2250	0.933	3750	0.168
220	$< 10^{-5}$	520	0.136	820	0.962	1120	0.947	2300	0.936	3800	0.175
230	$< 10^{-5}$	530	0.514	830	0.960	1130	0.948	2350	0.936	3850	0.182
240	$< 10^{-5}$	540	0.802	840	0.959	1140	0.948	2400	0.931	3900	0.189
250	$< 10^{-5}$	550	0.919	850	0.958	1150	0.948	2450	0.924	3950	0.193
260	$< 10^{-5}$	560	0.961	860	0.957	1160	0.948	2500	0.914	4000	0.188
270	$< 10^{-5}$	570	0.976	870	0.956	1170	0.948	2550	0.911	4050	0.176
280	$< 10^{-5}$	580	0.982	880	0.955	1180	0.948	2600	0.909	4100	0.158
290	$< 10^{-5}$	590	0.985	890	0.955	1190	0.948	2650	0.900	4150	0.134
300	$< 10^{-5}$	600	0.986	900	0.954	1200	0.948	2700	0.838	4200	0.110
310	$< 10^{-5}$	610	0.986	910	0.954	1250	0.950	2750	0.470	4250	$8.5\cdot10^{-2}$
320	$< 10^{-5}$	620	0.986	920	0.953	1300	0.951	2800	0.361	4300	$6.3\cdot10^{-2}$
330	$< 10^{-5}$	630	0.986	930	0.952	1350	0.954	2850	0.356	4350	$4.3\cdot10^{-2}$
340	$< 10^{-5}$	640	0.985	940	0.952	1400	0.955	2900	0.364	4400	$2.3\cdot10^{-2}$
350	$< 10^{-5}$	650	0.985	950	0.951	1450	0.959	2950	0.364	4450	$1.0\cdot10^{-2}$
360	$< 10^{-5}$	660	0.984	960	0.951	1500	0.964	3000	0.354	4500	$4.3\cdot10^{-3}$
370	$< 10^{-5}$	670	0.983	970	0.950	1550	0.967	3050	0.333	4550	$1.6\cdot10^{-3}$
380	$< 10^{-5}$	680	0.982	980	0.950	1600	0.970	3100	0.308	4600	$5.9\cdot10^{-4}$
390	$< 10^{-5}$	690	0.981	990	0.949	1650	0.972	3150	0.282	4650	$2.3\cdot10^{-4}$
400	$< 10^{-5}$	700	0.980	1000	0.949	1700	0.972	3200	0.256	4700	$1.0\cdot10^{-4}$
410	$< 10^{-5}$	710	0.978	1010	0.948	1750	0.972	3250	0.231	4750	$4.9\cdot10^{-5}$
420	$< 10^{-5}$	720	0.977	1020	0.948	1800	0.970	3300	0.209	4800	$2.4\cdot10^{-5}$
430	$< 10^{-5}$	730	0.976	1030	0.948	1850	0.968	3350	0.190	4850	$1.1\cdot10^{-5}$
440	$< 10^{-5}$	740	0.974	1040	0.948	1900	0.966	3400	0.174	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.973	1050	0.948	1950	0.963	3450	0.164	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.971	1060	0.947	2000	0.961	3500	0.158	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.970	1070	0.947	2050	0.958	3550	0.156	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.968	1080	0.947	2100	0.956	3600	0.155	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.966	1090	0.947	2150	0.952	3650	0.157	5150	$< 10^{-5}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

OG550

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	550 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	480
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	620

Refractive Index n
n_e (546.1 nm) = 1.510
n_d (587.6 nm) = 1.510
n_s (852.1 nm) = 1.510
n_t (1014.0 nm) = 1.500

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	507

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.12

Notes
Colloidally colored glass
Longpass filter

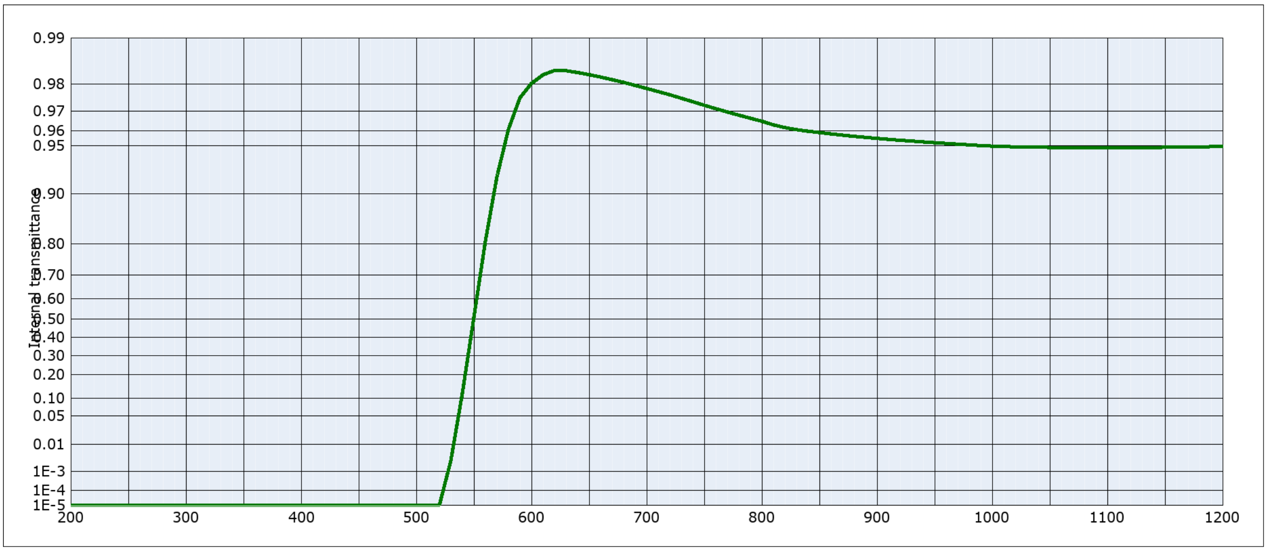
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

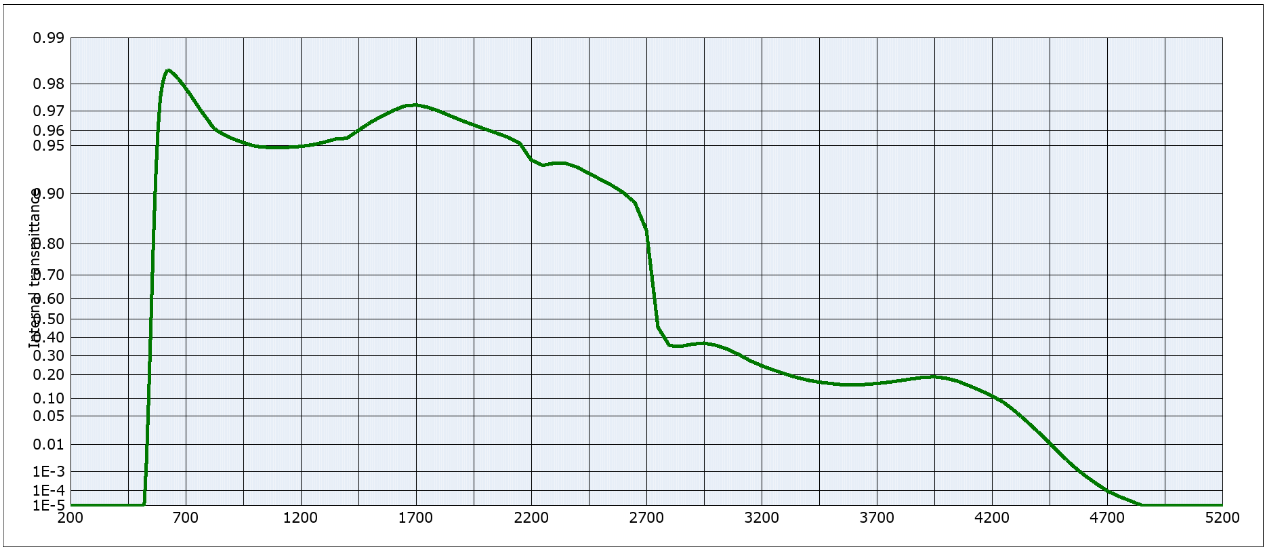
Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.565	0.580	0.587
y	0.429	0.419	0.412
Y	70	65	62
λ_d [nm]	589	591	592
P_e	0.96	1.00	1.00

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.558	0.574	0.581
y	0.435	0.425	0.418
Y	68	63	59
λ_d [nm]	588	590	591
P_e	0.96	1.00	1.00

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.521	0.547	0.557
y	0.459	0.451	0.441
Y	58	52	49
λ_d [nm]	583	586	587
P_e	0.95	1.00	1.00



OG550



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.965	1100	0.949	2200	0.938	3700	0.160
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.963	1110	0.949	2250	0.934	3750	0.165
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.962	1120	0.949	2300	0.936	3800	0.173
230	$< 10^{-5}$	530	$2.8 \cdot 10^{-3}$	830	0.961	1130	0.949	2350	0.935	3850	0.181
240	$< 10^{-5}$	540	0.119	840	0.960	1140	0.949	2400	0.932	3900	0.188
250	$< 10^{-5}$	550	0.508	850	0.959	1150	0.949	2450	0.925	3950	0.190
260	$< 10^{-5}$	560	0.806	860	0.958	1160	0.949	2500	0.919	4000	0.184
270	$< 10^{-5}$	570	0.922	870	0.957	1170	0.949	2550	0.911	4050	0.171
280	$< 10^{-5}$	580	0.961	880	0.957	1180	0.949	2600	0.901	4100	0.151
290	$< 10^{-5}$	590	0.975	890	0.956	1190	0.949	2650	0.886	4150	0.131
300	$< 10^{-5}$	600	0.980	900	0.955	1200	0.950	2700	0.833	4200	0.110
310	$< 10^{-5}$	610	0.983	910	0.955	1250	0.951	2750	0.456	4250	$8.8 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.984	920	0.954	1300	0.953	2800	0.354	4300	$6.2 \cdot 10^{-2}$
330	$< 10^{-5}$	630	0.984	930	0.953	1350	0.955	2850	0.351	4350	$3.9 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.983	940	0.953	1400	0.955	2900	0.363	4400	$2.3 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.983	950	0.952	1450	0.960	2950	0.368	4450	$1.1 \cdot 10^{-2}$
360	$< 10^{-5}$	660	0.982	960	0.952	1500	0.964	3000	0.357	4500	$4.7 \cdot 10^{-3}$
370	$< 10^{-5}$	670	0.981	970	0.951	1550	0.968	3050	0.336	4550	$1.8 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.980	980	0.951	1600	0.970	3100	0.307	4600	$7.0 \cdot 10^{-4}$
390	$< 10^{-5}$	690	0.980	990	0.950	1650	0.972	3150	0.273	4650	$2.7 \cdot 10^{-4}$
400	$< 10^{-5}$	700	0.979	1000	0.950	1700	0.973	3200	0.246	4700	$1.0 \cdot 10^{-4}$
410	$< 10^{-5}$	710	0.978	1010	0.950	1750	0.972	3250	0.224	4750	$4.5 \cdot 10^{-5}$
420	$< 10^{-5}$	720	0.977	1020	0.949	1800	0.970	3300	0.206	4800	$2.3 \cdot 10^{-5}$
430	$< 10^{-5}$	730	0.975	1030	0.949	1850	0.968	3350	0.188	4850	$1.1 \cdot 10^{-5}$
440	$< 10^{-5}$	740	0.974	1040	0.949	1900	0.965	3400	0.175	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.973	1050	0.949	1950	0.963	3450	0.166	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.971	1060	0.949	2000	0.961	3500	0.160	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.970	1070	0.949	2050	0.959	3550	0.155	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.968	1080	0.949	2100	0.956	3600	0.153	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.967	1090	0.949	2150	0.952	3650	0.156	5150	$< 10^{-5}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

OG570

Density	
ρ [g/cm^3]	2.74

Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.921

Bubble content	
Bubble class	3

Reference thickness	
d [mm]	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	570 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	500
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	640

Transformation temperature	
Tg [°C]	510

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_d (587.6 nm) = 1.510
n_s (852.1 nm) = 1.510
n_t (1014.0 nm) = 1.500

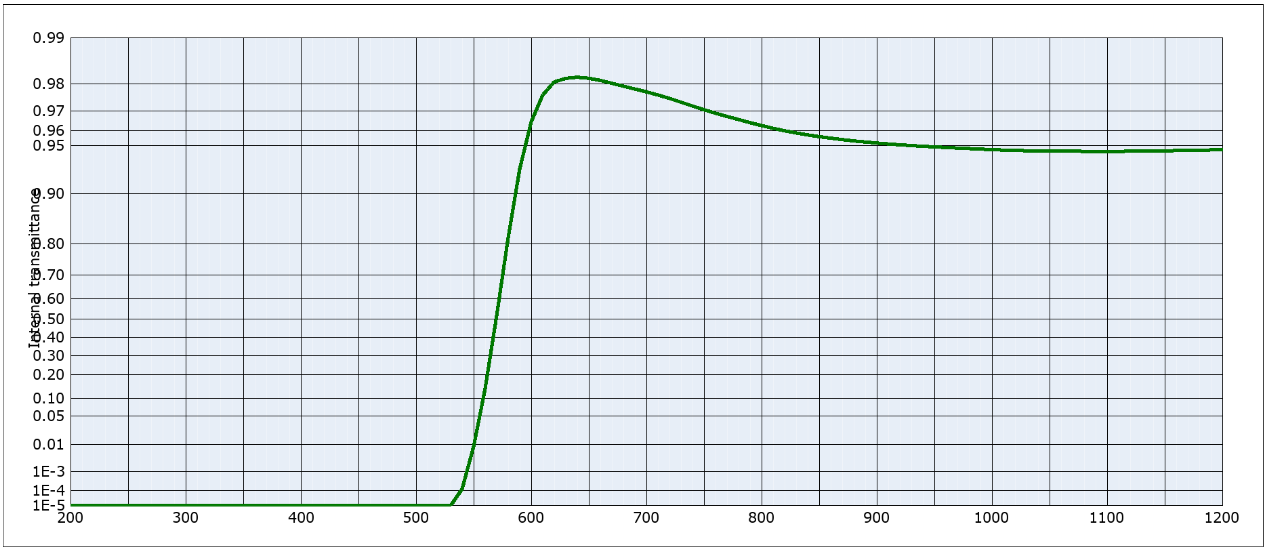
Temperature coefficient	
T_K [nm/°C]	0.12

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.600	0.619	0.627
y	0.394	0.380	0.372
Y	56	49	46
λ_d [nm]	596	598	600
P_e	0.96	1.00	1.00

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.595	0.616	0.624
y	0.398	0.384	0.375
Y	53	47	44
λ_d [nm]	595	598	599
P_e	0.96	1.00	1.00

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.566	0.600	0.611
y	0.412	0.399	0.389
Y	43	36	33
λ_d [nm]	591	595	597
P_e	0.94	1.00	1.00



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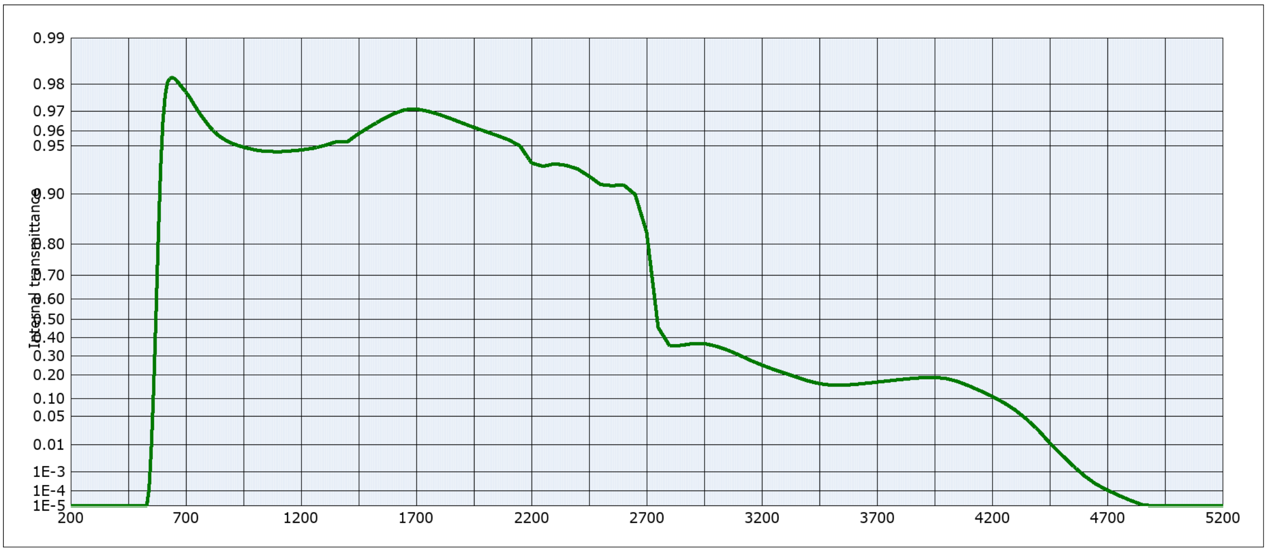
Further explanations see 'Optical Filters 2013' catalogue

OG570



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.963	1100	0.946	2200	0.936	3700	0.167
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.961	1110	0.946	2250	0.933	3750	0.173
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.960	1120	0.946	2300	0.935	3800	0.179
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.959	1130	0.946	2350	0.934	3850	0.184
240	$< 10^{-5}$	540	$1.3 \cdot 10^{-4}$	840	0.957	1140	0.946	2400	0.930	3900	0.188
250	$< 10^{-5}$	550	$8.8 \cdot 10^{-3}$	850	0.956	1150	0.946	2450	0.922	3950	0.189
260	$< 10^{-5}$	560	0.139	860	0.955	1160	0.946	2500	0.913	4000	0.184
270	$< 10^{-5}$	570	0.517	870	0.954	1170	0.947	2550	0.911	4050	0.170
280	$< 10^{-5}$	580	0.816	880	0.953	1180	0.947	2600	0.912	4100	0.150
290	$< 10^{-5}$	590	0.930	890	0.953	1190	0.947	2650	0.899	4150	0.130
300	$< 10^{-5}$	600	0.965	900	0.952	1200	0.947	2700	0.829	4200	0.109
310	$< 10^{-5}$	610	0.976	910	0.951	1250	0.948	2750	0.455	4250	$8.8 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.981	920	0.951	1300	0.950	2800	0.354	4300	$6.6 \cdot 10^{-2}$
330	$< 10^{-5}$	630	0.982	930	0.950	1350	0.953	2850	0.357	4350	$4.4 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.982	940	0.950	1400	0.953	2900	0.367	4400	$2.5 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.982	950	0.949	1450	0.958	2950	0.368	4450	$1.1 \cdot 10^{-2}$
360	$< 10^{-5}$	660	0.981	960	0.949	1500	0.963	3000	0.353	4500	$4.9 \cdot 10^{-3}$
370	$< 10^{-5}$	670	0.980	970	0.948	1550	0.966	3050	0.332	4550	$1.9 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.979	980	0.948	1600	0.969	3100	0.305	4600	$6.6 \cdot 10^{-4}$
390	$< 10^{-5}$	690	0.978	990	0.948	1650	0.971	3150	0.276	4650	$2.5 \cdot 10^{-4}$
400	$< 10^{-5}$	700	0.977	1000	0.947	1700	0.971	3200	0.251	4700	$1.1 \cdot 10^{-4}$
410	$< 10^{-5}$	710	0.976	1010	0.947	1750	0.970	3250	0.229	4750	$5.3 \cdot 10^{-5}$
420	$< 10^{-5}$	720	0.975	1020	0.946	1800	0.969	3300	0.209	4800	$2.5 \cdot 10^{-5}$
430	$< 10^{-5}$	730	0.974	1030	0.946	1850	0.967	3350	0.191	4850	$1.2 \cdot 10^{-5}$
440	$< 10^{-5}$	740	0.972	1040	0.946	1900	0.964	3400	0.173	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.971	1050	0.946	1950	0.962	3450	0.160	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.969	1060	0.946	2000	0.960	3500	0.154	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.968	1070	0.946	2050	0.957	3550	0.154	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.966	1080	0.946	2100	0.954	3600	0.157	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.964	1090	0.946	2150	0.950	3650	0.162	5150	$< 10^{-5}$

STATUS: 09.12.15

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

OG590

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	590 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	510
λ_p ($\tau_{i,L}$ = 0.93) [nm]	=	660

Refractive Index n
n_d (587.6 nm) = 1.510
n_s (852.1 nm) = 1.510
n_t (1014.0 nm) = 1.500

Density	
ρ [g/cm^3]	2.56

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	506

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.13

Notes
Colloidally colored glass
Longpass filter

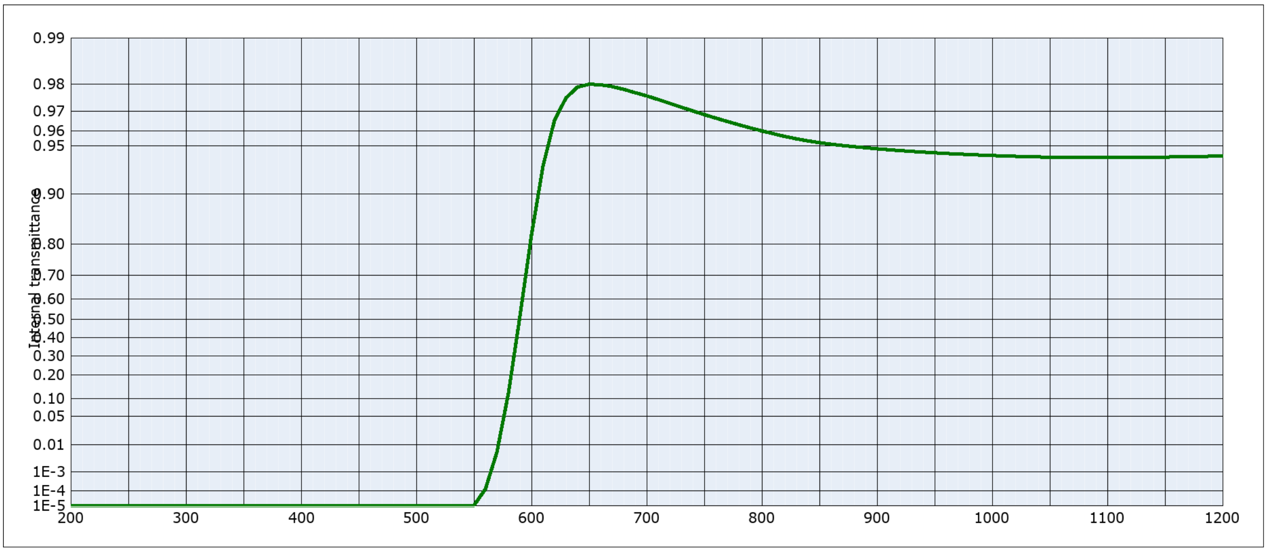
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.639	0.662	0.669
y	0.354	0.338	0.331
Y	39	33	30
λ_d [nm]	605	609	611
P_e	0.96	1.00	1.00

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.635	0.660	0.667
y	0.356	0.340	0.332
Y	37	31	28
λ_d [nm]	604	608	611
P_e	0.95	1.00	1.00

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.610	0.652	0.661
y	0.361	0.347	0.338
Y	27	22	19
λ_d [nm]	602	606	609
P_e	0.92	1.00	1.00



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Further explanations see 'Optical Filters 2013' catalogue

OG590

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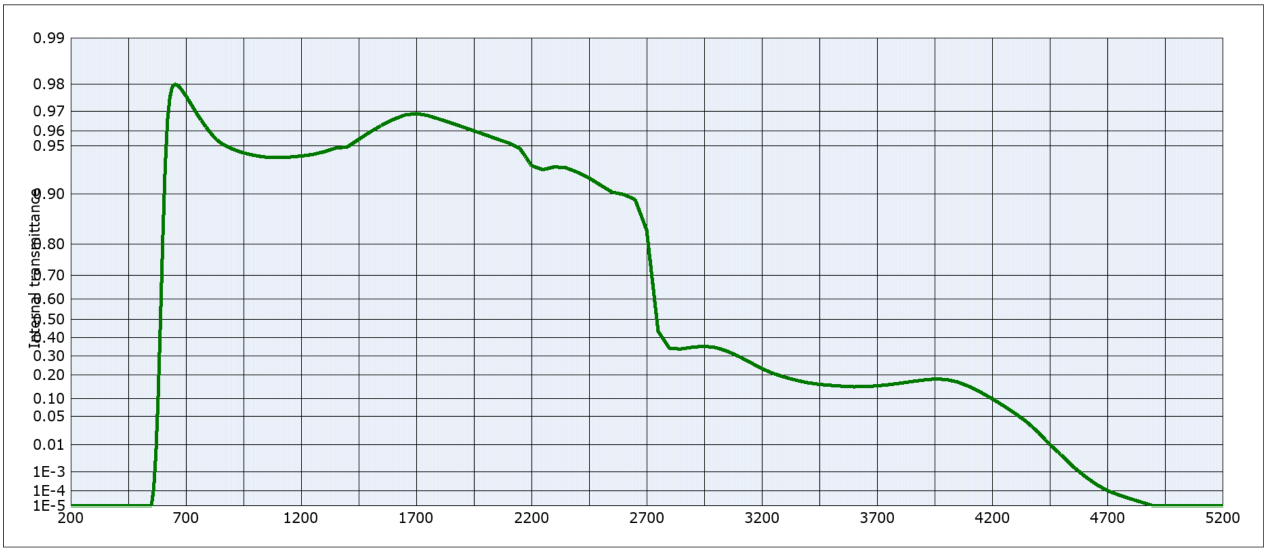

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.960	1100	0.941	2200	0.933	3700	0.151
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.958	1110	0.941	2250	0.929	3750	0.156
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.957	1120	0.941	2300	0.932	3800	0.162
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.955	1130	0.941	2350	0.931	3850	0.170
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.954	1140	0.941	2400	0.927	3900	0.176
250	$< 10^{-5}$	550	$1.1 \cdot 10^{-5}$	850	0.952	1150	0.941	2450	0.921	3950	0.181
260	$< 10^{-5}$	560	$1.3 \cdot 10^{-4}$	860	0.951	1160	0.941	2500	0.912	4000	0.179
270	$< 10^{-5}$	570	$5.9 \cdot 10^{-3}$	870	0.950	1170	0.942	2550	0.902	4050	0.168
280	$< 10^{-5}$	580	0.121	880	0.950	1180	0.942	2600	0.899	4100	0.148
290	$< 10^{-5}$	590	0.515	890	0.949	1190	0.942	2650	0.892	4150	0.125
300	$< 10^{-5}$	600	0.823	900	0.948	1200	0.942	2700	0.834	4200	0.101
310	$< 10^{-5}$	610	0.933	910	0.947	1250	0.943	2750	0.434	4250	$7.7 \cdot 10^{-2}$
320	$< 10^{-5}$	620	0.966	920	0.947	1300	0.946	2800	0.339	4300	$5.7 \cdot 10^{-2}$
330	$< 10^{-5}$	630	0.975	930	0.946	1350	0.949	2850	0.338	4350	$3.9 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.979	940	0.945	1400	0.949	2900	0.347	4400	$2.2 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.980	950	0.945	1450	0.955	2950	0.352	4450	$1.0 \cdot 10^{-2}$
360	$< 10^{-5}$	660	0.980	960	0.944	1500	0.959	3000	0.345	4500	$4.7 \cdot 10^{-3}$
370	$< 10^{-5}$	670	0.979	970	0.944	1550	0.963	3050	0.325	4550	$1.7 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.978	980	0.943	1600	0.966	3100	0.297	4600	$6.6 \cdot 10^{-4}$
390	$< 10^{-5}$	690	0.977	990	0.943	1650	0.968	3150	0.265	4650	$2.5 \cdot 10^{-4}$
400	$< 10^{-5}$	700	0.976	1000	0.943	1700	0.969	3200	0.232	4700	$1.1 \cdot 10^{-4}$
410	$< 10^{-5}$	710	0.975	1010	0.942	1750	0.968	3250	0.208	4750	$5.7 \cdot 10^{-5}$
420	$< 10^{-5}$	720	0.973	1020	0.942	1800	0.966	3300	0.190	4800	$3.2 \cdot 10^{-5}$
430	$< 10^{-5}$	730	0.972	1030	0.942	1850	0.964	3350	0.176	4850	$1.8 \cdot 10^{-5}$
440	$< 10^{-5}$	740	0.970	1040	0.941	1900	0.962	3400	0.164	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.969	1050	0.941	1950	0.960	3450	0.157	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.967	1060	0.941	2000	0.958	3500	0.153	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.965	1070	0.941	2050	0.955	3550	0.149	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.963	1080	0.941	2100	0.952	3600	0.147	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.962	1090	0.941	2150	0.948	3650	0.148	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

RG610

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	610 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	530
λ_p ($\tau_{i,L}$ = 0.94) [nm]	=	690

Refractive Index n
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.65

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	520

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.0
$\alpha_{20/300°C}$ [10^{-6}/K]	9.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.14

Notes
Colloidally colored glass
Longpass filter

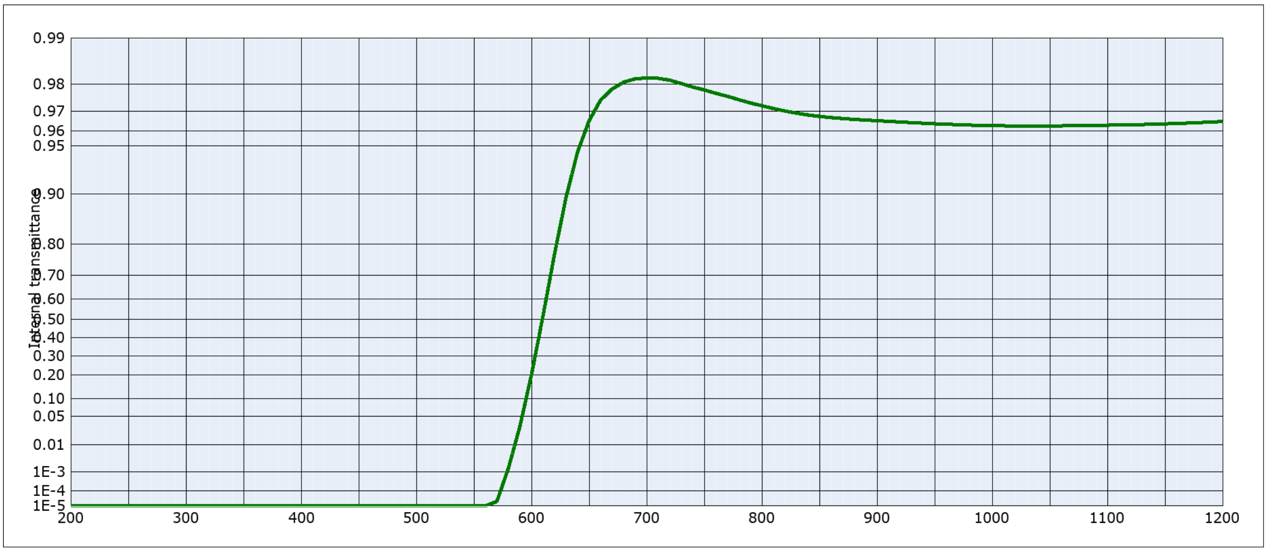
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.663	0.690	0.697
y	0.328	0.310	0.303
Y	27	20	17
λ_d [nm]	614	619	623
P_e	0.94	1.00	1.00

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.659	0.689	0.696
y	0.329	0.311	0.304
Y	25	18	15
λ_d [nm]	613	619	623
P_e	0.93	1.00	1.00

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.629	0.684	0.693
y	0.330	0.315	0.307
Y	17	12	10
λ_d [nm]	611	617	621
P_e	0.89	1.00	1.00



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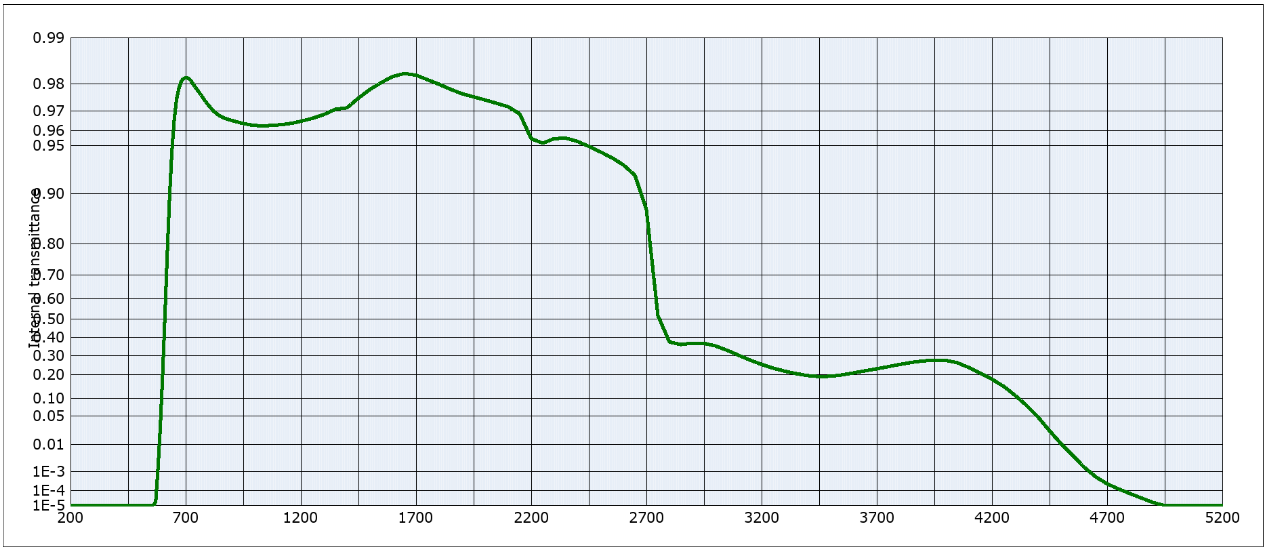
Further explanations see 'Optical Filters 2013' catalogue

RG610



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.972	1100	0.963	2200	0.955	3700	0.230
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.971	1110	0.963	2250	0.952	3750	0.241
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.970	1120	0.963	2300	0.955	3800	0.253
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.969	1130	0.964	2350	0.955	3850	0.263
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.968	1140	0.964	2400	0.953	3900	0.271
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.968	1150	0.964	2450	0.950	3950	0.276
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.967	1160	0.964	2500	0.945	4000	0.274
270	$< 10^{-5}$	570	$2.1 \cdot 10^{-5}$	870	0.967	1170	0.964	2550	0.941	4050	0.261
280	$< 10^{-5}$	580	$1.5 \cdot 10^{-3}$	880	0.966	1180	0.965	2600	0.934	4100	0.236
290	$< 10^{-5}$	590	$3.1 \cdot 10^{-2}$	890	0.966	1190	0.965	2650	0.923	4150	0.208
300	$< 10^{-5}$	600	0.202	900	0.966	1200	0.965	2700	0.875	4200	0.179
310	$< 10^{-5}$	610	0.516	910	0.965	1250	0.967	2750	0.517	4250	0.148
320	$< 10^{-5}$	620	0.770	920	0.965	1300	0.968	2800	0.375	4300	0.112
330	$< 10^{-5}$	630	0.895	930	0.965	1350	0.971	2850	0.361	4350	$7.8 \cdot 10^{-2}$
340	$< 10^{-5}$	640	0.945	940	0.964	1400	0.971	2900	0.368	4400	$4.8 \cdot 10^{-2}$
350	$< 10^{-5}$	650	0.966	950	0.964	1450	0.975	2950	0.367	4450	$2.4 \cdot 10^{-2}$
360	$< 10^{-5}$	660	0.975	960	0.964	1500	0.978	3000	0.353	4500	$1.1 \cdot 10^{-2}$
370	$< 10^{-5}$	670	0.978	970	0.964	1550	0.980	3050	0.329	4550	$4.5 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.981	980	0.963	1600	0.982	3100	0.302	4600	$1.6 \cdot 10^{-3}$
390	$< 10^{-5}$	690	0.982	990	0.963	1650	0.983	3150	0.275	4650	$5.7 \cdot 10^{-4}$
400	$< 10^{-5}$	700	0.982	1000	0.963	1700	0.982	3200	0.253	4700	$2.5 \cdot 10^{-4}$
410	$< 10^{-5}$	710	0.982	1010	0.963	1750	0.981	3250	0.233	4750	$1.3 \cdot 10^{-4}$
420	$< 10^{-5}$	720	0.981	1020	0.963	1800	0.980	3300	0.218	4800	$6.7 \cdot 10^{-5}$
430	$< 10^{-5}$	730	0.980	1030	0.963	1850	0.978	3350	0.206	4850	$3.4 \cdot 10^{-5}$
440	$< 10^{-5}$	740	0.979	1040	0.963	1900	0.977	3400	0.196	4900	$1.7 \cdot 10^{-5}$
450	$< 10^{-5}$	750	0.978	1050	0.963	1950	0.976	3450	0.192	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.977	1060	0.963	2000	0.975	3500	0.193	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.976	1070	0.963	2050	0.973	3550	0.200	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.975	1080	0.963	2100	0.972	3600	0.210	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.974	1090	0.963	2150	0.969	3650	0.220	5150	$< 10^{-5}$

