

S8022

Optical properties	
Reflection factor	
$P_d = 0,910$	
Values guaranteed	
The color of glass is within a circle of the CIE Yu'v\UCS(1976) defined by $(u' - 0,088)^2 + (v' - 0,543)^2 = (0,037)^2$ for any black body radiator 1500K to 3200K	
Black body radiator	Photopic Transmittance [%]
2100 K	13,5 ±1.5
1500 K	9 ±1.5
Refractive indices	
n_e (546 nm) =	1,56
n_d (587,6 nm) =	1,555 ± 0,005
Sellmeier coefficients	
valid from 440 nm to 1550 nm	
	1,0783
	0,3094
	36,9992
	5,301E-09 μm^2
	3,8950E-02 μm^2
	5395,591 μm^2
Internal quality	
Bubble class	1

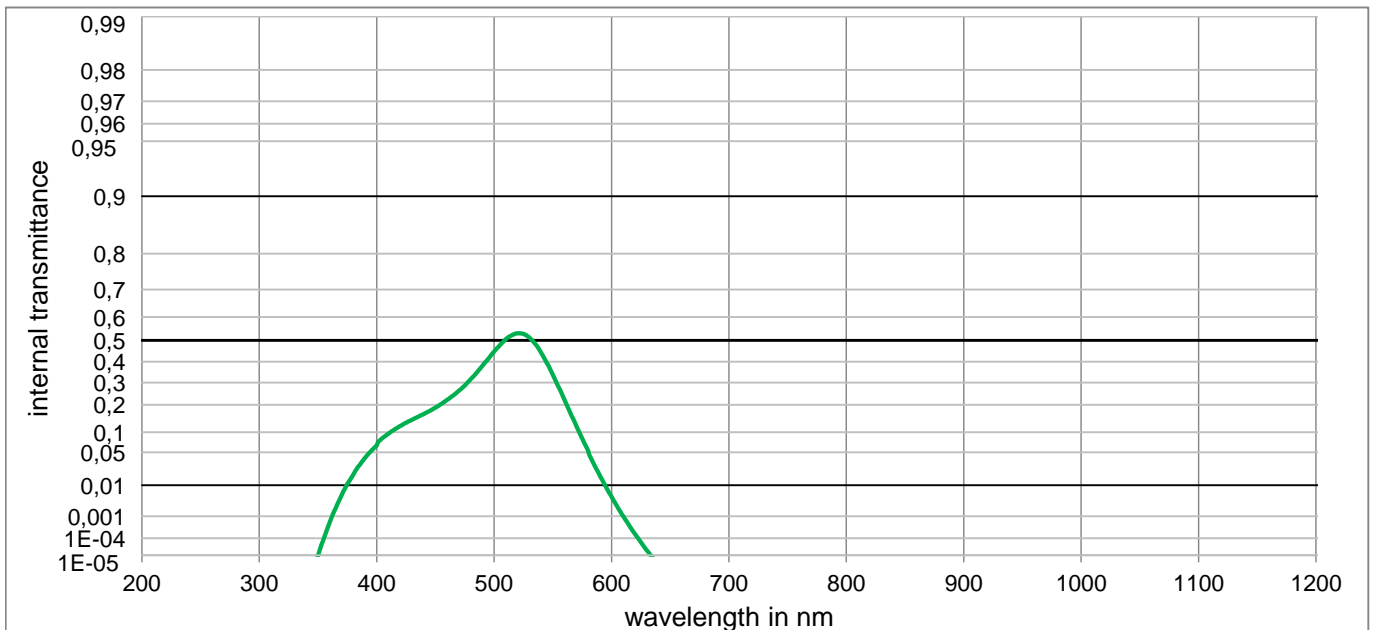
Mechanical properties	
Reference thickness	
$d = 2$	mm
Density	
$\rho = 2,77$	g/cm^3
Knoop hardness	
HK[0.1/20]	

Thermal properties	
Transformation temperature	
$T_g = 453$	$^{\circ}\text{C}$
Thermal expansion in $10^{-6}/\text{K}$	
$\alpha_{(-30^{\circ}\text{C}/+70^{\circ}\text{C})} = 7,8$	
$\alpha_{(20^{\circ}\text{C}/300^{\circ}\text{C})} = 8,9$	
$\alpha_{(20^{\circ}\text{C}/200^{\circ}\text{C})}$	

