

**SF1**  
**717295.446**

|                 |               |                              |
|-----------------|---------------|------------------------------|
| $n_d = 1.71736$ | $v_d = 29.51$ | $n_F - n_C = 0.024307$       |
| $n_e = 1.72310$ | $v_e = 29.29$ | $n_{F'} - n_{C'} = 0.024687$ |

| Refractive Indices |                |         |
|--------------------|----------------|---------|
|                    | $\lambda$ [nm] |         |
| $n_{2325.4}$       | 2325.4         | 1.67352 |
| $n_{1970.1}$       | 1970.1         | 1.67855 |
| $n_{1529.6}$       | 1529.6         | 1.68449 |
| $n_{1060.0}$       | 1060.0         | 1.69258 |
| $n_t$              | 1014.0         | 1.69371 |
| $n_s$              | 852.1          | 1.69888 |
| $n_r$              | 706.5          | 1.70647 |
| $n_C$              | 656.3          | 1.71031 |
| $n_{C'}$           | 643.8          | 1.71141 |
| $n_{632.8}$        | 632.8          | 1.71245 |
| $n_D$              | 589.3          | 1.71715 |
| $n_d$              | 587.6          | 1.71736 |
| $n_e$              | 546.1          | 1.72310 |
| $n_F$              | 486.1          | 1.73462 |
| $n_{F'}$           | 480.0          | 1.73610 |
| $n_g$              | 435.8          | 1.74916 |
| $n_h$              | 404.7          | 1.76201 |
| $n_i$              | 365.0          | 1.78580 |
| $n_{334.1}$        | 334.1          |         |
| $n_{312.6}$        | 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                            | 0.842           | 0.650           |
| 2325                            | 0.882           | 0.730           |
| 1970                            | 0.959           | 0.900           |
| 1530                            | 0.994           | 0.985           |
| 1060                            | 0.998           | 0.996           |
| 700                             | 0.998           | 0.996           |
| 660                             | 0.998           | 0.995           |
| 620                             | 0.998           | 0.995           |
| 580                             | 0.998           | 0.996           |
| 546                             | 0.998           | 0.996           |
| 500                             | 0.997           | 0.993           |
| 460                             | 0.994           | 0.984           |
| 436                             | 0.990           | 0.976           |
| 420                             | 0.984           | 0.961           |
| 405                             | 0.971           | 0.930           |
| 400                             | 0.967           | 0.920           |
| 390                             | 0.946           | 0.870           |
| 380                             | 0.910           | 0.790           |
| 370                             | 0.837           | 0.640           |
| 365                             | 0.758           | 0.500           |
| 350                             | 0.300           | 0.030           |
| 334                             |                 |                 |
| 320                             |                 |                 |
| 310                             |                 |                 |
| 300                             |                 |                 |
| 290                             |                 |                 |
| 280                             |                 |                 |
| 270                             |                 |                 |
| 260                             |                 |                 |
| 250                             |                 |                 |

| Relative Partial Dispersion |        |
|-----------------------------|--------|
| $P_{s,t}$                   | 0.2127 |
| $P_{C,s}$                   | 0.4705 |
| $P_{d,C}$                   | 0.2899 |
| $P_{e,d}$                   | 0.2364 |
| $P_{g,F}$                   | 0.5983 |
| $P_{i,h}$                   | 0.9791 |
|                             |        |
| $P'_{s,t}$                  | 0.2094 |
| $P'_{C',s}$                 | 0.5078 |
| $P'_{d,C'}$                 | 0.2409 |
| $P'_{e,d}$                  | 0.2327 |
| $P'_{g,F'}$                 | 0.5292 |
| $P'_{i,h}$                  | 0.9640 |

| Deviation of Relative Partial Dispersions $\Delta P$ from the "Normal Line" |         |
|---|---------|
| $\Delta P_{C,t}$  | -0.0018 |
| $\Delta P_{C,s}$  | -0.0012 |
| $\Delta P_{F,e}$  | 0.0009  |
| $\Delta P_{g,F}$  | 0.0042  |
| $\Delta P_{i,g}$  | 0.0307  |

| Constants of Dispersion Formula |              |
|---------------------------------|--------------|
| $B_1$                           | 1.55912923   |
| $B_2$                           | 0.284246288  |
| $B_3$                           | 0.968842926  |
| $C_1$                           | 0.0121481001 |
| $C_2$                           | 0.0534549042 |
| $C_3$                           | 112.174809   |

| Constants of Dispersion $dn/dT$ |                        |
|---------------------------------|------------------------|
| $D_0$                           | $4.84 \cdot 10^{-6}$   |
| $D_1$                           | $1.70 \cdot 10^{-8}$   |
| $D_2$                           | $-4.52 \cdot 10^{-11}$ |
| $E_0$                           | $1.38 \cdot 10^{-6}$   |
| $E_1$                           | $1.26 \cdot 10^{-9}$   |
| $\lambda_{TK} [\mu m]$          | 0.259                  |

| Color Code                     |       |
|--------------------------------|-------|
| $\lambda_{80}/\lambda_5$       | 39/34 |
| (*= $\lambda_{70}/\lambda_5$ ) |       |

| Remarks                    |  |
|----------------------------|--|
| lead containing glass type |  |

| Other Properties                        |       |
|---|-------|
| $\alpha_{-30/+70^\circ C} [10^{-6}/K]$  | 8.1   |
| $\alpha_{+20/+300^\circ C} [10^{-6}/K]$ | 8.8   |
| $T_g [^\circ C]$                        | 417   |
| $T_{10}^{13.0} [^\circ C]$              | 415   |
| $T_{10}^{7.6} [^\circ C]$               | 566   |
| $c_p [J/(g \cdot K)]$                   | 0.430 |
| $\lambda [W/(m \cdot K)]$               | 0.660 |
|   |       |
| $\rho [g/cm^3]$                         | 4.46  |
| $E [10^3 N/mm^2]$                       | 56    |
| $\mu$                                   | 0.232 |
| $K [10^{-6} mm^2/N]$                    | 1.80  |
| $HK_{0.1/20}$                           | 390   |
| <b>HG</b>                               | 1     |
|   |       |
|   |       |
|   |       |
| <b>CR</b>                               | 2     |
| <b>FR</b>                               | 1     |
| <b>SR</b>                               | 3.2   |
| <b>AR</b>                               | 2.3   |
| <b>PR</b>                               | 3     |

| 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                                     | 4.5                                   | 7.0 | 10.1 | 2.2                                   | 4.7 | 7.7  |
| +20/ +40                                     | 5.0                                   | 7.9 | 11.3 | 3.6                                   | 6.4 | 9.8  |
| +60/ +80                                     | 5.3                                   | 8.4 | 12.1 | 4.2                                   | 7.3 | 10.9 |