Data Sheet

SCHOTT

RG630

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	630 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	540
λ_p ($\tau_{i,L}$ = 0.94) [nm]	=	710

Refractive Index n
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

Density	
ρ [g/cm^3]	2.65

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	527

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.0
$\alpha_{20/300°C}$ [10^{-6}/K]	9.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.14

Notes
Colloidally colored glass
Longpass filter

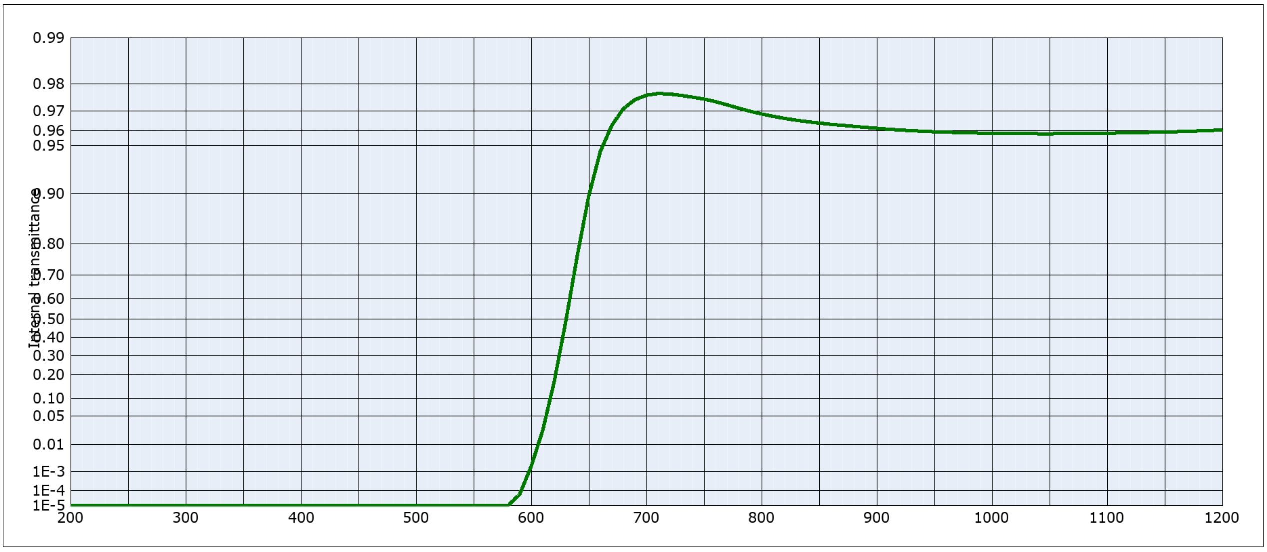
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	**1**	**2**	**3**
x	0.678	0.712	0.718
y	0.307	0.287	0.282
Y	15	9	8
λ_d [nm]	627	634	639
P_e	0.90	1.00	1.00

Illuminant	Planck T = 3200 K		
d [mm]	**1**	**2**	**3**
x	0.672	0.712	0.717
y	0.308	0.287	0.283
Y	14	8	7
λ_d [nm]	627	634	638
P_e	0.89	1.00	1.00

Illuminant	D65 (T_C = 6504 K)		
d [mm]	**1**	**2**	**3**
x	0.624	0.708	0.716
y	0.305	0.289	0.284
Y	9	5	4
λ_d [nm]	625	633	637
P_e	0.80	0.99	1.00



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Further explanations see 'Optical Filters 2013' catalogue

RG630

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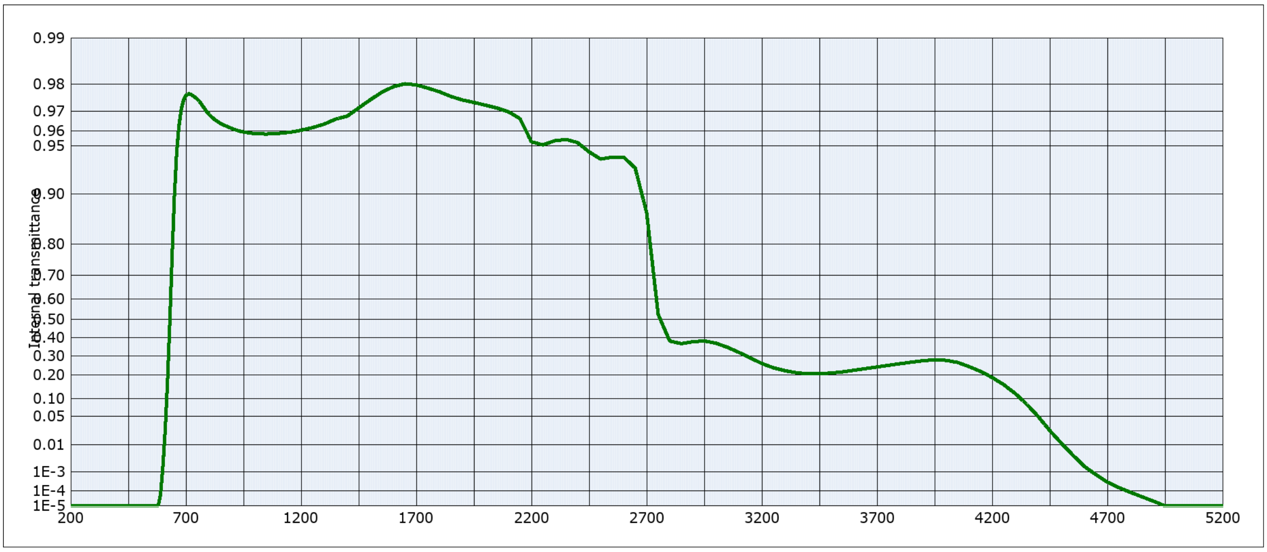


Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	< 10^{-5}	800	0.969	1100	0.958	2200	0.953	3700	0.241
210	< 10^{-5}	510	< 10^{-5}	810	0.968	1110	0.959	2250	0.951	3750	0.250
220	< 10^{-5}	520	< 10^{-5}	820	0.967	1120	0.959	2300	0.954	3800	0.258
230	< 10^{-5}	530	< 10^{-5}	830	0.966	1130	0.959	2350	0.955	3850	0.266
240	< 10^{-5}	540	< 10^{-5}	840	0.965	1140	0.959	2400	0.953	3900	0.274
250	< 10^{-5}	550	< 10^{-5}	850	0.964	1150	0.959	2450	0.946	3950	0.278
260	< 10^{-5}	560	< 10^{-5}	860	0.964	1160	0.959	2500	0.940	4000	0.275
270	< 10^{-5}	570	< 10^{-5}	870	0.963	1170	0.960	2550	0.941	4050	0.264
280	< 10^{-5}	580	< 10^{-5}	880	0.962	1180	0.960	2600	0.941	4100	0.243
290	< 10^{-5}	590	$6.2 \cdot 10^{-5}$	890	0.962	1190	0.960	2650	0.931	4150	0.218
300	< 10^{-5}	600	$1.7 \cdot 10^{-3}$	900	0.961	1200	0.960	2700	0.870	4200	0.188
310	< 10^{-5}	610	$2.5 \cdot 10^{-2}$	910	0.961	1250	0.962	2750	0.524	4250	0.156
320	< 10^{-5}	620	0.169	920	0.960	1300	0.964	2800	0.381	4300	0.120
330	< 10^{-5}	630	0.487	930	0.960	1350	0.966	2850	0.367	4350	$8.3 \cdot 10^{-2}$
340	< 10^{-5}	640	0.765	940	0.960	1400	0.968	2900	0.378	4400	$4.9 \cdot 10^{-2}$
350	< 10^{-5}	650	0.897	950	0.959	1450	0.972	2950	0.382	4450	$2.4 \cdot 10^{-2}$
360	< 10^{-5}	660	0.946	960	0.959	1500	0.975	3000	0.370	4500	$1.1 \cdot 10^{-2}$
370	< 10^{-5}	670	0.963	970	0.959	1550	0.977	3050	0.347	4550	$4.7 \cdot 10^{-3}$
380	< 10^{-5}	680	0.971	980	0.959	1600	0.979	3100	0.319	4600	$1.7 \cdot 10^{-3}$
390	< 10^{-5}	690	0.975	990	0.959	1650	0.980	3150	0.288	4650	$7.5 \cdot 10^{-4}$
400	< 10^{-5}	700	0.976	1000	0.958	1700	0.980	3200	0.259	4700	$3.2 \cdot 10^{-4}$
410	< 10^{-5}	710	0.977	1010	0.958	1750	0.979	3250	0.237	4750	$1.6 \cdot 10^{-4}$
420	< 10^{-5}	720	0.977	1020	0.958	1800	0.978	3300	0.222	4800	$8.4 \cdot 10^{-5}$
430	< 10^{-5}	730	0.976	1030	0.958	1850	0.976	3350	0.212	4850	$4.4 \cdot 10^{-5}$
440	< 10^{-5}	740	0.976	1040	0.958	1900	0.975	3400	0.206	4900	$2.2 \cdot 10^{-5}$
450	< 10^{-5}	750	0.975	1050	0.958	1950	0.974	3450	0.206	4950	< 10^{-5}
460	< 10^{-5}	760	0.974	1060	0.958	2000	0.973	3500	0.210	5000	< 10^{-5}
470	< 10^{-5}	770	0.973	1070	0.958	2050	0.971	3550	0.216	5050	< 10^{-5}
480	< 10^{-5}	780	0.971	1080	0.958	2100	0.970	3600	0.224	5100	< 10^{-5}
490	< 10^{-5}	790	0.970	1090	0.958	2150	0.967	3650	0.232	5150	< 10^{-5}

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

RG645

Density	
ρ [g/cm³]	2.65

Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.918

Bubble content	
Bubble class	3

Reference thickness	
d [mm]	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	645 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	560
λ_p ($\tau_{i,L}$ = 0.94) [nm]	=	720

Transformation temperature	
Tg [°C]	519

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.0
$\alpha_{20/300°C}$ [10^{-6}/K]	9.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.520
n_t (1014.0 nm) = 1.510

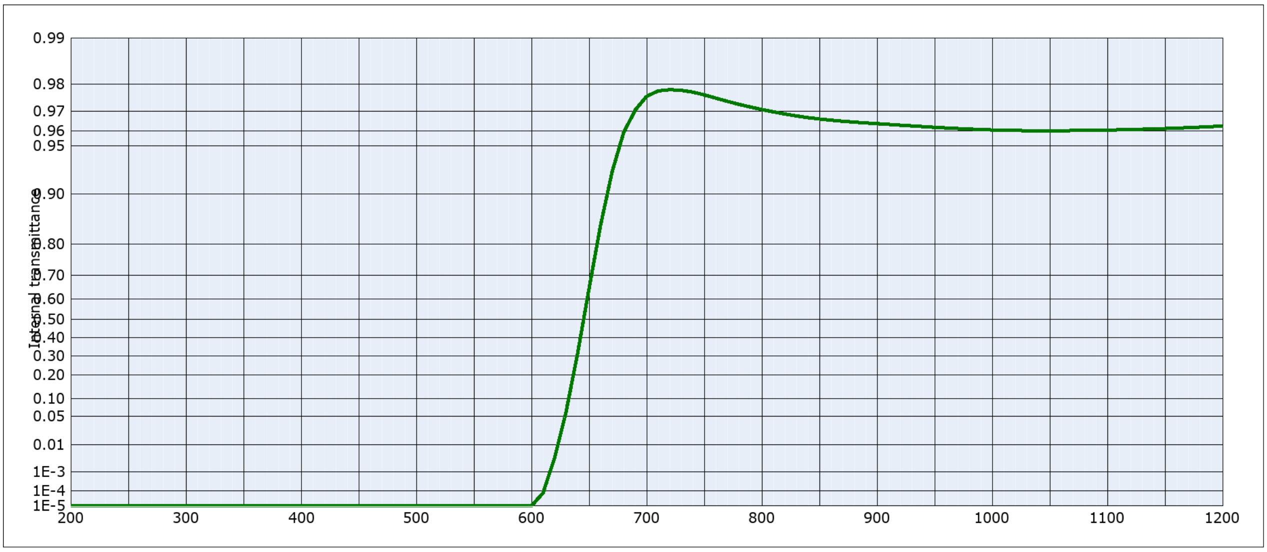
Temperature coefficient	
T_K [nm/°C]	0.16

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.672	0.722	0.726
y	0.303	0.277	0.274
Y	9	5	4
λ_d [nm]	640	647	651
P_e	0.83	0.99	1.00

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.662	0.722	0.726
y	0.304	0.277	0.274
Y	8	4	3
λ_d [nm]	640	646	651
P_e	0.81	0.99	1.00

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.584	0.717	0.726
y	0.298	0.278	0.274
Y	5	2	2
λ_d [nm]	638	645	650
P_e	0.67	0.98	1.00



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Further explanations see 'Optical Filters 2013' catalogue

RG645

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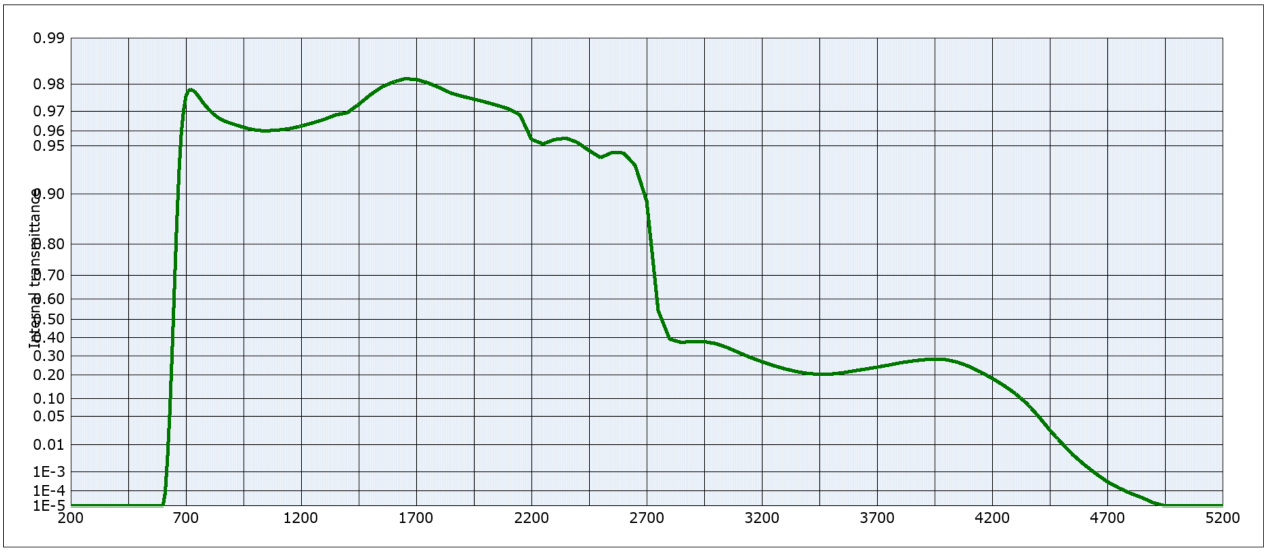

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	< 10^{-5}	800	0.971	1100	0.960	2200	0.955	3700	0.240
210	< 10^{-5}	510	< 10^{-5}	810	0.970	1110	0.961	2250	0.952	3750	0.250
220	< 10^{-5}	520	< 10^{-5}	820	0.969	1120	0.961	2300	0.955	3800	0.262
230	< 10^{-5}	530	< 10^{-5}	830	0.968	1130	0.961	2350	0.956	3850	0.271
240	< 10^{-5}	540	< 10^{-5}	840	0.967	1140	0.961	2400	0.953	3900	0.279
250	< 10^{-5}	550	< 10^{-5}	850	0.966	1150	0.961	2450	0.947	3950	0.283
260	< 10^{-5}	560	< 10^{-5}	860	0.966	1160	0.962	2500	0.941	4000	0.279
270	< 10^{-5}	570	< 10^{-5}	870	0.965	1170	0.962	2550	0.945	4050	0.266
280	< 10^{-5}	580	< 10^{-5}	880	0.965	1180	0.962	2600	0.945	4100	0.244
290	< 10^{-5}	590	< 10^{-5}	890	0.964	1190	0.962	2650	0.934	4150	0.215
300	< 10^{-5}	600	< 10^{-5}	900	0.964	1200	0.963	2700	0.889	4200	0.184
310	< 10^{-5}	610	$7.6 \cdot 10^{-5}$	910	0.964	1250	0.964	2750	0.544	4250	0.153
320	< 10^{-5}	620	$3.6 \cdot 10^{-3}$	920	0.963	1300	0.966	2800	0.392	4300	0.120
330	< 10^{-5}	630	$6.1 \cdot 10^{-2}$	930	0.963	1350	0.968	2850	0.374	4350	$8.5 \cdot 10^{-2}$
340	< 10^{-5}	640	0.311	940	0.962	1400	0.969	2900	0.379	4400	$5.1 \cdot 10^{-2}$
350	< 10^{-5}	650	0.645	950	0.962	1450	0.973	2950	0.378	4450	$2.5 \cdot 10^{-2}$
360	< 10^{-5}	660	0.845	960	0.962	1500	0.977	3000	0.367	4500	$1.2 \cdot 10^{-2}$
370	< 10^{-5}	670	0.927	970	0.961	1550	0.979	3050	0.346	4550	$4.8 \cdot 10^{-3}$
380	< 10^{-5}	680	0.959	980	0.961	1600	0.981	3100	0.318	4600	$2.0 \cdot 10^{-3}$
390	< 10^{-5}	690	0.971	990	0.961	1650	0.982	3150	0.291	4650	$8.3 \cdot 10^{-4}$
400	< 10^{-5}	700	0.976	1000	0.961	1700	0.981	3200	0.269	4700	$3.3 \cdot 10^{-4}$
410	< 10^{-5}	710	0.978	1010	0.960	1750	0.980	3250	0.248	4750	$1.5 \cdot 10^{-4}$
420	< 10^{-5}	720	0.978	1020	0.960	1800	0.979	3300	0.231	4800	$7.3 \cdot 10^{-5}$
430	< 10^{-5}	730	0.978	1030	0.960	1850	0.977	3350	0.218	4850	$3.8 \cdot 10^{-5}$
440	< 10^{-5}	740	0.977	1040	0.960	1900	0.976	3400	0.208	4900	$1.7 \cdot 10^{-5}$
450	< 10^{-5}	750	0.977	1050	0.960	1950	0.975	3450	0.204	4950	< 10^{-5}
460	< 10^{-5}	760	0.975	1060	0.960	2000	0.974	3500	0.205	5000	< 10^{-5}
470	< 10^{-5}	770	0.974	1070	0.960	2050	0.973	3550	0.211	5050	< 10^{-5}
480	< 10^{-5}	780	0.973	1080	0.960	2100	0.971	3600	0.221	5100	< 10^{-5}
490	< 10^{-5}	790	0.972	1090	0.960	2150	0.968	3650	0.230	5150	< 10^{-5}

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

RG665

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	665 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	580
λ_p ($\tau_{i,L}$ = 0.96) [nm]	=	750

Refractive Index n
n_i (365.0 nm) = 1.545
n_h (404.7 nm) = 1.538
n_g (435.8 nm) = 1.534
$n_{F'}$ (480.0 nm) = 1.529
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.77

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	527

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.1
$\alpha_{20/300°C}$ [10^{-6}/K]	9.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

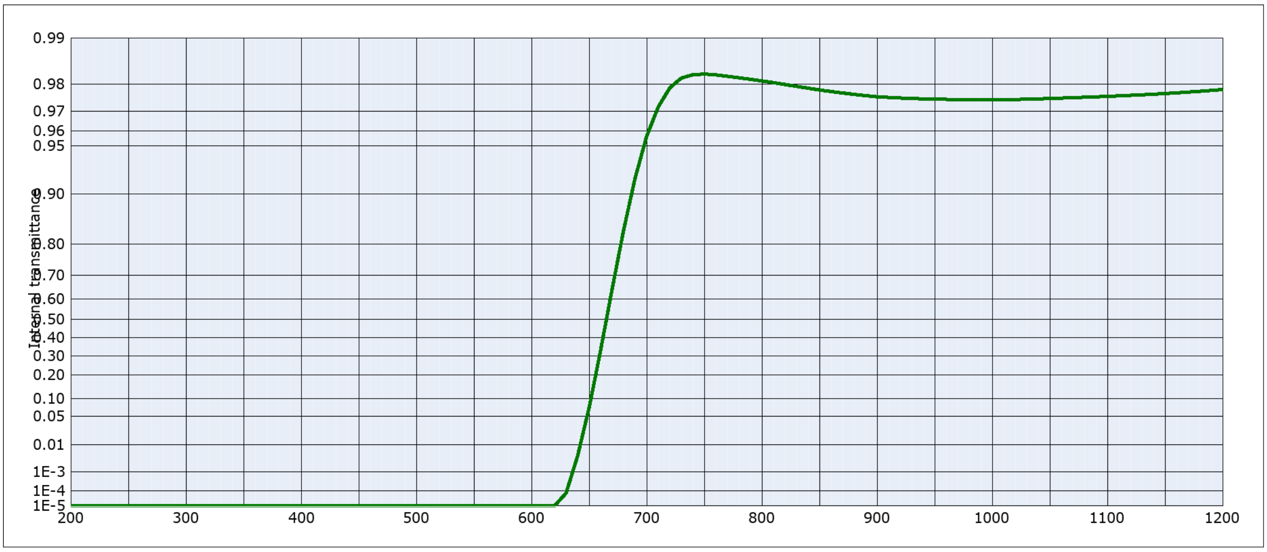
Temperature coefficient	
T_K [nm/°C]	0.17

Notes
Colloidally colored glass
Longpass filter

All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x	0.631	0.726	0.732	x	0.612	0.724	0.732	x	0.487	0.711	0.731
y	0.318	0.272	0.268	y	0.320	0.272	0.268	y	0.305	0.272	0.268
Y	4	2	1	Y	4	1	1	Y	3	1	1
λ_d [nm]	656	664	671	λ_d [nm]	656	664	670	λ_d [nm]	654	662	668
P_e	0.65	0.98	1.00	P_e	0.62	0.98	1.00	P_e	0.42	0.95	1.00



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Further explanations see 'Optical Filters 2013' catalogue

RG665

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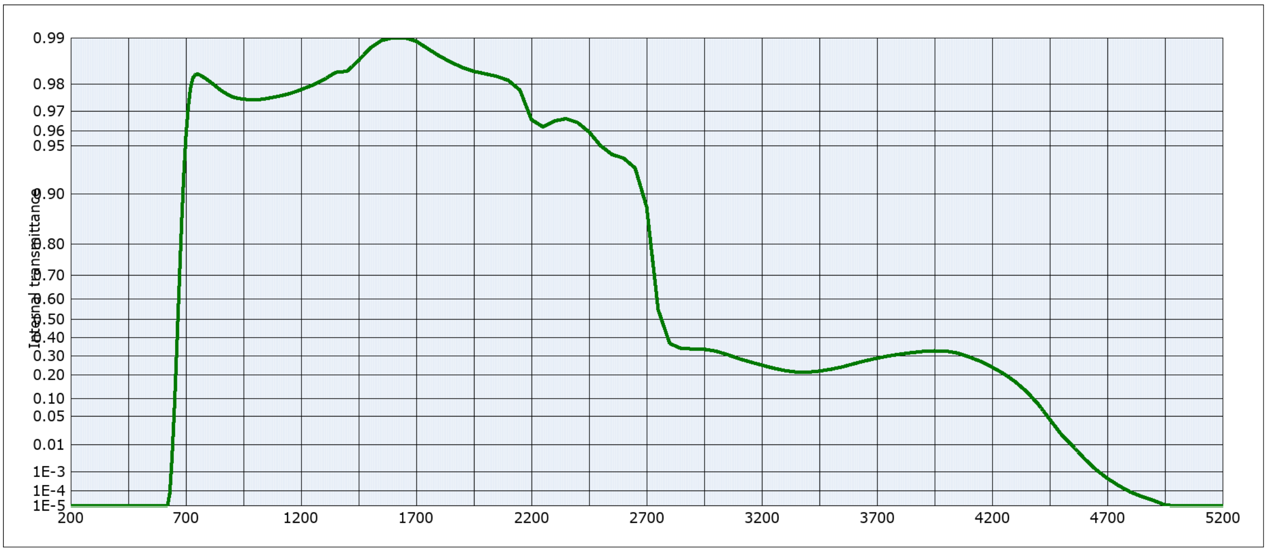

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.981	1100	0.976	2200	0.966	3700	0.287
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.980	1110	0.976	2250	0.962	3750	0.299
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.980	1120	0.976	2300	0.965	3800	0.309
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.979	1130	0.977	2350	0.967	3850	0.317
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.979	1140	0.977	2400	0.965	3900	0.324
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.978	1150	0.977	2450	0.959	3950	0.327
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.978	1160	0.977	2500	0.950	4000	0.326
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.977	1170	0.977	2550	0.943	4050	0.315
280	$< 10^{-5}$	580	$< 10^{-5}$	880	0.977	1180	0.978	2600	0.940	4100	0.294
290	$< 10^{-5}$	590	$< 10^{-5}$	890	0.976	1190	0.978	2650	0.931	4150	0.270
300	$< 10^{-5}$	600	$< 10^{-5}$	900	0.976	1200	0.978	2700	0.880	4200	0.240
310	$< 10^{-5}$	610	$< 10^{-5}$	910	0.976	1250	0.980	2750	0.548	4250	0.207
320	$< 10^{-5}$	620	$< 10^{-5}$	920	0.975	1300	0.981	2800	0.368	4300	0.169
330	$< 10^{-5}$	630	$7.4 \cdot 10^{-5}$	930	0.975	1350	0.983	2850	0.340	4350	0.127
340	$< 10^{-5}$	640	$4.3 \cdot 10^{-3}$	940	0.975	1400	0.984	2900	0.338	4400	$8.3 \cdot 10^{-2}$
350	$< 10^{-5}$	650	$7.2 \cdot 10^{-2}$	950	0.975	1450	0.986	2950	0.336	4450	$4.3 \cdot 10^{-2}$
360	$< 10^{-5}$	660	0.330	960	0.975	1500	0.988	3000	0.326	4500	$2.0 \cdot 10^{-2}$
370	$< 10^{-5}$	670	0.643	970	0.975	1550	0.990	3050	0.307	4550	$9.2 \cdot 10^{-3}$
380	$< 10^{-5}$	680	0.834	980	0.975	1600	0.990	3100	0.285	4600	$3.5 \cdot 10^{-3}$
390	$< 10^{-5}$	690	0.920	990	0.975	1650	0.990	3150	0.267	4650	$1.3 \cdot 10^{-3}$
400	$< 10^{-5}$	700	0.957	1000	0.975	1700	0.989	3200	0.250	4700	$5.0 \cdot 10^{-4}$
410	$< 10^{-5}$	710	0.972	1010	0.975	1750	0.988	3250	0.235	4750	$2.0 \cdot 10^{-4}$
420	$< 10^{-5}$	720	0.979	1020	0.975	1800	0.987	3300	0.222	4800	$8.7 \cdot 10^{-5}$
430	$< 10^{-5}$	730	0.982	1030	0.975	1850	0.986	3350	0.215	4850	$4.5 \cdot 10^{-5}$
440	$< 10^{-5}$	740	0.983	1040	0.975	1900	0.984	3400	0.214	4900	$2.5 \cdot 10^{-5}$
450	$< 10^{-5}$	750	0.983	1050	0.975	1950	0.983	3450	0.220	4950	$1.2 \cdot 10^{-5}$
460	$< 10^{-5}$	760	0.983	1060	0.975	2000	0.983	3500	0.229	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.982	1070	0.976	2050	0.982	3550	0.241	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.982	1080	0.976	2100	0.981	3600	0.258	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.981	1090	0.976	2150	0.978	3650	0.273	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

RG695

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	695 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	610
λ_p ($\tau_{i,L}$ = 0.96) [nm]	=	780

Refractive Index n
n_d (587.6 nm) = 1.540
n_s (852.1 nm) = 1.530
n_t (1014.0 nm) = 1.520

Density	
ρ [g/cm^3]	2.76

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	532

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.1
$\alpha_{20/300°C}$ [10^{-6}/K]	9.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

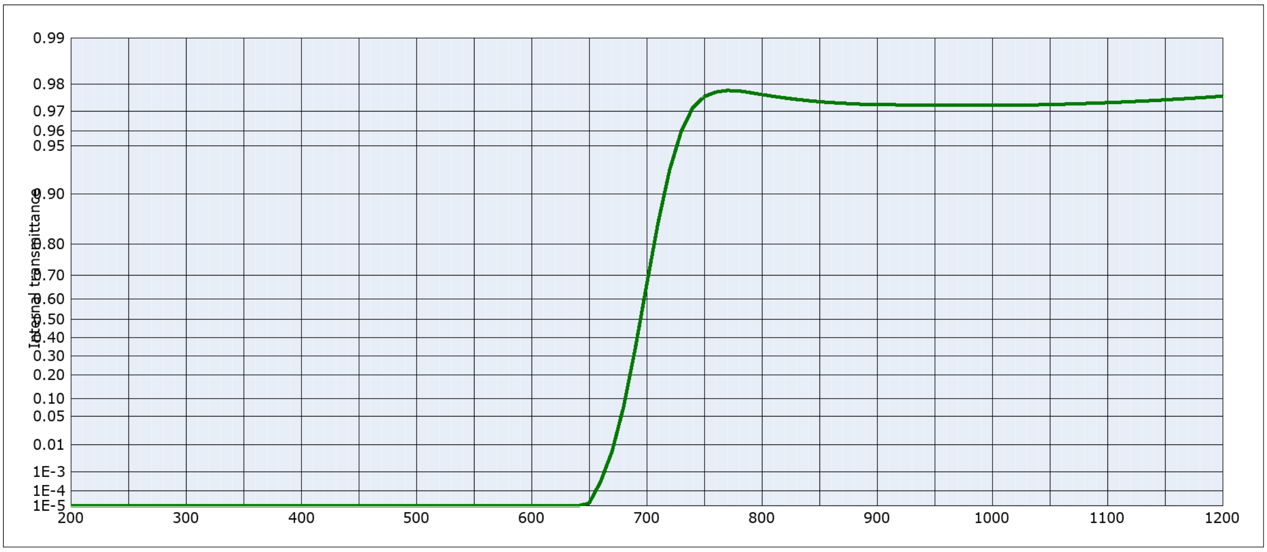
Temperature coefficient	
T_K [nm/°C]	0.18

Notes
Colloidally colored glass
Longpass filter

All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x				x				x			
y				y				y			
Y				Y				Y			
λ_d [nm]				λ_d [nm]				λ_d [nm]			
P_e				P_e				P_e			



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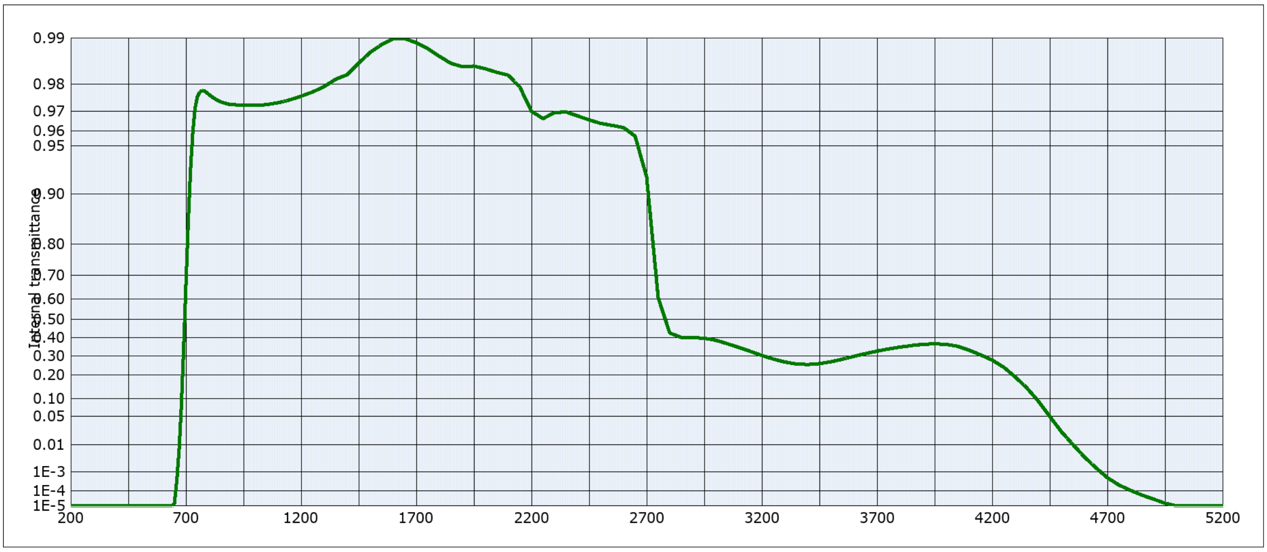
Further explanations see 'Optical Filters 2013' catalogue

RG695



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.977	1100	0.974	2200	0.970	3700	0.326
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.976	1110	0.974	2250	0.967	3750	0.338
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.975	1120	0.974	2300	0.969	3800	0.348
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.975	1130	0.974	2350	0.970	3850	0.356
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.974	1140	0.974	2400	0.968	3900	0.363
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.974	1150	0.975	2450	0.966	3950	0.366
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.974	1160	0.975	2500	0.964	4000	0.363
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.973	1170	0.975	2550	0.963	4050	0.352
280	$< 10^{-5}$	580	$< 10^{-5}$	880	0.973	1180	0.976	2600	0.962	4100	0.331
290	$< 10^{-5}$	590	$< 10^{-5}$	890	0.973	1190	0.976	2650	0.957	4150	0.305
300	$< 10^{-5}$	600	$< 10^{-5}$	900	0.973	1200	0.976	2700	0.921	4200	0.277
310	$< 10^{-5}$	610	$< 10^{-5}$	910	0.973	1250	0.978	2750	0.606	4250	0.239
320	$< 10^{-5}$	620	$< 10^{-5}$	920	0.973	1300	0.979	2800	0.426	4300	0.191
330	$< 10^{-5}$	630	$< 10^{-5}$	930	0.973	1350	0.981	2850	0.401	4350	0.142
340	$< 10^{-5}$	640	$< 10^{-5}$	940	0.973	1400	0.983	2900	0.400	4400	$9.2\cdot10^{-2}$
350	$< 10^{-5}$	650	$1.5\cdot10^{-5}$	950	0.973	1450	0.985	2950	0.397	4450	$5.0\cdot10^{-2}$
360	$< 10^{-5}$	660	$3.4\cdot10^{-4}$	960	0.973	1500	0.988	3000	0.386	4500	$2.3\cdot10^{-2}$
370	$< 10^{-5}$	670	$6.3\cdot10^{-3}$	970	0.973	1550	0.989	3050	0.367	4550	$1.0\cdot10^{-2}$
380	$< 10^{-5}$	680	$7.5\cdot10^{-2}$	980	0.973	1600	0.990	3100	0.346	4600	$4.0\cdot10^{-3}$
390	$< 10^{-5}$	690	0.337	990	0.973	1650	0.990	3150	0.324	4650	$1.5\cdot10^{-3}$
400	$< 10^{-5}$	700	0.661	1000	0.973	1700	0.989	3200	0.302	4700	$5.3\cdot10^{-4}$
410	$< 10^{-5}$	710	0.851	1010	0.973	1750	0.988	3250	0.282	4750	$2.2\cdot10^{-4}$
420	$< 10^{-5}$	720	0.929	1020	0.973	1800	0.987	3300	0.267	4800	$1.1\cdot10^{-4}$
430	$< 10^{-5}$	730	0.960	1030	0.973	1850	0.985	3350	0.256	4850	$5.6\cdot10^{-5}$
440	$< 10^{-5}$	740	0.972	1040	0.973	1900	0.985	3400	0.253	4900	$3.1\cdot10^{-5}$
450	$< 10^{-5}$	750	0.976	1050	0.973	1950	0.985	3450	0.258	4950	$1.6\cdot10^{-5}$
460	$< 10^{-5}$	760	0.978	1060	0.973	2000	0.984	3500	0.268	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.978	1070	0.973	2050	0.983	3550	0.282	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.978	1080	0.973	2100	0.982	3600	0.297	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.977	1090	0.973	2150	0.979	3650	0.312	5150	$< 10^{-5}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

