

|                  |       |                            |             |         |              |            |                |                 |
|------------------|-------|----------------------------|-------------|---------|--------------|------------|----------------|-----------------|
| Refractive Index | $n_d$ | <b>1,77250</b><br>1,772499 | Abbe Number | $\nu_d$ | <b>49,60</b> | Dispersion | $n_F - n_C$    | <b>0,015576</b> |
| Refractive Index | $n_e$ | 1,776208                   | Abbe Number | $\nu_e$ | 49,36        | Dispersion | $n_F - n_{C'}$ | 0,015727        |

| Refractive Indices |          |         |
|--------------------|----------|---------|
| $\lambda(\mu m)$   |          |         |
| $n_{2325}$         | 2.32542  | 1,73031 |
| $n_{1970}$         | 1.97009  | 1,73786 |
| $n_{1530}$         | 1.52958  | 1,74590 |
| $n_{1129}$         | 1.12864  | 1,75303 |
| $n_t$              | 1.01398  | 1,75541 |
| $n_s$              | 0.85211  | 1,75960 |
| $n_{A'}$           | 0.76819  | 1,76248 |
| $n_r$              | 0.70652  | 1,76514 |
| $n_C$              | 0.65627  | 1,76780 |
| $n_{C'}$           | 0.64385  | 1,76854 |
| $n_{He-Ne}$        | 0.6328   | 1,76924 |
| $n_D$              | 0.58929  | 1,77236 |
| $n_d$              | 0.58756  | 1,77250 |
| $n_e$              | 0.54607  | 1,77621 |
| $n_F$              | 0.48613  | 1,78337 |
| $n_{F'}$           | 0.47999  | 1,78427 |
| $n_{He-Cd}$        | 0.44157  | 1,79083 |
| $n_g$              | 0.435835 | 1,79197 |
| $n_h$              | 0.404656 | 1,79917 |
| $n_i$              | 0.365015 | 1,81158 |

| Constants of Dispersion Formula |                |
|---------------------------------|----------------|
| A <sub>1</sub>                  | 1,39280586E+00 |
| A <sub>2</sub>                  | 6,79577094E-01 |
| A <sub>3</sub>                  | 1,38702069E+00 |
| B <sub>1</sub>                  | 6,08475118E-03 |
| B <sub>2</sub>                  | 2,33925351E-02 |
| B <sub>3</sub>                  | 9,58354094E+01 |

| Chemical Properties                   |      |
|---------------------------------------|------|
| Water Resistance (Powder) Group RW(P) | 1    |
| Acid Resistance (Powder) Group RA(P)  | 3    |
| Weathering Resistance (Surface) Group | 1    |
| Acid Resistance (Surface) Group SR    | 51.2 |
| Phosphate Resistance PR               | 1.0  |

| Mechanical Properties                                    |         |
|----------------------------------------------------------|---------|
| Young's Modulus E (10 <sup>9</sup> N/m <sup>2</sup> )    | 121,9   |
| Rigidity Modulus G (10 <sup>9</sup> N/m <sup>2</sup> )   | 47,2    |
| Poisson's Ratio $\sigma$                                 | 0,291   |
| Knoop Hardness Hk [Class]                                | 700   7 |
| Abrasion Aa                                              | 61      |
| Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa) | 1,43    |

| Partial Dispersions |          |
|---------------------|----------|
| $n_C - n_t$         | 0,012391 |
| $n_C - n_{A'}$      | 0,005314 |
| $n_d - n_C$         | 0,004701 |
| $n_e - n_C$         | 0,008410 |
| $n_g - n_d$         | 0,019473 |
| $n_g - n_F$         | 0,008598 |
| $n_h - n_g$         | 0,007202 |
| $n_i - n_g$         | 0,019610 |
| $n_{C'} - n_t$      | 0,013137 |
| $n_e - n_{C'}$      | 0,007664 |
| $n_F - n_e$         | 0,008063 |
| $n_i - n_F$         | 0,027311 |

