# S-TIH 3

Code(d) **740283**
Code(e) **746281**

| | | | | | |
|---|---|---|---|---|---|
| Refractive Index | $n_d$ | **1.74000** 1.739998 | Abbe Number | $\nu_d$ **28.30** | Dispersion | $n_F$-$n_C$ **0.026152** |
| Refractive Index | $n_e$ | 1.746167 | Abbe Number | $\nu_e$ 28.07 | Dispersion | $n_{F'}$-$n_{C'}$ 0.026584 |

| Refractive Indices | | |
|---|---|---|
| λ(μm) | | |
| $n_{2325}$ | 2.32542 | 1.69065 |
| $n_{1970}$ | 1.97009 | 1.69685 |
| $n_{1530}$ | 1.52958 | 1.70405 |
| $n_{1129}$ | 1.12864 | 1.71162 |
| $n_t$ | 1.01398 | 1.71455 |
| $n_s$ | 0.85211 | 1.72018 |
| $n_{A'}$ | 0.76819 | 1.72434 |
| $n_r$ | 0.70652 | 1.72833 |
| $n_C$ | 0.65627 | 1.73245 |
| $n_{C'}$ | 0.64385 | 1.73363 |
| $n_{He-Ne}$ | 0.6328 | 1.73474 |
| $n_D$ | 0.58929 | 1.73977 |
| $n_d$ | 0.58756 | 1.74000 |
| $n_e$ | 0.54607 | 1.74617 |
| $n_F$ | 0.48613 | 1.75861 |
| $n_{F'}$ | 0.47999 | 1.76021 |
| $n_{He-Cd}$ | 0.44157 | 1.77232 |
| $n_g$ | 0.435835 | 1.77450 |
| $n_h$ | 0.404656 | 1.78876 |
| $n_i$ | 0.365015 | |

| Constants of Dispersion Formula | |
|---|---|
| $A_1$ | 1.64797648E+00 |
| $A_2$ | 2.67261917E-01 |
| $A_3$ | 2.19772845E+00 |
| $B_1$ | 1.21917693E-02 |
| $B_2$ | 5.97893039E-02 |
| $B_3$ | 1.92158340E+02 |

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

| Mechanical Properties | | |
|---|---|---|
| Young's Modulus E (GPa) | 90.8 | |
| Rigidity Modulus G (GPa) | 36.2 | |
| Poisson's Ratio σ | 0.254 | |
| Knoop Hardness Hk[Class] | 570 | 6 |
| Abrasion Aa | 173 | |

| Partial Dispersions | |
|---|---|
| $n_C$-$n_t$ | 0.017900 |
| $n_C$-$n_{A'}$ | 0.008108 |
| $n_d$-$n_C$ | 0.007545 |
| $n_e$-$n_C$ | 0.013714 |
| $n_g$-$n_d$ | 0.034504 |
| $n_g$-$n_F$ | 0.015897 |
| $n_h$-$n_g$ | 0.014254 |
| $n_i$-$n_g$ | |
| $n_C$-$n_t$ | 0.019075 |
| $n_e$-$n_{C'}$ | 0.012539 |
| $n_{F'}$-$n_e$ | 0.014045 |
| $n_i$-$n_{F'}$ | |

| Relative Partial Dispersions | |
|---|---|
| $\theta_{C,t}$ | 0.6845 |
| $\theta_{C,A'}$ | 0.3100 |
| $\theta_{d,C}$ | 0.2885 |
| $\theta_{e,C}$ | 0.5244 |
| $\theta_{g,d}$ | 1.3194 |
| $\theta_{g,F}$ | 0.6079 |
| $\theta_{h,g}$ | 0.5450 |
| $\theta_{i,g}$ | |
| $\theta'_{C',t}$ | 0.7175 |
| $\theta'_{e,C'}$ | 0.4717 |
| $\theta'_{F',e}$ | 0.5283 |
| $\theta'_{i,F'}$ | |

| Deviation of Relative Dispersions Δθfrom "Normal" | |
|---|---|
| $\Delta\theta_{C,t}$ | 0.0051 |
| $\Delta\theta_{C,A'}$ | -0.0001 |
| $\Delta\theta_{g,d}$ | 0.0135 |
| $\Delta\theta_{g,F}$ | 0.0122 |
| $\Delta\theta_{i,g}$ | |

| Thermal Properties | | |
|---|---|---|
| Strain Point StP (℃) | | 566 |
| Annealing Point AP (℃) | | 591 |
| Transformation Temperature Tg (℃) | | 615 |
| Yield Point At (℃) | | 644 |
| Softening Point SP (℃) | | 723 |
| Expansion Coefficients α ($10^{-7}$ $K^{-1}$) | (-30~+70℃) | 85 |
| | (+100~+300℃) | 100 |
| Thermal Conductivity λ W/(m·K) | | 1.03 |

| Coloring | | | |
|---|---|---|---|
| $\lambda_{80}$ | 420 | $\lambda_5$ | 360 |
| $\lambda_{70}$ | | | |

| Internal transmission | | | |
|---|---|---|---|
| $\lambda_{0.80}$ | 395 | $\lambda_{0.05}$ | 367 |

| CCI | | |
|---|---|---|
| B | G | R |
| 0.00 | 2.81 | 2.86 |

| Internal Transmittance | |
|---|---|
| λ(nm) | τ 10mm |
| 280 | |
| 290 | |
| 300 | |
| 310 | |
| 320 | |
| 330 | |
| 340 | |
| 350 | |
| 360 | |
| 370 | 0.16 |
| 380 | 0.51 |
| 390 | 0.74 |
| 400 | 0.85 |
| 420 | 0.940 |
| 440 | 0.964 |
| 460 | 0.975 |
| 480 | 0.981 |
| 500 | 0.986 |
| 550 | 0.994 |
| 600 | 0.994 |
| 650 | 0.993 |
| 700 | 0.995 |
| 800 | 0.999 |
| 900 | 0.999 |
| 1000 | 0.999 |
| 1200 | 0.999 |
| 1400 | 0.997 |
| 1600 | 0.996 |
| 1800 | 0.988 |
| 2000 | 0.980 |
| 2200 | 0.955 |
| 2400 | 0.933 |

| Temperature Coefficients of Refractive Index | | | | | | | |
|---|---|---|---|---|---|---|---|
| Range of Temperature (℃) | Δn/ΔT relative ($10^{-6}$$K^{-1}$) | | | | | | |
| | t | C' | He-Ne | D | e | F' | g |
| -40~-20 | 0.6 | 1.5 | 1.6 | 1.9 | 2.3 | 3.4 | 4.6 |
| -20~ 0 | 0.9 | 1.7 | 1.7 | 2.1 | 2.5 | 3.6 | 4.9 |
| 0~20 | 0.9 | 1.8 | 1.9 | 2.2 | 2.7 | 3.8 | 5.2 |
| 20~40 | 0.9 | 1.9 | 2.0 | 2.4 | 2.8 | 4.1 | 5.5 |
| 40~60 | 1.0 | 2.0 | 2.1 | 2.5 | 3.0 | 4.3 | 5.9 |
| 60~80 | 1.2 | 2.2 | 2.2 | 2.7 | 3.2 | 4.5 | 6.2 |

| Other Properties | |
|---|---|
| Photoelastic Constant β nm/(cm·$10^5$Pa) | 2.81 |
| Specific Gravity d | 3.11 |
| Remarks | |

OHARA 24-01



※The name of the glass type is the model number assigned based on the main components of the composition: large, medium, small refractive index and serial number.