RG715

Reflection factor	
P_d	0.000

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	715 ± 9
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	620
λ_p ($\tau_{i,L}$ = 0.96) [nm]	=	810

Refractive Index n
n_e (546.1 nm) = 1.540
n_s (852.1 nm) = 1.530
n_t (1014.0 nm) = 1.520

Density	
ρ [g/cm^3]	2.76

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	532

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.1
$\alpha_{20/300°C}$ [10^{-6}/K]	9.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.18

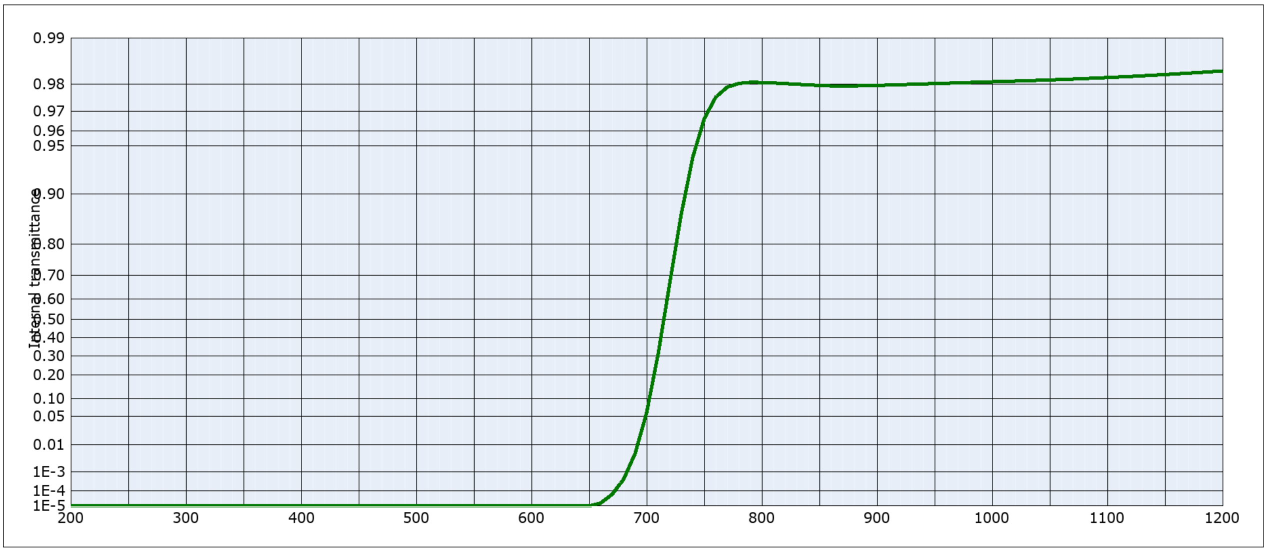
Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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Further explanations see 'Optical Filters 2013' catalogue

RG715

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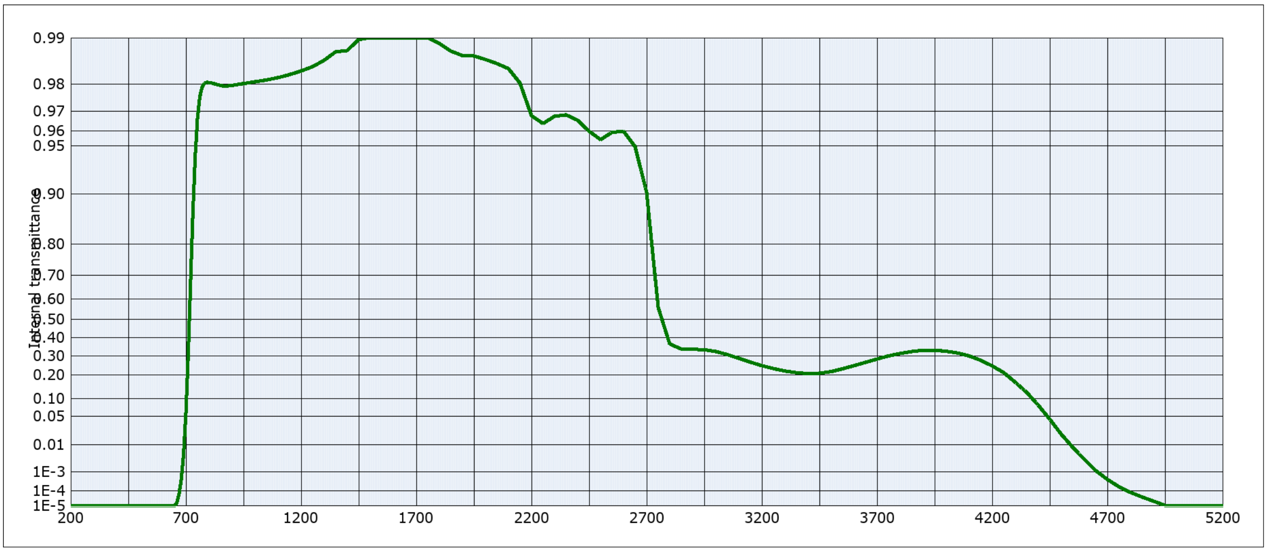

Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	< 10^{-5}	800	0.980	1100	0.982	2200	0.968	3700	0.283
210	< 10^{-5}	510	< 10^{-5}	810	0.980	1110	0.982	2250	0.964	3750	0.300
220	< 10^{-5}	520	< 10^{-5}	820	0.980	1120	0.982	2300	0.968	3800	0.313
230	< 10^{-5}	530	< 10^{-5}	830	0.980	1130	0.982	2350	0.968	3850	0.323
240	< 10^{-5}	540	< 10^{-5}	840	0.980	1140	0.982	2400	0.966	3900	0.330
250	< 10^{-5}	550	< 10^{-5}	850	0.980	1150	0.983	2450	0.960	3950	0.330
260	< 10^{-5}	560	< 10^{-5}	860	0.979	1160	0.983	2500	0.954	4000	0.325
270	< 10^{-5}	570	< 10^{-5}	870	0.979	1170	0.983	2550	0.959	4050	0.315
280	< 10^{-5}	580	< 10^{-5}	880	0.979	1180	0.983	2600	0.960	4100	0.299
290	< 10^{-5}	590	< 10^{-5}	890	0.980	1190	0.983	2650	0.949	4150	0.276
300	< 10^{-5}	600	< 10^{-5}	900	0.980	1200	0.984	2700	0.902	4200	0.246
310	< 10^{-5}	610	< 10^{-5}	910	0.980	1250	0.985	2750	0.560	4250	0.212
320	< 10^{-5}	620	< 10^{-5}	920	0.980	1300	0.986	2800	0.365	4300	0.167
330	< 10^{-5}	630	< 10^{-5}	930	0.980	1350	0.988	2850	0.338	4350	0.124
340	< 10^{-5}	640	< 10^{-5}	940	0.980	1400	0.988	2900	0.336	4400	$8.0\cdot10^{-2}$
350	< 10^{-5}	650	< 10^{-5}	950	0.980	1450	0.990	2950	0.334	4450	$4.4\cdot10^{-2}$
360	< 10^{-5}	660	$1.6\cdot10^{-5}$	960	0.980	1500	0.992	3000	0.324	4500	$2.0\cdot10^{-2}$
370	< 10^{-5}	670	$6.3\cdot10^{-5}$	970	0.980	1550	0.993	3050	0.307	4550	$8.4\cdot10^{-3}$
380	< 10^{-5}	680	$4.5\cdot10^{-4}$	980	0.980	1600	0.993	3100	0.286	4600	$3.3\cdot10^{-3}$
390	< 10^{-5}	690	$5.4\cdot10^{-3}$	990	0.981	1650	0.993	3150	0.266	4650	$1.1\cdot10^{-3}$
400	< 10^{-5}	700	$5.9\cdot10^{-2}$	1000	0.981	1700	0.992	3200	0.248	4700	$4.4\cdot10^{-4}$
410	< 10^{-5}	710	0.311	1010	0.981	1750	0.990	3250	0.233	4750	$1.8\cdot10^{-4}$
420	< 10^{-5}	720	0.666	1020	0.981	1800	0.989	3300	0.220	4800	$8.3\cdot10^{-5}$
430	< 10^{-5}	730	0.866	1030	0.981	1850	0.988	3350	0.212	4850	$4.2\cdot10^{-5}$
440	< 10^{-5}	740	0.941	1040	0.981	1900	0.987	3400	0.207	4900	$2.2\cdot10^{-5}$
450	< 10^{-5}	750	0.967	1050	0.981	1950	0.987	3450	0.209	4950	$1.1\cdot10^{-5}$
460	< 10^{-5}	760	0.976	1060	0.981	2000	0.986	3500	0.217	5000	< 10^{-5}
470	< 10^{-5}	770	0.979	1070	0.981	2050	0.985	3550	0.231	5050	< 10^{-5}
480	< 10^{-5}	780	0.980	1080	0.982	2100	0.984	3600	0.248	5100	< 10^{-5}
490	< 10^{-5}	790	0.981	1090	0.982	2150	0.980	3650	0.265	5150	< 10^{-5}

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

RG9

Reflection factor	
P_d	0.918

Reference thickness	
d [mm]	3

Spectral values guaranteed		
τ_i (720nm)	≤	0.45
τ_i (800nm)	≥	0.92
τ_i (1060nm)	≤	0.4

Refractive Index n
n_d (587.6 nm) = 1.520
n_s (852.1 nm) = 1.510
n_t (1014.0 nm) = 1.500

Density	
ρ [g/cm³]	2.58

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	519

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.06

Notes
Ionically / Colloidally colored glass
Bandpass filter / longpass filter

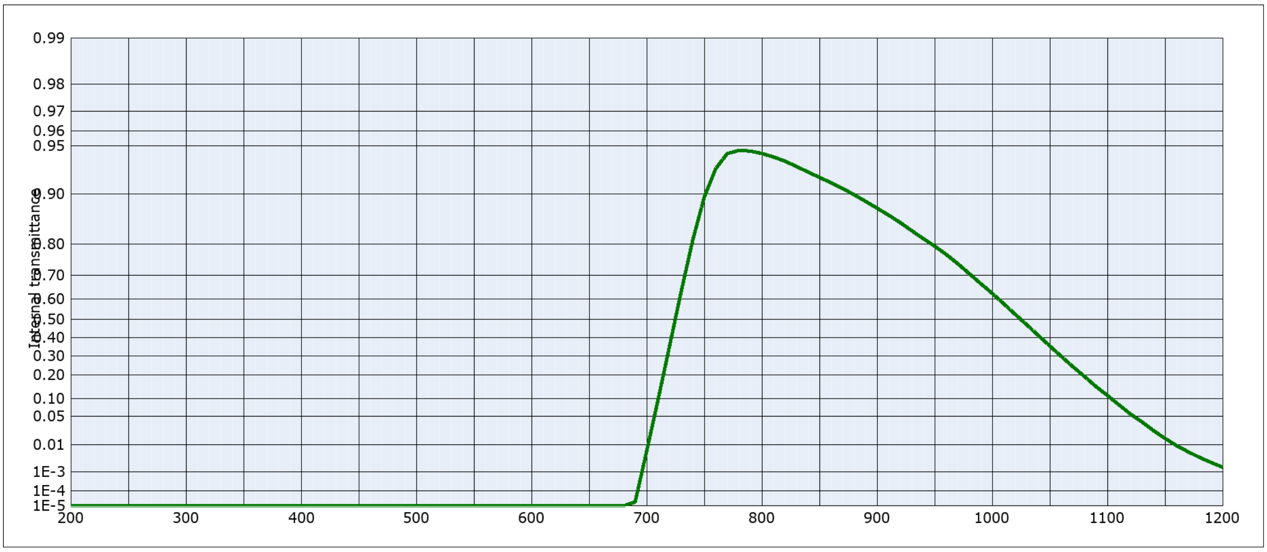
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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Further explanations see 'Optical Filters 2013' catalogue

RG9

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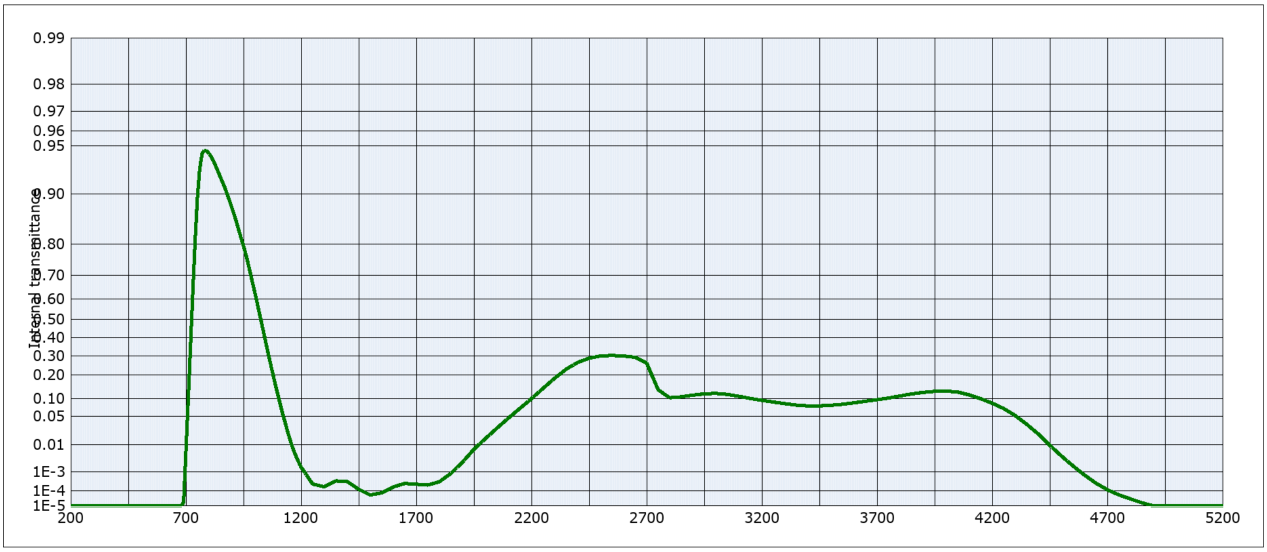


Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.944	1100	0.112	2200	0.101	3700	$9.7\cdot10^{-2}$
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.941	1110	$8.1\cdot10^{-2}$	2250	0.140	3750	0.103
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.938	1120	$5.6\cdot10^{-2}$	2300	0.184	3800	0.111
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.933	1130	$3.9\cdot10^{-2}$	2350	0.229	3850	0.118
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.927	1140	$2.5\cdot10^{-2}$	2400	0.264	3900	0.124
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.921	1150	$1.6\cdot10^{-2}$	2450	0.287	3950	0.128
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.915	1160	$9.6\cdot10^{-3}$	2500	0.300	4000	0.129
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.908	1170	$6.1\cdot10^{-3}$	2550	0.302	4050	0.126
280	$< 10^{-5}$	580	$< 10^{-5}$	880	0.899	1180	$3.9\cdot10^{-3}$	2600	0.299	4100	0.114
290	$< 10^{-5}$	590	$< 10^{-5}$	890	0.889	1190	$2.5\cdot10^{-3}$	2650	0.292	4150	0.101
300	$< 10^{-5}$	600	$< 10^{-5}$	900	0.878	1200	$1.6\cdot10^{-3}$	2700	0.261	4200	$8.6\cdot10^{-2}$
310	$< 10^{-5}$	610	$< 10^{-5}$	910	0.865	1250	$2.5\cdot10^{-4}$	2750	0.134	4250	$7.0\cdot10^{-2}$
320	$< 10^{-5}$	620	$< 10^{-5}$	920	0.851	1300	$1.8\cdot10^{-4}$	2800	0.104	4300	$5.2\cdot10^{-2}$
330	$< 10^{-5}$	630	$< 10^{-5}$	930	0.833	1350	$3.7\cdot10^{-4}$	2850	0.107	4350	$3.4\cdot10^{-2}$
340	$< 10^{-5}$	640	$< 10^{-5}$	940	0.814	1400	$3.4\cdot10^{-4}$	2900	0.114	4400	$2.0\cdot10^{-2}$
350	$< 10^{-5}$	650	$< 10^{-5}$	950	0.794	1450	$1.3\cdot10^{-4}$	2950	0.119	4450	$9.8\cdot10^{-3}$
360	$< 10^{-5}$	660	$< 10^{-5}$	960	0.770	1500	$5.7\cdot10^{-5}$	3000	0.120	4500	$4.4\cdot10^{-3}$
370	$< 10^{-5}$	670	$< 10^{-5}$	970	0.740	1550	$7.8\cdot10^{-5}$	3050	0.116	4550	$1.8\cdot10^{-3}$
380	$< 10^{-5}$	680	$< 10^{-5}$	980	0.705	1600	$1.7\cdot10^{-4}$	3100	0.109	4600	$7.2\cdot10^{-4}$
390	$< 10^{-5}$	690	$1.9\cdot10^{-5}$	990	0.666	1650	$2.7\cdot10^{-4}$	3150	0.102	4650	$2.8\cdot10^{-4}$
400	$< 10^{-5}$	700	$6.4\cdot10^{-3}$	1000	0.625	1700	$2.4\cdot10^{-4}$	3200	$9.5\cdot10^{-2}$	4700	$1.2\cdot10^{-4}$
410	$< 10^{-5}$	710	$9.9\cdot10^{-2}$	1010	0.577	1750	$2.2\cdot10^{-4}$	3250	$8.9\cdot10^{-2}$	4750	$5.8\cdot10^{-5}$
420	$< 10^{-5}$	720	0.357	1020	0.524	1800	$3.3\cdot10^{-4}$	3300	$8.4\cdot10^{-2}$	4800	$3.2\cdot10^{-5}$
430	$< 10^{-5}$	730	0.633	1030	0.470	1850	$8.6\cdot10^{-4}$	3350	$8.0\cdot10^{-2}$	4850	$1.7\cdot10^{-5}$
440	$< 10^{-5}$	740	0.809	1040	0.413	1900	$2.5\cdot10^{-3}$	3400	$7.7\cdot10^{-2}$	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	0.895	1050	0.354	1950	$7.4\cdot10^{-3}$	3450	$7.8\cdot10^{-2}$	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	0.931	1060	0.297	2000	$1.5\cdot10^{-2}$	3500	$7.9\cdot10^{-2}$	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.944	1070	0.242	2050	$2.8\cdot10^{-2}$	3550	$8.2\cdot10^{-2}$	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.947	1080	0.194	2100	$4.6\cdot10^{-2}$	3600	$8.7\cdot10^{-2}$	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.946	1090	0.148	2150	$7.0\cdot10^{-2}$	3650	$9.2\cdot10^{-2}$	5150	$< 10^{-5}$

Data Sheet

SCHOTT

RG780

Reflection factor	
P_d	0.908

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	780 ± 9
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	610
λ_p ($\tau_{i,L}$ = 0.97) [nm]	=	900

Refractive Index n
n_i (365.0 nm) = 1.590
n_h (404.7 nm) = 1.581
n_g (435.8 nm) = 1.576
$n_{F'}$ (480.0 nm) = 1.570
Sellmeier coefficients on request

Density	
ρ [g/cm³]	2.94

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	5.0
SR class	53.4
AR class	1.3

Transformation temperature	
Tg [°C]	552

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	9.5
$\alpha_{20/300°C}$ [10^{-6}/K]	10.5
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.22

Notes
Colloidally colored glass
Longpass filter

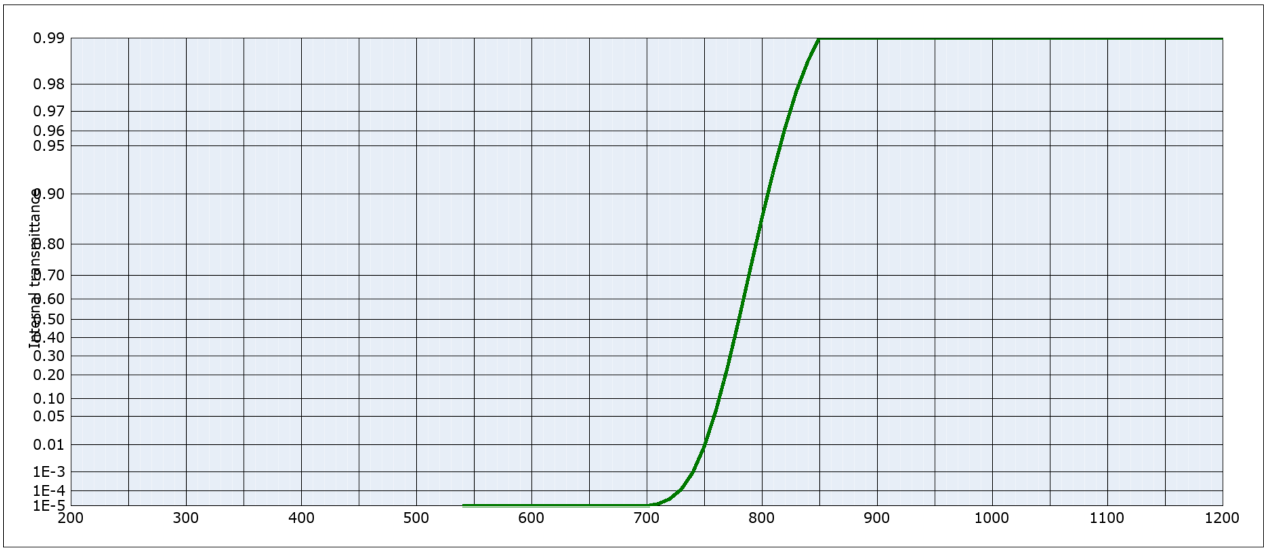
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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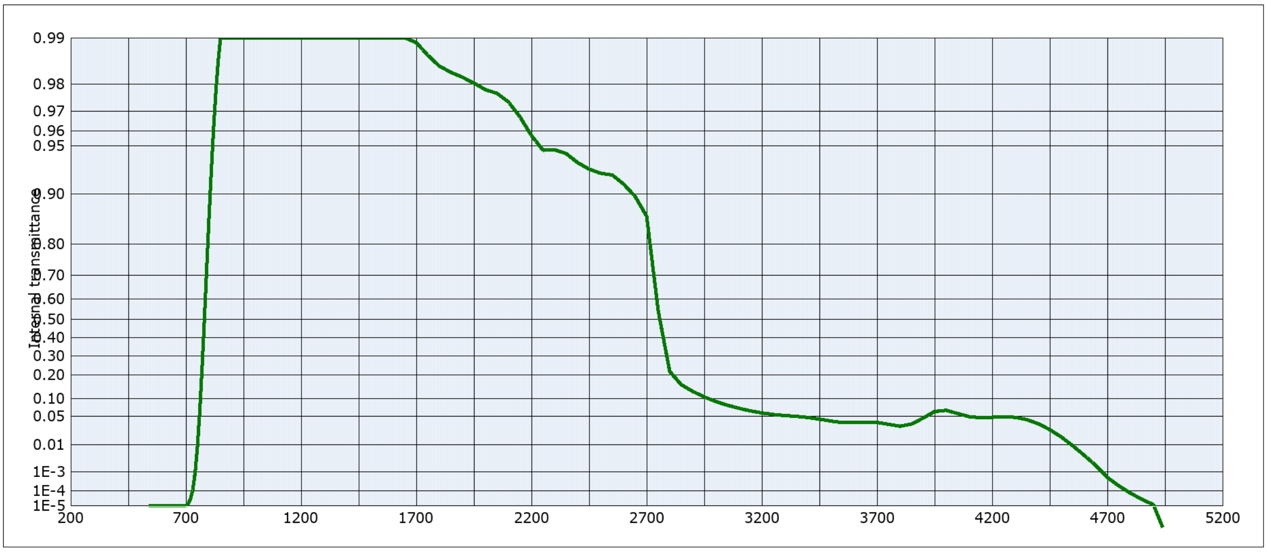
Further explanations see 'Optical Filters 2013' catalogue

RG780



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.859	1100	0.994	2200	0.957	3700	$3.8 \cdot 10^{-2}$
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.928	1110	0.994	2250	0.947	3750	$3.4 \cdot 10^{-2}$
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.961	1120	0.994	2300	0.947	3800	$3.1 \cdot 10^{-2}$
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.978	1130	0.994	2350	0.944	3850	$3.5 \cdot 10^{-2}$
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.986	1140	0.994	2400	0.936	3900	$4.6 \cdot 10^{-2}$
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.990	1150	0.995	2450	0.930	3950	$6.2 \cdot 10^{-2}$
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.991	1160	0.995	2500	0.926	4000	$6.5 \cdot 10^{-2}$
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.992	1170	0.995	2550	0.924	4050	$5.7 \cdot 10^{-2}$
280	$< 10^{-5}$	580	$< 10^{-5}$	880	0.992	1180	0.995	2600	0.913	4100	$4.9 \cdot 10^{-2}$
290	$< 10^{-5}$	590	$< 10^{-5}$	890	0.993	1190	0.995	2650	0.896	4150	$4.7 \cdot 10^{-2}$
300	$< 10^{-5}$	600	$< 10^{-5}$	900	0.993	1200	0.995	2700	0.863	4200	$4.8 \cdot 10^{-2}$
310	$< 10^{-5}$	610	$< 10^{-5}$	910	0.993	1250	0.995	2750	0.544	4250	$4.9 \cdot 10^{-2}$
320	$< 10^{-5}$	620	$< 10^{-5}$	920	0.993	1300	0.995	2800	0.218	4300	$4.8 \cdot 10^{-2}$
330	$< 10^{-5}$	630	$< 10^{-5}$	930	0.993	1350	0.995	2850	0.156	4350	$4.3 \cdot 10^{-2}$
340	$< 10^{-5}$	640	$< 10^{-5}$	940	0.993	1400	0.993	2900	0.128	4400	$3.5 \cdot 10^{-2}$
350	$< 10^{-5}$	650	$< 10^{-5}$	950	0.993	1450	0.993	2950	0.107	4450	$2.6 \cdot 10^{-2}$
360	$< 10^{-5}$	660	$< 10^{-5}$	960	0.993	1500	0.994	3000	$9.1 \cdot 10^{-2}$	4500	$1.7 \cdot 10^{-2}$
370	$< 10^{-5}$	670	$< 10^{-5}$	970	0.993	1550	0.994	3050	$8.0 \cdot 10^{-2}$	4550	$9.4 \cdot 10^{-3}$
380	$< 10^{-5}$	680	$< 10^{-5}$	980	0.994	1600	0.993	3100	$7.1 \cdot 10^{-2}$	4600	$4.6 \cdot 10^{-3}$
390	$< 10^{-5}$	690	$< 10^{-5}$	990	0.994	1650	0.991	3150	$6.4 \cdot 10^{-2}$	4650	$1.9 \cdot 10^{-3}$
400	$< 10^{-5}$	700	$< 10^{-5}$	1000	0.994	1700	0.989	3200	$5.8 \cdot 10^{-2}$	4700	$5.5 \cdot 10^{-4}$
410	$< 10^{-5}$	710	$1.4 \cdot 10^{-5}$	1010	0.994	1750	0.987	3250	$5.4 \cdot 10^{-2}$	4750	$2.0 \cdot 10^{-4}$
420	$< 10^{-5}$	720	$3.2 \cdot 10^{-5}$	1020	0.994	1800	0.985	3300	$5.2 \cdot 10^{-2}$	4800	$7.4 \cdot 10^{-5}$
430	$< 10^{-5}$	730	$1.3 \cdot 10^{-4}$	1030	0.994	1850	0.983	3350	$5.0 \cdot 10^{-2}$	4850	$3.0 \cdot 10^{-5}$
440	$< 10^{-5}$	740	$9.3 \cdot 10^{-4}$	1040	0.994	1900	0.982	3400	$4.8 \cdot 10^{-2}$	4900	$1.2 \cdot 10^{-5}$
450	$< 10^{-5}$	750	$8.9 \cdot 10^{-3}$	1050	0.994	1950	0.980	3450	$4.4 \cdot 10^{-2}$	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	$6.3 \cdot 10^{-2}$	1060	0.994	2000	0.978	3500	$4.0 \cdot 10^{-2}$	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.235	1070	0.994	2050	0.977	3550	$3.7 \cdot 10^{-2}$	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.496	1080	0.994	2100	0.974	3600	$3.7 \cdot 10^{-2}$	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.722	1090	0.994	2150	0.967	3650	$3.8 \cdot 10^{-2}$	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

RG830

Reflection factor	
P_d	0.909

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	830 ± 9
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	670
λ_p ($\tau_{i,L}$ = 0.97) [nm]	=	950

Refractive Index n
n_d (587.6 nm) = 1.560
n_s (852.1 nm) = 1.550
n_t (1014.0 nm) = 1.550

Density	
ρ [g/cm^3]	2.94

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	5.0
SR class	53.4
AR class	1.3

Transformation temperature	
Tg [°C]	554

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	9.5
$\alpha_{20/300°C}$ [10^{-6}/K]	10.5
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.23

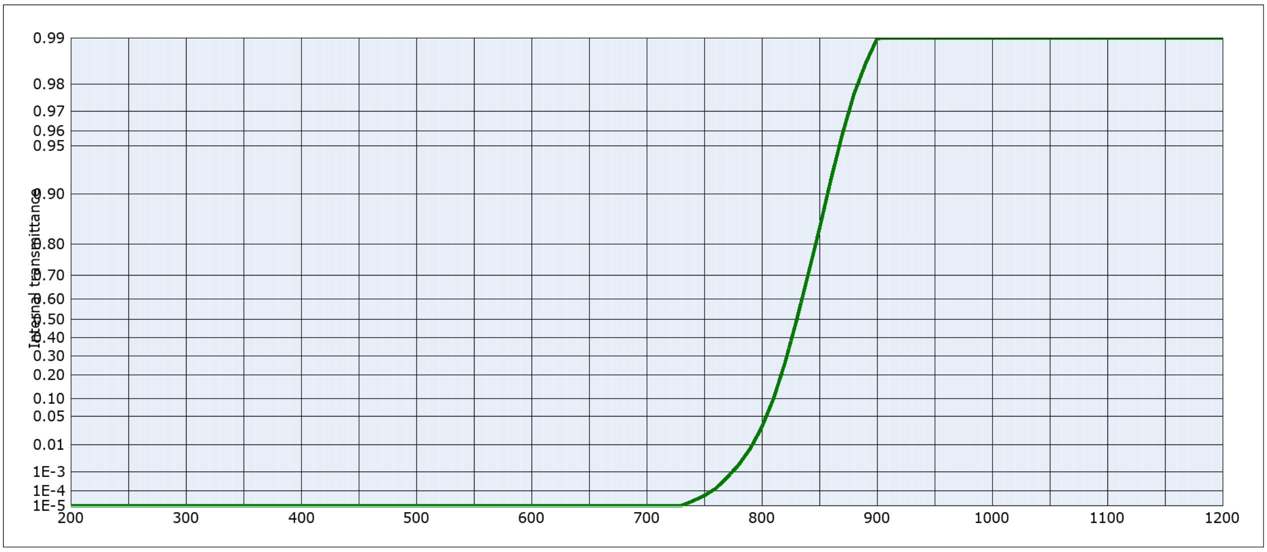
Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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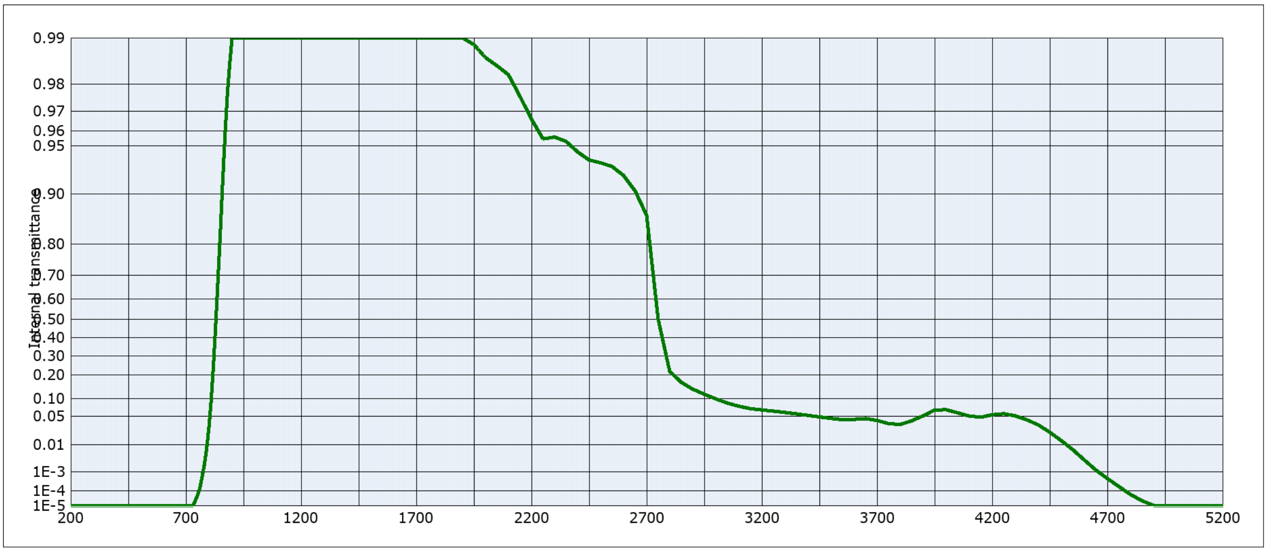
Further explanations see 'Optical Filters 2013' catalogue

RG830



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	$3.0\cdot10^{-2}$	1100	0.997	2200	0.966	3700	$4.1\cdot10^{-2}$
210	$< 10^{-5}$	510	$< 10^{-5}$	810	$9.9\cdot10^{-2}$	1110	0.997	2250	0.955	3750	$3.5\cdot10^{-2}$
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.260	1120	0.997	2300	0.956	3800	$3.4\cdot10^{-2}$
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.490	1130	0.997	2350	0.953	3850	$4.1\cdot10^{-2}$
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.699	1140	0.997	2400	0.946	3900	$5.1\cdot10^{-2}$
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.837	1150	0.997	2450	0.939	3950	$6.6\cdot10^{-2}$
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.919	1160	0.997	2500	0.936	4000	$6.7\cdot10^{-2}$
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.958	1170	0.998	2550	0.933	4050	$5.9\cdot10^{-2}$
280	$< 10^{-5}$	580	$< 10^{-5}$	880	0.977	1180	0.998	2600	0.923	4100	$5.1\cdot10^{-2}$
290	$< 10^{-5}$	590	$< 10^{-5}$	890	0.985	1190	0.998	2650	0.904	4150	$4.8\cdot10^{-2}$
300	$< 10^{-5}$	600	$< 10^{-5}$	900	0.990	1200	0.998	2700	0.865	4200	$5.4\cdot10^{-2}$
310	$< 10^{-5}$	610	$< 10^{-5}$	910	0.993	1250	0.998	2750	0.500	4250	$5.6\cdot10^{-2}$
320	$< 10^{-5}$	620	$< 10^{-5}$	920	0.994	1300	0.999	2800	0.218	4300	$5.1\cdot10^{-2}$
330	$< 10^{-5}$	630	$< 10^{-5}$	930	0.995	1350	1.000	2850	0.166	4350	$4.3\cdot10^{-2}$
340	$< 10^{-5}$	640	$< 10^{-5}$	940	0.995	1400	0.998	2900	0.137	4400	$3.3\cdot10^{-2}$
350	$< 10^{-5}$	650	$< 10^{-5}$	950	0.996	1450	0.999	2950	0.117	4450	$2.2\cdot10^{-2}$
360	$< 10^{-5}$	660	$< 10^{-5}$	960	0.996	1500	1.000	3000	0.100	4500	$1.3\cdot10^{-2}$
370	$< 10^{-5}$	670	$< 10^{-5}$	970	0.996	1550	1.000	3050	$8.6\cdot10^{-2}$	4550	$7.1\cdot10^{-3}$
380	$< 10^{-5}$	680	$< 10^{-5}$	980	0.996	1600	1.000	3100	$7.6\cdot10^{-2}$	4600	$3.1\cdot10^{-3}$
390	$< 10^{-5}$	690	$< 10^{-5}$	990	0.996	1650	0.998	3150	$7.0\cdot10^{-2}$	4650	$1.2\cdot10^{-3}$
400	$< 10^{-5}$	700	$< 10^{-5}$	1000	0.996	1700	0.996	3200	$6.6\cdot10^{-2}$	4700	$4.9\cdot10^{-4}$
410	$< 10^{-5}$	710	$< 10^{-5}$	1010	0.996	1750	0.994	3250	$6.3\cdot10^{-2}$	4750	$1.8\cdot10^{-4}$
420	$< 10^{-5}$	720	$< 10^{-5}$	1020	0.996	1800	0.992	3300	$5.9\cdot10^{-2}$	4800	$6.2\cdot10^{-5}$
430	$< 10^{-5}$	730	$1.0\cdot10^{-5}$	1030	0.996	1850	0.991	3350	$5.6\cdot10^{-2}$	4850	$2.4\cdot10^{-5}$
440	$< 10^{-5}$	740	$2.3\cdot10^{-5}$	1040	0.997	1900	0.990	3400	$5.2\cdot10^{-2}$	4900	$1.1\cdot10^{-5}$
450	$< 10^{-5}$	750	$5.2\cdot10^{-5}$	1050	0.997	1950	0.989	3450	$4.9\cdot10^{-2}$	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	$1.4\cdot10^{-4}$	1060	0.997	2000	0.987	3500	$4.6\cdot10^{-2}$	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	$5.6\cdot10^{-4}$	1070	0.997	2050	0.985	3550	$4.3\cdot10^{-2}$	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	$2.0\cdot10^{-3}$	1080	0.997	2100	0.983	3600	$4.4\cdot10^{-2}$	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	$7.8\cdot10^{-3}$	1090	0.997	2150	0.976	3650	$4.5\cdot10^{-2}$	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