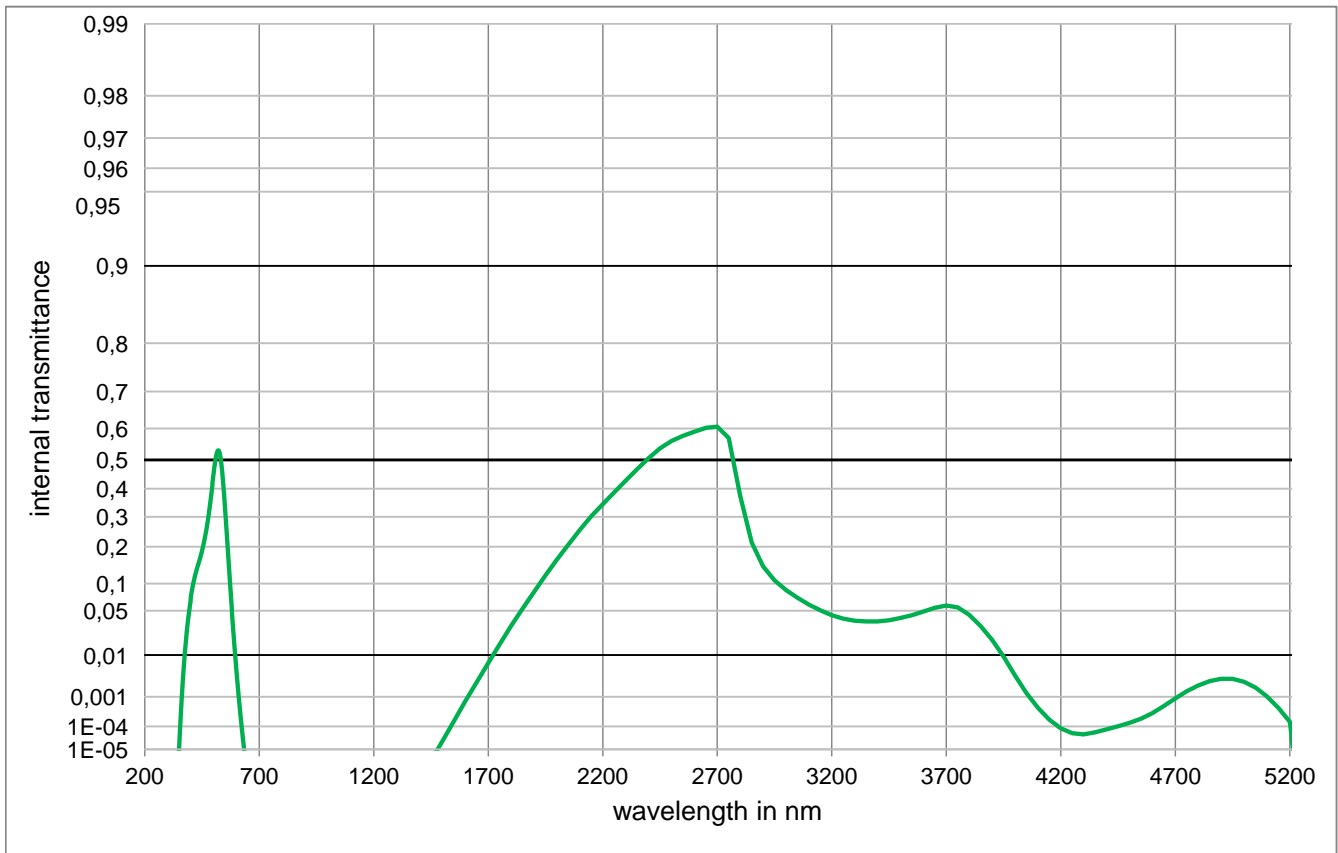
Chemical properties	
Chemical resistance	
FR class =	0
SR class =	4
AR class =	3
Resistance against humidity	
Delicate glass	
see pocket catalogue "Optical Filter Glass 2020", chapter 5.5	

Colormetric properties		1 mm	2 mm	3 mm
Illuminant D65	x	0,196	0,169	0,154
	y	0,374	0,432	0,492
	Y	37,3	20,7	12,4
	λ_d	496,0	500,0	505,0
	P_e	0,400	0,470	0,510
Illuminant A	x	0,253	0,203	0,178
	y	0,498	0,549	0,593
	Y	29,6	15,5	9,0
	λ_d	503,0	505,0	508,0
	P_e	0,440	0,550	0,610

Notes	
Ionically colored glass	
Bandpass filter	
NIR cutoff filter	
NVIS-Green A - 2 mm bandpass filter according to MIL-STD-3009	
Disclaimer	
All data without tolerances are to be understood to be reference values.	