| Relative Partial Dispersion |        |
|-----------------------------|--------|
| $\theta_{C,t}$              | 0,7955 |
| $\theta_{C,A'}$             | 0,3412 |
| $\theta_{d,C}$              | 0,3018 |
| $\theta_{e,C}$              | 0,5399 |
| $\theta_{g,d}$              | 1,2502 |
| $\theta_{g,F}$              | 0,5520 |
| $\theta_{h,g}$              | 0,4624 |
| $\theta_{i,g}$              | 1,2590 |
| $\theta'_{C,t}$             | 0,8353 |
| $\theta'_{e,C'}$            | 0,4873 |
| $\theta'_{F,e}$             | 0,5127 |
| $\theta'_{i,F'}$            | 1,7366 |

| Deviation of Relative Dispersions |         |
|-----------------------------------|---------|
| $\Delta \theta_{C,t}$             | 0,0161  |
| $\Delta \theta_{C,A'}$            | 0,0052  |
| $\Delta \theta_{g,d}$             | -0,0115 |
| $\Delta \theta_{g,F}$             | -0,0092 |
| $\Delta \theta_{i,g}$             | -0,0507 |

| Thermal Properties                            |       |
|-----------------------------------------------|-------|
| Strain Point STP (°C)                         | 641   |
| Annealing Point AP (°C)                       | 660   |
| Transformation Temperature Tg (°C)            | 686   |
| Yield Point At (°C)                           | 706   |
| Softening Point SP (°C)                       | 726   |
| Expansion Coefficients (-30~+70°C)            | 62    |
| $\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C) | 74    |
| Thermal Conductivity k (W/m·K)                | 0,845 |

| Temperature Coefficients of Refractive Index |                                         |     |       |     |     |     |     |
|----------------------------------------------|-----------------------------------------|-----|-------|-----|-----|-----|-----|
| Range of Temperature (°C)                    | $dn/dT$ relative (10 <sup>-6</sup> /°C) |     |       |     |     |     |     |
|                                              | t                                       | C'  | He-Ne | D   | e   | F'  | g   |
| -40~-20                                      | 3,4                                     | 3,8 | 3,8   | 4,0 | 4,2 | 4,7 | 5,1 |
| -20~0                                        | 3,5                                     | 3,9 | 4,0   | 4,2 | 4,4 | 4,8 | 5,3 |
| 0~20                                         | 3,6                                     | 4,1 | 4,1   | 4,3 | 4,5 | 5,0 | 5,5 |
| 20~40                                        | 3,7                                     | 4,2 | 4,3   | 4,5 | 4,7 | 5,2 | 5,7 |
| 40~60                                        | 3,8                                     | 4,4 | 4,4   | 4,7 | 4,9 | 5,4 | 5,9 |
| 60~80                                        | 3,9                                     | 4,5 | 4,6   | 4,8 | 5,0 | 5,6 | 6,1 |

| Coloring       |     |             |     |
|----------------|-----|-------------|-----|
| $\lambda_{80}$ | 370 | $\lambda_5$ | 305 |
| $\lambda_{70}$ |     |             |     |

| Internal Transmittance |     |                  |     |
|------------------------|-----|------------------|-----|
| $\lambda_{0.80}$       | 349 | $\lambda_{0.05}$ | 308 |

| CCI  |      |      |
|------|------|------|
| B    | G    | R    |
| 0,00 | 0,44 | 0,42 |

| Internal Transmittance |             |
|------------------------|-------------|
| $\lambda(nm)$          | $\tau$ 10mm |
| 280                    |             |
| 290                    |             |
| 300                    |             |
| 310                    | 0,10        |
| 320                    | 0,33        |
| 330                    | 0,55        |
| 340                    | 0,71        |
| 350                    | 0,81        |
| 360                    | 0,88        |
| 370                    | 0,930       |
| 380                    | 0,956       |
| 390                    | 0,971       |
| 400                    | 0,979       |
| 420                    | 0,987       |
| 440                    | 0,991       |
| 460                    | 0,994       |
| 480                    | 0,996       |
| 500                    | 0,997       |
| 550                    | 0,999       |
| 600                    | 0,998       |
| 650                    | 0,998       |
| 700                    | 0,999       |
| 800                    | 0,998       |
| 900                    | 0,998       |
| 1000                   | 0,998       |
| 1200                   | 0,997       |
| 1400                   | 0,993       |
| 1600                   | 0,993       |
| 1800                   | 0,983       |
| 2000                   | 0,958       |
| 2200                   | 0,88        |
| 2400                   | 0,64        |

| Other Properties |      |
|------------------|------|
| Density d        | 4,23 |