RG850

Reflection factor	
P_d	0.909

Reference thickness	
d [mm]	3

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	850 ± 9
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	700
λ_p ($\tau_{i,L}$ = 0.9) [nm]	=	950
λ_p ($\tau_{i,L}$ = 0.97) [nm]	=	1200

Refractive Index n
n_d (587.6 nm) = 1.560
n_s (852.1 nm) = 1.550
n_t (1014.0 nm) = 1.550

Density	
ρ [g/cm^3]	2.93

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	5.0
SR class	53.4
AR class	1.3

Transformation temperature	
Tg [°C]	554

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	9.5
$\alpha_{20/300°C}$ [10^{-6}/K]	10.5
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	0.24

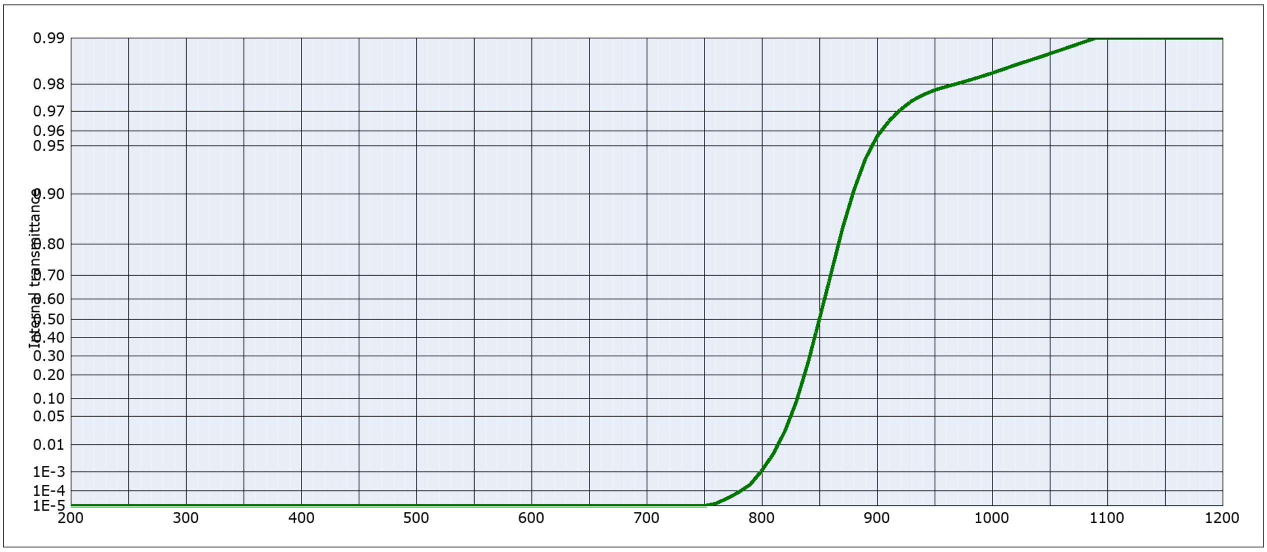
Notes
Colloidally colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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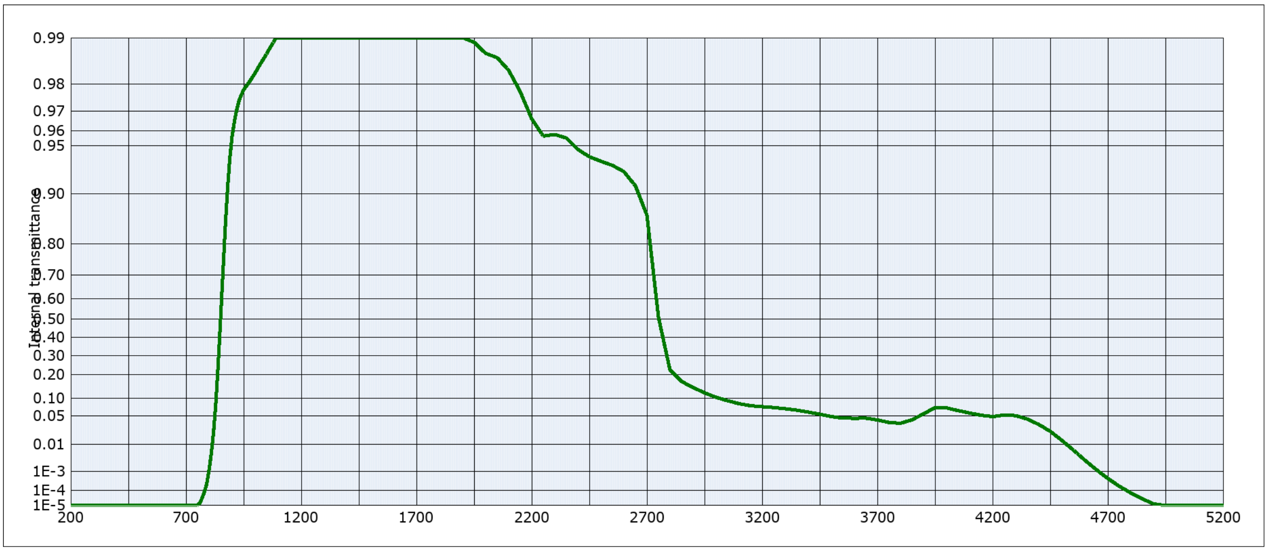
Further explanations see 'Optical Filters 2013' catalogue

RG850



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	< 10^{-5}	800	$1.2 \cdot 10^{-3}$	1100	0.990	2200	0.966	3700	$4.2 \cdot 10^{-2}$
210	< 10^{-5}	510	< 10^{-5}	810	$5.3 \cdot 10^{-3}$	1110	0.991	2250	0.957	3750	$3.7 \cdot 10^{-2}$
220	< 10^{-5}	520	< 10^{-5}	820	$2.4 \cdot 10^{-2}$	1120	0.991	2300	0.958	3800	$3.5 \cdot 10^{-2}$
230	< 10^{-5}	530	< 10^{-5}	830	$9.1 \cdot 10^{-2}$	1130	0.992	2350	0.956	3850	$4.2 \cdot 10^{-2}$
240	< 10^{-5}	540	< 10^{-5}	840	0.261	1140	0.992	2400	0.947	3900	$5.5 \cdot 10^{-2}$
250	< 10^{-5}	550	< 10^{-5}	850	0.500	1150	0.993	2450	0.941	3950	$7.2 \cdot 10^{-2}$
260	< 10^{-5}	560	< 10^{-5}	860	0.704	1160	0.993	2500	0.937	4000	$7.1 \cdot 10^{-2}$
270	< 10^{-5}	570	< 10^{-5}	870	0.838	1170	0.994	2550	0.934	4050	$6.3 \cdot 10^{-2}$
280	< 10^{-5}	580	< 10^{-5}	880	0.905	1180	0.994	2600	0.927	4100	$5.7 \cdot 10^{-2}$
290	< 10^{-5}	590	< 10^{-5}	890	0.940	1190	0.994	2650	0.911	4150	$5.2 \cdot 10^{-2}$
300	< 10^{-5}	600	< 10^{-5}	900	0.957	1200	0.995	2700	0.865	4200	$4.9 \cdot 10^{-2}$
310	< 10^{-5}	610	< 10^{-5}	910	0.965	1250	0.996	2750	0.510	4250	$5.2 \cdot 10^{-2}$
320	< 10^{-5}	620	< 10^{-5}	920	0.971	1300	0.997	2800	0.224	4300	$5.1 \cdot 10^{-2}$
330	< 10^{-5}	630	< 10^{-5}	930	0.974	1350	0.998	2850	0.169	4350	$4.4 \cdot 10^{-2}$
340	< 10^{-5}	640	< 10^{-5}	940	0.977	1400	0.997	2900	0.143	4400	$3.3 \cdot 10^{-2}$
350	< 10^{-5}	650	< 10^{-5}	950	0.978	1450	0.998	2950	0.121	4450	$2.3 \cdot 10^{-2}$
360	< 10^{-5}	660	< 10^{-5}	960	0.979	1500	1.000	3000	0.104	4500	$1.3 \cdot 10^{-2}$
370	< 10^{-5}	670	< 10^{-5}	970	0.980	1550	1.000	3050	$9.3 \cdot 10^{-2}$	4550	$6.8 \cdot 10^{-3}$
380	< 10^{-5}	680	< 10^{-5}	980	0.981	1600	1.000	3100	$8.3 \cdot 10^{-2}$	4600	$3.0 \cdot 10^{-3}$
390	< 10^{-5}	690	< 10^{-5}	990	0.982	1650	0.999	3150	$7.7 \cdot 10^{-2}$	4650	$1.2 \cdot 10^{-3}$
400	< 10^{-5}	700	< 10^{-5}	1000	0.983	1700	0.997	3200	$7.4 \cdot 10^{-2}$	4700	$4.7 \cdot 10^{-4}$
410	< 10^{-5}	710	< 10^{-5}	1010	0.984	1750	0.995	3250	$7.2 \cdot 10^{-2}$	4750	$1.8 \cdot 10^{-4}$
420	< 10^{-5}	720	< 10^{-5}	1020	0.985	1800	0.993	3300	$6.8 \cdot 10^{-2}$	4800	$7.2 \cdot 10^{-5}$
430	< 10^{-5}	730	< 10^{-5}	1030	0.986	1850	0.992	3350	$6.4 \cdot 10^{-2}$	4850	$3.0 \cdot 10^{-5}$
440	< 10^{-5}	740	< 10^{-5}	1040	0.987	1900	0.991	3400	$5.9 \cdot 10^{-2}$	4900	$1.3 \cdot 10^{-5}$
450	< 10^{-5}	750	< 10^{-5}	1050	0.987	1950	0.989	3450	$5.4 \cdot 10^{-2}$	4950	< 10^{-5}
460	< 10^{-5}	760	$1.5 \cdot 10^{-5}$	1060	0.988	2000	0.987	3500	$4.9 \cdot 10^{-2}$	5000	< 10^{-5}
470	< 10^{-5}	770	$3.4 \cdot 10^{-5}$	1070	0.989	2050	0.987	3550	$4.5 \cdot 10^{-2}$	5050	< 10^{-5}
480	< 10^{-5}	780	$8.5 \cdot 10^{-5}$	1080	0.989	2100	0.984	3600	$4.5 \cdot 10^{-2}$	5100	< 10^{-5}
490	< 10^{-5}	790	$2.4 \cdot 10^{-4}$	1090	0.990	2150	0.978	3650	$4.5 \cdot 10^{-2}$	5150	< 10^{-5}

Data Sheet

SCHOTT

RG1000

Density	
ρ [g/cm³]	2.73

Notes
Ionically colored glass
Longpass filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.913

Bubble content	
Bubble class	3

Reference thickness	
d [mm]	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Spectral values guaranteed		
λ_c (τ_i = 0.5) [nm]	=	1000 ± 6
λ_s ($\tau_{i,U}$ = 0.00001) [nm]	=	730
λ_p ($\tau_{i,L}$ = 0.9) [nm]	=	1300

Transformation temperature	
Tg [°C]	476

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	9.0
$\alpha_{20/300°C}$ [10^{-6}/K]	10.3
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_h (404.7 nm) = 1.558
n_g (435.8 nm) = 1.554
$n_{F'}$ (480.0 nm) = 1.549
n_F (486.1 nm) = 1.548

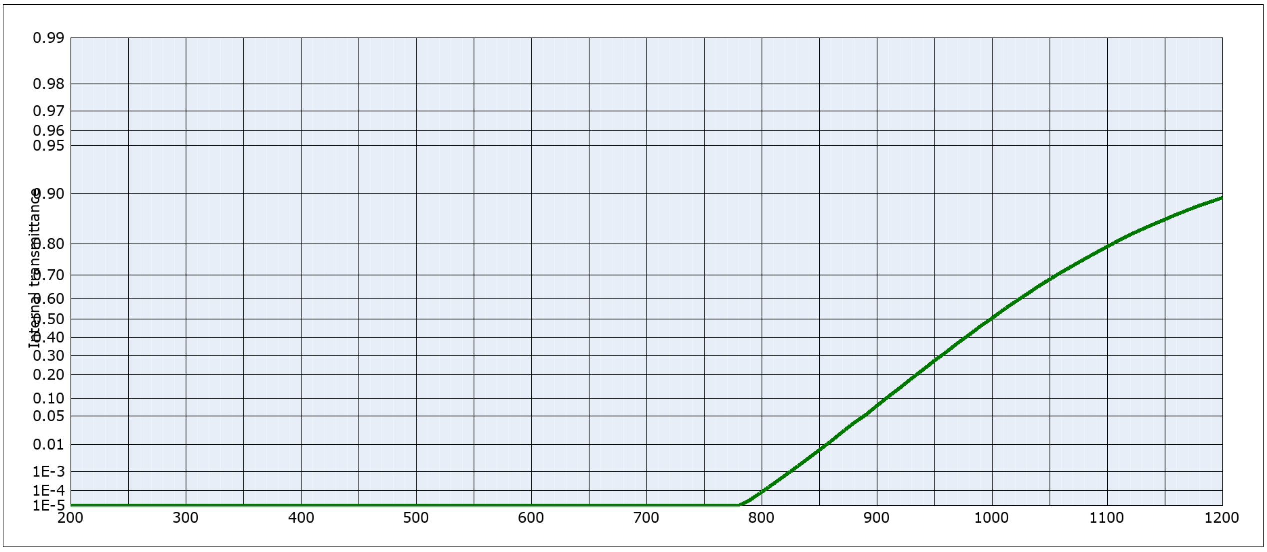
Temperature coefficient	
T_K [nm/°C]	0.41

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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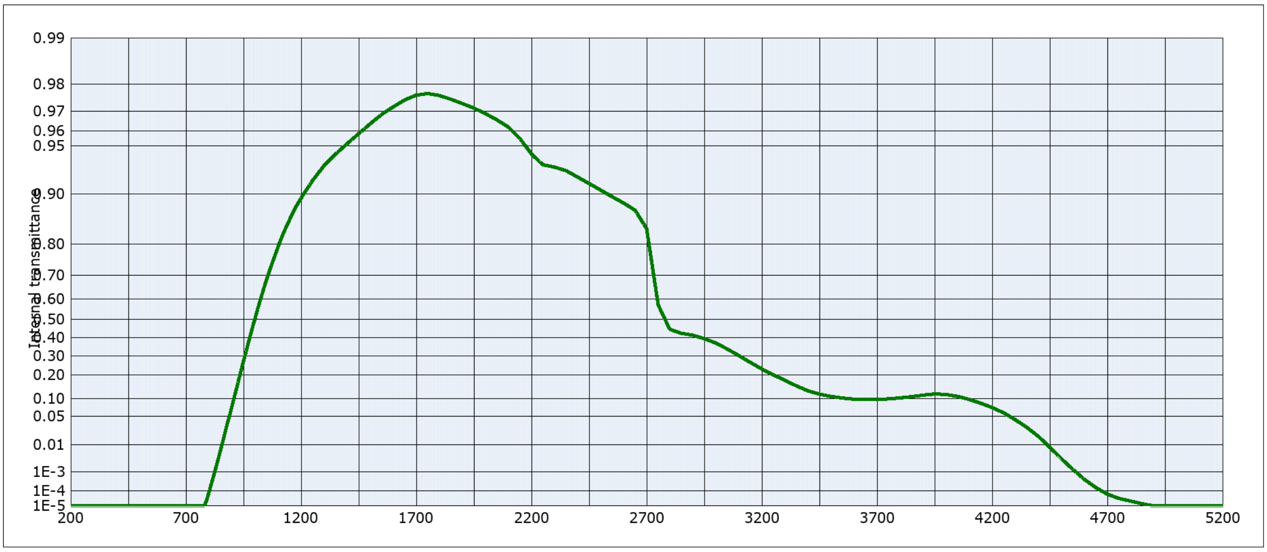
Further explanations see 'Optical Filters 2013' catalogue

RG1000

SCHOTT



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	$8.4\cdot10^{-5}$	1100	0.792	2200	0.944	3700	$9.8\cdot10^{-2}$
210	$< 10^{-5}$	510	$< 10^{-5}$	810	$2.5\cdot10^{-4}$	1110	0.808	2250	0.934	3750	0.100
220	$< 10^{-5}$	520	$< 10^{-5}$	820	$6.5\cdot10^{-4}$	1120	0.823	2300	0.932	3800	0.104
230	$< 10^{-5}$	530	$< 10^{-5}$	830	$1.6\cdot10^{-3}$	1130	0.835	2350	0.928	3850	0.108
240	$< 10^{-5}$	540	$< 10^{-5}$	840	$3.4\cdot10^{-3}$	1140	0.846	2400	0.922	3900	0.114
250	$< 10^{-5}$	550	$< 10^{-5}$	850	$6.8\cdot10^{-3}$	1150	0.856	2450	0.914	3950	0.118
260	$< 10^{-5}$	560	$< 10^{-5}$	860	$1.3\cdot10^{-2}$	1160	0.866	2500	0.905	4000	0.116
270	$< 10^{-5}$	570	$< 10^{-5}$	870	$2.2\cdot10^{-2}$	1170	0.874	2550	0.896	4050	0.109
280	$< 10^{-5}$	580	$< 10^{-5}$	880	$3.6\cdot10^{-2}$	1180	0.882	2600	0.886	4100	$9.8\cdot10^{-2}$
290	$< 10^{-5}$	590	$< 10^{-5}$	890	$5.2\cdot10^{-2}$	1190	0.888	2650	0.874	4150	$8.6\cdot10^{-2}$
300	$< 10^{-5}$	600	$< 10^{-5}$	900	$7.7\cdot10^{-2}$	1200	0.894	2700	0.837	4200	$7.2\cdot10^{-2}$
310	$< 10^{-5}$	610	$< 10^{-5}$	910	0.107	1250	0.918	2750	0.572	4250	$5.9\cdot10^{-2}$
320	$< 10^{-5}$	620	$< 10^{-5}$	920	0.141	1300	0.934	2800	0.446	4300	$4.3\cdot10^{-2}$
330	$< 10^{-5}$	630	$< 10^{-5}$	930	0.182	1350	0.944	2850	0.424	4350	$2.9\cdot10^{-2}$
340	$< 10^{-5}$	640	$< 10^{-5}$	940	0.225	1400	0.952	2900	0.414	4400	$1.8\cdot10^{-2}$
350	$< 10^{-5}$	650	$< 10^{-5}$	950	0.273	1450	0.958	2950	0.394	4450	$8.5\cdot10^{-3}$
360	$< 10^{-5}$	660	$< 10^{-5}$	960	0.318	1500	0.964	3000	0.370	4500	$3.5\cdot10^{-3}$
370	$< 10^{-5}$	670	$< 10^{-5}$	970	0.368	1550	0.969	3050	0.337	4550	$1.3\cdot10^{-3}$
380	$< 10^{-5}$	680	$< 10^{-5}$	980	0.413	1600	0.972	3100	0.302	4600	$4.4\cdot10^{-4}$
390	$< 10^{-5}$	690	$< 10^{-5}$	990	0.461	1650	0.975	3150	0.264	4650	$1.6\cdot10^{-4}$
400	$< 10^{-5}$	700	$< 10^{-5}$	1000	0.503	1700	0.976	3200	0.230	4700	$6.4\cdot10^{-5}$
410	$< 10^{-5}$	710	$< 10^{-5}$	1010	0.546	1750	0.977	3250	0.201	4750	$3.4\cdot10^{-5}$
420	$< 10^{-5}$	720	$< 10^{-5}$	1020	0.585	1800	0.976	3300	0.175	4800	$2.2\cdot10^{-5}$
430	$< 10^{-5}$	730	$< 10^{-5}$	1030	0.619	1850	0.975	3350	0.151	4850	$1.4\cdot10^{-5}$
440	$< 10^{-5}$	740	$< 10^{-5}$	1040	0.653	1900	0.973	3400	0.130	4900	$< 10^{-5}$
450	$< 10^{-5}$	750	$< 10^{-5}$	1050	0.682	1950	0.971	3450	0.117	4950	$< 10^{-5}$
460	$< 10^{-5}$	760	$< 10^{-5}$	1060	0.708	2000	0.969	3500	0.109	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	$< 10^{-5}$	1070	0.732	2050	0.966	3550	0.103	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	$< 10^{-5}$	1080	0.754	2100	0.962	3600	$9.9\cdot10^{-2}$	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	$2.6\cdot10^{-5}$	1090	0.773	2150	0.955	3650	$9.8\cdot10^{-2}$	5150	$< 10^{-5}$

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

BG36

Reflection factor	
P_d	0.877

Reference thickness	
d [mm]	1

Spectral values guaranteed

Refractive Index n
n_d (587.6 nm) = 1.690

Density	
ρ [g/cm^3]	3.59

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	1.0
SR class	52.2
AR class	1.2

Transformation temperature	
Tg [°C]	657

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.1
$\alpha_{20/300°C}$ [10^{-6}/K]	7.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

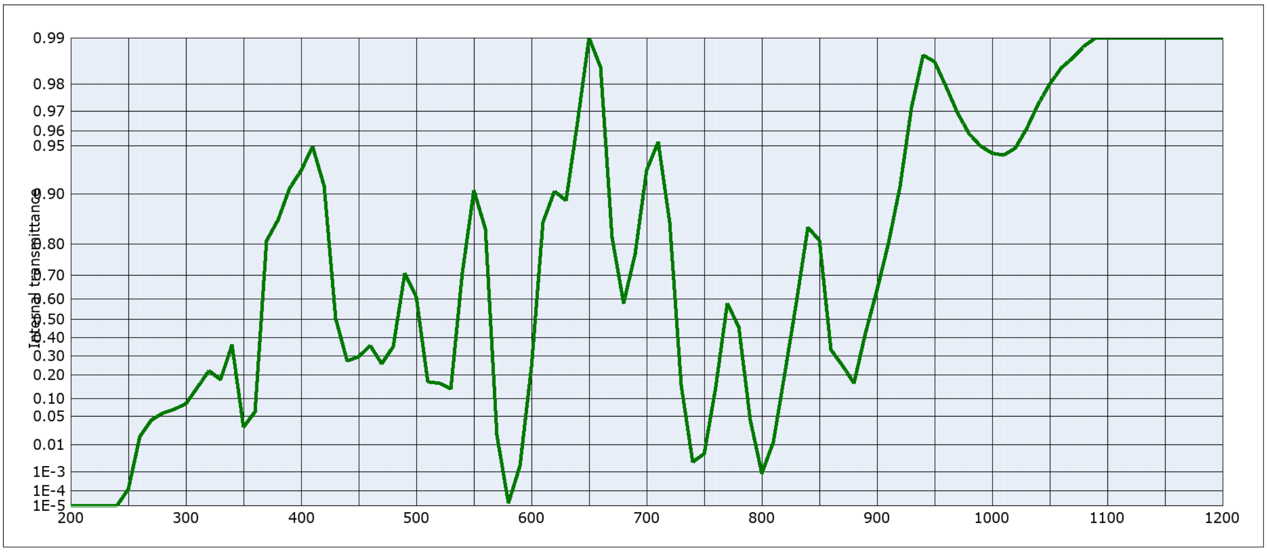
Notes
Ionically colored glass
Multiband filter
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.495	0.534	0.557
y	0.387	0.390	0.389
Y	41	32	27
λ_d [nm]	628	600	599
P_e	0.19	0.48	0.63

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.469	0.512	0.537
y	0.382	0.390	0.391
Y	41	31	26
λ_d [nm]	629	599	597
P_e	0.16	0.44	0.59

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.344	0.395	0.429
y	0.327	0.356	0.370
Y	39	29	23
λ_d [nm]	622	591	590
P_e	0.08	0.30	0.44



BG36

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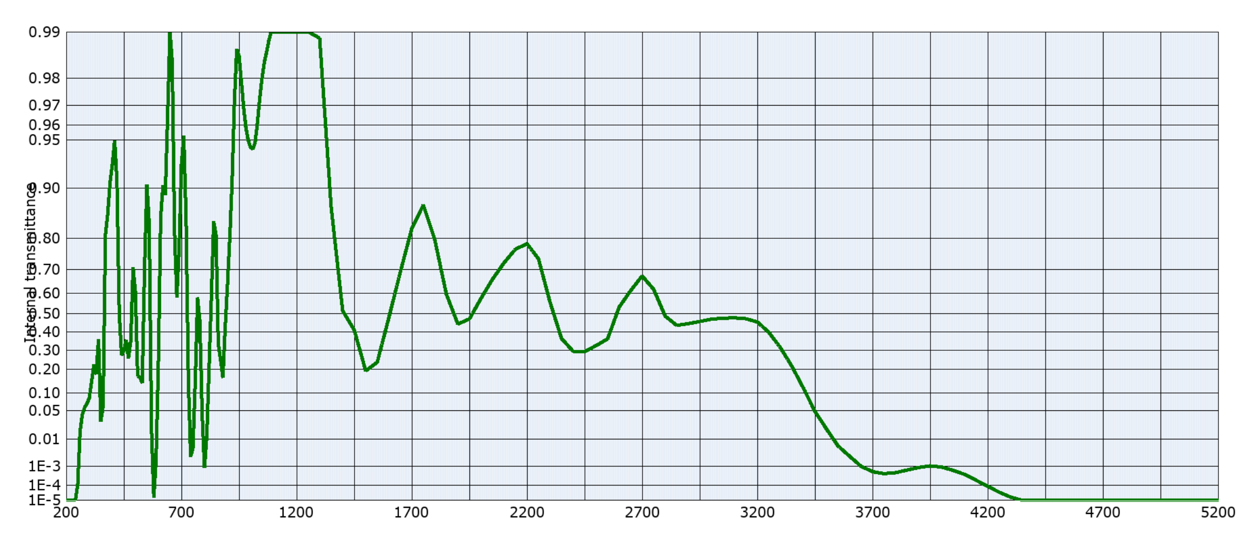


Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.608	800	$8.6 \cdot 10^{-4}$	1100	0.995	2200	0.784	3700	$5.6 \cdot 10^{-4}$
210	$< 10^{-5}$	510	0.168	810	$1.2 \cdot 10^{-2}$	1110	0.996	2250	0.737	3750	$4.5 \cdot 10^{-4}$
220	$< 10^{-5}$	520	0.162	820	0.211	1120	0.997	2300	0.557	3800	$5.0 \cdot 10^{-4}$
230	$< 10^{-5}$	530	0.139	830	0.584	1130	0.997	2350	0.364	3850	$6.8 \cdot 10^{-4}$
240	$< 10^{-5}$	540	0.708	840	0.840	1140	0.998	2400	0.294	3900	$8.9 \cdot 10^{-4}$
250	$1.3 \cdot 10^{-4}$	550	0.905	850	0.809	1150	0.998	2450	0.291	3950	$1.1 \cdot 10^{-3}$
260	$1.7 \cdot 10^{-2}$	560	0.837	860	0.333	1160	0.998	2500	0.325	4000	$9.3 \cdot 10^{-4}$
270	$4.2 \cdot 10^{-2}$	570	$1.9 \cdot 10^{-2}$	870	0.248	1170	0.997	2550	0.362	4050	$6.5 \cdot 10^{-4}$
280	$5.8 \cdot 10^{-2}$	580	$1.6 \cdot 10^{-5}$	880	0.163	1180	0.997	2600	0.532	4100	$4.1 \cdot 10^{-4}$
290	$6.8 \cdot 10^{-2}$	590	$1.8 \cdot 10^{-3}$	890	0.426	1190	0.996	2650	0.611	4150	$2.0 \cdot 10^{-4}$
300	$8.4 \cdot 10^{-2}$	600	0.241	900	0.639	1200	0.995	2700	0.674	4200	$8.9 \cdot 10^{-5}$
310	0.145	610	0.851	910	0.802	1250	0.995	2750	0.617	4250	$3.7 \cdot 10^{-5}$
320	0.222	620	0.904	920	0.910	1300	0.989	2800	0.486	4300	$1.7 \cdot 10^{-5}$
330	0.178	630	0.890	930	0.972	1350	0.869	2850	0.436	4350	$< 10^{-5}$
340	0.360	640	0.965	940	0.987	1400	0.513	2900	0.446	4400	$< 10^{-5}$
350	$3.0 \cdot 10^{-2}$	650	0.996	950	0.986	1450	0.411	2950	0.457	4450	$< 10^{-5}$
360	$6.1 \cdot 10^{-2}$	660	0.984	960	0.979	1500	0.193	3000	0.469	4500	$< 10^{-5}$
370	0.808	670	0.816	970	0.969	1550	0.236	3050	0.475	4550	$< 10^{-5}$
380	0.856	680	0.579	980	0.958	1600	0.475	3100	0.477	4600	$< 10^{-5}$
390	0.908	690	0.771	990	0.950	1650	0.689	3150	0.472	4650	$< 10^{-5}$
400	0.929	700	0.929	1000	0.945	1700	0.824	3200	0.455	4700	$< 10^{-5}$
410	0.950	710	0.953	1010	0.943	1750	0.873	3250	0.398	4750	$< 10^{-5}$
420	0.911	720	0.850	1020	0.948	1800	0.795	3300	0.314	4800	$< 10^{-5}$
430	0.503	730	0.153	1030	0.961	1850	0.595	3350	0.215	4850	$< 10^{-5}$
440	0.272	740	$2.6 \cdot 10^{-3}$	1040	0.973	1900	0.443	3400	0.119	4900	$< 10^{-5}$
450	0.296	750	$5.3 \cdot 10^{-3}$	1050	0.980	1950	0.471	3450	$4.9 \cdot 10^{-2}$	4950	$< 10^{-5}$
460	0.356	760	0.146	1060	0.984	2000	0.574	3500	$2.0 \cdot 10^{-2}$	5000	$< 10^{-5}$
470	0.257	770	0.578	1070	0.987	2050	0.660	3550	$6.3 \cdot 10^{-3}$	5050	$< 10^{-5}$
480	0.351	780	0.459	1080	0.989	2100	0.723	3600	$2.7 \cdot 10^{-3}$	5100	$< 10^{-5}$
490	0.706	790	$4.2 \cdot 10^{-2}$	1090	0.992	2150	0.768	3650	$1.0 \cdot 10^{-3}$	5150	$< 10^{-5}$

STATUS: 01.12.14

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

NG1

Density	
ρ [g/cm³]	2.47

Notes
Ionically colored glass
Neutral density filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.918

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	1.0
SR class	2.2
AR class	1.0

Spectral values guaranteed		
τ_i (546nm)	<	0.0001

Transformation temperature	
Tg [°C]	471

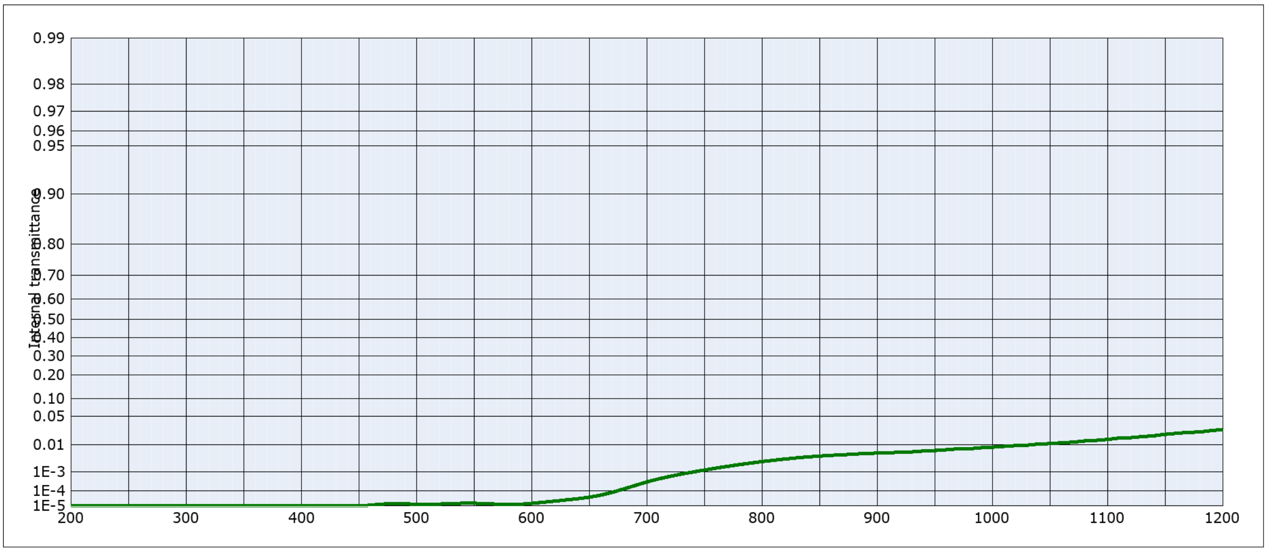
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.6
$\alpha_{20/300°C}$ [10^{-6}/K]	7.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_d (587.6 nm) = 1.520

Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x				x				x			
y				y				y			
Y				Y				Y			
λ_d [nm]				λ_d [nm]				λ_d [nm]			
P_e				P_e				P_e			



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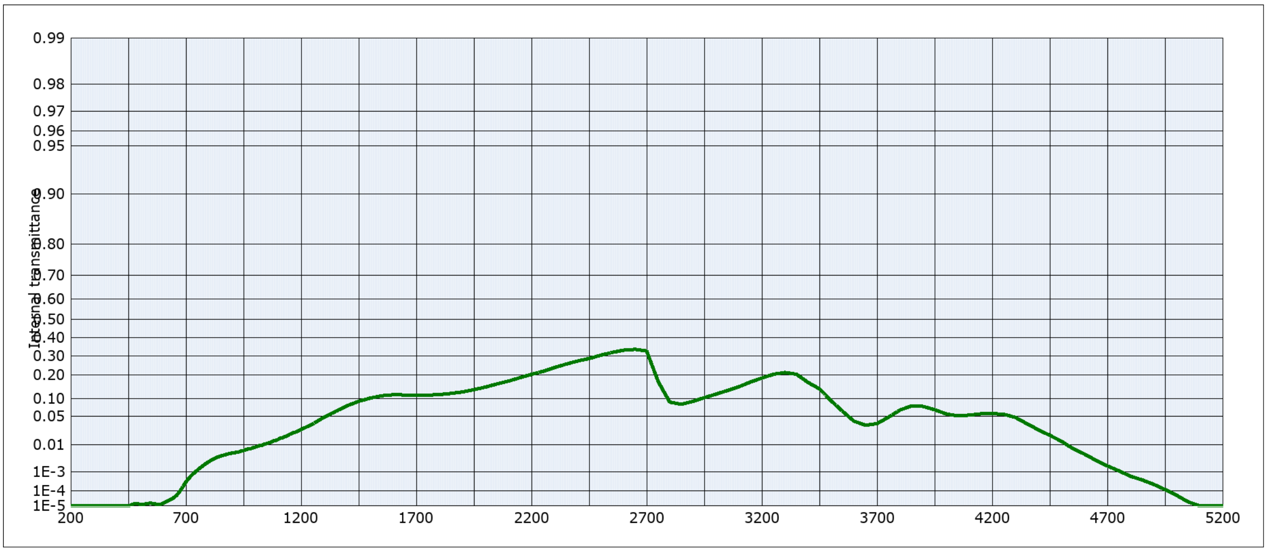
Further explanations see 'Optical Filters 2013' catalogue

