LYTKARINO OPTICAL GLASS FACTORY, JSC

ЛЗОС LZOS

LF9
glass type

n_e 1.583742	υ_e 37.72	$n_{F'} - n_{C'}$ 0.015471
n_d 1.580134	υ_d 38.01	$n_F - n_C$ 0.015260

Class of bubbles	Viscosity temperature				
	η [Poise]	$10^{14.5}$	10^{13}	10^{10}	10^{8}
2	t [°C]	445	480	565	625

Relative partial dispersion deviations from the 'Normal Line'				
	i – F'	**g – F'**	**F' - e**	**F' - r**
ΔP	+0.068	+0.0048	+0.0009	-0.0001
Δ υ_e	+7.3	+3.2	+1.7	+0.2
	i – F	**g – F**	**F - e**	**F – r**
ΔP	+0.0071	+0.0055	+0.0009	+0.0001
Δ υ_d	+7.1	+3.1	+1.5	-0.2

Stress optical coefficient B [nm·cm^{-1} / kp·cm^{-2}], λ=550nm	Thermal conductivity			
	-50°C	0°C	+20°C	+50°C
3.20	0.85	0.89	0.90	0.91

Optical density increment on irradiation		
Initial density D_0 [cm^{-1}]	**Radiation dose [R]**	**Optical density increment Δ D [cm^{-1}]**
0.048	$1 \cdot 10^4$	0.020
	$1 \cdot 10^5$	0.10

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
6980	2769				
Poisson's ratio μ	**Density ρ [g · cm^{-3}]**	+20 ÷ -60°C	+20 ÷ +120°C	**Weather resistance**	
0.244	2.61	81	89	**Group**	A

Refractive indices		
λ [nm]	n	
312.6	-	-
334.1	-	-
365.0	i	1.62237
404.66	h	1.60773
435.83	g	1.599855
479.99	F'	1.591823
486.13	F	1.590908
546.07	e	1.583742
587.56	d	1.580134
589.29	D	1.580000
643.85	C'	1.576352
656.27	C	1.575648
706.52	r	1.57316
768.2	-	1.57072
852.1	-	1.56813
1013.9	-	1.56448
1128.6	-	1.56249
1395.1	-	1.55866
1529.6	-	1.55688
1813.1	-	1.55311
1970.1	-	1.55091
2249.3	-	1.54667
2325.4	-	1.54542

Dispersion coefficients	
$\nu_h = \frac{n_h - 1}{n_i - n_g}$	27.0
$\nu_e = \frac{n_e - 1}{n_{F'} - n_{C'}}$	37.73
$\nu_d = \frac{n_d - 1}{n_F - n_C}$	38.02
$\nu_D = \frac{n_D - 1}{n_F - n_C}$	38.01
$\nu_{1529.6} = \frac{n_{1529.6} - 1}{n_{1013.9} - n_{2249.3}}$	31.3

Internal transmittance		
λ [nm]	**τ_i (s=10mm)**	**τ_i (s=25mm)**
280	-	-
300	-	-
320	-	-
340	-	-
360	-	-
380	0.885	0.736
400	0.930	0.834
420	0.961	0.905
440	0.970	0.927
460	0.981	0.953
480	0.984	0.960
500	0.988	0.971
520	0.991	0.978
540	0.992	0.980
560	0.993	0.983
580	0.994	0.985
600	0.993	0.983
620	0.992	0.980
640	0.992	0.980
660	0.992	0.980
680	0.993	0.983
700	0.994	0.985
750	0.997	0.993
800	0.999	0.998
900	0.999	0.998
1000	0.999	0.998
1050	0.999	0.998
1100	0.999	0.998
1200	-	-
1300	-	-
1400	-	-
1500	-	-

Refractive indices at laser wavelengths	
λ [nm]	**n**
350.7	-
356.4	-
488.0	1.59064
514.0	1.58722
520.8	1.58642
530.0	1.58540
568.2	1.58171
632.8	1.57701
647.1	1.57616
694.3	1.57372
890.0	1.56715
1060.0	1.56364

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	0.946	0.959
h - g	0.5090	0.5161
g – F	0.5783	0.5863
g – F'	0.5192	0.5263
F - e	0.4632	0.4696
F - D	0.7051	0.7148
F' - e	0.5223	0.5296
d - D	0.0087	0.0088
D - C	0.2813	0.2852
e – C'	0.4777	0.4843
e - C	0.5232	0.5304
C' - r	0.206	0.209
C - r	0.161	0.163
r – 852.1	0.326	0.330
852.1 – 1013.9	0.236	0.239
1013.9 – 1128.6	0.129	0.131
1128.6 – 1395.1	0.248	0.251
1395.1 – 1529.6	0.115	0.116
1529.6 – 1813.1	0.244	0.247
1813.1 – 1970.1	0.142	0.144
1970.1 – 2249.3	0.274	0.278
2249.3 – 2325.4	0.080	0.081

Radiation resistant analogue glass type-