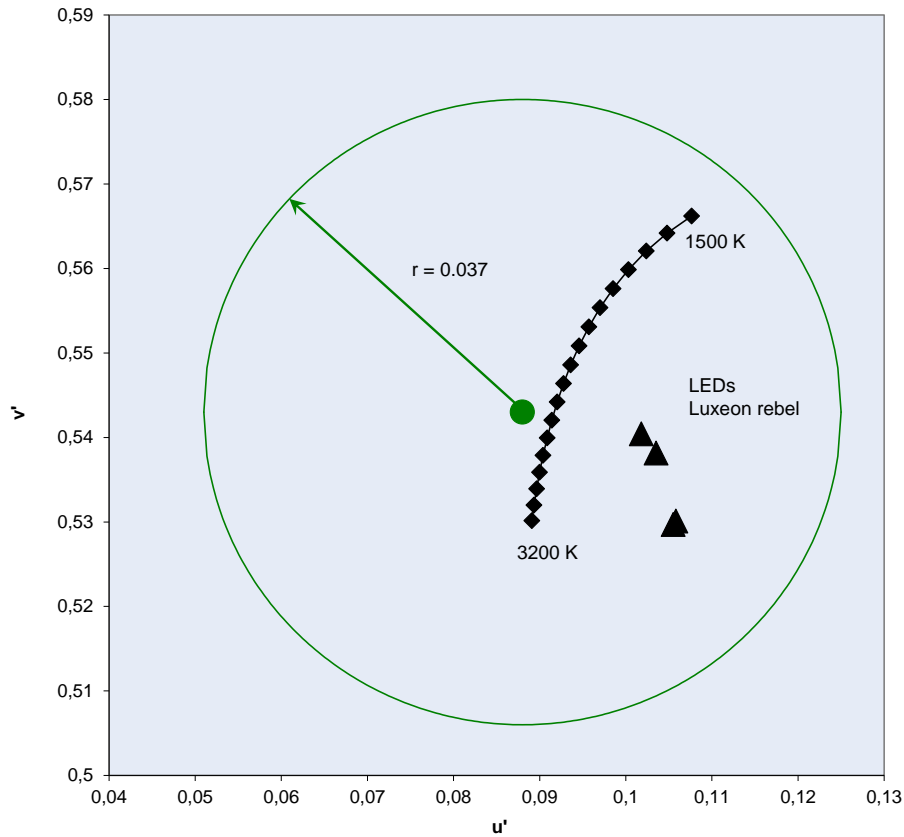
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Internal transmittance τ_i at reference thickness
 The internal transmittance values, tabulated and graphically represented, are reference values only

