LYTKARINO OPTICAL GLASS FACTORY, JSC

ЛЗОС LZOS

CTK9

glass type

n_e 1.746046	υ_e 50.01	$n_{F'} - n_{C'}$ 0.014918
n_d 1.742530	υ_d 50.24	$n_F - n_C$ 0.014780

Class of bubbles	Viscosity temperature				
	η [Poise]	$10^{14.5}$	10^{13}	10^{10}	10^{8}
2	t [°C]	615	630	670	705

Relative partial dispersion deviations from the 'Normal Line'				
	i – F'	g – F'	F' - e	F' - r
ΔP	-0.0069	-0.0086	-0.0026	+0.0021
Δ υ_e	-7.4	-5.8	-4.5	-2.9
	i – F	g – F	F – e	F – r
ΔP	-0.072	-0.0098	-0.0025	+0.0017
Δ υ_d	-7.2	-5.6	-4.3	-3.1

Stress optical coefficient B [nm·cm^{-1} / kp·cm^{-2}], λ=550nm	Thermal conductivity			
	-50°C	0°C	+20°C	+50°C
2.00	0.59	0.63	0.64	0.64

Optical density increment on irradiation		
Initial density D_0 [cm^{-1}]	Radiation dose [R]	Optical density increment Δ D [cm^{-1}]
0.067	$1 \cdot 10^4$	0.050
	$1 \cdot 10^5$	0.36

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
11820	4553				
Poisson's ratio μ	Density ρ [g · cm^{-3}]	+20 ÷ -60°C	+20 ÷ +120°C	Weather resistance	
0.298	4.11	51	57	Group	A

Refractive indices		
λ [nm]	n	
312.6	-	-
334.1	-	-
365.0	i	1.77938
404.66	h	1.76772
435.83	g	1.760954
479.99	F'	1.753681
486.13	F	1.752833
546.07	e	1.746046
587.56	d	1.742530
589.29	D	1.742400
643.85	C'	1.738763
656.27	C	1.738053
706.52	r	1.73552
768.2	-	1.73299
852.1	-	1.73024
1013.9	-	1.72625
1128.6	-	1.72399
1395.1	-	1.71941
1529.6	-	1.71718
1813.1	-	1.71230
1970.1	-	1.70936
2249.3	-	1.70353
2325.4	-	1.70179

Dispersion coefficients	
$\nu_h = \frac{n_h - 1}{n_i - n_g}$	41.7
$\nu_e = \frac{n_e - 1}{n_{F'} - n_{C'}}$	50.01
$\nu_d = \frac{n_d - 1}{n_F - n_C}$	50.24
$\nu_D = \frac{n_D - 1}{n_F - n_C}$	50.23
$\nu_{1529.6} = \frac{n_{1529.6} - 1}{n_{1013.9} - n_{2249.3}}$	31.6

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	0.782	0.789
h - g	0.4536	0.4578
g – F	0.5444	0.5495
g – F'	0.4876	0.4921
F - e	0.4550	0.4592
F - D	0.6994	0.7059
F' - e	0.5118	0.5166
d - D	0.0087	0.0088
D - C	0.2914	0.2941
e – C'	0.4882	0.4928
e - C	0.5358	0.5408
C' - r	0.217	0.219
C - r	0.170	0.171
r – 852.1	0.354	0.357
852.1 – 1013.9	0.267	0.270
1013.9 – 1128.6	0.152	0.153
1128.6 – 1395.1	0.307	0.310
1395.1 – 1529.6	0.149	0.150
1529.6 – 1813.1	0.328	0.331
1813.1 – 1970.1	0.197	0.199
1970.1 – 2249.3	0.391	0.394
2249.3 – 2325.4	0.117	0.118

Internal transmittance		
λ [nm]	τ_i (s=10mm)	τ_i (s=25mm)
280	-	-
300	-	-
320	0.043	-
340	0.218	0.022
360	0.561	0.236
380	0.797	0.566
400	0.911	0.792
420	0.953	0.887
440	0.968	0.922
460	0.977	0.944
480	0.983	0.958
500	0.989	0.972
520	0.994	0.985
540	0.994	0.985
560	0.992	0.980
580	0.992	0.980
600	0.992	0.980
620	0.993	0.983
640	0.993	0.983
660	0.993	0.983
680	0.992	0.980
700	0.993	0.983
750	0.993	0.983
800	0.996	0.990
900	0.996	0.990
1000	0.995	0.987
1050	0.995	0.987
1100	0.995	0.987
1200	0.995	0.987
1300	0.993	0.983
1400	0.991	0.978
1500	0.996	0.990

Refractive indices at laser wavelengths	
λ [nm]	n
350.7	-
356.4	-
488.0	1.75258
514.0	1.74937
520.8	1.74862
530.0	1.74764
568.2	1.74407
632.8	1.73943
647.1	1.73857
694.3	1.73609
890.0	1.72919
1060.0	1.72531

Radiation resistant analogue glass type-

CTK109