*LYTKARINO OPTICAL GLASS FACTORY, JSC*

**ЛЗОС LZOS**

# BF16
glass type

| | | |
|---|---|---|
| $n_e$ 1.674385 | $\upsilon_e$ 46.99 | $n_{F'} - n_{C'}$ 0.014351 |
| $n_d$ 1.671025 | $\upsilon_d$ 47.29 | $n_F - n_C$ 0.014190 |

| Class of bubbles | Viscosity temperature | | | | |
|---|---|---|---|---|---|
| | η [Poise] | $10^{14.5}$ | $10^{13}$ | $10^{10}$ | $10^{8}$ |
| 1 | t [°C ] | - | 605 | 625 | - |

| Relative partial dispersion deviations from the 'Normal Line' | | | | |
|---|---|---|---|---|
| | i – F' | g – F' | F' - e | F' - r |
| ΔP | -0.015 | -0.0015 | +0.0013 | -0.0014 |
| Δ $\upsilon_e$ | -1.6 | -1.0 | +2.2 | +1.9 |
| | i – F | g – F | F - e | F – r |
| ΔP | -0.014 | -0.0012 | +0.0015 | -0.0009 |
| Δ $\upsilon_d$ | -1.4 | -0.7 | +2.5 | +1.7 |

| Stress optical coefficient B [nm·cm$^{-1}$ / kp·cm$^{-2}$], λ=550nm | Thermal conductivity | | | |
|---|---|---|---|---|
| | -50°C | 0°C | +20°C | +50°C |
| 1.65 | 0.53 | 0.56 | 0.57 | 0.58 |

| 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 | III |
| 8050 | 3130 | | | | |
| Poisson's ratio μ | Density ρ [g · cm$^{-3}$] | +20 ÷ -60°C | +20 ÷ +120°C | Weather resistance | |
| 0.286 | 4.02 | 78 | 84 | Group | A |

| Refractive indices | | |
|---|---|---|
| λ [nm] | n | |
| 312.6 | - | - |
| 334.1 | - | - |
| 365.0 | i | 1.70771 |
| 404.66 | h | 1.69576 |
| 435.83 | g | 1.688973 |
| 479.99 | F' | 1.681810 |
| 486.13 | F | 1.680981 |
| 546.07 | e | 1.674385 |
| 587.56 | d | 1.671025 |
| 589.29 | D | 1.670900 |
| 643.85 | C' | 1.667459 |
| 656.27 | C | 1.666791 |
| 706.52 | r | 1.66442 |
| 768.2 | - | 1.66209 |
| 852.1 | - | 1.65959 |
| 1013.9 | - | 1.65608 |
| 1128.6 | - | 1.65417 |
| 1395.1 | - | 1.65053 |
| 1529.6 | - | 1.64887 |
| 1813.1 | - | 1.64542 |
| 1970.1 | - | 1.64345 |
| 2249.3 | - | 1.63973 |
| 2325.4 | - | 1.63866 |

| Refractive indices at laser wavelengths | |
|---|---|
| λ [ nm ] | n |
| 350.7 | - |
| 356.4 | - |
| 488.0 | 1.68073 |
| 514.0 | 1.67761 |
| 520.8 | 1.67688 |
| 530.0 | 1.67593 |
| 568.2 | 1.67250 |
| 632.8 | 1.66809 |
| 647.1 | 1.66728 |
| 694.3 | 1.66496 |
| 890.0 | 1.65864 |
| 1060.0 | 1.65527 |

| Dispersion coefficients | |
|---|---|
| $\nu_h = \frac{n_h - 1}{n_i - n_g}$ | 37.1 |
| $\nu_e = \frac{n_e - 1}{n_{F'} - n_{C'}}$ | 46.99 |
| $\nu_d = \frac{n_d - 1}{n_F - n_C}$ | 47.29 |
| $\nu_D = \frac{n_D - 1}{n_F - n_C}$ | 47.28 |
| $\nu_{1529.6} = \frac{n_{1529.6} - 1}{n_{1013.9} - n_{2249.3}}$ | 39.7 |

| 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 | 0.833 | 0.842 |
| h - g | 0.4730 | 0.4783 |
| g – F | 0.5569 | 0.5632 |
| g – F' | 0.4992 | 0.5048 |
| F - e | 0.4596 | 0.4648 |
| F - D | 0.7025 | 0.7104 |
| F' - e | 0.5174 | 0.5232 |
| d - D | 0.0087 | 0.0088 |
| D - C | 0.2863 | 0.2896 |
| e – C' | 0.4826 | 0.4881 |
| e - C | 0.5292 | 0.5352 |
| C' - r | 0.212 | 0.214 |
| C - r | 0.165 | 0.167 |
| r – 852.1 | 0.337 | 0.341 |
| 852.1 – 1013.9 | 0.245 | 0.247 |
| 1013.9 – 1128.6 | 0.133 | 0.135 |
| 1128.6 – 1395.1 | 0.253 | 0.256 |
| 1395.1 – 1529.6 | 0.116 | 0.117 |
| 1529.6 – 1813.1 | 0.241 | 0.243 |
| 1813.1 – 1970.1 | 0.137 | 0.139 |
| 1970.1 – 2249.3 | 0.259 | 0.262 |
| 2249.3 – 2325.4 | 0.074 | 0.075 |

| Internal transmittance | | |
|---|---|---|
| λ [nm] | $\tau_i$ (s=10mm) | $\tau_i$ (s=25mm) |
| 280 | - | - |
| 300 | - | - |
| 320 | - | - |
| 340 | 0.047 | - |
| 360 | 0.490 | 0.168 |
| 380 | 0.831 | 0.629 |
| 400 | 0.915 | 0.801 |
| 420 | 0.957 | 0.896 |
| 440 | 0.972 | 0.932 |
| 460 | 0.981 | 0.953 |
| 480 | 0.988 | 0.971 |
| 500 | 0.992 | 0.980 |
| 520 | 0.995 | 0.987 |
| 540 | 0.996 | 0.990 |
| 560 | 0.996 | 0.990 |
| 580 | 0.996 | 0.990 |
| 600 | 0.996 | 0.990 |
| 620 | 0.995 | 0.987 |
| 640 | 0.995 | 0.987 |
| 660 | 0.995 | 0.987 |
| 680 | 0.996 | 0.990 |
| 700 | 0.996 | 0.990 |
| 750 | 0.995 | 0.987 |
| 800 | 0.995 | 0.987 |
| 900 | 0.993 | 0.983 |
| 1000 | 0.993 | 0.983 |
| 1050 | 0.993 | 0.983 |
| 1100 | 0.993 | 0.983 |
| 1200 | 0.994 | 0.985 |
| 1300 | 0.994 | 0.985 |
| 1400 | 0.994 | 0.985 |
| 1500 | 0.993 | 0.983 |

**Radiation resistant analogue glass type-**

**BF116**