

|                  |       |                            |             |         |              |            |              |                 |
|------------------|-------|----------------------------|-------------|---------|--------------|------------|--------------|-----------------|
| Refractive Index | $n_d$ | <b>1,88300</b><br>1,882997 | Abbe Number | $\nu_d$ | <b>40,76</b> | Dispersion | $n_F-n_C$    | <b>0,021661</b> |
| Refractive Index | $n_e$ | 1,888146                   | Abbe Number | $\nu_e$ | 40,52        | Dispersion | $n_F-n_{C'}$ | 0,021919        |

| Refractive Indices |          |         |
|--------------------|----------|---------|
| $\lambda(\mu m)$   |          |         |
| $n_{2325}$         | 2.32542  | 1,83590 |
| $n_{1970}$         | 1.97009  | 1,84264 |
| $n_{1530}$         | 1.52958  | 1,85023 |
| $n_{1129}$         | 1.12864  | 1,85776 |
| $n_t$              | 1.01398  | 1,86054 |
| $n_s$              | 0.85211  | 1,86572 |
| $n_{A'}$           | 0.76819  | 1,86946 |
| $n_r$              | 0.70652  | 1,87298 |
| $n_c$              | 0.65627  | 1,87656 |
| $n_{C'}$           | 0.64385  | 1,87757 |
| $n_{He-Ne}$        | 0.6328   | 1,87852 |
| $n_D$              | 0.58929  | 1,88281 |
| $n_d$              | 0.58756  | 1,88300 |
| $n_e$              | 0.54607  | 1,88815 |
| $n_F$              | 0.48613  | 1,89822 |
| $n_{F'}$           | 0.47999  | 1,89949 |
| $n_{He-Cd}$        | 0.44157  | 1,90885 |
| $n_g$              | 0.435835 | 1,91050 |
| $n_h$              | 0.404656 | 1,92092 |
| $n_i$              | 0.365015 | 1,93917 |

| Constants of Dispersion Formula |                |
|---------------------------------|----------------|
| A <sub>1</sub>                  | 1,78764964E+00 |
| A <sub>2</sub>                  | 6,52635600E-01 |
| A <sub>3</sub>                  | 1,79914564E+00 |
| B <sub>1</sub>                  | 8,47378536E-03 |
| B <sub>2</sub>                  | 3,13126408E-02 |
| B <sub>3</sub>                  | 1,32788001E+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    | 2.2 |
| Phosphate Resistance PR               | 1.0 |

| Mechanical Properties                                    |         |
|--|---------|
| Young's Modulus E (10 <sup>9</sup> N/m <sup>2</sup> )    | 126,8   |
| Rigidity Modulus G (10 <sup>9</sup> N/m <sup>2</sup> )   | 48,7    |
| Poisson's Ratio $\sigma$                                 | 0,301   |
| Knoop Hardness Hk [Class]                                | 720   7 |
| Abrasion Aa  | 62      |
| Photoelastic Constant $\beta$ (nm/cm/10 <sup>9</sup> Pa) | 1,30    |

| Partial Dispersions |          |
|---------------------|----------|
| $n_C-n_t$           | 0,016022 |
| $n_C-n_{A'}$        | 0,007103 |
| $n_d-n_C$           | 0,006437 |
| $n_e-n_C$           | 0,011586 |
| $n_g-n_d$           | 0,027500 |
| $n_g-n_{F'}$        | 0,012276 |
| $n_h-n_g$           | 0,010422 |
| $n_i-n_g$           | 0,028677 |
| $n_{C'}-n_t$        | 0,017035 |
| $n_e-n_{C'}$        | 0,010573 |
| $n_{F'}-n_e$        | 0,011346 |
| $n_i-n_{F'}$        | 0,039682 |