NG1



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$1.3 \cdot 10^{-5}$	800	$2.7 \cdot 10^{-3}$	1100	$1.4 \cdot 10^{-2}$	2200	0.204	3700	$3.5 \cdot 10^{-2}$
210	$< 10^{-5}$	510	$1.3 \cdot 10^{-5}$	810	$3.0 \cdot 10^{-3}$	1110	$1.6 \cdot 10^{-2}$	2250	0.219	3750	$4.8 \cdot 10^{-2}$
220	$< 10^{-5}$	520	$1.4 \cdot 10^{-5}$	820	$3.4 \cdot 10^{-3}$	1120	$1.6 \cdot 10^{-2}$	2300	0.238	3800	$6.6 \cdot 10^{-2}$
230	$< 10^{-5}$	530	$1.5 \cdot 10^{-5}$	830	$3.7 \cdot 10^{-3}$	1130	$1.7 \cdot 10^{-2}$	2350	0.256	3850	$7.7 \cdot 10^{-2}$
240	$< 10^{-5}$	540	$1.6 \cdot 10^{-5}$	840	$4.1 \cdot 10^{-3}$	1140	$1.8 \cdot 10^{-2}$	2400	0.272	3900	$7.6 \cdot 10^{-2}$
250	$< 10^{-5}$	550	$1.6 \cdot 10^{-5}$	850	$4.3 \cdot 10^{-3}$	1150	$2.0 \cdot 10^{-2}$	2450	0.285	3950	$6.7 \cdot 10^{-2}$
260	$< 10^{-5}$	560	$1.5 \cdot 10^{-5}$	860	$4.6 \cdot 10^{-3}$	1160	$2.1 \cdot 10^{-2}$	2500	0.303	4000	$5.6 \cdot 10^{-2}$
270	$< 10^{-5}$	570	$1.3 \cdot 10^{-5}$	870	$4.8 \cdot 10^{-3}$	1170	$2.2 \cdot 10^{-2}$	2550	0.319	4050	$5.1 \cdot 10^{-2}$
280	$< 10^{-5}$	580	$1.3 \cdot 10^{-5}$	880	$5.2 \cdot 10^{-3}$	1180	$2.3 \cdot 10^{-2}$	2600	0.331	4100	$5.3 \cdot 10^{-2}$
290	$< 10^{-5}$	590	$1.3 \cdot 10^{-5}$	890	$5.2 \cdot 10^{-3}$	1190	$2.4 \cdot 10^{-2}$	2650	0.335	4150	$5.6 \cdot 10^{-2}$
300	$< 10^{-5}$	600	$1.5 \cdot 10^{-5}$	900	$5.5 \cdot 10^{-3}$	1200	$2.6 \cdot 10^{-2}$	2700	0.327	4200	$5.7 \cdot 10^{-2}$
310	$< 10^{-5}$	610	$1.8 \cdot 10^{-5}$	910	$5.7 \cdot 10^{-3}$	1250	$3.5 \cdot 10^{-2}$	2750	0.170	4250	$5.5 \cdot 10^{-2}$
320	$< 10^{-5}$	620	$2.2 \cdot 10^{-5}$	920	$5.9 \cdot 10^{-3}$	1300	$4.8 \cdot 10^{-2}$	2800	$8.9 \cdot 10^{-2}$	4300	$4.8 \cdot 10^{-2}$
330	$< 10^{-5}$	630	$2.7 \cdot 10^{-5}$	930	$6.0 \cdot 10^{-3}$	1350	$6.2 \cdot 10^{-2}$	2850	$8.2 \cdot 10^{-2}$	4350	$3.5 \cdot 10^{-2}$
340	$< 10^{-5}$	640	$3.3 \cdot 10^{-5}$	940	$6.5 \cdot 10^{-3}$	1400	$7.8 \cdot 10^{-2}$	2900	$9.2 \cdot 10^{-2}$	4400	$2.6 \cdot 10^{-2}$
350	$< 10^{-5}$	650	$4.1 \cdot 10^{-5}$	950	$6.7 \cdot 10^{-3}$	1450	$9.2 \cdot 10^{-2}$	2950	0.104	4450	$1.9 \cdot 10^{-2}$
360	$< 10^{-5}$	660	$5.6 \cdot 10^{-5}$	960	$7.1 \cdot 10^{-3}$	1500	0.103	3000	0.117	4500	$1.3 \cdot 10^{-2}$
370	$< 10^{-5}$	670	$8.3 \cdot 10^{-5}$	970	$7.6 \cdot 10^{-3}$	1550	0.111	3050	0.131	4550	$7.8 \cdot 10^{-3}$
380	$< 10^{-5}$	680	$1.3 \cdot 10^{-4}$	980	$7.6 \cdot 10^{-3}$	1600	0.115	3100	0.147	4600	$5.1 \cdot 10^{-3}$
390	$< 10^{-5}$	690	$2.1 \cdot 10^{-4}$	990	$8.2 \cdot 10^{-3}$	1650	0.114	3150	0.168	4650	$3.0 \cdot 10^{-3}$
400	$< 10^{-5}$	700	$3.2 \cdot 10^{-4}$	1000	$8.6 \cdot 10^{-3}$	1700	0.114	3200	0.186	4700	$1.8 \cdot 10^{-3}$
410	$< 10^{-5}$	710	$4.6 \cdot 10^{-4}$	1010	$9.1 \cdot 10^{-3}$	1750	0.114	3250	0.204	4750	$1.1 \cdot 10^{-3}$
420	$< 10^{-5}$	720	$6.2 \cdot 10^{-4}$	1020	$9.6 \cdot 10^{-3}$	1800	0.116	3300	0.213	4800	$6.3 \cdot 10^{-4}$
430	$< 10^{-5}$	730	$8.0 \cdot 10^{-4}$	1030	$9.8 \cdot 10^{-3}$	1850	0.120	3350	0.204	4850	$4.2 \cdot 10^{-4}$
440	$< 10^{-5}$	740	$9.9 \cdot 10^{-4}$	1040	$1.1 \cdot 10^{-2}$	1900	0.126	3400	0.166	4900	$2.5 \cdot 10^{-4}$
450	$< 10^{-5}$	750	$1.2 \cdot 10^{-3}$	1050	$1.1 \cdot 10^{-2}$	1950	0.135	3450	0.138	4950	$1.2 \cdot 10^{-4}$
460	$1.1 \cdot 10^{-5}$	760	$1.5 \cdot 10^{-3}$	1060	$1.2 \cdot 10^{-2}$	2000	0.146	3500	$9.4 \cdot 10^{-2}$	5000	$5.5 \cdot 10^{-5}$
470	$1.4 \cdot 10^{-5}$	770	$1.7 \cdot 10^{-3}$	1070	$1.2 \cdot 10^{-2}$	2050	0.159	3550	$6.2 \cdot 10^{-2}$	5050	$2.0 \cdot 10^{-5}$
480	$1.4 \cdot 10^{-5}$	780	$2.0 \cdot 10^{-3}$	1080	$1.3 \cdot 10^{-2}$	2100	0.172	3600	$4.0 \cdot 10^{-2}$	5100	$< 10^{-5}$
490	$1.4 \cdot 10^{-5}$	790	$2.4 \cdot 10^{-3}$	1090	$1.4 \cdot 10^{-2}$	2150	0.188	3650	$3.3 \cdot 10^{-2}$	5150	$< 10^{-5}$

Data Sheet

SCHOTT

NG3

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	=	0.06 ± 0.02
τ_i (546nm)	=	0.1 ± 0.02
τ_i (694nm)	=	0.17 ± 0.03

Refractive Index n
n_d (587.6 nm) = 1.510

Density	
ρ [g/cm³]	2.44

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	2.2
AR class	1.0

Transformation temperature	
Tg [°C]	462

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.5
$\alpha_{20/300°C}$ [10^{-6}/K]	7.3
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

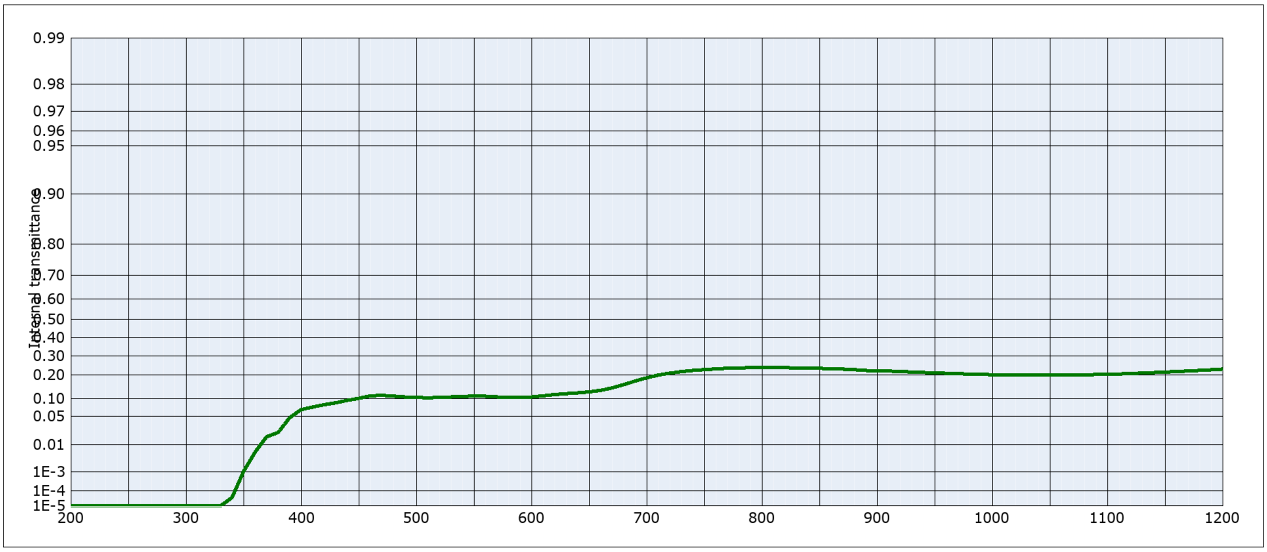
Notes
Ionically colored glass
Neutral density filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

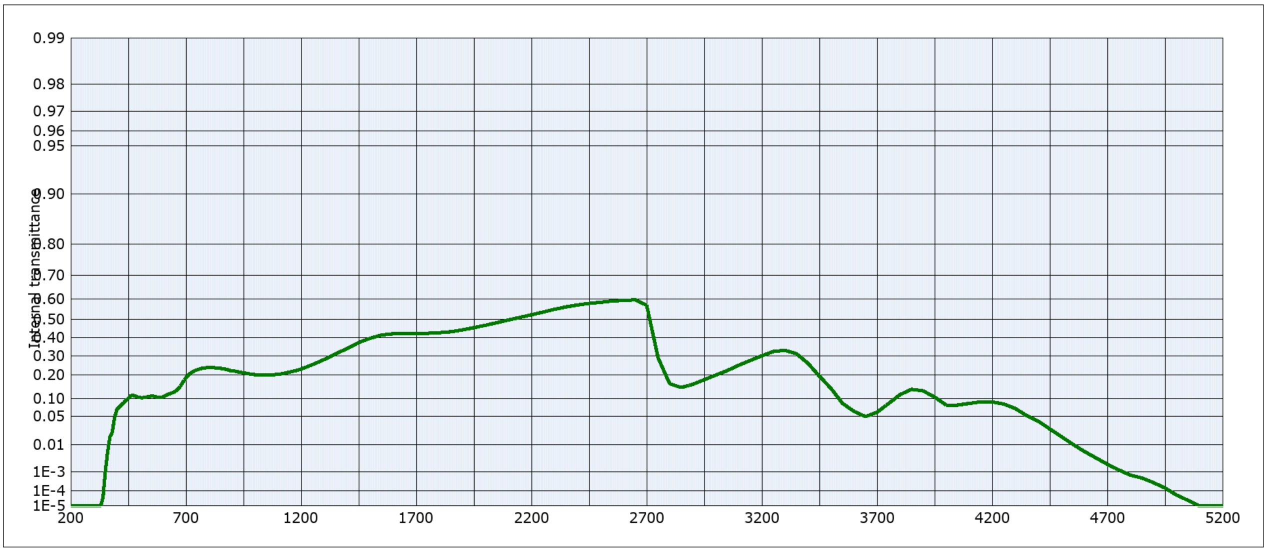
Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



NG3



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.105	800	0.238	1100	0.203	2200	0.523	3700	$6.0\cdot10^{-2}$
210	$< 10^{-5}$	510	0.104	810	0.237	1110	0.205	2250	0.536	3750	$8.5\cdot10^{-2}$
220	$< 10^{-5}$	520	0.105	820	0.237	1120	0.208	2300	0.550	3800	0.116
230	$< 10^{-5}$	530	0.107	830	0.236	1130	0.210	2350	0.562	3850	0.136
240	$< 10^{-5}$	540	0.109	840	0.235	1140	0.212	2400	0.571	3900	0.130
250	$< 10^{-5}$	550	0.110	850	0.234	1150	0.215	2450	0.579	3950	0.107
260	$< 10^{-5}$	560	0.110	860	0.231	1160	0.218	2500	0.584	4000	$8.0\cdot10^{-2}$
270	$< 10^{-5}$	570	0.107	870	0.230	1170	0.220	2550	0.590	4050	$8.0\cdot10^{-2}$
280	$< 10^{-5}$	580	0.105	880	0.227	1180	0.223	2600	0.593	4100	$8.5\cdot10^{-2}$
290	$< 10^{-5}$	590	0.105	890	0.223	1190	0.226	2650	0.596	4150	$9.0\cdot10^{-2}$
300	$< 10^{-5}$	600	0.107	900	0.221	1200	0.230	2700	0.570	4200	$9.0\cdot10^{-2}$
310	$< 10^{-5}$	610	0.111	910	0.220	1250	0.253	2750	0.288	4250	$8.3\cdot10^{-2}$
320	$< 10^{-5}$	620	0.116	920	0.218	1300	0.280	2800	0.160	4300	$7.0\cdot10^{-2}$
330	$< 10^{-5}$	630	0.119	930	0.215	1350	0.311	2850	0.144	4350	$5.2\cdot10^{-2}$
340	$3.9\cdot10^{-5}$	640	0.122	940	0.213	1400	0.340	2900	0.157	4400	$4.0\cdot10^{-2}$
350	$1.0\cdot10^{-3}$	650	0.126	950	0.211	1450	0.373	2950	0.178	4450	$2.7\cdot10^{-2}$
360	$5.9\cdot10^{-3}$	660	0.132	960	0.209	1500	0.397	3000	0.200	4500	$1.7\cdot10^{-2}$
370	$1.7\cdot10^{-2}$	670	0.142	970	0.207	1550	0.415	3050	0.222	4550	$1.0\cdot10^{-2}$
380	$2.2\cdot10^{-2}$	680	0.156	980	0.205	1600	0.422	3100	0.250	4600	$6.2\cdot10^{-3}$
390	$4.7\cdot10^{-2}$	690	0.172	990	0.204	1650	0.424	3150	0.275	4650	$3.7\cdot10^{-3}$
400	$6.7\cdot10^{-2}$	700	0.187	1000	0.202	1700	0.423	3200	0.300	4700	$2.1\cdot10^{-3}$
410	$7.4\cdot10^{-2}$	710	0.200	1010	0.202	1750	0.424	3250	0.324	4750	$1.2\cdot10^{-3}$
420	$8.1\cdot10^{-2}$	720	0.209	1020	0.201	1800	0.427	3300	0.330	4800	$7.1\cdot10^{-4}$
430	$8.7\cdot10^{-2}$	730	0.217	1030	0.201	1850	0.433	3350	0.312	4850	$5.2\cdot10^{-4}$
440	$9.5\cdot10^{-2}$	740	0.223	1040	0.200	1900	0.443	3400	0.260	4900	$3.0\cdot10^{-4}$
450	0.102	750	0.227	1050	0.201	1950	0.455	3450	0.195	4950	$1.5\cdot10^{-4}$
460	0.111	760	0.231	1060	0.202	2000	0.467	3500	0.140	5000	$5.6\cdot10^{-5}$
470	0.113	770	0.234	1070	0.201	2050	0.481	3550	$8.5\cdot10^{-2}$	5050	$2.5\cdot10^{-5}$
480	0.110	780	0.236	1080	0.202	2100	0.496	3600	$6.2\cdot10^{-2}$	5100	$< 10^{-5}$
490	0.107	790	0.237	1090	0.203	2150	0.509	3650	$5.0\cdot10^{-2}$	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

NG4

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	=	0.27 ± 0.03
τ_i (546nm)	=	0.31 ± 0.03
τ_i (694nm)	=	0.39 ± 0.04

Refractive Index n
n_d (587.6 nm) = 1.510

Density	
ρ [g/cm^3]	2.43

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	2.2
AR class	1.0

Transformation temperature	
Tg [°C]	483

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.7
$\alpha_{20/300°C}$ [10^{-6}/K]	7.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Neutral density filter

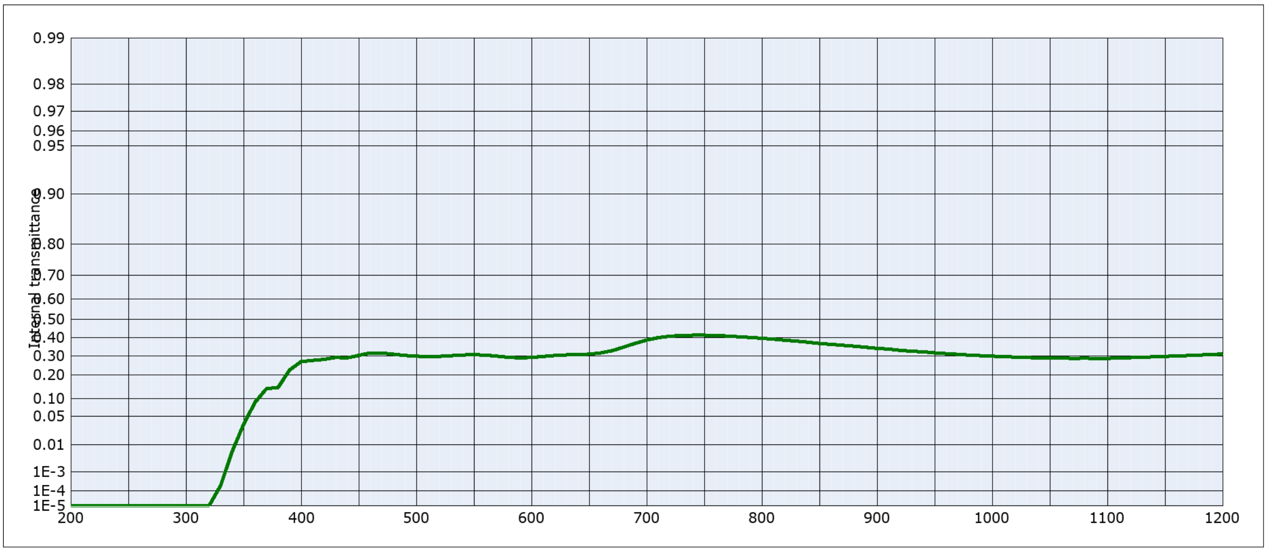
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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Further explanations see 'Optical Filters 2013' catalogue

NG4

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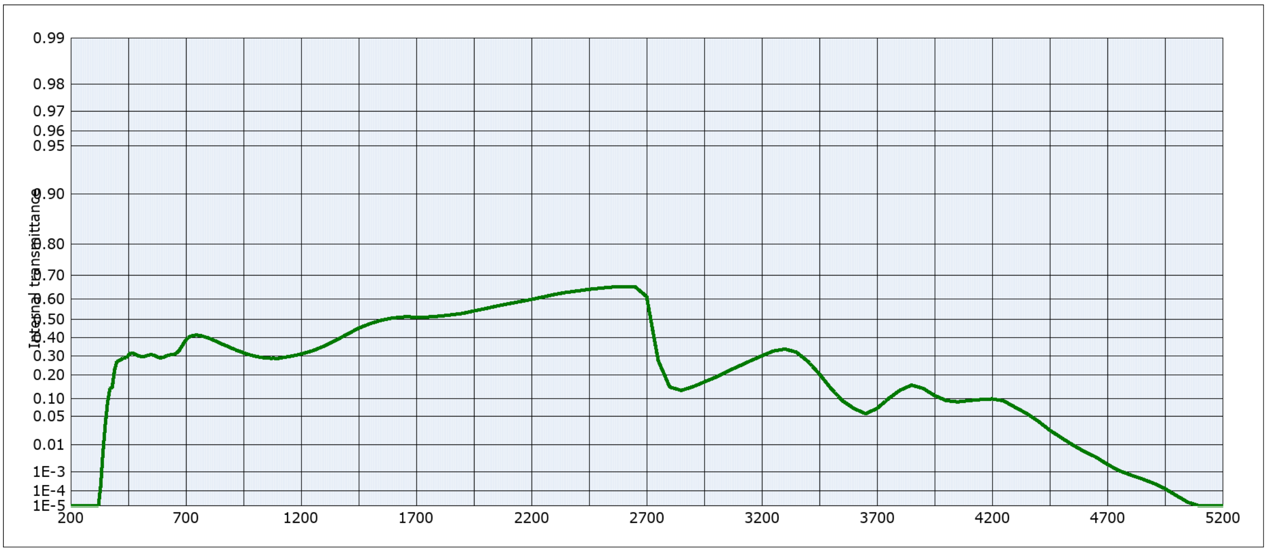

Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.298	800	0.397	1100	0.286	2200	0.597	3700	$7.0\cdot10^{-2}$
210	$< 10^{-5}$	510	0.296	810	0.392	1110	0.288	2250	0.608	3750	0.101
220	$< 10^{-5}$	520	0.297	820	0.386	1120	0.290	2300	0.620	3800	0.133
230	$< 10^{-5}$	530	0.301	830	0.381	1130	0.292	2350	0.629	3850	0.154
240	$< 10^{-5}$	540	0.305	840	0.375	1140	0.295	2400	0.636	3900	0.140
250	$< 10^{-5}$	550	0.306	850	0.368	1150	0.297	2450	0.642	3950	0.112
260	$< 10^{-5}$	560	0.304	860	0.363	1160	0.299	2500	0.647	4000	$9.4\cdot10^{-2}$
270	$< 10^{-5}$	570	0.298	870	0.358	1170	0.302	2550	0.652	4050	$9.0\cdot10^{-2}$
280	$< 10^{-5}$	580	0.292	880	0.353	1180	0.304	2600	0.654	4100	$9.4\cdot10^{-2}$
290	$< 10^{-5}$	590	0.289	890	0.347	1190	0.307	2650	0.653	4150	$9.8\cdot10^{-2}$
300	$< 10^{-5}$	600	0.291	900	0.341	1200	0.310	2700	0.610	4200	0.100
310	$< 10^{-5}$	610	0.297	910	0.337	1250	0.328	2750	0.275	4250	$9.3\cdot10^{-2}$
320	$< 10^{-5}$	620	0.302	920	0.330	1300	0.353	2800	0.146	4300	$7.3\cdot10^{-2}$
330	$2.0\cdot10^{-4}$	630	0.305	930	0.325	1350	0.386	2850	0.132	4350	$5.7\cdot10^{-2}$
340	$6.0\cdot10^{-3}$	640	0.307	940	0.322	1400	0.419	2900	0.147	4400	$4.0\cdot10^{-2}$
350	$3.4\cdot10^{-2}$	650	0.309	950	0.316	1450	0.452	2950	0.168	4450	$2.5\cdot10^{-2}$
360	$8.9\cdot10^{-2}$	660	0.316	960	0.312	1500	0.476	3000	0.190	4500	$1.6\cdot10^{-2}$
370	0.139	670	0.328	970	0.308	1550	0.495	3050	0.218	4550	$1.0\cdot10^{-2}$
380	0.144	680	0.348	980	0.304	1600	0.507	3100	0.245	4600	$6.2\cdot10^{-3}$
390	0.225	690	0.369	990	0.301	1650	0.512	3150	0.273	4650	$4.0\cdot10^{-3}$
400	0.269	700	0.387	1000	0.298	1700	0.511	3200	0.300	4700	$2.1\cdot10^{-3}$
410	0.275	710	0.400	1010	0.296	1750	0.511	3250	0.326	4750	$1.2\cdot10^{-3}$
420	0.281	720	0.408	1020	0.293	1800	0.515	3300	0.337	4800	$7.3\cdot10^{-4}$
430	0.291	730	0.412	1030	0.291	1850	0.522	3350	0.320	4850	$4.7\cdot10^{-4}$
440	0.289	740	0.413	1040	0.289	1900	0.529	3400	0.270	4900	$2.8\cdot10^{-4}$
450	0.302	750	0.414	1050	0.288	1950	0.542	3450	0.205	4950	$1.4\cdot10^{-4}$
460	0.316	760	0.412	1060	0.288	2000	0.553	3500	0.140	5000	$5.2\cdot10^{-5}$
470	0.315	770	0.409	1070	0.286	2050	0.566	3550	$9.4\cdot10^{-2}$	5050	$1.8\cdot10^{-5}$
480	0.309	780	0.405	1080	0.287	2100	0.577	3600	$7.0\cdot10^{-2}$	5100	$< 10^{-5}$
490	0.302	790	0.401	1090	0.286	2150	0.587	3650	$5.6\cdot10^{-2}$	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

NG5

Density	
ρ [g/cm³]	2.43

Notes
Ionically colored glass
Neutral density filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.923

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	1.0
SR class	3.2
AR class	2.0

Spectral values guaranteed		
τ_i (405nm)	=	0.56 ± 0.03
τ_i (546nm)	=	0.57 ± 0.03
τ_i (694nm)	=	0.62 ± 0.03

Transformation temperature	
Tg [°C]	474

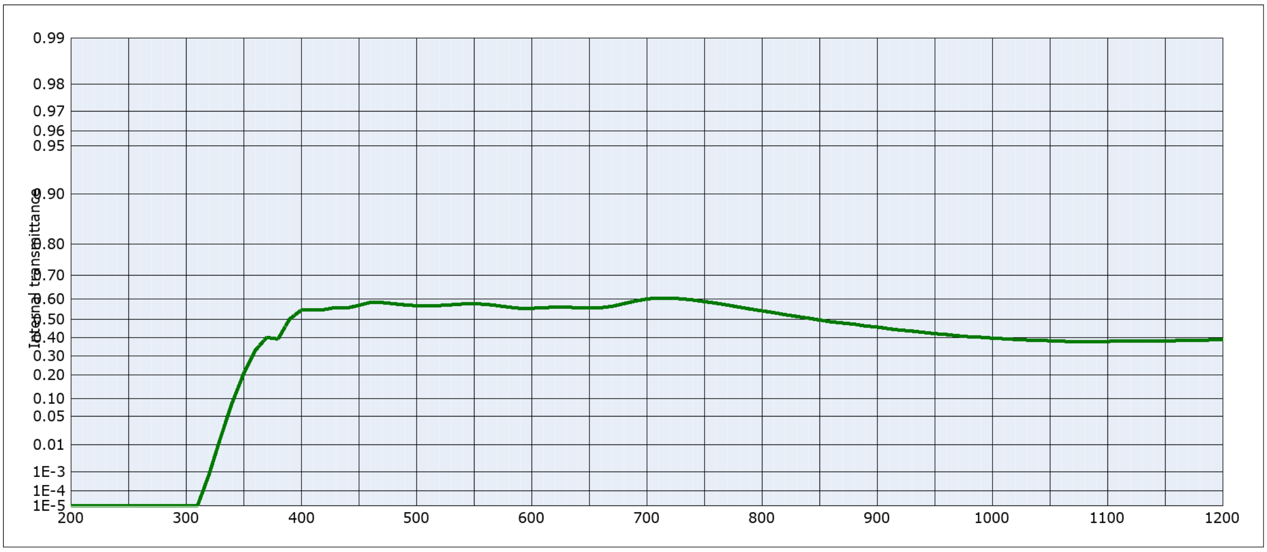
Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.6
$\alpha_{20/300°C}$ [10^{-6}/K]	7.3
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n_d (587.6 nm) = 1.500

Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)			Illuminant	Planck T = 3200 K			Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3	d [mm]	1	2	3	d [mm]	1	2	3
x				x				x			
y				y				y			
Y				Y				Y			
λ_d [nm]				λ_d [nm]				λ_d [nm]			
P_e				P_e				P_e			



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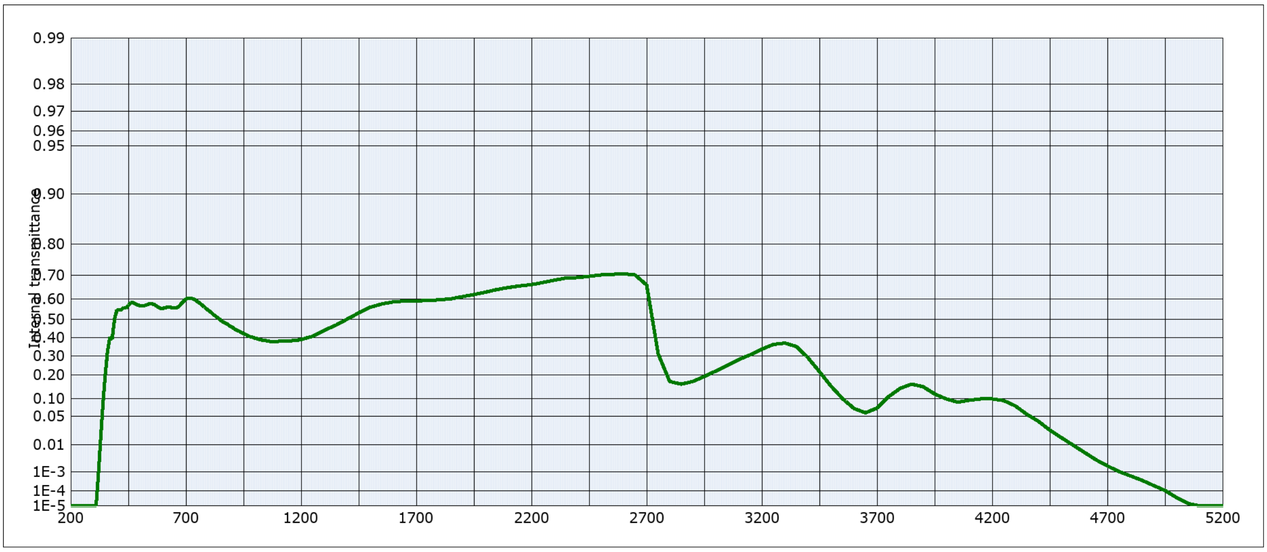
Further explanations see 'Optical Filters 2013' catalogue

NG5



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	< 10^{-5}	500	0.568	800	0.542	1100	0.379	2200	0.662	3700	$7.1\cdot10^{-2}$
210	< 10^{-5}	510	0.567	810	0.534	1110	0.381	2250	0.671	3750	0.108
220	< 10^{-5}	520	0.568	820	0.523	1120	0.381	2300	0.680	3800	0.140
230	< 10^{-5}	530	0.572	830	0.514	1130	0.382	2350	0.688	3850	0.158
240	< 10^{-5}	540	0.576	840	0.505	1140	0.382	2400	0.690	3900	0.147
250	< 10^{-5}	550	0.577	850	0.495	1150	0.383	2450	0.695	3950	0.118
260	< 10^{-5}	560	0.575	860	0.486	1160	0.383	2500	0.700	4000	0.100
270	< 10^{-5}	570	0.568	870	0.480	1170	0.384	2550	0.702	4050	$8.9\cdot10^{-2}$
280	< 10^{-5}	580	0.561	880	0.473	1180	0.386	2600	0.704	4100	$9.5\cdot10^{-2}$
290	< 10^{-5}	590	0.555	890	0.464	1190	0.388	2650	0.700	4150	0.100
300	< 10^{-5}	600	0.555	900	0.458	1200	0.390	2700	0.660	4200	0.100
310	< 10^{-5}	610	0.558	910	0.449	1250	0.408	2750	0.311	4250	$9.4\cdot10^{-2}$
320	$7.4\cdot10^{-4}$	620	0.560	920	0.442	1300	0.440	2800	0.170	4300	$7.8\cdot10^{-2}$
330	$1.6\cdot10^{-2}$	630	0.560	930	0.436	1350	0.468	2850	0.158	4350	$5.5\cdot10^{-2}$
340	$8.6\cdot10^{-2}$	640	0.558	940	0.429	1400	0.500	2900	0.170	4400	$4.0\cdot10^{-2}$
350	0.205	650	0.556	950	0.422	1450	0.532	2950	0.194	4450	$2.5\cdot10^{-2}$
360	0.328	660	0.558	960	0.417	1500	0.560	3000	0.220	4500	$1.6\cdot10^{-2}$
370	0.401	670	0.564	970	0.410	1550	0.576	3050	0.249	4550	$1.0\cdot10^{-2}$
380	0.393	680	0.577	980	0.405	1600	0.586	3100	0.280	4600	$5.8\cdot10^{-3}$
390	0.500	690	0.589	990	0.402	1650	0.590	3150	0.306	4650	$3.2\cdot10^{-3}$
400	0.546	700	0.599	1000	0.397	1700	0.590	3200	0.336	4700	$1.8\cdot10^{-3}$
410	0.546	710	0.604	1010	0.394	1750	0.593	3250	0.363	4750	$1.0\cdot10^{-3}$
420	0.549	720	0.604	1020	0.390	1800	0.595	3300	0.370	4800	$6.6\cdot10^{-4}$
430	0.559	730	0.600	1030	0.387	1850	0.600	3350	0.351	4850	$4.0\cdot10^{-4}$
440	0.556	740	0.595	1040	0.385	1900	0.610	3400	0.290	4900	$2.1\cdot10^{-4}$
450	0.569	750	0.587	1050	0.383	1950	0.619	3450	0.217	4950	$1.1\cdot10^{-4}$
460	0.583	760	0.580	1060	0.380	2000	0.630	3500	0.150	5000	$3.9\cdot10^{-5}$
470	0.583	770	0.571	1070	0.379	2050	0.641	3550	0.101	5050	$1.5\cdot10^{-5}$
480	0.577	780	0.561	1080	0.377	2100	0.650	3600	$7.0\cdot10^{-2}$	5100	< 10^{-5}
490	0.571	790	0.551	1090	0.376	2150	0.657	3650	$5.9\cdot10^{-2}$	5150	< 10^{-5}

Data Sheet

SCHOTT

NG9

Reflection factor	
P_d	0.921

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (405nm)	=	0.025 ± 0.01
τ_i (546nm)	=	0.04 ± 0.02
τ_i (694nm)	=	0.08 ± 0.02

Refractive Index n
n_d (587.6 nm) = 1.510

Density	
ρ [g/cm³]	2.45

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	1.0
SR class	3.2
AR class	2.0

Transformation temperature	
Tg [°C]	470

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.4
$\alpha_{20/300°C}$ [10^{-6}/K]	7.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

Notes
Ionically colored glass
Neutral density filter

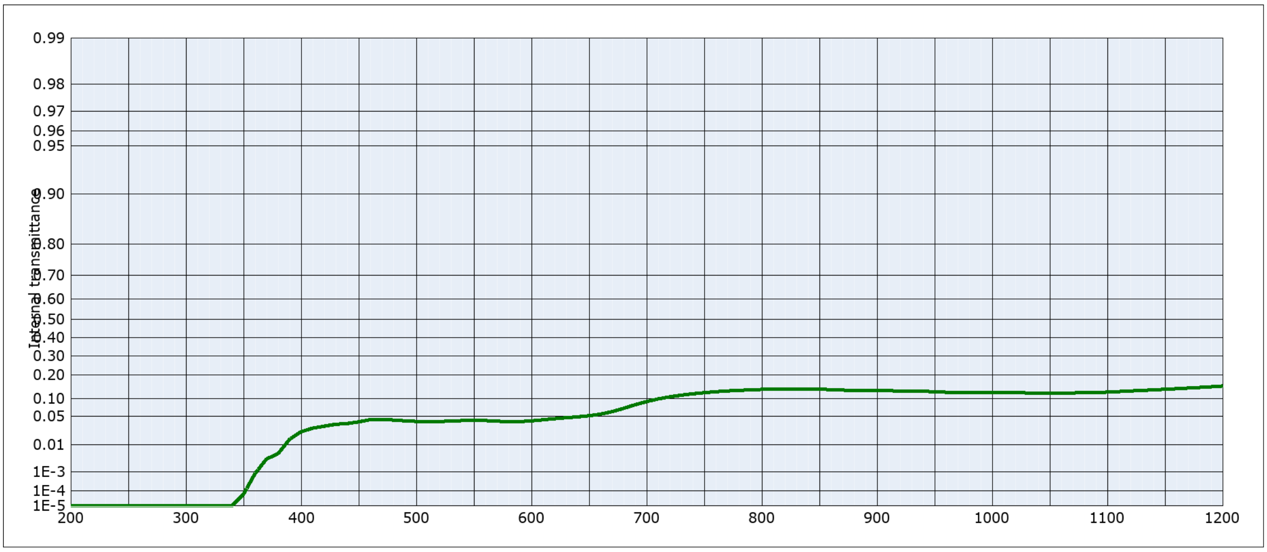
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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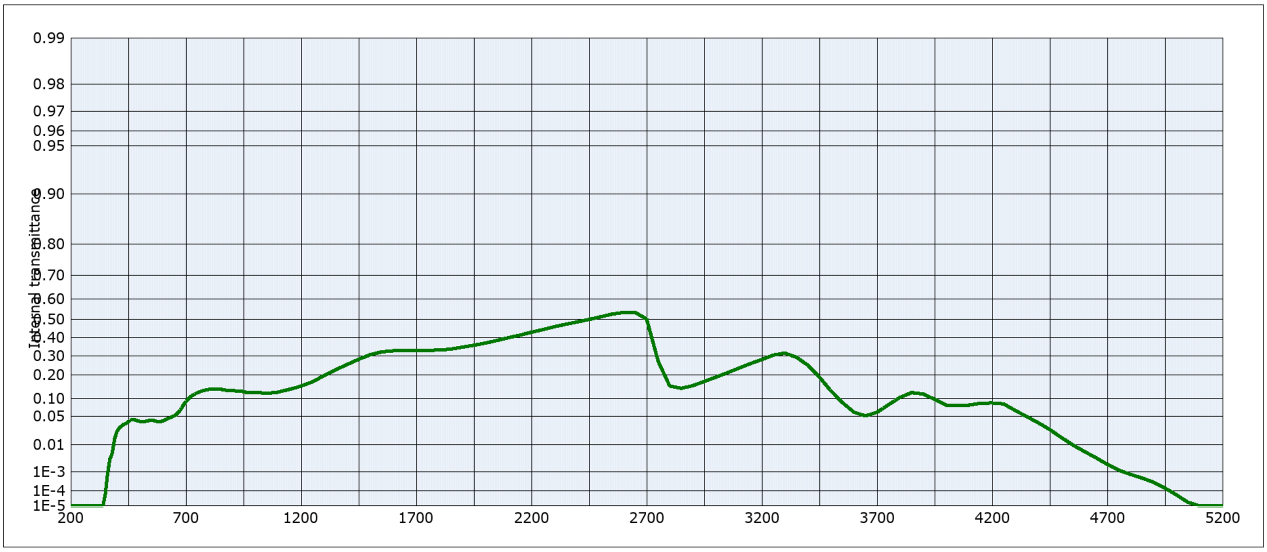
Further explanations see 'Optical Filters 2013' catalogue

