

## N-KZFS11 638424.320

|                 |               |                              |
|-----------------|---------------|------------------------------|
| $n_d = 1.63775$ | $v_d = 42.41$ | $n_F - n_C = 0.015038$       |
| $n_e = 1.64132$ | $v_e = 42.20$ | $n_{F'} - n_{C'} = 0.015198$ |

| Refractive Indices |                |         |
|--------------------|----------------|---------|
|                    | $\lambda$ [nm] |         |
| $n_{2325.4}$       | 2325.4         | 1.59699 |
| $n_{1970.1}$       | 1970.1         | 1.60439 |
| $n_{1529.6}$       | 1529.6         | 1.61223 |
| $n_{1060.0}$       | 1060.0         | 1.62044 |
| $n_t$              | 1014.0         | 1.62139 |
| $n_s$              | 852.1          | 1.62540 |
| $n_r$              | 706.5          | 1.63069 |
| $n_C$              | 656.3          | 1.63324 |
| $n_{C'}$           | 643.8          | 1.63395 |
| $n_{632.8}$        | 632.8          | 1.63462 |
| $n_D$              | 589.3          | 1.63762 |
| $n_d$              | 587.6          | 1.63775 |
| $n_e$              | 546.1          | 1.64132 |
| $n_F$              | 486.1          | 1.64828 |
| $n_{F'}$           | 480.0          | 1.64915 |
| $n_g$              | 435.8          | 1.65670 |
| $n_h$              | 404.7          | 1.66385 |
| $n_i$              | 365.0          | 1.67636 |
| $n_{334.1}$        | 334.1          | 1.69037 |
| $n_{312.6}$        | 312.6          |         |
| $n_{296.7}$        | 296.7          |         |
| $n_{280.4}$        | 280.4          |         |
| $n_{248.3}$        | 248.3          |         |

| Internal Transmittance $\tau_i$ |                 |                 |
|---------------------------------|-----------------|-----------------|
| $\lambda$ [nm]                  | $\tau_i$ (10mm) | $\tau_i$ (25mm) |
| 2500                            | 0.507           | 0.183           |
| 2325                            | 0.779           | 0.535           |
| 1970                            | 0.965           | 0.914           |
| 1530                            | 0.991           | 0.977           |
| 1060                            | 0.999           | 0.999           |
| 700                             | 0.998           | 0.994           |
| 660                             | 0.997           | 0.992           |
| 620                             | 0.997           | 0.992           |
| 580                             | 0.997           | 0.992           |
| 546                             | 0.997           | 0.993           |
| 500                             | 0.996           | 0.989           |
| 460                             | 0.993           | 0.982           |
| 436                             | 0.991           | 0.978           |
| 420                             | 0.990           | 0.975           |
| 405                             | 0.988           | 0.971           |
| 400                             | 0.987           | 0.968           |
| 390                             | 0.983           | 0.957           |
| 380                             | 0.976           | 0.940           |
| 370                             | 0.963           | 0.910           |
| 365                             | 0.950           | 0.880           |
| 350                             | 0.882           | 0.730           |
| 334                             | 0.727           | 0.450           |
| 320                             | 0.468           | 0.150           |
| 310                             | 0.230           | 0.020           |
| 300                             | 0.048           |                 |
| 290                             |                 |                 |
| 280                             |                 |                 |
| 270                             |                 |                 |
| 260                             |                 |                 |
| 250                             |                 |                 |

| Relative Partial Dispersion |        |
|-----------------------------|--------|
| $P_{s,t}$                   | 0.2664 |
| $P_{C,s}$                   | 0.5212 |
| $P_{d,C}$                   | 0.3000 |
| $P_{e,d}$                   | 0.2377 |
| $P_{g,F}$                   | 0.5605 |
| $P_{i,h}$                   | 0.8319 |
| $P'_{s,t}$                  | 0.2636 |
| $P'_{C',s}$                 | 0.5627 |
| $P'_{d,C'}$                 | 0.2499 |
| $P'_{e,d}$                  | 0.2352 |
| $P'_{g,F'}$                 | 0.4971 |
| $P'_{i,h}$                  | 0.8232 |