| Relative Partial Dispersion |        |
|-----------------------------|--------|
| $\theta_{C,t}$              | 0,7397 |
| $\theta_{C,A'}$             | 0,3279 |
| $\theta_{d,C}$              | 0,2972 |
| $\theta_{e,C}$              | 0,5349 |
| $\theta_{g,d}$              | 1,2696 |
| $\theta_{g,F}$              | 0,5667 |
| $\theta_{h,g}$              | 0,4811 |
| $\theta_{i,g}$              | 1,3239 |
| $\theta'_{C,t}$             | 0,7772 |
| $\theta'_{e,C'}$            | 0,4824 |
| $\theta'_{F,e}$             | 0,5176 |
| $\theta'_{i,F'}$            | 1,8104 |

| Deviation of Relative Dispersions |         |
|-----------------------------------|---------|
| $\Delta \theta_{C,t}$             | 0,0018  |
| $\Delta \theta_{C,A'}$            | 0,0026  |
| $\Delta \theta_{g,d}$             | -0,0105 |
| $\Delta \theta_{g,F}$             | -0,0088 |
| $\Delta \theta_{i,g}$             | -0,0598 |

| Thermal Properties                            |       |
|---|-------|
| Strain Point STP (°C)                         | 666   |
| Annealing Point AP (°C)                       | 714   |
| Transformation Temperature Tg (°C)            | 738   |
| Yield Point At (°C)                           | 765   |
| Softening Point SP (°C)                       | 803   |
| Expansion Coefficients (-30~+70°C)            | 66    |
| $\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C) | 78    |
| Thermal Conductivity k (W/m·K)                | 0,827 |

| Coloring       |     |             |     |
|----------------|-----|-------------|-----|
| $\lambda_{80}$ |     | $\lambda_5$ | 315 |
| $\lambda_{70}$ | 375 |             |     |

| Internal Transmittance |     |                  |     |
|------------------------|-----|------------------|-----|
| $\lambda_{0.80}$       | 374 | $\lambda_{0.05}$ | 320 |

| CCI  |      |      |
|------|------|------|
| B    | G    | R    |
| 0,00 | 1,69 | 1,75 |

| Internal Transmittance |             |
|------------------------|-------------|
| $\lambda(nm)$          | $\tau$ 10mm |
| 280                    |             |
| 290                    |             |
| 300                    |             |
| 310                    |             |
| 320                    | 0,05        |
| 330                    | 0,17        |
| 340                    | 0,34        |
| 350                    | 0,51        |
| 360                    | 0,66        |
| 370                    | 0,77        |
| 380                    | 0,84        |
| 390                    | 0,89        |
| 400                    | 0,924       |
| 420                    | 0,951       |
| 440                    | 0,965       |
| 460                    | 0,974       |
| 480                    | 0,982       |
| 500                    | 0,988       |
| 550                    | 0,995       |
| 600                    | 0,995       |
| 650                    | 0,995       |
| 700                    | 0,995       |
| 800                    | 0,995       |
| 900                    | 0,995       |
| 1000                   | 0,995       |
| 1200                   | 0,996       |
| 1400                   | 0,996       |
| 1600                   | 0,996       |
| 1800                   | 0,992       |
| 2000                   | 0,980       |
| 2200                   | 0,956       |
| 2400                   | 0,84        |

| Other Properties |      |
|------------------|------|
| Density d        | 5,52 |

| 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                                      | 3,3                                     | 4,1 | 4,1   | 4,4 | 4,7 | 5,4 | 6,2 |
| -20~0  | 3,4                                     | 4,2 | 4,3   | 4,6 | 4,9 | 5,6 | 6,4 |
| 0~20   | 3,6                                     | 4,3 | 4,4   | 4,7 | 5,0 | 5,8 | 6,6 |
| 20~40  | 3,7                                     | 4,5 | 4,5   | 4,9 | 5,2 | 6,0 | 6,8 |
| 40~60  | 3,9                                     | 4,6 | 4,6   | 5,0 | 5,3 | 6,2 | 7,1 |
| 60~80  | 4,0                                     | 4,7 | 4,8   | 5,2 | 5,5 | 6,4 | 7,3 |