NG9



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$4.0\cdot10^{-2}$	800	0.136	1100	0.125	2200	0.430	3700	$6.0\cdot10^{-2}$
210	$< 10^{-5}$	510	$3.9\cdot10^{-2}$	810	0.137	1110	0.127	2250	0.444	3750	$8.1\cdot10^{-2}$
220	$< 10^{-5}$	520	$3.9\cdot10^{-2}$	820	0.138	1120	0.130	2300	0.460	3800	0.106
230	$< 10^{-5}$	530	$4.0\cdot10^{-2}$	830	0.138	1130	0.132	2350	0.473	3850	0.123
240	$< 10^{-5}$	540	$4.1\cdot10^{-2}$	840	0.138	1140	0.134	2400	0.486	3900	0.118
250	$< 10^{-5}$	550	$4.2\cdot10^{-2}$	850	0.137	1150	0.136	2450	0.498	3950	$9.9\cdot10^{-2}$
260	$< 10^{-5}$	560	$4.1\cdot10^{-2}$	860	0.135	1160	0.139	2500	0.512	4000	$8.0\cdot10^{-2}$
270	$< 10^{-5}$	570	$4.0\cdot10^{-2}$	870	0.133	1170	0.141	2550	0.526	4050	$7.8\cdot10^{-2}$
280	$< 10^{-5}$	580	$3.9\cdot10^{-2}$	880	0.133	1180	0.144	2600	0.534	4100	$8.0\cdot10^{-2}$
290	$< 10^{-5}$	590	$3.9\cdot10^{-2}$	890	0.132	1190	0.147	2650	0.535	4150	$8.6\cdot10^{-2}$
300	$< 10^{-5}$	600	$4.1\cdot10^{-2}$	900	0.132	1200	0.150	2700	0.500	4200	$8.6\cdot10^{-2}$
310	$< 10^{-5}$	610	$4.3\cdot10^{-2}$	910	0.131	1250	0.169	2750	0.271	4250	$8.4\cdot10^{-2}$
320	$< 10^{-5}$	620	$4.5\cdot10^{-2}$	920	0.129	1300	0.198	2800	0.150	4300	$6.5\cdot10^{-2}$
330	$< 10^{-5}$	630	$4.7\cdot10^{-2}$	930	0.128	1350	0.227	2850	0.140	4350	$5.0\cdot10^{-2}$
340	$< 10^{-5}$	640	$4.9\cdot10^{-2}$	940	0.128	1400	0.254	2900	0.151	4400	$3.7\cdot10^{-2}$
350	$6.4\cdot10^{-5}$	650	$5.2\cdot10^{-2}$	950	0.127	1450	0.281	2950	0.170	4450	$2.6\cdot10^{-2}$
360	$8.5\cdot10^{-4}$	660	$5.5\cdot10^{-2}$	960	0.125	1500	0.306	3000	0.190	4500	$1.6\cdot10^{-2}$
370	$3.4\cdot10^{-3}$	670	$6.2\cdot10^{-2}$	970	0.123	1550	0.322	3050	0.211	4550	$1.0\cdot10^{-2}$
380	$5.3\cdot10^{-3}$	680	$7.0\cdot10^{-2}$	980	0.123	1600	0.327	3100	0.235	4600	$6.2\cdot10^{-3}$
390	$1.5\cdot10^{-2}$	690	$8.1\cdot10^{-2}$	990	0.123	1650	0.329	3150	0.258	4650	$3.8\cdot10^{-3}$
400	$2.3\cdot10^{-2}$	700	$9.1\cdot10^{-2}$	1000	0.123	1700	0.330	3200	0.280	4700	$2.1\cdot10^{-3}$
410	$2.8\cdot10^{-2}$	710	0.100	1010	0.123	1750	0.330	3250	0.304	4750	$1.2\cdot10^{-3}$
420	$3.1\cdot10^{-2}$	720	0.107	1020	0.123	1800	0.332	3300	0.315	4800	$7.7\cdot10^{-4}$
430	$3.4\cdot10^{-2}$	730	0.113	1030	0.122	1850	0.337	3350	0.292	4850	$5.2\cdot10^{-4}$
440	$3.6\cdot10^{-2}$	740	0.119	1040	0.121	1900	0.347	3400	0.250	4900	$3.1\cdot10^{-4}$
450	$3.9\cdot10^{-2}$	750	0.123	1050	0.121	1950	0.358	3450	0.190	4950	$1.5\cdot10^{-4}$
460	$4.3\cdot10^{-2}$	760	0.127	1060	0.121	2000	0.370	3500	0.130	5000	$5.8\cdot10^{-5}$
470	$4.4\cdot10^{-2}$	770	0.130	1070	0.122	2050	0.385	3550	$8.8\cdot10^{-2}$	5050	$1.8\cdot10^{-5}$
480	$4.2\cdot10^{-2}$	780	0.132	1080	0.123	2100	0.400	3600	$6.0\cdot10^{-2}$	5100	$< 10^{-5}$
490	$4.1\cdot10^{-2}$	790	0.134	1090	0.124	2150	0.414	3650	$5.1\cdot10^{-2}$	5150	$< 10^{-5}$

Data Sheet

SCHOTT

NG11

Density	
ρ [g/cm³]	2.41

Notes
Ionically colored glass
Neutral density filter
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Reflection factor	
P_d	0.923

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	1

Chemical Resistance	
FR class	1.0
SR class	3.4
AR class	2.0

Spectral values guaranteed		
τ_i (405nm)	=	0.76 ± 0.02
τ_i (546nm)	=	0.77 ± 0.02
τ_i (694nm)	=	0.79 ± 0.02

Transformation temperature	
Tg [°C]	481

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	6.7
$\alpha_{20/300°C}$ [10^{-6}/K]	7.2
$\alpha_{20/200°C}$ [10^{-6}/K]	7.0

Refractive Index n
n_i (365.0 nm) = 1.518
n_h (404.7 nm) = 1.512
n_g (435.8 nm) = 1.508
$n_{F'}$ (480.0 nm) = 1.505
Sellmeier coefficients on request

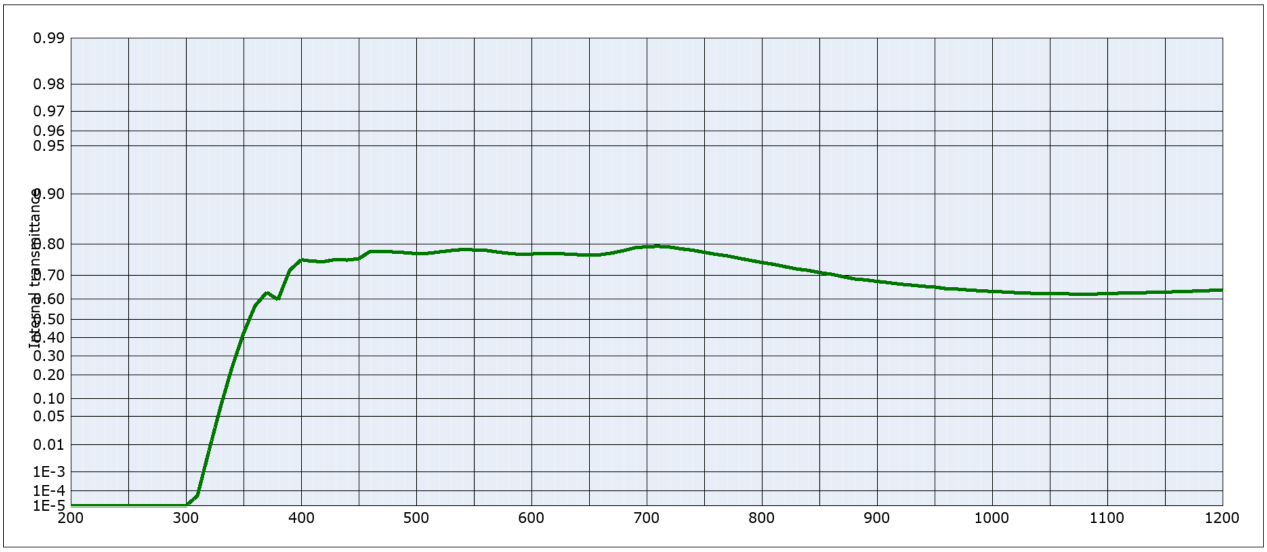
Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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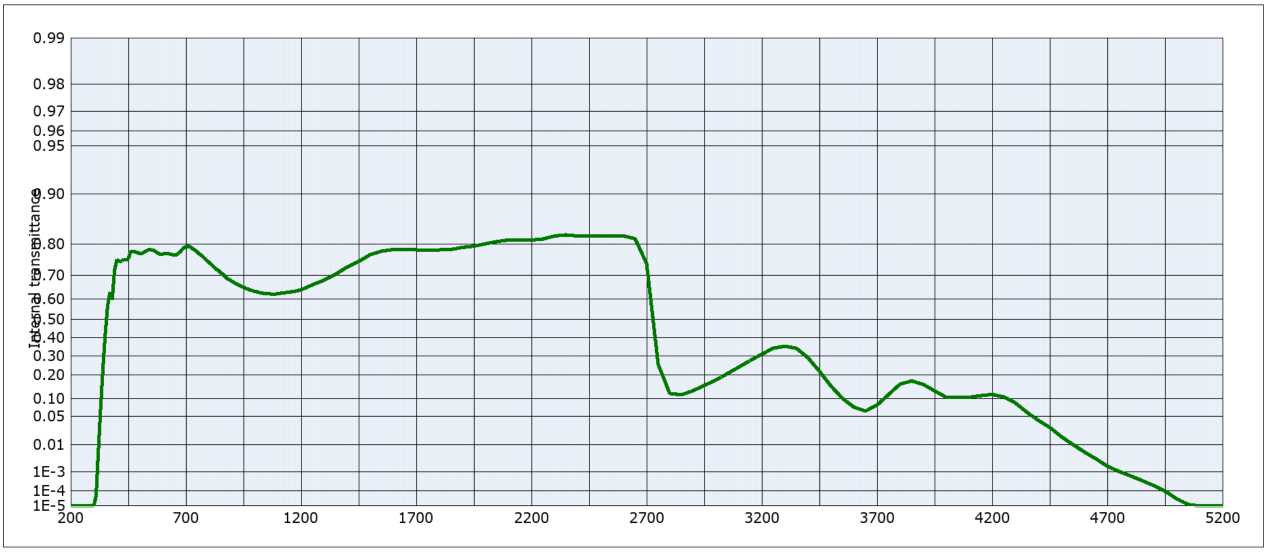
Further explanations see 'Optical Filters 2013' catalogue

NG11



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.772	800	0.744	1100	0.624	2200	0.810	3700	$8.0 \cdot 10^{-2}$
210	$< 10^{-5}$	510	0.773	810	0.738	1110	0.625	2250	0.812	3750	0.116
220	$< 10^{-5}$	520	0.777	820	0.730	1120	0.627	2300	0.820	3800	0.158
230	$< 10^{-5}$	530	0.781	830	0.722	1130	0.628	2350	0.823	3850	0.173
240	$< 10^{-5}$	540	0.784	840	0.717	1140	0.629	2400	0.820	3900	0.157
250	$< 10^{-5}$	550	0.783	850	0.709	1150	0.630	2450	0.820	3950	0.130
260	$< 10^{-5}$	560	0.782	860	0.703	1160	0.632	2500	0.820	4000	0.106
270	$< 10^{-5}$	570	0.777	870	0.694	1170	0.633	2550	0.820	4050	0.106
280	$< 10^{-5}$	580	0.773	880	0.685	1180	0.635	2600	0.820	4100	0.106
290	$< 10^{-5}$	590	0.770	890	0.681	1190	0.637	2650	0.813	4150	0.112
300	$< 10^{-5}$	600	0.771	900	0.675	1200	0.640	2700	0.740	4200	0.116
310	$5.1 \cdot 10^{-5}$	610	0.772	910	0.670	1250	0.662	2750	0.255	4250	0.107
320	$6.6 \cdot 10^{-3}$	620	0.772	920	0.664	1300	0.680	2800	0.120	4300	$8.7 \cdot 10^{-2}$
330	$7.4 \cdot 10^{-2}$	630	0.771	930	0.660	1350	0.703	2850	0.115	4350	$6.0 \cdot 10^{-2}$
340	0.239	640	0.769	940	0.655	1400	0.729	2900	0.130	4400	$4.2 \cdot 10^{-2}$
350	0.424	650	0.768	950	0.652	1450	0.747	2950	0.153	4450	$2.9 \cdot 10^{-2}$
360	0.567	660	0.769	960	0.645	1500	0.769	3000	0.176	4500	$1.7 \cdot 10^{-2}$
370	0.629	670	0.774	970	0.643	1550	0.779	3050	0.207	4550	$1.0 \cdot 10^{-2}$
380	0.597	680	0.781	980	0.639	1600	0.784	3100	0.240	4600	$6.0 \cdot 10^{-3}$
390	0.717	690	0.789	990	0.636	1650	0.784	3150	0.275	4650	$3.5 \cdot 10^{-3}$
400	0.753	700	0.792	1000	0.633	1700	0.783	3200	0.309	4700	$1.8 \cdot 10^{-3}$
410	0.748	710	0.793	1010	0.631	1750	0.783	3250	0.342	4750	$1.1 \cdot 10^{-3}$
420	0.747	720	0.791	1020	0.628	1800	0.783	3300	0.353	4800	$6.6 \cdot 10^{-4}$
430	0.754	730	0.786	1030	0.626	1850	0.784	3350	0.341	4850	$3.8 \cdot 10^{-4}$
440	0.752	740	0.782	1040	0.624	1900	0.790	3400	0.290	4900	$2.1 \cdot 10^{-4}$
450	0.756	750	0.776	1050	0.624	1950	0.794	3450	0.219	4950	$1.0 \cdot 10^{-4}$
460	0.779	760	0.770	1060	0.623	2000	0.800	3500	0.150	5000	$3.2 \cdot 10^{-5}$
470	0.779	770	0.765	1070	0.622	2050	0.806	3550	0.102	5050	$1.3 \cdot 10^{-5}$
480	0.777	780	0.758	1080	0.621	2100	0.810	3600	$7.3 \cdot 10^{-2}$	5100	$< 10^{-5}$
490	0.775	790	0.751	1090	0.622	2150	0.810	3650	$6.3 \cdot 10^{-2}$	5150	$< 10^{-5}$

Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

KG1

Reflection factor	
P_d	0.920

Reference thickness	
d [mm]	2

Spectral values guaranteed		
τ_i (365nm)	≥	0.89
τ_i (500nm)	≥	0.92
τ_i (600nm)	≥	0.88
τ_i (700nm)	≤	0.68
τ_i (800nm)	≤	0.33
τ_i (900nm)	≤	0.1
τ_i (1060nm)	≤	0.02
τ_i (2200nm)	≤	0.06

Refractive Index n
n_i (365.0 nm) = 1.530
n_d (587.6 nm) = 1.520

Density	
ρ [g/cm^3]	2.52

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	2.0
AR class	3.0

Transformation temperature	
Tg [°C]	599

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	5.3
$\alpha_{20/300°C}$ [10^{-6}/K]	6.1
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

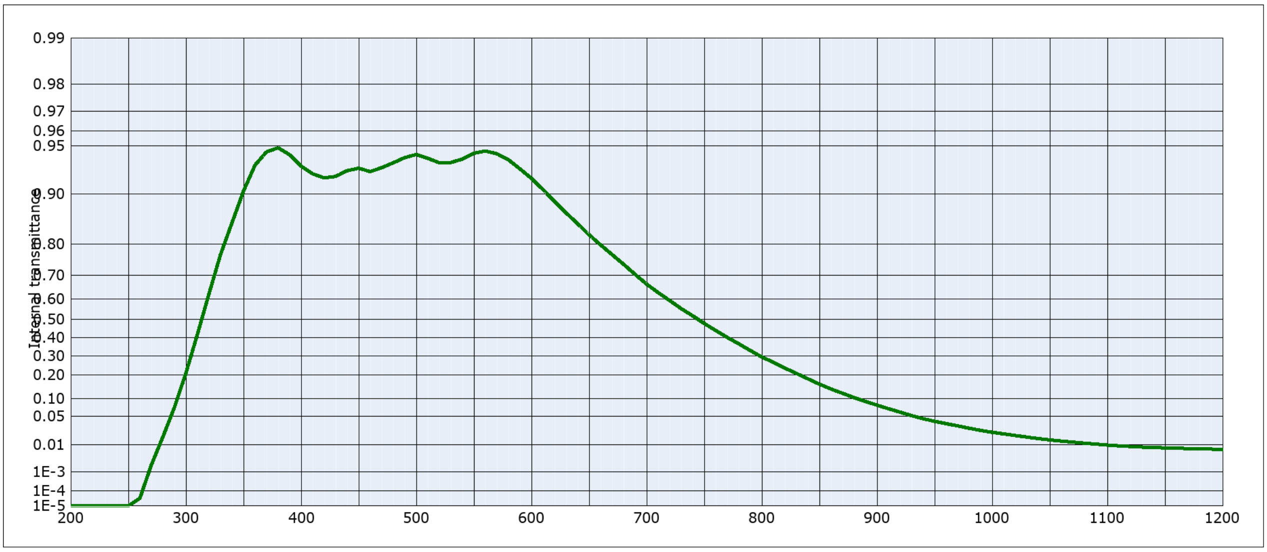
Notes
Ionically colored glass
Shortpass filter
Heat protection filter
Long-term changes of the polished
surface are possible under some
circumstances.
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.444	0.441	0.438
y	0.409	0.411	0.413
Y	88	85	82
λ_d [nm]	505	505	505
P_e	0.01	0.01	0.02

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.420	0.417	0.415
y	0.401	0.402	0.404
Y	88	85	82
λ_d [nm]	503	504	504
P_e	0.01	0.01	0.02

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.311	0.309	0.307
y	0.330	0.331	0.332
Y	89	86	83
λ_d [nm]	497	497	498
P_e	0.01	0.01	0.02



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Further explanations see 'Optical Filters 2013' catalogue

KG1

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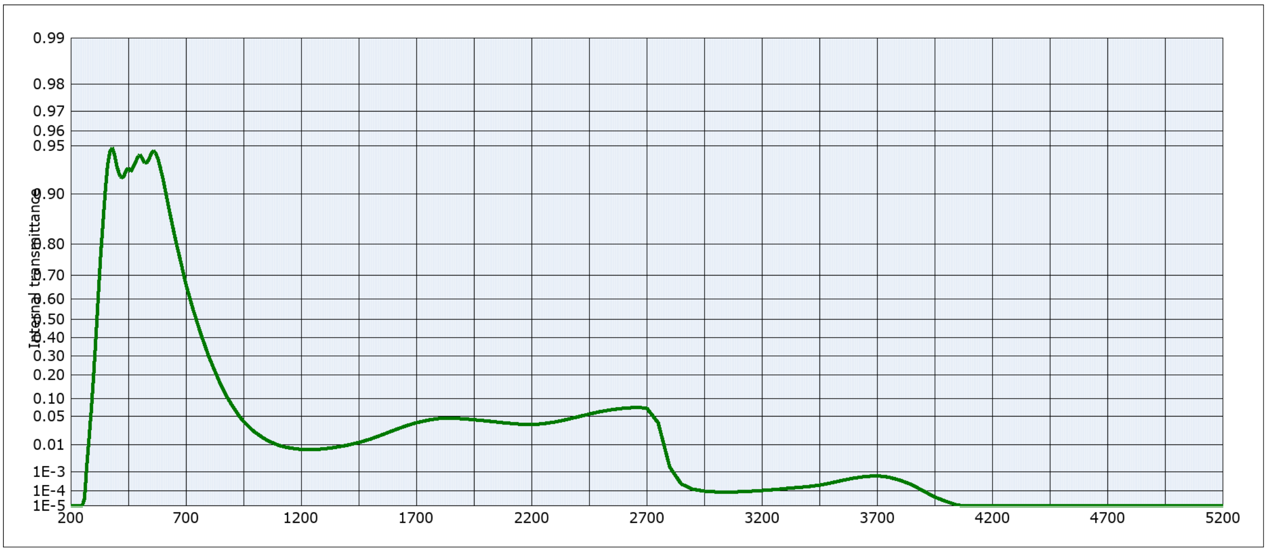

Internal transmittance τ_i at reference thickness d = 2 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.943	800	0.294	1100	$9.9 \cdot 10^{-3}$	2200	$3.4 \cdot 10^{-2}$	3700	$6.6 \cdot 10^{-4}$
210	$< 10^{-5}$	510	0.940	810	0.265	1110	$9.4 \cdot 10^{-3}$	2250	$3.5 \cdot 10^{-2}$	3750	$5.7 \cdot 10^{-4}$
220	$< 10^{-5}$	520	0.936	820	0.235	1120	$9.0 \cdot 10^{-3}$	2300	$3.8 \cdot 10^{-2}$	3800	$4.0 \cdot 10^{-4}$
230	$< 10^{-5}$	530	0.936	830	0.208	1130	$8.6 \cdot 10^{-3}$	2350	$4.3 \cdot 10^{-2}$	3850	$2.4 \cdot 10^{-4}$
240	$< 10^{-5}$	540	0.940	840	0.182	1140	$8.4 \cdot 10^{-3}$	2400	$4.9 \cdot 10^{-2}$	3900	$1.0 \cdot 10^{-4}$
250	$< 10^{-5}$	550	0.944	850	0.158	1150	$8.2 \cdot 10^{-3}$	2450	$5.5 \cdot 10^{-2}$	3950	$4.2 \cdot 10^{-5}$
260	$3.5 \cdot 10^{-5}$	560	0.946	860	0.138	1160	$8.0 \cdot 10^{-3}$	2500	$6.2 \cdot 10^{-2}$	4000	$2.1 \cdot 10^{-5}$
270	$2.0 \cdot 10^{-3}$	570	0.944	870	0.121	1170	$7.7 \cdot 10^{-3}$	2550	$6.7 \cdot 10^{-2}$	4050	$1.1 \cdot 10^{-5}$
280	$1.7 \cdot 10^{-2}$	580	0.939	880	0.105	1180	$7.6 \cdot 10^{-3}$	2600	$7.1 \cdot 10^{-2}$	4100	$< 10^{-5}$
290	$7.3 \cdot 10^{-2}$	590	0.930	890	$9.1 \cdot 10^{-2}$	1190	$7.5 \cdot 10^{-3}$	2650	$7.3 \cdot 10^{-2}$	4150	$< 10^{-5}$
300	0.210	600	0.920	900	$8.0 \cdot 10^{-2}$	1200	$7.3 \cdot 10^{-3}$	2700	$7.1 \cdot 10^{-2}$	4200	$< 10^{-5}$
310	0.419	610	0.906	910	$6.9 \cdot 10^{-2}$	1250	$7.2 \cdot 10^{-3}$	2750	$3.7 \cdot 10^{-2}$	4250	$< 10^{-5}$
320	0.622	620	0.889	920	$6.0 \cdot 10^{-2}$	1300	$7.6 \cdot 10^{-3}$	2800	$1.6 \cdot 10^{-3}$	4300	$< 10^{-5}$
330	0.769	630	0.869	930	$5.2 \cdot 10^{-2}$	1350	$8.5 \cdot 10^{-3}$	2850	$2.5 \cdot 10^{-4}$	4350	$< 10^{-5}$
340	0.850	640	0.848	940	$4.5 \cdot 10^{-2}$	1400	$9.8 \cdot 10^{-3}$	2900	$1.3 \cdot 10^{-4}$	4400	$< 10^{-5}$
350	0.904	650	0.823	950	$4.0 \cdot 10^{-2}$	1450	$1.2 \cdot 10^{-2}$	2950	$9.9 \cdot 10^{-5}$	4450	$< 10^{-5}$
360	0.934	660	0.797	960	$3.5 \cdot 10^{-2}$	1500	$1.5 \cdot 10^{-2}$	3000	$8.9 \cdot 10^{-5}$	4500	$< 10^{-5}$
370	0.946	670	0.769	970	$3.2 \cdot 10^{-2}$	1550	$1.9 \cdot 10^{-2}$	3050	$8.6 \cdot 10^{-5}$	4550	$< 10^{-5}$
380	0.949	680	0.738	980	$2.8 \cdot 10^{-2}$	1600	$2.5 \cdot 10^{-2}$	3100	$9.0 \cdot 10^{-5}$	4600	$< 10^{-5}$
390	0.943	690	0.702	990	$2.5 \cdot 10^{-2}$	1650	$3.1 \cdot 10^{-2}$	3150	$9.7 \cdot 10^{-5}$	4650	$< 10^{-5}$
400	0.933	700	0.664	1000	$2.2 \cdot 10^{-2}$	1700	$3.7 \cdot 10^{-2}$	3200	$1.1 \cdot 10^{-4}$	4700	$< 10^{-5}$
410	0.925	710	0.628	1010	$2.0 \cdot 10^{-2}$	1750	$4.2 \cdot 10^{-2}$	3250	$1.2 \cdot 10^{-4}$	4750	$< 10^{-5}$
420	0.921	720	0.592	1020	$1.8 \cdot 10^{-2}$	1800	$4.6 \cdot 10^{-2}$	3300	$1.4 \cdot 10^{-4}$	4800	$< 10^{-5}$
430	0.922	730	0.553	1030	$1.7 \cdot 10^{-2}$	1850	$4.6 \cdot 10^{-2}$	3350	$1.6 \cdot 10^{-4}$	4850	$< 10^{-5}$
440	0.928	740	0.517	1040	$1.5 \cdot 10^{-2}$	1900	$4.5 \cdot 10^{-2}$	3400	$1.8 \cdot 10^{-4}$	4900	$< 10^{-5}$
450	0.931	750	0.477	1050	$1.4 \cdot 10^{-2}$	1950	$4.3 \cdot 10^{-2}$	3450	$2.2 \cdot 10^{-4}$	4950	$< 10^{-5}$
460	0.927	760	0.439	1060	$1.3 \cdot 10^{-2}$	2000	$4.1 \cdot 10^{-2}$	3500	$2.9 \cdot 10^{-4}$	5000	$< 10^{-5}$
470	0.931	770	0.401	1070	$1.2 \cdot 10^{-2}$	2050	$3.8 \cdot 10^{-2}$	3550	$3.9 \cdot 10^{-4}$	5050	$< 10^{-5}$
480	0.936	780	0.366	1080	$1.1 \cdot 10^{-2}$	2100	$3.6 \cdot 10^{-2}$	3600	$5.1 \cdot 10^{-4}$	5100	$< 10^{-5}$
490	0.941	790	0.329	1090	$1.1 \cdot 10^{-2}$	2150	$3.4 \cdot 10^{-2}$	3650	$6.1 \cdot 10^{-4}$	5150	$< 10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

KG2

Reflection factor	
P_d	0.920

Reference thickness	
d [mm]	2

Spectral values guaranteed		
τ_i (365nm)	≥	0.93
τ_i (500nm)	≥	0.94
τ_i (600nm)	≥	0.92
τ_i (700nm)	≤	0.83
τ_i (800nm)	≤	0.55
τ_i (900nm)	≤	0.28
τ_i (1060nm)	≤	0.12
τ_i (2200nm)	≤	0.2

Refractive Index n
n_i (365.0 nm) = 1.530
n_d (587.6 nm) = 1.510

Density	
ρ [g/cm^3]	2.52

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	2.0
AR class	3.0

Transformation temperature	
Tg [°C]	605

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	5.4
$\alpha_{20/300°C}$ [10^{-6}/K]	6.3
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

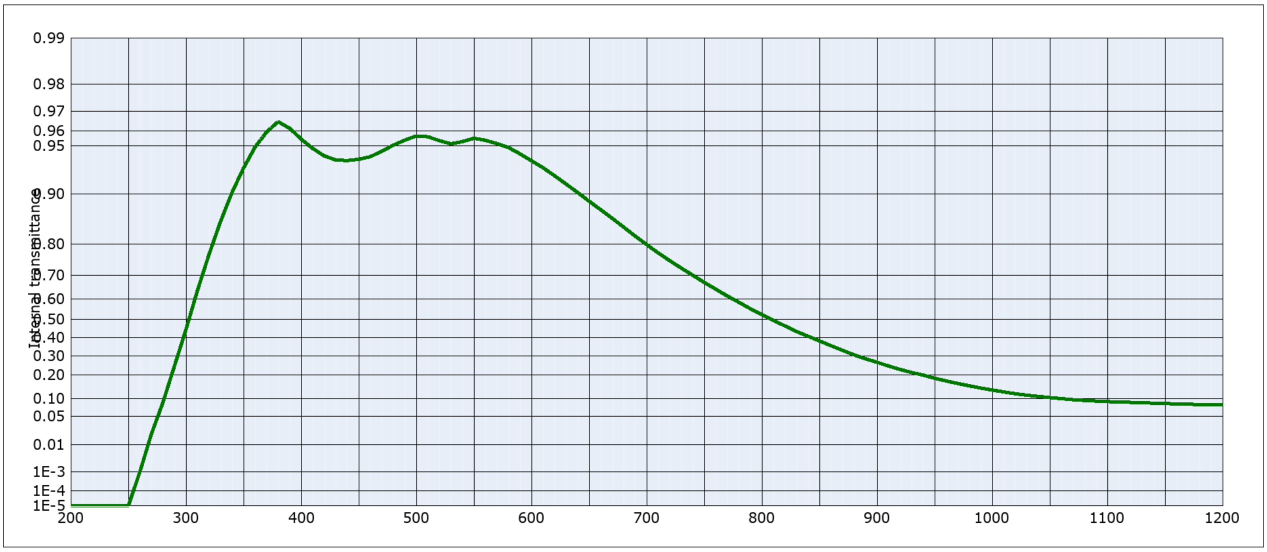
Notes
Ionically colored glass
Shortpass filter
Heat protection filter
Long-term changes of the polished surface are possible under some circumstances.
Transmission changes are possible under the action of intense ultraviolet radiation.
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.446	0.444	0.442
y	0.409	0.410	0.411
Y	89	87	84
λ_d [nm]	506	507	507
P_e	0.00	0.01	0.01

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.422	0.420	0.419
y	0.400	0.401	0.402
Y	89	87	84
λ_d [nm]	505	505	506
P_e	0.00	0.01	0.01

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.312	0.311	0.310
y	0.330	0.331	0.331
Y	90	87	85
λ_d [nm]	501	501	501
P_e	0.00	0.01	0.01



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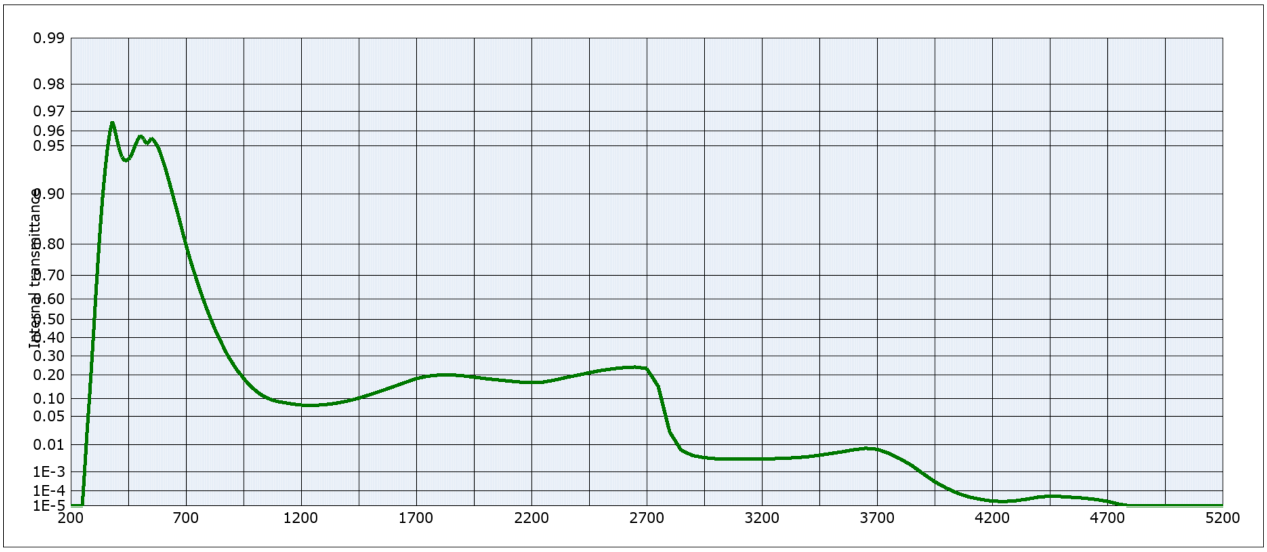
Further explanations see 'Optical Filters 2013' catalogue