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	< 1,0E-05	500	4,483E-01	800	< 1,000E-05	1100	< 1,000E-05	2200	3,453E-01	3700	5,800E-02
210	< 1,0E-05	510	5,049E-01	810	< 1,000E-05	1110	< 1,000E-05	2250	3,871E-01	3750	5,505E-02
220	< 1,0E-05	520	5,313E-01	820	< 1,000E-05	1120	< 1,000E-05	2300	4,287E-01	3800	4,448E-02
230	< 1,0E-05	530	5,123E-01	830	< 1,000E-05	1130	< 1,000E-05	2350	4,691E-01	3850	3,093E-02
240	< 1,0E-05	540	4,431E-01	840	< 1,000E-05	1140	< 1,000E-05	2400	5,060E-01	3900	1,879E-02
250	< 1,0E-05	550	3,370E-01	850	< 1,000E-05	1150	< 1,000E-05	2450	5,380E-01	3950	9,286E-03
260	< 1,0E-05	560	2,201E-01	860	< 1,000E-05	1160	< 1,000E-05	2500	5,617E-01	4000	3,658E-03
270	< 1,0E-05	570	1,199E-01	870	< 1,000E-05	1170	< 1,000E-05	2550	5,775E-01	4050	1,282E-03
280	< 1,0E-05	580	5,327E-02	880	< 1,000E-05	1180	< 1,000E-05	2600	5,903E-01	4100	4,598E-04
290	< 1,0E-05	590	1,731E-02	890	< 1,000E-05	1190	< 1,000E-05	2650	6,017E-01	4150	1,798E-04
300	< 1,0E-05	600	4,677E-03	900	< 1,000E-05	1200	< 1,000E-05	2700	6,055E-01	4200	8,400E-05
310	< 1,0E-05	610	9,895E-04	910	< 1,000E-05	1250	< 1,000E-05	2750	5,709E-01	4250	5,361E-05
320	< 1,000E-05	620	1,628E-04	920	< 1,000E-05	1300	< 1,000E-05	2800	3,741E-01	4300	4,785E-05
330	< 1,000E-05	630	2,102E-05	930	< 1,000E-05	1350	< 1,000E-05	2850	2,130E-01	4350	5,774E-05
340	< 1,000E-05	640	< 1,000E-05	940	< 1,000E-05	1400	< 1,000E-05	2900	1,425E-01	4400	7,778E-05
350	< 1,000E-05	650	< 1,000E-05	950	< 1,000E-05	1450	< 1,000E-05	2950	1,074E-01	4450	1,016E-04
360	5,717E-04	660	< 1,000E-05	960	< 1,000E-05	1500	2,437E-05	3000	8,629E-02	4500	1,365E-04
370	5,212E-03	670	< 1,000E-05	970	< 1,000E-05	1550	1,610E-04	3050	7,123E-02	4550	1,958E-04
380	1,815E-02	680	< 1,000E-05	980	< 1,000E-05	1600	7,352E-04	3100	5,950E-02	4600	3,023E-04
390	3,992E-02	690	< 1,000E-05	990	< 1,000E-05	1650	2,520E-03	3150	5,038E-02	4650	5,195E-04
400	6,468E-02	700	< 1,000E-05	1000	< 1,000E-05	1700	6,915E-03	3200	4,380E-02	4700	9,015E-04
410	9,600E-02	710	< 1,000E-05	1010	< 1,000E-05	1750	1,600E-02	3250	3,942E-02	4750	1,433E-03
420	1,198E-01	720	< 1,000E-05	1020	< 1,000E-05	1800	3,121E-02	3300	3,689E-02	4800	2,044E-03
430	1,414E-01	730	< 1,000E-05	1030	< 1,000E-05	1850	5,323E-02	3350	3,594E-02	4850	2,635E-03
440	1,629E-01	740	< 1,000E-05	1040	< 1,000E-05	1900	8,298E-02	3400	3,609E-02	4900	3,028E-03
450	1,883E-01	750	< 1,000E-05	1050	< 1,000E-05	1950	1,197E-01	3450	3,746E-02	4950	3,019E-03
460	2,211E-01	760	< 1,000E-05	1060	< 1,000E-05	2000	1,616E-01	3500	4,005E-02	5000	2,545E-03
470	2,620E-01	770	< 1,000E-05	1070	< 1,000E-05	2050	2,074E-01	3550	4,379E-02	5050	1,799E-03
480	3,155E-01	780	< 1,000E-05	1080	< 1,000E-05	2100	2,550E-01	3600	4,878E-02	5100	1,030E-03
490	3,799E-01	790	< 1,000E-05	1090	< 1,000E-05	2150	3,025E-01	3650	5,436E-02	5150	4,597E-04

Chromaticity dependence on Incandescent Color Temperature



Chromaticity and NVIS Radiance at reference thickness 2 mm						
Planck [K]	u'	v'	x	y	Y	NR _A
1500	0,108	0,566	0,270	0,631	9,5	6,1E-11
1600	0,105	0,564	0,262	0,627	10,4	5,8E-11
1700	0,102	0,562	0,254	0,621	11,2	5,6E-11
1800	0,100	0,560	0,248	0,615	11,9	5,4E-11
1900	0,099	0,558	0,242	0,608	12,6	5,2E-11
2000	0,097	0,555	0,236	0,601	13,3	5,1E-11
2100	0,096	0,553	0,231	0,594	13,9	5,0E-11
2200	0,095	0,551	0,227	0,587	14,5	4,9E-11
2300	0,094	0,549	0,223	0,580	15,0	4,8E-11
2400	0,093	0,546	0,219	0,573	15,5	4,7E-11
2500	0,092	0,544	0,215	0,566	15,9	4,7E-11
2600	0,091	0,542	0,212	0,559	16,3	4,6E-11
2700	0,091	0,540	0,209	0,553	16,7	4,6E-11
2800	0,090	0,538	0,207	0,547	17,1	4,5E-11
2900	0,090	0,536	0,204	0,540	17,4	4,5E-11
3000	0,090	0,534	0,202	0,535	17,8	4,4E-11
3100	0,089	0,532	0,200	0,529	18,1	4,4E-11
3200	0,089	0,530	0,198	0,523	18,4	4,4E-11
LED	u'	v'	x	y	Y	NR _A
LUXEON rebel A2-RM-G	0,102	0,540	0,231	0,545	21,1	4,2E-11
LUXEON rebel T2-SO-L	0,106	0,530	0,229	0,511	20,9	4,2E-11
LUXEON rebel B5-R0-G	0,106	0,530	0,228	0,510	20,7	4,3E-11
LUXEON rebel Q1-RM-K	0,104	0,538	0,232	0,537	20,7	4,3E-11
other sources of illumination	A service for calculating chromaticity or NVIS radiance can be provided					

NVIS Green A

NVIS Green A Chromaticity coordinates
(as defined by MIL-STD-3009)

u' = 0.088
v' = 0.543

with radius of tolerance r = 0.037