LYTKARINO OPTICAL GLASS FACTORY, JSC

ЛЗОС LZOS

BF21

glass type

n_e 1.617772	υ_e 39.76	$n_{F'} - n_{C'}$ 0.015538
n_d 1.614132	υ_d 40.03	$n_F - n_C$ 0.015340

Class of bubbles	Viscosity temperature				
	η [Poise]	$10^{14.5}$	10^{13}	10^{10}	10^{8}
2	t [°C]	435	480	580	665

Relative partial dispersion deviations from the 'Normal Line'				
	i – F'	g – F'	F' - e	F' - r
ΔP	-0.004	-0.0002	-0.0001	-0.0003
$\Delta \upsilon_e$	-0.4	-0.1	-0.1	+0.4
	i – F	g – F	F - e	F – r
ΔP	-0.003	-0.0001	+/-0	-0.0002
$\Delta \upsilon_d$	-0.3	+/-0	-0.1	+0.3

Stress optical coefficient B [nm·cm^{-1} / kp·cm^{-2}], λ=550nm	Thermal conductivity			
	-50°C	0°C	+20°C	+50°C
2.95	-	-	-	-

Optical density increment on irradiation		
Initial density D_0 [cm^{-1}]	Radiation dose [R]	Optical density increment Δ D [cm^{-1}]
0.057	$1 \cdot 10^4$	0.035
	$1 \cdot 10^5$	0.20

Young's modulus E [kp · mm^{-2}]	Shear modulus G [kp·mm^{-2}]	Coefficient of linear thermal expansion $\alpha_{20/t} \cdot 10^7$ [°C]		Chemical resistance	
				Stain resistance	
				Group	I
6330	2563				
Poisson's ratio μ	Density ρ [g · cm^{-3}]	+20 ÷ -60°C	+20 ÷ +120°C	Weather resistance	
0.235	3.56	71	77	Group	A

Refractive indices		
λ [nm]	n	
312.6	-	-
334.1	-	-
365.0	i	1.65512
404.66	h	1.64142
435.83	g	1.633797
479.99	F'	1.625854
486.13	F	1.624944
546.07	e	1.617772
587.56	d	1.614132
589.29	D	1.614000
643.85	C'	1.610316
656.27	C	1.609604
706.52	r	1.60709
768.2	-	1.60463
852.1	-	1.60203
1013.9	-	1.59843
1128.6	-	1.59650
1395.1	-	1.59290
1529.6	-	1.59128
1813.1	-	1.58791
1970.1	-	1.58596
2249.3	-	1.58223
2325.4	-	1.59115

Dispersion coefficients	
$\nu_h = \frac{n_h - 1}{n_i - n_g}$	30.1
$\nu_e = \frac{n_e - 1}{n_{F'} - n_{C'}}$	39.76
$\nu_d = \frac{n_d - 1}{n_F - n_C}$	40.03
$\nu_D = \frac{n_D - 1}{n_F - n_C}$	40.03
$\nu_{1529.6} = \frac{n_{1529.6} - 1}{n_{1013.9} - n_{2249.3}}$	36.5

Relative partial dispersions		
Δ n	$\frac{\Delta n}{n_{F'} - n_{C'}}$	$\frac{\Delta n}{n_F - n_C}$
312.6 – 334.1	-	-
334.1 - i	-	-
i - h	0.882	0.893
h - g	0.4906	0.4969
g – F	0.5698	0.5771
g – F'	0.5112	0.5178
F - e	0.4616	0.4675
F - D	0.7043	0.7134
F' - e	0.5201	0.5269
d - D	0.0085	0.0086
D - C	0.2829	0.2866
e – C'	0.4799	0.4861
e - C	0.5257	0.5325
C' - r	0.207	0.210
C - r	0.162	0.164
r – 852.1	0.326	0.330
852.1 – 1013.9	0.232	0.236
1013.9 – 1128.6	0.124	0.126
1128.6 – 1395.1	0.231	0.234
1395.1 – 1529.6	0.104	0.106
1529.6 – 1813.1	0.217	0.220
1813.1 – 1970.1	0.125	0.127
1970.1 – 2249.3	0.240	0.243
2249.3 – 2325.4	0.070	0.071

Internal transmittance		
λ [nm]	τ_i (s=10mm)	τ_i (s=25mm)
280	-	-
300	-	-
320	-	-
340	0.299	0.048
360	0.769	0.518
380	0.918	0.807
400	0.964	0.913
420	0.978	0.946
440	0.983	0.958
460	0.989	0.972
480	0.991	0.978
500	0.993	0.983
520	0.995	0.987
540	0.996	0.990
560	0.996	0.990
580	0.996	0.990
600	0.995	0.987
620	0.994	0.985
640	0.994	0.985
660	0.994	0.985
680	0.995	0.987
700	0.996	0.990
750	0.997	0.993
800	0.996	0.990
900	0.995	0.987
1000	0.995	0.987
1050	0.995	0.987
1100	0.995	0.987
1200	0.995	0.987
1300	-	-
1400	-	-
1500	-	-

Refractive indices at laser wavelengths	
λ [nm]	n
350.7	-
356.4	-
488.0	1.62467
514.0	1.62126
520.8	1.62046
530.0	1.61943
568.2	1.61573
632.8	1.61098
647.1	1.61013
694.3	1.60766
890.0	1.60105
1060.0	1.59761

Radiation resistant analogue glass type-

BF121