KG2



Internal transmittance τ_i at reference thickness d = 2 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.957	800	0.524	1100	$9.1\cdot10^{-2}$	2200	0.165	3700	$7.4\cdot10^{-3}$
210	$< 10^{-5}$	510	0.956	810	0.494	1110	$9.0\cdot10^{-2}$	2250	0.167	3750	$5.5\cdot10^{-3}$
220	$< 10^{-5}$	520	0.954	820	0.464	1120	$8.8\cdot10^{-2}$	2300	0.176	3800	$3.5\cdot10^{-3}$
230	$< 10^{-5}$	530	0.952	830	0.434	1130	$8.7\cdot10^{-2}$	2350	0.189	3850	$1.9\cdot10^{-3}$
240	$< 10^{-5}$	540	0.953	840	0.408	1140	$8.6\cdot10^{-2}$	2400	0.200	3900	$8.4\cdot10^{-4}$
250	$< 10^{-5}$	550	0.955	850	0.382	1150	$8.5\cdot10^{-2}$	2450	0.211	3950	$3.4\cdot10^{-4}$
260	$1.0\cdot10^{-3}$	560	0.954	860	0.356	1160	$8.4\cdot10^{-2}$	2500	0.223	4000	$1.5\cdot10^{-4}$
270	$2.0\cdot10^{-2}$	570	0.952	870	0.330	1170	$8.3\cdot10^{-2}$	2550	0.231	4050	$7.3\cdot10^{-5}$
280	$8.8\cdot10^{-2}$	580	0.949	880	0.305	1180	$8.2\cdot10^{-2}$	2600	0.237	4100	$4.2\cdot10^{-5}$
290	0.245	590	0.944	890	0.284	1190	$8.1\cdot10^{-2}$	2650	0.240	4150	$2.9\cdot10^{-5}$
300	0.444	600	0.938	900	0.265	1200	$8.0\cdot10^{-2}$	2700	0.233	4200	$2.2\cdot10^{-5}$
310	0.637	610	0.931	910	0.246	1250	$7.9\cdot10^{-2}$	2750	0.149	4250	$2.1\cdot10^{-5}$
320	0.769	620	0.923	920	0.228	1300	$8.1\cdot10^{-2}$	2800	$2.3\cdot10^{-2}$	4300	$2.3\cdot10^{-5}$
330	0.852	630	0.913	930	0.213	1350	$8.5\cdot10^{-2}$	2850	$6.8\cdot10^{-3}$	4350	$3.0\cdot10^{-5}$
340	0.902	640	0.902	940	0.200	1400	$9.3\cdot10^{-2}$	2900	$4.5\cdot10^{-3}$	4400	$4.2\cdot10^{-5}$
350	0.931	650	0.889	950	0.185	1450	0.103	2950	$3.8\cdot10^{-3}$	4450	$4.8\cdot10^{-5}$
360	0.949	660	0.875	960	0.173	1500	0.116	3000	$3.5\cdot10^{-3}$	4500	$4.5\cdot10^{-5}$
370	0.959	670	0.859	970	0.161	1550	0.131	3050	$3.4\cdot10^{-3}$	4550	$4.0\cdot10^{-5}$
380	0.965	680	0.841	980	0.151	1600	0.147	3100	$3.3\cdot10^{-3}$	4600	$3.6\cdot10^{-5}$
390	0.961	690	0.820	990	0.142	1650	0.165	3150	$3.4\cdot10^{-3}$	4650	$2.9\cdot10^{-5}$
400	0.955	700	0.798	1000	0.133	1700	0.184	3200	$3.4\cdot10^{-3}$	4700	$2.1\cdot10^{-5}$
410	0.948	710	0.774	1010	0.126	1750	0.195	3250	$3.5\cdot10^{-3}$	4750	$1.3\cdot10^{-5}$
420	0.942	720	0.750	1020	0.119	1800	0.201	3300	$3.6\cdot10^{-3}$	4800	$< 10^{-5}$
430	0.939	730	0.725	1030	0.113	1850	0.201	3350	$3.8\cdot10^{-3}$	4850	$< 10^{-5}$
440	0.938	740	0.699	1040	0.109	1900	0.197	3400	$4.1\cdot10^{-3}$	4900	$< 10^{-5}$
450	0.939	750	0.671	1050	0.105	1950	0.190	3450	$4.6\cdot10^{-3}$	4950	$< 10^{-5}$
460	0.942	760	0.643	1060	0.101	2000	0.183	3500	$5.3\cdot10^{-3}$	5000	$< 10^{-5}$
470	0.946	770	0.613	1070	$9.7\cdot10^{-2}$	2050	0.178	3550	$6.1\cdot10^{-3}$	5050	$< 10^{-5}$
480	0.951	780	0.584	1080	$9.5\cdot10^{-2}$	2100	0.172	3600	$7.1\cdot10^{-3}$	5100	$< 10^{-5}$
490	0.954	790	0.553	1090	$9.3\cdot10^{-2}$	2150	0.168	3650	$7.9\cdot10^{-3}$	5150	$< 10^{-5}$

Data Sheet

SCHOTT

KG3

Reflection factor	
P_d	0.920

Reference thickness	
d [mm]	2

Spectral values guaranteed		
τ_i (365nm)	≥	0.86
τ_i (500nm)	≥	0.88
τ_i (600nm)	≥	0.83
τ_i (700nm)	≤	0.55
τ_i (800nm)	≤	0.14
τ_i (900nm)	≤	0.03
τ_i (1060nm)	≤	0.001
τ_i (2200nm)	≤	0.01

Refractive Index n
n_h (404.7 nm) = 1.529
n_g (435.8 nm) = 1.526
$n_{F'}$ (480.0 nm) = 1.522
n_F (486.1 nm) = 1.522
Sellmeier coefficients on request

Density	
ρ [g/cm³]	2.52

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	2.0
AR class	4.0

Transformation temperature	
Tg [°C]	581

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	5.3
$\alpha_{20/300°C}$ [10^{-6}/K]	6.1
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

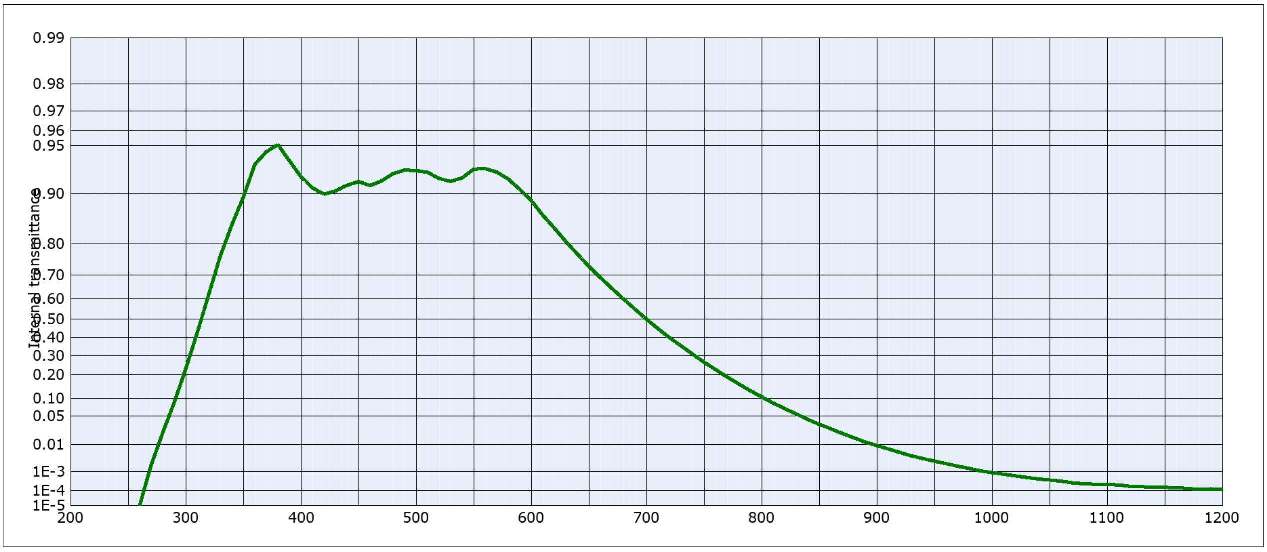
Notes
Ionically colored glass
Shortpass filter
Heat protection filter
Long-term changes of the polished
surface are possible under some
circumstances.
UV
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.442	0.437	0.432
y	0.410	0.413	0.416
Y	86	81	77
λ_d [nm]	504	505	505
P_e	0.01	0.02	0.04

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.418	0.413	0.409
y	0.401	0.404	0.406
Y	87	82	77
λ_d [nm]	503	503	503
P_e	0.01	0.02	0.04

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.309	0.306	0.303
y	0.330	0.332	0.333
Y	87	82	78
λ_d [nm]	496	496	496
P_e	0.01	0.02	0.03



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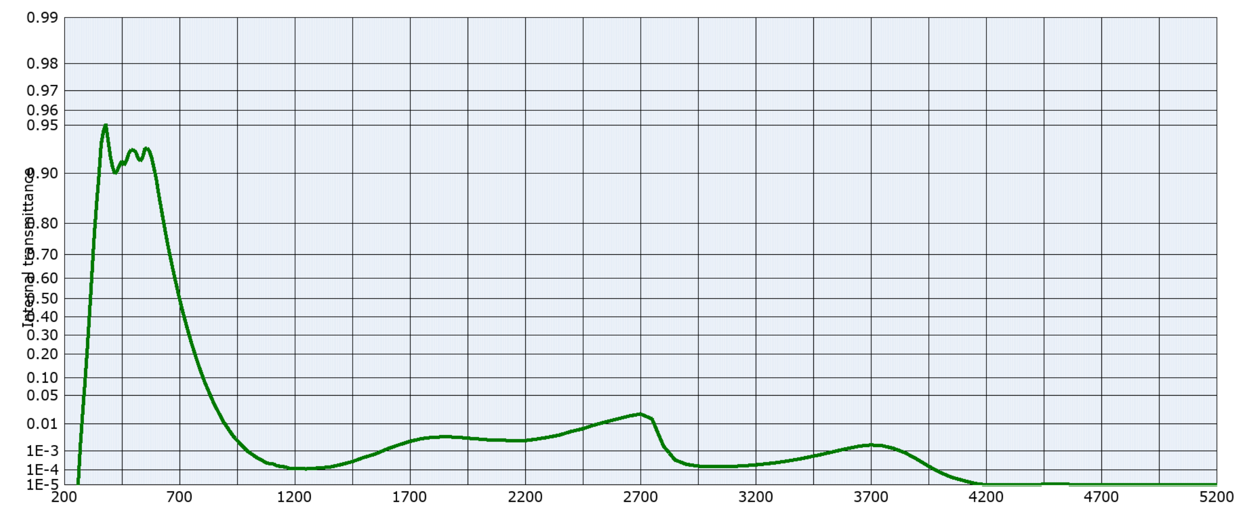
Further explanations see 'Optical Filters 2013' catalogue

KG3



Internal transmittance τ_i at reference thickness d = 2 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	0.928	800	0.107	1100	$2.3\cdot10^{-4}$	2200	$2.7\cdot10^{-3}$	3700	$1.8\cdot10^{-3}$
210	$< 10^{-5}$	510	0.926	810	$8.5\cdot10^{-2}$	1110	$2.2\cdot10^{-4}$	2250	$3.1\cdot10^{-3}$	3750	$1.7\cdot10^{-3}$
220	$< 10^{-5}$	520	0.919	820	$6.9\cdot10^{-2}$	1120	$1.8\cdot10^{-4}$	2300	$3.6\cdot10^{-3}$	3800	$1.3\cdot10^{-3}$
230	$< 10^{-5}$	530	0.916	830	$5.5\cdot10^{-2}$	1130	$1.7\cdot10^{-4}$	2350	$4.4\cdot10^{-3}$	3850	$8.1\cdot10^{-4}$
240	$< 10^{-5}$	540	0.920	840	$4.3\cdot10^{-2}$	1140	$1.6\cdot10^{-4}$	2400	$5.8\cdot10^{-3}$	3900	$4.1\cdot10^{-4}$
250	$< 10^{-5}$	550	0.930	850	$3.4\cdot10^{-2}$	1150	$1.6\cdot10^{-4}$	2450	$7.1\cdot10^{-3}$	3950	$1.7\cdot10^{-4}$
260	$< 10^{-5}$	560	0.930	860	$2.7\cdot10^{-2}$	1160	$1.5\cdot10^{-4}$	2500	$9.4\cdot10^{-3}$	4000	$7.2\cdot10^{-5}$
270	$1.9\cdot10^{-3}$	570	0.927	870	$2.1\cdot10^{-2}$	1170	$1.4\cdot10^{-4}$	2550	$1.2\cdot10^{-2}$	4050	$3.5\cdot10^{-5}$
280	$2.1\cdot10^{-2}$	580	0.919	880	$1.6\cdot10^{-2}$	1180	$1.2\cdot10^{-4}$	2600	$1.4\cdot10^{-2}$	4100	$2.1\cdot10^{-5}$
290	$8.7\cdot10^{-2}$	590	0.906	890	$1.2\cdot10^{-2}$	1190	$1.3\cdot10^{-4}$	2650	$1.7\cdot10^{-2}$	4150	$1.3\cdot10^{-5}$
300	0.229	600	0.890	900	$9.5\cdot10^{-3}$	1200	$1.2\cdot10^{-4}$	2700	$1.9\cdot10^{-2}$	4200	$< 10^{-5}$
310	0.426	610	0.864	910	$7.4\cdot10^{-3}$	1250	$1.2\cdot10^{-4}$	2750	$1.4\cdot10^{-2}$	4250	$< 10^{-5}$
320	0.618	620	0.838	920	$5.7\cdot10^{-3}$	1300	$1.3\cdot10^{-4}$	2800	$1.6\cdot10^{-3}$	4300	$< 10^{-5}$
330	0.763	630	0.805	930	$4.3\cdot10^{-3}$	1350	$1.5\cdot10^{-4}$	2850	$3.7\cdot10^{-4}$	4350	$< 10^{-5}$
340	0.845	640	0.770	940	$3.5\cdot10^{-3}$	1400	$2.1\cdot10^{-4}$	2900	$2.1\cdot10^{-4}$	4400	$1.0\cdot10^{-5}$
350	0.895	650	0.730	950	$2.7\cdot10^{-3}$	1450	$3.0\cdot10^{-4}$	2950	$1.7\cdot10^{-4}$	4450	$1.1\cdot10^{-5}$
360	0.934	660	0.689	960	$2.2\cdot10^{-3}$	1500	$5.0\cdot10^{-4}$	3000	$1.6\cdot10^{-4}$	4500	$1.1\cdot10^{-5}$
370	0.946	670	0.645	970	$1.7\cdot10^{-3}$	1550	$7.2\cdot10^{-4}$	3050	$1.6\cdot10^{-4}$	4550	$1.1\cdot10^{-5}$
380	0.951	680	0.599	980	$1.4\cdot10^{-3}$	1600	$1.2\cdot10^{-3}$	3100	$1.6\cdot10^{-4}$	4600	$1.0\cdot10^{-5}$
390	0.938	690	0.550	990	$1.1\cdot10^{-3}$	1650	$1.8\cdot10^{-3}$	3150	$1.8\cdot10^{-4}$	4650	$< 10^{-5}$
400	0.922	700	0.498	1000	$9.1\cdot10^{-4}$	1700	$2.5\cdot10^{-3}$	3200	$2.0\cdot10^{-4}$	4700	$< 10^{-5}$
410	0.908	710	0.448	1010	$7.7\cdot10^{-4}$	1750	$3.2\cdot10^{-3}$	3250	$2.3\cdot10^{-4}$	4750	$< 10^{-5}$
420	0.899	720	0.399	1020	$6.4\cdot10^{-4}$	1800	$3.7\cdot10^{-3}$	3300	$2.8\cdot10^{-4}$	4800	$< 10^{-5}$
430	0.904	730	0.354	1030	$5.4\cdot10^{-4}$	1850	$3.8\cdot10^{-3}$	3350	$3.4\cdot10^{-4}$	4850	$< 10^{-5}$
440	0.911	740	0.308	1040	$4.5\cdot10^{-4}$	1900	$3.7\cdot10^{-3}$	3400	$4.4\cdot10^{-4}$	4900	$< 10^{-5}$
450	0.916	750	0.265	1050	$4.0\cdot10^{-4}$	1950	$3.4\cdot10^{-3}$	3450	$5.7\cdot10^{-4}$	4950	$< 10^{-5}$
460	0.911	760	0.226	1060	$3.5\cdot10^{-4}$	2000	$3.1\cdot10^{-3}$	3500	$7.5\cdot10^{-4}$	5000	$< 10^{-5}$
470	0.917	770	0.190	1070	$2.8\cdot10^{-4}$	2050	$2.9\cdot10^{-3}$	3550	$1.0\cdot10^{-3}$	5050	$< 10^{-5}$
480	0.925	780	0.158	1080	$2.5\cdot10^{-4}$	2100	$2.8\cdot10^{-3}$	3600	$1.3\cdot10^{-3}$	5100	$< 10^{-5}$
490	0.929	790	0.130	1090	$2.4\cdot10^{-4}$	2150	$2.8\cdot10^{-3}$	3650	$1.6\cdot10^{-3}$	5150	$< 10^{-5}$

Data Sheet

SCHOTT

KG5

Reflection factor	
P_d	0.920

Reference thickness	
d [mm]	2

Spectral values guaranteed		
τ_i (365nm)	≥	0.8
τ_i (500nm)	≥	0.86
τ_i (600nm)	≥	0.8
τ_i (700nm)	≤	0.43
τ_i (800nm)	≤	0.09
τ_i (900nm)	≤	0.008
τ_i (1060nm)	≤	0.0001
τ_i (2200nm)	≤	0.001

Refractive Index n
n_i (365.0 nm) = 1.530
n_d (587.6 nm) = 1.510

Density	
ρ [g/cm³]	2.53

Bubble content	
Bubble class	3

Chemical Resistance	
FR class	0
SR class	3.0
AR class	4.0

Transformation temperature	
Tg [°C]	565

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	5.4
$\alpha_{20/300°C}$ [10^{-6}/K]	6.2
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

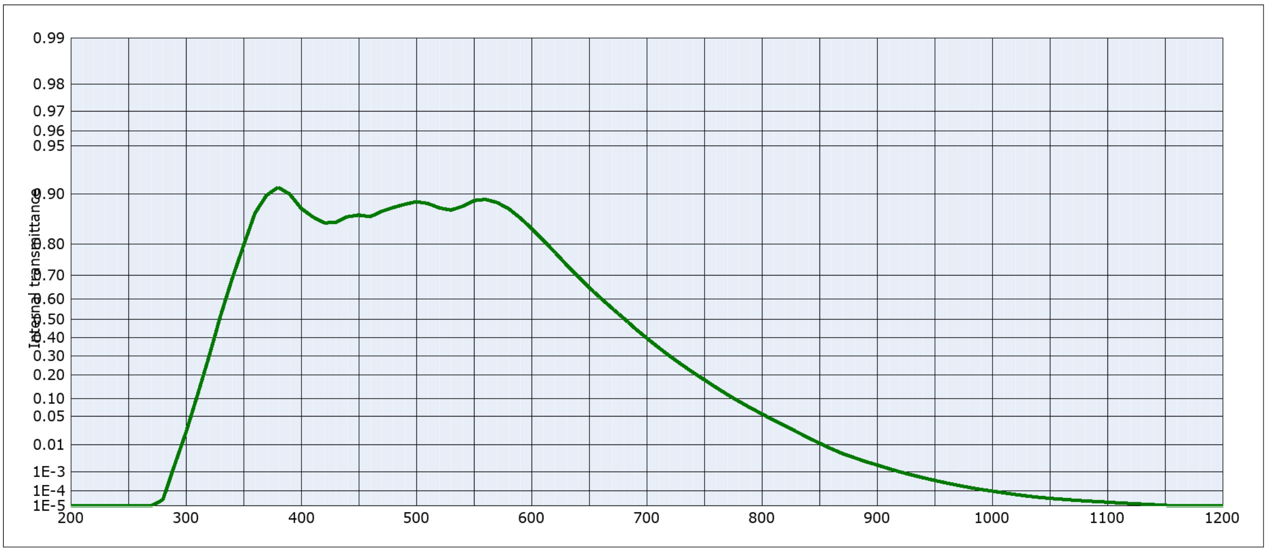
Notes
Ionically colored glass
Shortpass filter
Heat protection filter
Long-term changes of the polished surface are possible under some circumstances.
Transmission changes are possible under the action of intense ultraviolet radiation.
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x	0.440	0.434	0.427
y	0.411	0.415	0.418
Y	85	78	72
λ_d [nm]	504	505	505
P_e	0.02	0.03	0.05

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x	0.416	0.410	0.404
y	0.402	0.406	0.409
Y	85	78	72
λ_d [nm]	503	503	503
P_e	0.02	0.03	0.05

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x	0.308	0.304	0.300
y	0.331	0.332	0.334
Y	85	79	74
λ_d [nm]	496	496	496
P_e	0.02	0.03	0.04



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Further explanations see 'Optical Filters 2013' catalogue

KG5

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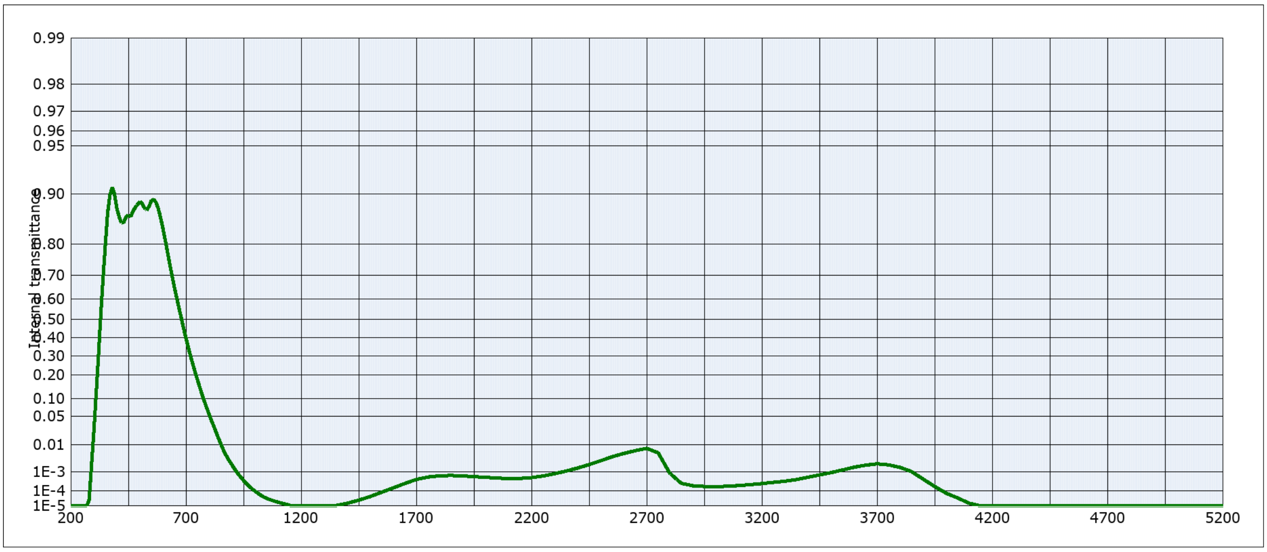

Internal transmittance τ_i at reference thickness d = 2 mm **The internal transmittance values, tabulated and graphically represented, are reference values only**											
λ [nm]	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i	**λ [nm]**	τ_i
200	< 10^{-5}	500	0.888	800	$5.6\cdot10^{-2}$	1100	$1.9\cdot10^{-5}$	2200	$5.4\cdot10^{-4}$	3700	$2.2\cdot10^{-3}$
210	< 10^{-5}	510	0.885	810	$4.2\cdot10^{-2}$	1110	$1.7\cdot10^{-5}$	2250	$6.5\cdot10^{-4}$	3750	$2.0\cdot10^{-3}$
220	< 10^{-5}	520	0.878	820	$3.2\cdot10^{-2}$	1120	$1.5\cdot10^{-5}$	2300	$8.3\cdot10^{-4}$	3800	$1.6\cdot10^{-3}$
230	< 10^{-5}	530	0.874	830	$2.3\cdot10^{-2}$	1130	$1.4\cdot10^{-5}$	2350	$1.1\cdot10^{-3}$	3850	$1.0\cdot10^{-3}$
240	< 10^{-5}	540	0.881	840	$1.6\cdot10^{-2}$	1140	$1.2\cdot10^{-5}$	2400	$1.5\cdot10^{-3}$	3900	$4.6\cdot10^{-4}$
250	< 10^{-5}	550	0.890	850	$1.1\cdot10^{-2}$	1150	$1.1\cdot10^{-5}$	2450	$2.1\cdot10^{-3}$	3950	$1.9\cdot10^{-4}$
260	< 10^{-5}	560	0.892	860	$7.7\cdot10^{-3}$	1160	$1.0\cdot10^{-5}$	2500	$2.9\cdot10^{-3}$	4000	$7.4\cdot10^{-5}$
270	< 10^{-5}	570	0.887	870	$5.3\cdot10^{-3}$	1170	< 10^{-5}	2550	$4.1\cdot10^{-3}$	4050	$3.6\cdot10^{-5}$
280	$2.8\cdot10^{-5}$	580	0.877	880	$3.8\cdot10^{-3}$	1180	< 10^{-5}	2600	$5.3\cdot10^{-3}$	4100	$1.6\cdot10^{-5}$
290	$1.9\cdot10^{-3}$	590	0.860	890	$2.7\cdot10^{-3}$	1190	< 10^{-5}	2650	$6.6\cdot10^{-3}$	4150	< 10^{-5}
300	$2.2\cdot10^{-2}$	600	0.838	900	$2.0\cdot10^{-3}$	1200	< 10^{-5}	2700	$7.9\cdot10^{-3}$	4200	< 10^{-5}
310	0.114	610	0.810	910	$1.4\cdot10^{-3}$	1250	< 10^{-5}	2750	$5.6\cdot10^{-3}$	4250	< 10^{-5}
320	0.295	620	0.777	920	$1.0\cdot10^{-3}$	1300	< 10^{-5}	2800	$8.9\cdot10^{-4}$	4300	< 10^{-5}
330	0.516	630	0.738	930	$7.3\cdot10^{-4}$	1350	$1.0\cdot10^{-5}$	2850	$2.8\cdot10^{-4}$	4350	< 10^{-5}
340	0.684	640	0.696	940	$5.3\cdot10^{-4}$	1400	$1.5\cdot10^{-5}$	2900	$2.0\cdot10^{-4}$	4400	< 10^{-5}
350	0.795	650	0.650	950	$3.9\cdot10^{-4}$	1450	$2.6\cdot10^{-5}$	2950	$1.9\cdot10^{-4}$	4450	< 10^{-5}
360	0.869	660	0.604	960	$2.9\cdot10^{-4}$	1500	$4.5\cdot10^{-5}$	3000	$1.8\cdot10^{-4}$	4500	< 10^{-5}
370	0.898	670	0.555	970	$2.2\cdot10^{-4}$	1550	$8.5\cdot10^{-5}$	3050	$1.9\cdot10^{-4}$	4550	< 10^{-5}
380	0.909	680	0.505	980	$1.6\cdot10^{-4}$	1600	$1.5\cdot10^{-4}$	3100	$2.1\cdot10^{-4}$	4600	< 10^{-5}
390	0.900	690	0.450	990	$1.3\cdot10^{-4}$	1650	$2.7\cdot10^{-4}$	3150	$2.3\cdot10^{-4}$	4650	< 10^{-5}
400	0.877	700	0.398	1000	$9.9\cdot10^{-5}$	1700	$4.4\cdot10^{-4}$	3200	$2.7\cdot10^{-4}$	4700	< 10^{-5}
410	0.862	710	0.347	1010	$7.8\cdot10^{-5}$	1750	$5.8\cdot10^{-4}$	3250	$3.1\cdot10^{-4}$	4750	< 10^{-5}
420	0.850	720	0.299	1020	$6.2\cdot10^{-5}$	1800	$6.6\cdot10^{-4}$	3300	$3.6\cdot10^{-4}$	4800	< 10^{-5}
430	0.851	730	0.255	1030	$4.9\cdot10^{-5}$	1850	$6.9\cdot10^{-4}$	3350	$4.3\cdot10^{-4}$	4850	< 10^{-5}
440	0.862	740	0.214	1040	$4.1\cdot10^{-5}$	1900	$6.5\cdot10^{-4}$	3400	$5.6\cdot10^{-4}$	4900	< 10^{-5}
450	0.865	750	0.178	1050	$3.5\cdot10^{-5}$	1950	$6.0\cdot10^{-4}$	3450	$7.3\cdot10^{-4}$	4950	< 10^{-5}
460	0.862	760	0.145	1060	$3.0\cdot10^{-5}$	2000	$5.6\cdot10^{-4}$	3500	$9.3\cdot10^{-4}$	5000	< 10^{-5}
470	0.872	770	0.116	1070	$2.6\cdot10^{-5}$	2050	$5.1\cdot10^{-4}$	3550	$1.2\cdot10^{-3}$	5050	< 10^{-5}
480	0.879	780	$9.2\cdot10^{-2}$	1080	$2.3\cdot10^{-5}$	2100	$4.9\cdot10^{-4}$	3600	$1.6\cdot10^{-3}$	5100	< 10^{-5}
490	0.884	790	$7.2\cdot10^{-2}$	1090	$2.1\cdot10^{-5}$	2150	$4.9\cdot10^{-4}$	3650	$1.9\cdot10^{-3}$	5150	< 10^{-5}

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

UG1

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (365nm)	≥	0.8
τ_i (405nm)	≤	0.1
τ_i (694nm)	≤	0.06
τ_i (750nm)	≤	0.53

Refractive Index n
n_i (365.0 nm) = 1.570
n_d (587.6 nm) = 1.540

Density	
ρ [g/cm^3]	2.77

Bubble content	
Bubble class	1

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.0

Transformation temperature	
Tg [°C]	603

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.9
$\alpha_{20/300°C}$ [10^{-6}/K]	8.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

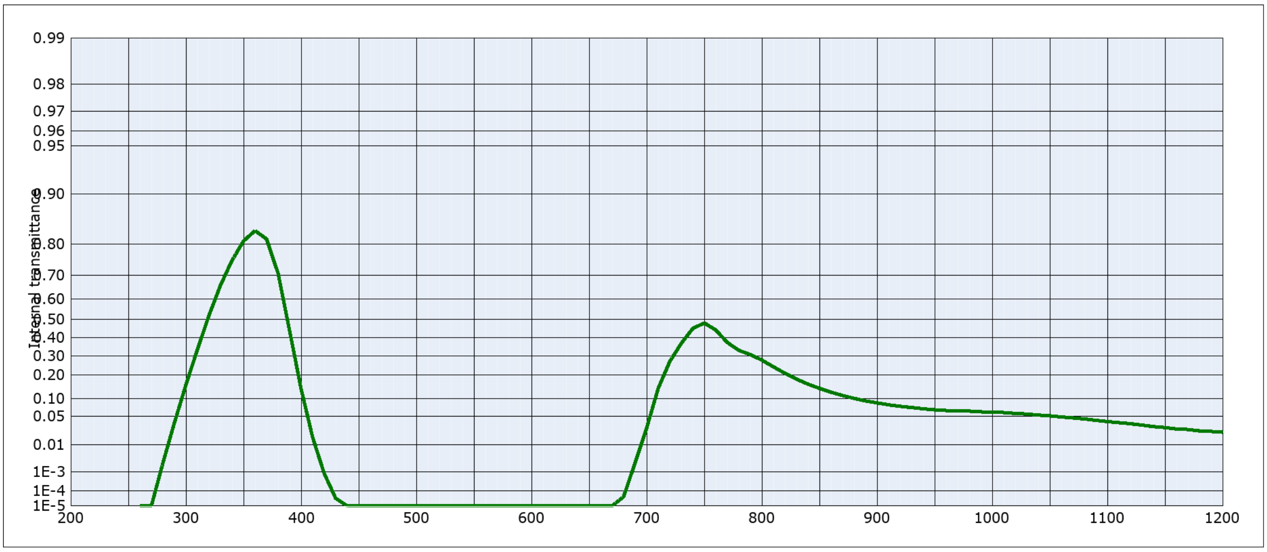
Notes
Ionically colored glass
Bandpass filter
UV
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

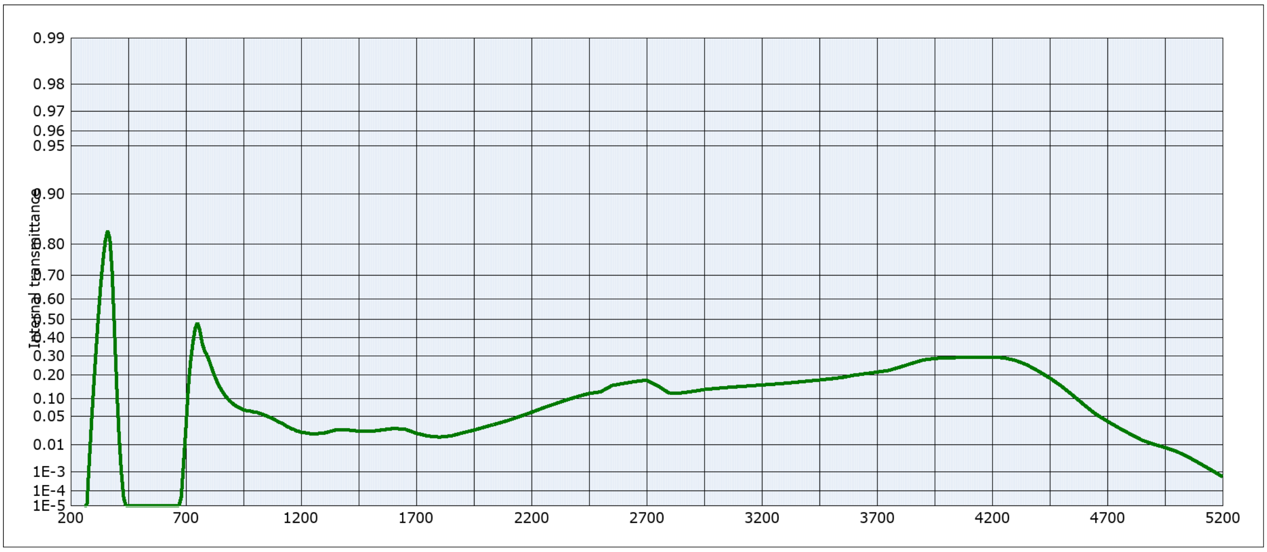
Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



UG1



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.277	1100	$3.9\cdot10^{-2}$	2200	$6.0\cdot10^{-2}$	3700	0.215
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.242	1110	$3.7\cdot10^{-2}$	2250	$7.2\cdot10^{-2}$	3750	0.223
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.209	1120	$3.5\cdot10^{-2}$	2300	$8.3\cdot10^{-2}$	3800	0.240
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.181	1130	$3.3\cdot10^{-2}$	2350	$9.6\cdot10^{-2}$	3850	0.259
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.158	1140	$3.0\cdot10^{-2}$	2400	0.108	3900	0.277
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.140	1150	$2.9\cdot10^{-2}$	2450	0.120	3950	0.286
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.125	1160	$2.7\cdot10^{-2}$	2500	0.126	4000	0.289
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.112	1170	$2.6\cdot10^{-2}$	2550	0.152	4050	0.291
280	$2.4\cdot10^{-3}$	580	$< 10^{-5}$	880	0.102	1180	$2.4\cdot10^{-2}$	2600	0.162	4100	0.293
290	$3.7\cdot10^{-2}$	590	$< 10^{-5}$	890	$9.3\cdot10^{-2}$	1190	$2.3\cdot10^{-2}$	2650	0.170	4150	0.293
300	0.155	600	$< 10^{-5}$	900	$8.7\cdot10^{-2}$	1200	$2.2\cdot10^{-2}$	2700	0.176	4200	0.293
310	0.335	610	$< 10^{-5}$	910	$8.1\cdot10^{-2}$	1250	$2.0\cdot10^{-2}$	2750	0.150	4250	0.289
320	0.519	620	$< 10^{-5}$	920	$7.6\cdot10^{-2}$	1300	$2.1\cdot10^{-2}$	2800	0.120	4300	0.276
330	0.659	630	$< 10^{-5}$	930	$7.3\cdot10^{-2}$	1350	$2.5\cdot10^{-2}$	2850	0.122	4350	0.252
340	0.751	640	$< 10^{-5}$	940	$6.9\cdot10^{-2}$	1400	$2.6\cdot10^{-2}$	2900	0.128	4400	0.220
350	0.807	650	$< 10^{-5}$	950	$6.6\cdot10^{-2}$	1450	$2.4\cdot10^{-2}$	2950	0.135	4450	0.186
360	0.833	660	$< 10^{-5}$	960	$6.5\cdot10^{-2}$	1500	$2.3\cdot10^{-2}$	3000	0.140	4500	0.150
370	0.812	670	$< 10^{-5}$	970	$6.3\cdot10^{-2}$	1550	$2.5\cdot10^{-2}$	3050	0.144	4550	0.113
380	0.706	680	$4.4\cdot10^{-5}$	980	$6.3\cdot10^{-2}$	1600	$2.7\cdot10^{-2}$	3100	0.148	4600	$8.0\cdot10^{-2}$
390	0.438	690	$2.5\cdot10^{-3}$	990	$6.1\cdot10^{-2}$	1650	$2.7\cdot10^{-2}$	3150	0.151	4650	$5.5\cdot10^{-2}$
400	0.138	700	$2.8\cdot10^{-2}$	1000	$6.0\cdot10^{-2}$	1700	$2.1\cdot10^{-2}$	3200	0.155	4700	$4.0\cdot10^{-2}$
410	$1.7\cdot10^{-2}$	710	0.139	1010	$5.9\cdot10^{-2}$	1750	$1.8\cdot10^{-2}$	3250	0.158	4750	$2.8\cdot10^{-2}$
420	$8.6\cdot10^{-4}$	720	0.269	1020	$5.7\cdot10^{-2}$	1800	$1.7\cdot10^{-2}$	3300	0.162	4800	$2.0\cdot10^{-2}$
430	$3.5\cdot10^{-5}$	730	0.368	1030	$5.6\cdot10^{-2}$	1850	$1.8\cdot10^{-2}$	3350	0.167	4850	$1.4\cdot10^{-2}$
440	$< 10^{-5}$	740	0.450	1040	$5.3\cdot10^{-2}$	1900	$2.1\cdot10^{-2}$	3400	0.172	4900	$1.1\cdot10^{-2}$
450	$< 10^{-5}$	750	0.480	1050	$5.1\cdot10^{-2}$	1950	$2.5\cdot10^{-2}$	3450	0.177	4950	$8.4\cdot10^{-3}$
460	$< 10^{-5}$	760	0.442	1060	$4.9\cdot10^{-2}$	2000	$3.0\cdot10^{-2}$	3500	0.183	5000	$6.3\cdot10^{-3}$
470	$< 10^{-5}$	770	0.374	1070	$4.7\cdot10^{-2}$	2050	$3.5\cdot10^{-2}$	3550	0.189	5050	$4.1\cdot10^{-3}$
480	$< 10^{-5}$	780	0.330	1080	$4.5\cdot10^{-2}$	2100	$4.2\cdot10^{-2}$	3600	0.200	5100	$2.3\cdot10^{-3}$
490	$< 10^{-5}$	790	0.307	1090	$4.2\cdot10^{-2}$	2150	$5.0\cdot10^{-2}$	3650	0.207	5150	$1.2\cdot10^{-3}$