### Deviation of Relative Partial Dispersions $\Delta P$ from the "Normal Line"

|                  |         |
|------------------|---------|
| $\Delta P_{C,t}$ | 0.0415  |
| $\Delta P_{C,s}$ | 0.0194  |
| $\Delta P_{F,e}$ | -0.0039 |
| $\Delta P_{g,F}$ | -0.0120 |
| $\Delta P_{i,g}$ | -0.0617 |

| Constants of Dispersion Formula |              |
|---------------------------------|--------------|
| $B_1$                           | 1.3322245    |
| $B_2$                           | 0.28924161   |
| $B_3$                           | 1.15161734   |
| $C_1$                           | 0.0084029848 |
| $C_2$                           | 0.034423972  |
| $C_3$                           | 88.4310532   |

| Constants of Dispersion $dn/dT$ |                        |
|---------------------------------|------------------------|
| $D_0$                           | $3.34 \cdot 10^{-6}$   |
| $D_1$                           | $1.16 \cdot 10^{-8}$   |
| $D_2$                           | $-1.80 \cdot 10^{-11}$ |
| $E_0$                           | $6.32 \cdot 10^{-7}$   |
| $E_1$                           | $7.21 \cdot 10^{-10}$  |
| $\lambda_{TK} [\mu m]$          | 0.206                  |

| Color Code                      |       |
|---------------------------------|-------|
| $\lambda_{80}/\lambda_5$        | 36/30 |
| (* = $\lambda_{70}/\lambda_5$ ) |       |

| Remarks  |
|--|
| suitable for precision molding, step 0.5 available |

| Other Properties                        |       |
|---|-------|
| $\alpha_{-30/+70^\circ C} [10^{-6}/K]$  | 6.6   |
| $\alpha_{+20/+300^\circ C} [10^{-6}/K]$ | 7.6   |
| $T_g [^\circ C]$                        | 551   |
| $T_{10}^{13.0} [^\circ C]$              | 554   |
| $T_{10}^{7.6} [^\circ C]$               | 0     |
| $c_p [J/(g \cdot K)]$                   | 0.690 |
| $\lambda [W/(m \cdot K)]$               | 0.810 |
| $\rho [g/cm^3]$                         | 3.20  |
| $E [10^3 N/mm^2]$                       | 79    |
| $\mu$                                   | 0.251 |
| $K [10^{-6} mm^2/N]$                    | 4.21  |
| $HK_{0.1/20}$                           | 530   |
| <b>HG</b>                               | 3     |
| <b>Abrasion Aa</b>                      | 74    |
| <b>CR</b>                               | 1     |
| <b>FR</b>                               | 1     |
| <b>SR</b>                               | 3.4   |
| <b>AR</b>                               | 1     |
| <b>PR</b>                               | 1     |

| Temperature Coefficients of Refractive Index |                                       |     |     |                                       |     |     |
|--|---------------------------------------|-----|-----|---------------------------------------|-----|-----|
| [ $^\circ C$ ]                               | $\Delta n_{rel}/\Delta T [10^{-6}/K]$ |     |     | $\Delta n_{abs}/\Delta T [10^{-6}/K]$ |     |     |
|  | 1060.0                                | e   | g   | 1060.0                                | e   | g   |
| -40/ -20                                     | 3.5                                   | 4.4 | 5.4 | 1.3                                   | 2.2 | 3.1 |
| +20/ +40                                     | 3.5                                   | 4.6 | 5.7 | 2.1                                   | 3.1 | 4.2 |
| +60/ +80                                     | 3.6                                   | 4.8 | 6.0 | 2.5                                   | 3.7 | 4.8 |