LYTKARINO OPTICAL GLASS FACTORY, JSC

ЛЗОС LZOS

TF5
glass type

n_e 1.761712	υ_e 27.32	$n_{F'} - n_{C'}$ 0.027879
n_d 1.755234	υ_d 27.53	$n_F - n_C$ 0.027430

Class of bubbles	Viscosity temperature				
	η [Poise]	$10^{14.5}$	10^{13}	10^{10}	10^{8}
2	t [°C]	395	435	495	550

Relative partial dispersion deviations from the 'Normal Line'				
	i – F'	g – F'	F' - e	F' - r
ΔP	+0.047	+0.0050	+0.0008	+/-0
Δ υ_e	+5.1	+3.4	+1.4	+/-0
	i – F	g – F	F - e	F – r
ΔP	+0.049	+0.0056	+.00007	+0.0001
Δ υ_d	+4.9	+3.2	+/-1.2	-0.3

Stress optical coefficient B [nm·cm^{-1} / kp·cm^{-2}], λ=550nm	Thermal conductivity			
	-50°C	0°C	+20°C	+50°C
1.25	0.43	0.46	0.48	0.50

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	III
5500	2223				
Poisson's ratio μ	Density ρ [g · cm^{-3}]	+20 ÷ -60°C	+20 ÷ +120°C	Weather resistance	
0.240	4.77	78	83	Group	A

Optical density increment on irradiation		
Initial density D_0 [cm^{-1}]	Radiation dose [R]	Optical density increment Δ D [cm^{-1}]
0.069	$1 \cdot 10^4$	0.105
	$1 \cdot 10^5$	0.60

Refractive indices		
λ [nm]	n	
312.6	-	-
334.1	-	-
365.0	i	1.83360
404.66	h	1.80608
435.83	g	1.791346
479.99	F'	1.776436
486.13	F	1.774755
546.07	e	1.761712
587.56	d	1.755234
589.29	D	1.755000
643.85	C'	1.748557
656.27	C	1.747325
706.52	r	1.74301
768.2	-	1.73886
852.1	-	1.73457
1013.9	-	1.72888
1128.6	-	1.72601
1395.1	-	1.72107
1529.6	-	1.71903
1813.1	-	1.71508
1970.1	-	1.71294
2249.3	-	1.70903
2325.4	-	1.70792

Refractive indices at laser wavelengths	
λ [nm]	n
350.7	-
356.4	-
488.0	1.77426
514.0	1.76802
520.8	1.76657
530.0	1.76470
568.2	1.75806
632.8	1.74971
647.1	1.74822
694.3	1.74397
890.0	1.73299
1060.0	1.72765

Dispersion coefficients	
$\nu_h = \frac{n_h - 1}{n_i - n_g}$	19.1
$\nu_e = \frac{n_e - 1}{n_{F'} - n_{C'}}$	27.32
$\nu_d = \frac{n_d - 1}{n_F - n_C}$	27.53
$\nu_D = \frac{n_D - 1}{n_F - n_C}$	27.52
$\nu_{1529.6} = \frac{n_{1529.6} - 1}{n_{1013.9} - n_{2249.3}}$	36.2

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	0.987	1.003
h - g	0.5285	0.5371
g – F	0.5951	0.6045
g – F'	0.5348	0.5435
F - e	0.4678	0.4755
F - D	0.7086	0.7202
F' - e	0.5282	0.5368
d - D	0.0084	0.0085
D - C	0.2753	0.2798
e – C'	0.4718	0.4796
e - C	0.5160	0.5245
C' - r	0.199	0.202
C - r	0.155	0.157
r – 852.1	0.303	0.308
852.1 – 1013.9	0.204	0.207
1013.9 – 1128.6	0.103	0.105
1128.6 – 1395.1	0.177	0.180
1395.1 – 1529.6	0.073	0.074
1529.6 – 1813.1	0.142	0.144
1813.1 – 1970.1	0.077	0.078
1970.1 – 2249.3	0.140	0.143
2249.3 – 2325.4	0.040	0.040

Internal transmittance		
λ [nm]	τ_i (s=10mm)	τ_i (s=25mm)
280	-	-
300	-	-
320	-	-
340	-	-
360	0.063	-
380	0.444	0.131
400	0.822	0.583
420	0.904	0.777
440	0.956	0.894
460	0.975	0.938
480	0.985	0.963
500	0.990	0.975
520	0.994	0.985
540	0.995	0.987
560	0.996	0.990
580	0.995	0.987
600	0.995	0.987
620	0.993	0.983
640	0.993	0.983
660	0.993	0.983
680	0.994	0.985
700	0.995	0.987
750	0.997	0.993
800	0.997	0.993
900	0.997	0.993
1000	0.997	0.993
1050	0.997	0.993
1100	0.997	0.993
1200	0.997	0.993
1300	0.998	0.995
1400	0.997	0.993
1500	0.995	0.987

Radiation resistant analogue glass type-

TF105