Data Sheet

SCHOTT

UG2A

Density	
ρ [g/cm³]	2.60

Notes
Ionically colored glass
Bandpass filter
UV
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Reflection factor	
P_d	0.918

Bubble content	
Bubble class	2

Reference thickness	
d [mm]	3

Chemical Resistance	
FR class	0
SR class	1.0
AR class	1.3

Spectral values guaranteed		
τ_i (303nm)	≤	0.07
τ_i (365nm)	≥	0.81
τ_i (405nm)	≤	0.1
τ_i (694nm)	≤	0.04
τ_i (750nm)	≤	0.52

Transformation temperature	
Tg [°C]	484

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.7
$\alpha_{20/300°C}$ [10^{-6}/K]	9.9
$\alpha_{20/200°C}$ [10^{-6}/K]	

Refractive Index n
n (296.7 nm) = 1.567
n (302.1 nm) = 1.565
n_i (365.0 nm) = 1.546
n_e (546.1 nm) = 1.525
Sellmeier coefficients on request

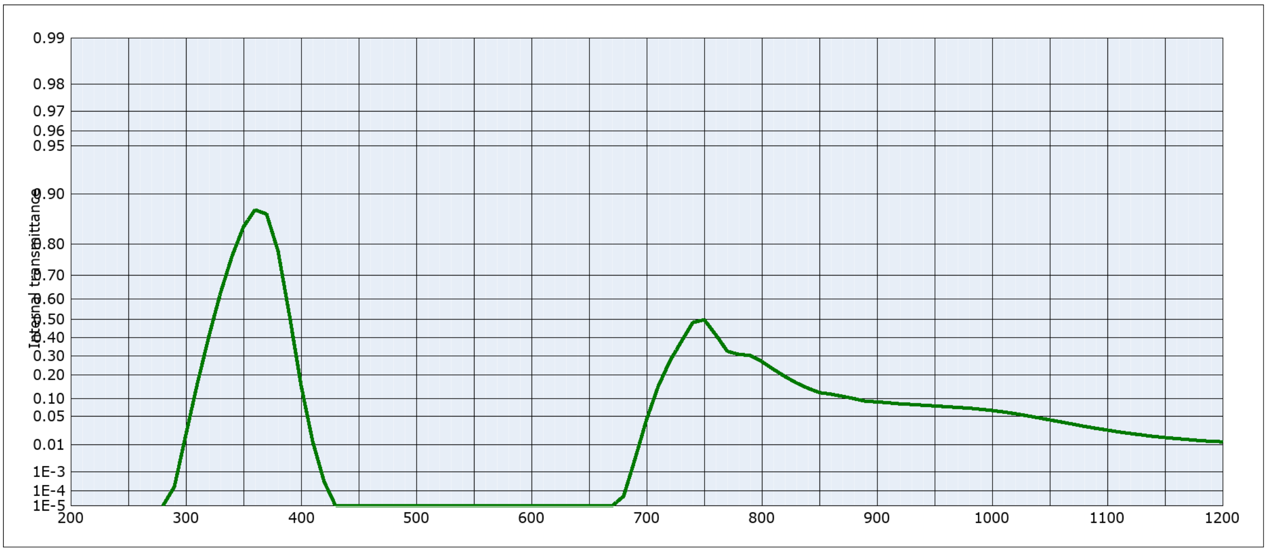
Temperature coefficient	
T_K [nm/°C]	

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

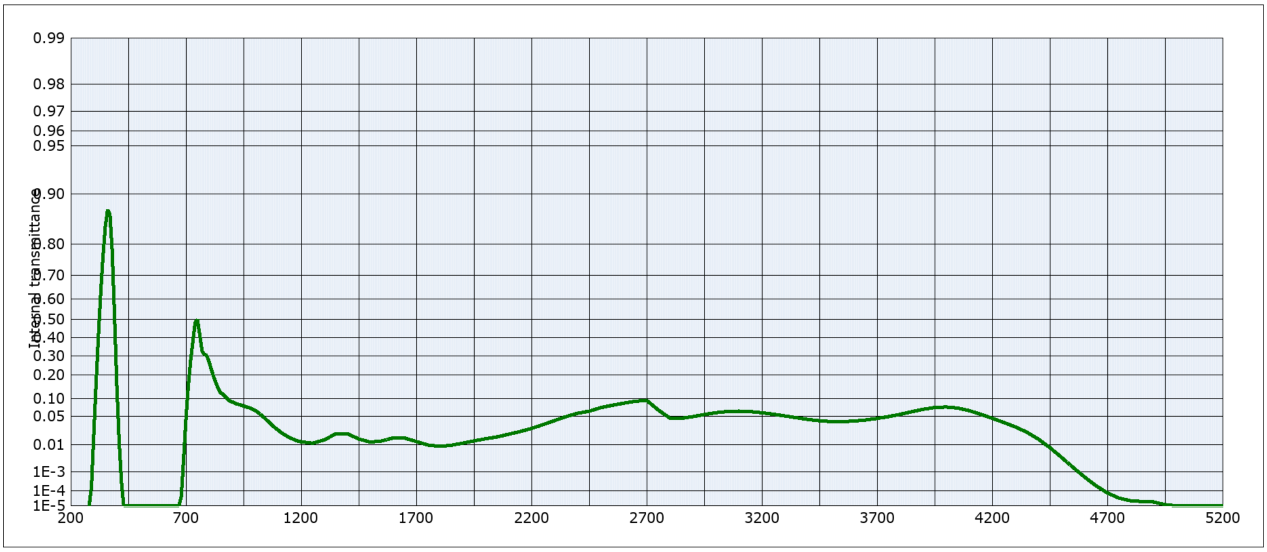
Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



Further explanations see 'Optical Filters 2013' catalogue

UG2A

SCHOTT



Internal transmittance τ_i at reference thickness d = 3 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	0.269	1100	$2.5\cdot10^{-2}$	2200	$2.8\cdot10^{-2}$	3700	$4.5\cdot10^{-2}$
210	$< 10^{-5}$	510	$< 10^{-5}$	810	0.229	1110	$2.3\cdot10^{-2}$	2250	$3.4\cdot10^{-2}$	3750	$5.0\cdot10^{-2}$
220	$< 10^{-5}$	520	$< 10^{-5}$	820	0.193	1120	$2.1\cdot10^{-2}$	2300	$4.1\cdot10^{-2}$	3800	$5.5\cdot10^{-2}$
230	$< 10^{-5}$	530	$< 10^{-5}$	830	0.164	1130	$1.9\cdot10^{-2}$	2350	$4.9\cdot10^{-2}$	3850	$6.1\cdot10^{-2}$
240	$< 10^{-5}$	540	$< 10^{-5}$	840	0.141	1140	$1.7\cdot10^{-2}$	2400	$5.7\cdot10^{-2}$	3900	$6.8\cdot10^{-2}$
250	$< 10^{-5}$	550	$< 10^{-5}$	850	0.123	1150	$1.6\cdot10^{-2}$	2450	$6.3\cdot10^{-2}$	3950	$7.3\cdot10^{-2}$
260	$< 10^{-5}$	560	$< 10^{-5}$	860	0.117	1160	$1.5\cdot10^{-2}$	2500	$7.2\cdot10^{-2}$	4000	$7.4\cdot10^{-2}$
270	$< 10^{-5}$	570	$< 10^{-5}$	870	0.109	1170	$1.4\cdot10^{-2}$	2550	$7.9\cdot10^{-2}$	4050	$7.1\cdot10^{-2}$
280	$< 10^{-5}$	580	$< 10^{-5}$	880	0.101	1180	$1.3\cdot10^{-2}$	2600	$8.6\cdot10^{-2}$	4100	$6.4\cdot10^{-2}$
290	$1.8\cdot10^{-4}$	590	$< 10^{-5}$	890	$9.2\cdot10^{-2}$	1190	$1.3\cdot10^{-2}$	2650	$9.2\cdot10^{-2}$	4150	$5.5\cdot10^{-2}$
300	$2.0\cdot10^{-2}$	600	$< 10^{-5}$	900	$9.0\cdot10^{-2}$	1200	$1.2\cdot10^{-2}$	2700	$9.5\cdot10^{-2}$	4200	$4.6\cdot10^{-2}$
310	0.162	610	$< 10^{-5}$	910	$8.7\cdot10^{-2}$	1250	$1.1\cdot10^{-2}$	2750	$6.6\cdot10^{-2}$	4250	$3.8\cdot10^{-2}$
320	0.409	620	$< 10^{-5}$	920	$8.4\cdot10^{-2}$	1300	$1.4\cdot10^{-2}$	2800	$4.7\cdot10^{-2}$	4300	$3.0\cdot10^{-2}$
330	0.627	630	$< 10^{-5}$	930	$8.2\cdot10^{-2}$	1350	$2.0\cdot10^{-2}$	2850	$4.6\cdot10^{-2}$	4350	$2.2\cdot10^{-2}$
340	0.764	640	$< 10^{-5}$	940	$7.9\cdot10^{-2}$	1400	$2.1\cdot10^{-2}$	2900	$4.9\cdot10^{-2}$	4400	$1.5\cdot10^{-2}$
350	0.841	650	$< 10^{-5}$	950	$7.7\cdot10^{-2}$	1450	$1.5\cdot10^{-2}$	2950	$5.4\cdot10^{-2}$	4450	$8.3\cdot10^{-3}$
360	0.875	660	$< 10^{-5}$	960	$7.5\cdot10^{-2}$	1500	$1.2\cdot10^{-2}$	3000	$5.9\cdot10^{-2}$	4500	$3.9\cdot10^{-3}$
370	0.867	670	$< 10^{-5}$	970	$7.3\cdot10^{-2}$	1550	$1.3\cdot10^{-2}$	3050	$6.2\cdot10^{-2}$	4550	$1.6\cdot10^{-3}$
380	0.779	680	$4.7\cdot10^{-5}$	980	$7.1\cdot10^{-2}$	1600	$1.6\cdot10^{-2}$	3100	$6.3\cdot10^{-2}$	4600	$5.9\cdot10^{-4}$
390	0.515	690	$3.5\cdot10^{-3}$	990	$6.8\cdot10^{-2}$	1650	$1.6\cdot10^{-2}$	3150	$6.2\cdot10^{-2}$	4650	$2.1\cdot10^{-4}$
400	0.152	700	$4.4\cdot10^{-2}$	1000	$6.4\cdot10^{-2}$	1700	$1.3\cdot10^{-2}$	3200	$5.9\cdot10^{-2}$	4700	$7.7\cdot10^{-5}$
410	$1.3\cdot10^{-2}$	710	0.148	1010	$6.1\cdot10^{-2}$	1750	$1.0\cdot10^{-2}$	3250	$5.5\cdot10^{-2}$	4750	$3.6\cdot10^{-5}$
420	$3.3\cdot10^{-4}$	720	0.270	1020	$5.6\cdot10^{-2}$	1800	$9.1\cdot10^{-3}$	3300	$5.1\cdot10^{-2}$	4800	$2.4\cdot10^{-5}$
430	$< 10^{-5}$	730	0.377	1030	$5.2\cdot10^{-2}$	1850	$9.8\cdot10^{-3}$	3350	$4.7\cdot10^{-2}$	4850	$2.1\cdot10^{-5}$
440	$< 10^{-5}$	740	0.482	1040	$4.7\cdot10^{-2}$	1900	$1.1\cdot10^{-2}$	3400	$4.4\cdot10^{-2}$	4900	$1.9\cdot10^{-5}$
450	$< 10^{-5}$	750	0.497	1050	$4.3\cdot10^{-2}$	1950	$1.3\cdot10^{-2}$	3450	$4.1\cdot10^{-2}$	4950	$1.3\cdot10^{-5}$
460	$< 10^{-5}$	760	0.416	1060	$3.8\cdot10^{-2}$	2000	$1.5\cdot10^{-2}$	3500	$3.9\cdot10^{-2}$	5000	$< 10^{-5}$
470	$< 10^{-5}$	770	0.325	1070	$3.5\cdot10^{-2}$	2050	$1.7\cdot10^{-2}$	3550	$3.9\cdot10^{-2}$	5050	$< 10^{-5}$
480	$< 10^{-5}$	780	0.308	1080	$3.1\cdot10^{-2}$	2100	$2.0\cdot10^{-2}$	3600	$4.0\cdot10^{-2}$	5100	$< 10^{-5}$
490	$< 10^{-5}$	790	0.302	1090	$2.8\cdot10^{-2}$	2150	$2.3\cdot10^{-2}$	3650	$4.2\cdot10^{-2}$	5150	$< 10^{-5}$

Data Sheet

SCHOTT

UG5

Reflection factor	
P_d	0.914

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (254nm)	≥	0.8
τ_i (308nm)	≥	0.94
τ_i (405nm)	≤	0.5
τ_i (546nm)	≤	0.05
τ_i (633nm)	≤	0.05
τ_i (725nm)	≤	0.85

Refractive Index n
n (253.7 nm) = 1.600
n_i (365.0 nm) = 1.560
n_d (587.6 nm) = 1.540
n_t (1014.0 nm) = 1.530

Density	
ρ [g/cm^3]	2.85

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	3.0
AR class	2.0

Transformation temperature	
Tg [°C]	462

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	8.1
$\alpha_{20/300°C}$ [10^{-6}/K]	9.4
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

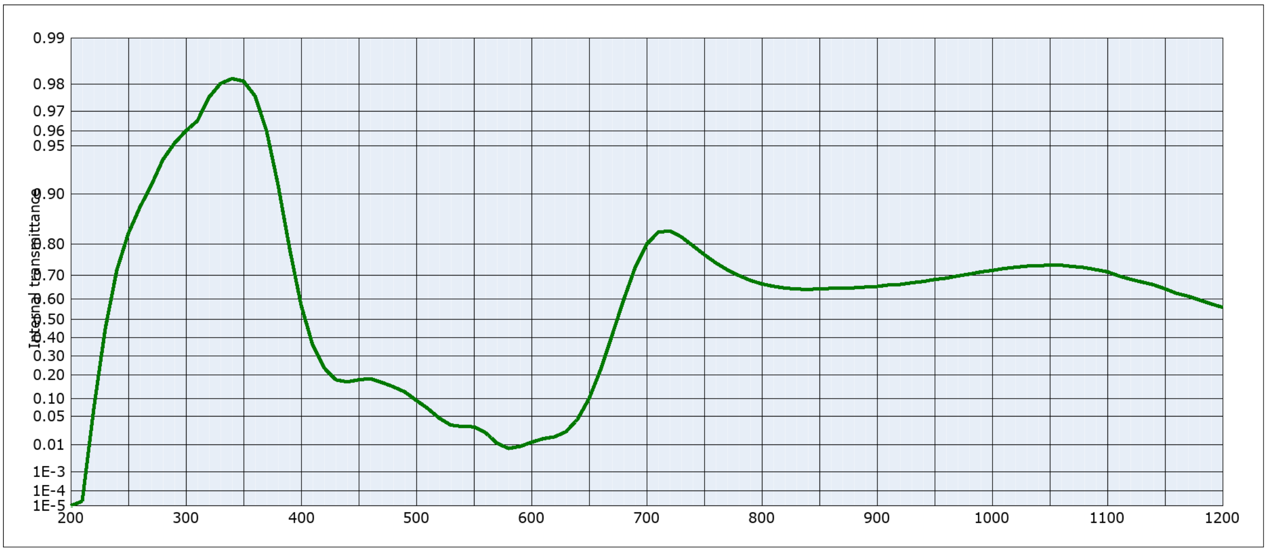
Notes
Ionically colored glass
Bandpass filter
Long-term changes of the polished
surface are possible.
Transmission changes are possible
under the action of intense
ultraviolet radiation.
All data wihout tolerances are to be
understood to be reference values.
Guaranteed values are only those
values listed in the section
"Spectral values guaranteed".

Colorimetric evaluation

Illuminant	**A (Planck T = 2856 K)**		
d [mm]	**1**	**2**	**3**
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	**Planck T = 3200 K**		
d [mm]	**1**	**2**	**3**
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	**D65 (T_C = 6504 K)**		
d [mm]	**1**	**2**	**3**
x			
y			
Y			
λ_d [nm]			
P_e			



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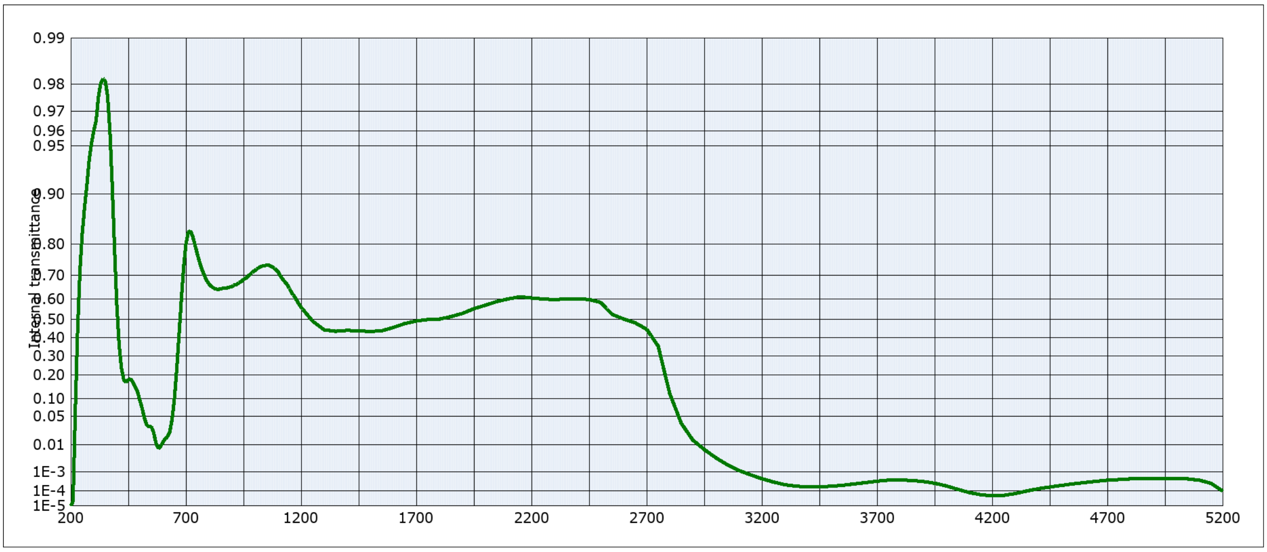
Further explanations see 'Optical Filters 2013' catalogue

UG5



Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$9.5\cdot10^{-2}$	800	0.665	1100	0.712	2200	0.604	3700	$3.6\cdot10^{-4}$
210	$2.2\cdot10^{-5}$	510	$7.0\cdot10^{-2}$	810	0.655	1110	0.696	2250	0.599	3750	$4.0\cdot10^{-4}$
220	$6.9\cdot10^{-2}$	520	$4.6\cdot10^{-2}$	820	0.648	1120	0.683	2300	0.596	3800	$4.1\cdot10^{-4}$
230	0.450	530	$3.3\cdot10^{-2}$	830	0.644	1130	0.673	2350	0.600	3850	$3.9\cdot10^{-4}$
240	0.718	540	$3.0\cdot10^{-2}$	840	0.642	1140	0.662	2400	0.600	3900	$3.5\cdot10^{-4}$
250	0.826	550	$3.0\cdot10^{-2}$	850	0.644	1150	0.644	2450	0.597	3950	$2.8\cdot10^{-4}$
260	0.879	560	$2.2\cdot10^{-2}$	860	0.646	1160	0.625	2500	0.584	4000	$2.0\cdot10^{-4}$
270	0.912	570	$1.1\cdot10^{-2}$	870	0.648	1170	0.612	2550	0.525	4050	$1.3\cdot10^{-4}$
280	0.939	580	$7.8\cdot10^{-3}$	880	0.649	1180	0.595	2600	0.501	4100	$8.2\cdot10^{-5}$
290	0.952	590	$9.0\cdot10^{-3}$	890	0.652	1190	0.576	2650	0.481	4150	$5.9\cdot10^{-5}$
300	0.960	600	$1.2\cdot10^{-2}$	900	0.654	1200	0.560	2700	0.446	4200	$5.1\cdot10^{-5}$
310	0.966	610	$1.5\cdot10^{-2}$	910	0.661	1250	0.489	2750	0.353	4250	$5.4\cdot10^{-5}$
320	0.976	620	$1.7\cdot10^{-2}$	920	0.663	1300	0.443	2800	0.120	4300	$7.0\cdot10^{-5}$
330	0.980	630	$2.3\cdot10^{-2}$	930	0.669	1350	0.435	2850	$3.6\cdot10^{-2}$	4350	$1.0\cdot10^{-4}$
340	0.982	640	$4.4\cdot10^{-2}$	940	0.675	1400	0.440	2900	$1.4\cdot10^{-2}$	4400	$1.4\cdot10^{-4}$
350	0.981	650	0.101	950	0.683	1450	0.437	2950	$7.2\cdot10^{-3}$	4450	$1.7\cdot10^{-4}$
360	0.976	660	0.227	960	0.688	1500	0.434	3000	$3.8\cdot10^{-3}$	4500	$2.1\cdot10^{-4}$
370	0.960	670	0.414	970	0.696	1550	0.437	3050	$2.0\cdot10^{-3}$	4550	$2.6\cdot10^{-4}$
380	0.912	680	0.595	980	0.703	1600	0.456	3100	$1.2\cdot10^{-3}$	4600	$3.0\cdot10^{-4}$
390	0.787	690	0.727	990	0.711	1650	0.477	3150	$7.4\cdot10^{-4}$	4650	$3.5\cdot10^{-4}$
400	0.570	700	0.799	1000	0.716	1700	0.490	3200	$4.8\cdot10^{-4}$	4700	$4.0\cdot10^{-4}$
410	0.360	710	0.829	1010	0.723	1750	0.498	3250	$3.2\cdot10^{-4}$	4750	$4.3\cdot10^{-4}$
420	0.236	720	0.832	1020	0.728	1800	0.500	3300	$2.3\cdot10^{-4}$	4800	$4.7\cdot10^{-4}$
430	0.178	730	0.818	1030	0.732	1850	0.513	3350	$1.9\cdot10^{-4}$	4850	$4.9\cdot10^{-4}$
440	0.168	740	0.795	1040	0.734	1900	0.529	3400	$1.8\cdot10^{-4}$	4900	$5.0\cdot10^{-4}$
450	0.178	750	0.769	1050	0.734	1950	0.553	3450	$1.8\cdot10^{-4}$	4950	$5.0\cdot10^{-4}$
460	0.183	760	0.743	1060	0.735	2000	0.570	3500	$1.9\cdot10^{-4}$	5000	$5.0\cdot10^{-4}$
470	0.166	770	0.719	1070	0.731	2050	0.587	3550	$2.1\cdot10^{-4}$	5050	$4.6\cdot10^{-4}$
480	0.147	780	0.698	1080	0.727	2100	0.600	3600	$2.5\cdot10^{-4}$	5100	$4.0\cdot10^{-4}$
490	0.126	790	0.679	1090	0.719	2150	0.609	3650	$3.0\cdot10^{-4}$	5150	$2.7\cdot10^{-4}$

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Further explanations see 'Optical Filters 2013' catalogue

Data Sheet

SCHOTT

UG11

Reflection factor	
P_d	0.908

Reference thickness	
d [mm]	1

Spectral values guaranteed		
τ_i (254nm)	≥	0.06
τ_i (334nm)	≥	0.9
τ_i (405nm)	≤	0.001
τ_i (694nm)	≤	0.26
τ_i (725nm)	≤	0.32

Refractive Index n
n (296.7 nm) = 1.606
n (302.1 nm) = 1.604
n_i (365.0 nm) = 1.585
n_d (587.6 nm) = 1.563
Sellmeier coefficients on request

Density	
ρ [g/cm^3]	2.92

Bubble content	
Bubble class	2

Chemical Resistance	
FR class	0
SR class	3.0
AR class	2.2

Transformation temperature	
Tg [°C]	545

Thermal expansion	
$\alpha_{-30/+70°C}$ [10^{-6}/K]	7.8
$\alpha_{20/300°C}$ [10^{-6}/K]	9.0
$\alpha_{20/200°C}$ [10^{-6}/K]	

Temperature coefficient	
T_K [nm/°C]	

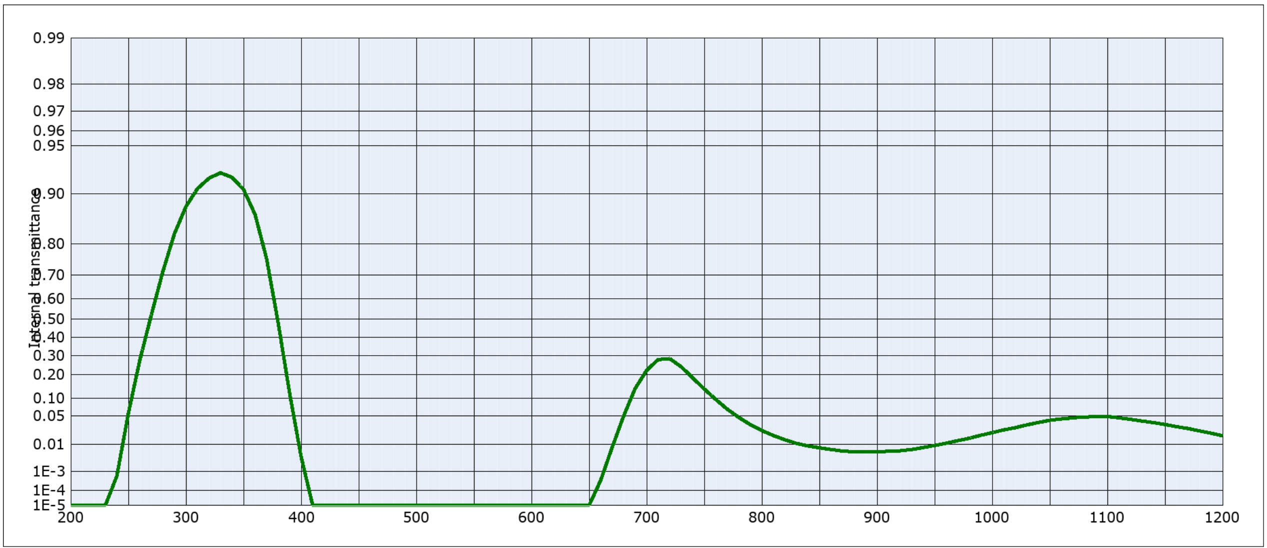
Notes
Ionically colored glass
Bandpass filter
Long-term changes of the polished surface are possible.
Transmission changes are possible under the action of intense ultraviolet radiation.
All data wihout tolerances are to be understood to be reference values. Guaranteed values are only those values listed in the section "Spectral values guaranteed".

Colorimetric evaluation

Illuminant	A (Planck T = 2856 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	Planck T = 3200 K		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			

Illuminant	D65 (T_C = 6504 K)		
d [mm]	1	2	3
x			
y			
Y			
λ_d [nm]			
P_e			



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Further explanations see 'Optical Filters 2013' catalogue

UG11

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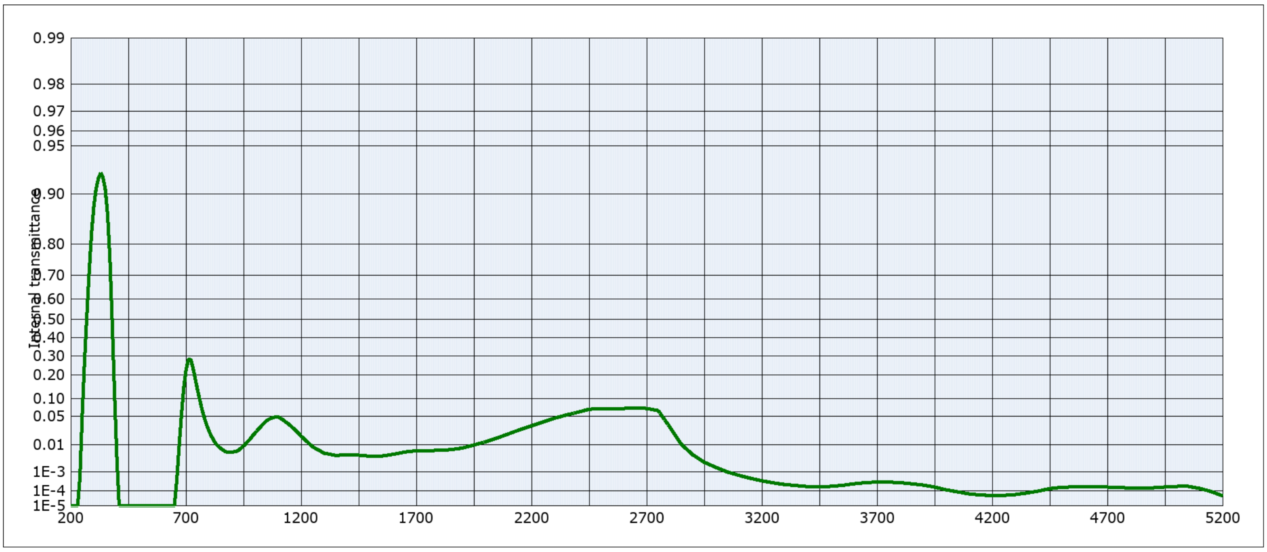

Internal transmittance τ_i at reference thickness d = 1 mm
The internal transmittance values, tabulated and graphically represented, are reference values only

λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i	λ [nm]	τ_i
200	$< 10^{-5}$	500	$< 10^{-5}$	800	$2.4\cdot10^{-2}$	1100	$4.9\cdot10^{-2}$	2200	$3.2\cdot10^{-2}$	3700	$3.2\cdot10^{-4}$
210	$< 10^{-5}$	510	$< 10^{-5}$	810	$1.8\cdot10^{-2}$	1110	$4.6\cdot10^{-2}$	2250	$3.8\cdot10^{-2}$	3750	$3.2\cdot10^{-4}$
220	$< 10^{-5}$	520	$< 10^{-5}$	820	$1.4\cdot10^{-2}$	1120	$4.3\cdot10^{-2}$	2300	$4.6\cdot10^{-2}$	3800	$3.0\cdot10^{-4}$
230	$< 10^{-5}$	530	$< 10^{-5}$	830	$1.1\cdot10^{-2}$	1130	$3.9\cdot10^{-2}$	2350	$5.3\cdot10^{-2}$	3850	$2.6\cdot10^{-4}$
240	$6.1\cdot10^{-4}$	540	$< 10^{-5}$	840	$9.1\cdot10^{-3}$	1140	$3.7\cdot10^{-2}$	2400	$6.0\cdot10^{-2}$	3900	$2.2\cdot10^{-4}$
250	$5.6\cdot10^{-2}$	550	$< 10^{-5}$	850	$8.0\cdot10^{-3}$	1150	$3.3\cdot10^{-2}$	2450	$6.8\cdot10^{-2}$	3950	$1.7\cdot10^{-4}$
260	0.276	560	$< 10^{-5}$	860	$7.0\cdot10^{-3}$	1160	$3.0\cdot10^{-2}$	2500	$7.0\cdot10^{-2}$	4000	$1.2\cdot10^{-4}$
270	0.521	570	$< 10^{-5}$	870	$6.3\cdot10^{-3}$	1170	$2.7\cdot10^{-2}$	2550	$7.0\cdot10^{-2}$	4050	$9.0\cdot10^{-5}$
280	0.712	580	$< 10^{-5}$	880	$5.9\cdot10^{-3}$	1180	$2.4\cdot10^{-2}$	2600	$7.0\cdot10^{-2}$	4100	$6.7\cdot10^{-5}$
290	0.825	590	$< 10^{-5}$	890	$5.8\cdot10^{-3}$	1190	$2.1\cdot10^{-2}$	2650	$7.2\cdot10^{-2}$	4150	$5.7\cdot10^{-5}$
300	0.880	600	$< 10^{-5}$	900	$5.9\cdot10^{-3}$	1200	$1.8\cdot10^{-2}$	2700	$7.0\cdot10^{-2}$	4200	$5.2\cdot10^{-5}$
310	0.907	610	$< 10^{-5}$	910	$6.1\cdot10^{-3}$	1250	$8.8\cdot10^{-3}$	2750	$6.4\cdot10^{-2}$	4250	$5.4\cdot10^{-5}$
320	0.920	620	$< 10^{-5}$	920	$6.4\cdot10^{-3}$	1300	$5.5\cdot10^{-3}$	2800	$3.0\cdot10^{-2}$	4300	$6.1\cdot10^{-5}$
330	0.926	630	$< 10^{-5}$	930	$7.0\cdot10^{-3}$	1350	$4.6\cdot10^{-3}$	2850	$1.1\cdot10^{-2}$	4350	$7.6\cdot10^{-5}$
340	0.921	640	$< 10^{-5}$	940	$8.1\cdot10^{-3}$	1400	$4.8\cdot10^{-3}$	2900	$4.8\cdot10^{-3}$	4400	$1.0\cdot10^{-4}$
350	0.906	650	$< 10^{-5}$	950	$9.4\cdot10^{-3}$	1450	$4.6\cdot10^{-3}$	2950	$2.5\cdot10^{-3}$	4450	$1.4\cdot10^{-4}$
360	0.866	660	$3.6\cdot10^{-4}$	960	$1.1\cdot10^{-2}$	1500	$4.3\cdot10^{-3}$	3000	$1.6\cdot10^{-3}$	4500	$1.7\cdot10^{-4}$
370	0.756	670	$8.1\cdot10^{-3}$	970	$1.3\cdot10^{-2}$	1550	$4.3\cdot10^{-3}$	3050	$1.0\cdot10^{-3}$	4550	$1.7\cdot10^{-4}$
380	0.482	680	$5.0\cdot10^{-2}$	980	$1.5\cdot10^{-2}$	1600	$5.0\cdot10^{-3}$	3100	$7.0\cdot10^{-4}$	4600	$1.8\cdot10^{-4}$
390	0.120	690	0.138	990	$1.8\cdot10^{-2}$	1650	$6.0\cdot10^{-3}$	3150	$5.0\cdot10^{-4}$	4650	$1.7\cdot10^{-4}$
400	$4.0\cdot10^{-3}$	700	0.222	1000	$2.1\cdot10^{-2}$	1700	$6.6\cdot10^{-3}$	3200	$3.7\cdot10^{-4}$	4700	$1.7\cdot10^{-4}$
410	$1.0\cdot10^{-5}$	710	0.278	1010	$2.5\cdot10^{-2}$	1750	$6.7\cdot10^{-3}$	3250	$2.9\cdot10^{-4}$	4750	$1.6\cdot10^{-4}$
420	$< 10^{-5}$	720	0.283	1020	$2.8\cdot10^{-2}$	1800	$6.8\cdot10^{-3}$	3300	$2.4\cdot10^{-4}$	4800	$1.5\cdot10^{-4}$
430	$< 10^{-5}$	730	0.240	1030	$3.3\cdot10^{-2}$	1850	$7.2\cdot10^{-3}$	3350	$2.1\cdot10^{-4}$	4850	$1.5\cdot10^{-4}$
440	$< 10^{-5}$	740	0.185	1040	$3.7\cdot10^{-2}$	1900	$8.0\cdot10^{-3}$	3400	$1.8\cdot10^{-4}$	4900	$1.6\cdot10^{-4}$
450	$< 10^{-5}$	750	0.136	1050	$4.1\cdot10^{-2}$	1950	$1.0\cdot10^{-2}$	3450	$1.8\cdot10^{-4}$	4950	$1.7\cdot10^{-4}$
460	$< 10^{-5}$	760	$9.7\cdot10^{-2}$	1060	$4.4\cdot10^{-2}$	2000	$1.2\cdot10^{-2}$	3500	$1.9\cdot10^{-4}$	5000	$1.9\cdot10^{-4}$
470	$< 10^{-5}$	770	$6.7\cdot10^{-2}$	1070	$4.6\cdot10^{-2}$	2050	$1.6\cdot10^{-2}$	3550	$2.1\cdot10^{-4}$	5050	$1.9\cdot10^{-4}$
480	$< 10^{-5}$	780	$4.7\cdot10^{-2}$	1080	$4.8\cdot10^{-2}$	2100	$2.0\cdot10^{-2}$	3600	$2.6\cdot10^{-4}$	5100	$1.4\cdot10^{-4}$
490	$< 10^{-5}$	790	$3.3\cdot10^{-2}$	1090	$4.8\cdot10^{-2}$	2150	$2.6\cdot10^{-2}$	3650	$3.0\cdot10^{-4}$	5150	$9.4\cdot10^{-5}$

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Further explanations see 'Optical Filters 2013' catalogue

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