

|                  |       |                     |             |         |       |            |                |          |
|------------------|-------|---------------------|-------------|---------|-------|------------|----------------|----------|
| Refractive Index | $n_d$ | 1,72151<br>1,721507 | Abbe Number | $\nu_d$ | 29,23 | Dispersion | $n_F - n_C$    | 0,024683 |
| Refractive Index | $n_e$ | 1,727331            | Abbe Number | $\nu_e$ | 29,00 | Dispersion | $n_F - n_{C'}$ | 0,025081 |

| Refractive Indices |          |         |
|--------------------|----------|---------|
| $\lambda(\mu m)$   |          |         |
| $n_{2325}$         | 2.32542  | 1,67384 |
| $n_{1970}$         | 1.97009  | 1,68002 |
| $n_{1530}$         | 1.52958  | 1,68715 |
| $n_{1129}$         | 1.12864  | 1,69453 |
| $n_t$              | 1.01398  | 1,69734 |
| $n_s$              | 0.85211  | 1,70272 |
| $n_{A'}$           | 0.76819  | 1,70668 |
| $n_r$              | 0.70652  | 1,71047 |
| $n_C$              | 0.65627  | 1,71437 |
| $n_{C'}$           | 0.64385  | 1,71548 |
| $n_{He-Ne}$        | 0.6328   | 1,71653 |
| $n_D$              | 0.58929  | 1,72129 |
| $n_d$              | 0.58756  | 1,72151 |
| $n_e$              | 0.54607  | 1,72733 |
| $n_F$              | 0.48613  | 1,73905 |
| $n_{F'}$           | 0.47999  | 1,74057 |
| $n_{He-Cd}$        | 0.44157  | 1,75195 |
| $n_g$              | 0.435835 | 1,75399 |
| $n_h$              | 0.404656 | 1,76735 |
| $n_i$              | 0.365015 |         |

| Constants of Dispersion Formula |                |
|---------------------------------|----------------|
| A <sub>1</sub>                  | 1,59921608E+00 |
| A <sub>2</sub>                  | 2,59532164E-01 |
| A <sub>3</sub>                  | 2,12454543E+00 |
| B <sub>1</sub>                  | 1,16469304E-02 |
| B <sub>2</sub>                  | 5,84824883E-02 |
| B <sub>3</sub>                  | 1,86927779E+02 |

| Chemical Properties                   |     |
|---------------------------------------|-----|
| Water Resistance (Powder) Group RW(P) | 1   |
| Acid Resistance (Powder) Group RA(P)  | 1   |
| Weathering Resistance (Surface) Group | 1~2 |
| Acid Resistance (Surface) Group SR    | 1.0 |
| Phosphate Resistance PR               | 1.0 |

| Mechanical Properties                                    |         |
|----------------------------------------------------------|---------|
| Young's Modulus E (10 <sup>9</sup> N/m <sup>2</sup> )    | 89,1    |
| Rigidity Modulus G (10 <sup>9</sup> N/m <sup>2</sup> )   | 35,7    |
| Poisson's Ratio $\sigma$                                 | 0,248   |
| Knoop Hardness Hk [Class]                                | 560   6 |
| Abrasion Aa                                              | 160     |
| Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa) | 2,87    |

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

| Partial Dispersions |          |
|---------------------|----------|
| $n_C - n_t$         | 0,017028 |
| $n_C - n_{A'}$      | 0,007687 |
| $n_d - n_C$         | 0,007136 |
| $n_e - n_C$         | 0,012960 |
| $n_g - n_d$         | 0,032488 |
| $n_g - n_F$         | 0,014941 |
| $n_h - n_g$         | 0,013358 |
| $n_i - n_g$         |          |
| $n_{C'} - n_t$      | 0,018141 |
| $n_e - n_{C'}$      | 0,011847 |
| $n_F - n_e$         | 0,013234 |
| $n_i - n_F$         |          |

| Relative Partial Dispersion |        |
|-----------------------------|--------|
| $\theta_{C,t}$              | 0,6899 |
| $\theta_{C,A'}$             | 0,3114 |
| $\theta_{d,C}$              | 0,2891 |
| $\theta_{e,C}$              | 0,5251 |
| $\theta_{g,d}$              | 1,3162 |
| $\theta_{g,F}$              | 0,6053 |
| $\theta_{h,g}$              | 0,5412 |
| $\theta_{i,g}$              |        |
| $\theta_{C',t}$             | 0,7233 |
| $\theta_{e,C'}$             | 0,4723 |
| $\theta_{F,e}$              | 0,5277 |
| $\theta_{i,F'}$             |        |

| Deviation of Relative Dispersions |        |
|-----------------------------------|--------|
| $\Delta \theta_{C,t}$             | 0,0061 |
| $\Delta \theta_{C,A'}$            | 0,0001 |
| $\Delta \theta_{g,d}$             | 0,0122 |
| $\Delta \theta_{g,F}$             | 0,0111 |
| $\Delta \theta_{i,g}$             |        |

| Thermal Properties                            |      |
|-----------------------------------------------|------|
| Strain Point STP (°C)                         | 570  |
| Annealing Point AP (°C)                       | 596  |
| Transformation Temperature Tg (°C)            | 616  |
| Yield Point At (°C)                           | 644  |
| Softening Point SP (°C)                       | 703  |
| Expansion Coefficients (-30~+70°C)            | 83   |
| $\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C) | 98   |
| Thermal Conductivity k (W/m·K)                | 1,03 |

| Coloring       |     |             |     |
|----------------|-----|-------------|-----|
| $\lambda_{80}$ | 410 | $\lambda_5$ | 360 |
| $\lambda_{70}$ |     |             |     |

| Internal Transmittance |     |                  |     |
|------------------------|-----|------------------|-----|
| $\lambda_{0.80}$       | 393 | $\lambda_{0.05}$ | 366 |

| CCI  |      |      |
|------|------|------|
| B    | G    | R    |
| 0,00 | 2,43 | 2,44 |

| Internal Transmittance |             |
|------------------------|-------------|
| $\lambda(nm)$          | $\tau$ 10mm |
| 280                    |             |
| 290                    |             |
| 300                    |             |
| 310                    |             |
| 320                    |             |
| 330                    |             |
| 340                    |             |
| 350                    |             |
| 360                    |             |
| 370                    | 0,18        |
| 380                    | 0,54        |
| 390                    | 0,77        |
| 400                    | 0,87        |
| 420                    | 0,951       |
| 440                    | 0,971       |
| 460                    | 0,979       |
| 480                    | 0,984       |
| 500                    | 0,988       |
| 550                    | 0,995       |
| 600                    | 0,995       |
| 650                    | 0,993       |
| 700                    | 0,995       |
| 800                    | 0,998       |
| 900                    | 0,999       |
| 1000                   | 0,999       |
| 1200                   | 0,999       |
| 1400                   | 0,996       |
| 1600                   | 0,995       |
| 1800                   | 0,986       |
| 2000                   | 0,978       |
| 2200                   | 0,948       |
| 2400                   | 0,928       |

| Other Properties |      |
|------------------|------|
| Density d        | 3,07 |