

S-BAL11

Code(d) **573578**

Code(e) **575575**

| | | | | | |
|------------------------|----------------------------|-------------------|----------------------|------------------------|----------------------------|
| Refractive Index n_d | 1.57250 1.572501 | Abbe Number v_d | 57.8 57.74 | Dispersion n_F-n_C | 0.00991 0.009915 |
| Refractive Index n_e | 1.574864 | Abbe Number v_e | 57.47 | Dispersion $n_F'-n_C'$ | 0.010002 |

| Refractive Indices | | |
|------------------------|----------|---------|
| $\lambda(\mu\text{m})$ | | |
| n_{2325} | 2.32542 | 1.54394 |
| n_{1970} | 1.97009 | 1.54922 |
| n_{1530} | 1.52958 | 1.55486 |
| n_{1129} | 1.12864 | 1.55978 |
| n_t | 1.01398 | 1.56139 |
| n_s | 0.85211 | 1.56417 |
| $n_{A'}$ | 0.76819 | 1.56605 |
| n_r | 0.70652 | 1.56778 |
| n_C | 0.65627 | 1.56949 |
| $n_{C'}$ | 0.64385 | 1.56997 |
| $n_{\text{He-Ne}}$ | 0.6328 | 1.57042 |
| n_D | 0.58929 | 1.57241 |
| n_d | 0.58756 | 1.57250 |
| n_e | 0.54607 | 1.57486 |
| n_F | 0.48613 | 1.57940 |
| $n_{F'}$ | 0.47999 | 1.57997 |
| $n_{\text{He-Cd}}$ | 0.44157 | 1.58410 |
| n_g | 0.435835 | 1.58481 |
| n_h | 0.404656 | 1.58932 |
| n_i | 0.365015 | 1.59701 |

| Partial Dispersions | |
|---------------------|----------|
| n_C-n_t | 0.008103 |
| $n_C-n_{A'}$ | 0.003436 |
| n_d-n_C | 0.003012 |
| n_e-n_C | 0.005375 |
| n_g-n_d | 0.012313 |
| n_g-n_F | 0.005410 |
| n_h-n_g | 0.004502 |
| n_i-n_g | 0.012197 |
| $n_C'-n_t$ | 0.008582 |
| $n_e-n_{C'}$ | 0.004896 |
| $n_{F'}-n_e$ | 0.005106 |
| $n_i-n_{F'}$ | 0.017041 |

| Relative Partial Dispersions | |
|------------------------------|--------|
| $\theta_{C,t}$ | 0.8172 |
| $\theta_{C,A'}$ | 0.3465 |
| $\theta_{d,C}$ | 0.3038 |
| $\theta_{e,C}$ | 0.5421 |
| $\theta_{g,d}$ | 1.2419 |
| $\theta_{g,F}$ | 0.5456 |
| $\theta_{h,g}$ | 0.4541 |
| $\theta_{i,g}$ | 1.2302 |
| $\theta'_{C,t}$ | 0.8580 |
| $\theta'_{e,C'}$ | 0.4895 |
| $\theta'_{F',e}$ | 0.5105 |
| $\theta'_{i,F}$ | 1.7038 |

| Thermal Properties | |
|---|-------|
| Strain Point StP (°C) | 498 |
| Annealing Point AP (°C) | 534 |
| Transformation Temperature Tg (°C) | 548 |
| Yield Point At (°C) | 593 |
| Softening Point SP (°C) | 670 |
| Expansion Coefficients (-30~+70°C) | 66 |
| α ($10^{-7}/^\circ\text{C}$) (+100~+300°C) | 80 |
| Thermal Conductivity k (W/m-K) | 0.974 |

| Coloring | | | |
|----------------|----|-------------|----|
| λ_{80} | 35 | λ_5 | 32 |
| λ_{70} | | | |

| Internal Transmittance | |
|------------------------|----------------------|
| $\lambda(\text{nm})$ | $\tau_{10\text{mm}}$ |
| 280 | |
| 290 | |
| 300 | |
| 310 | |
| 320 | 0.01 |
| 330 | 0.24 |
| 340 | 0.61 |
| 350 | 0.84 |
| 360 | 0.932 |
| 370 | 0.967 |
| 380 | 0.982 |
| 390 | 0.989 |
| 400 | 0.993 |
| 420 | 0.995 |
| 440 | 0.996 |
| 460 | 0.997 |
| 480 | 0.998 |
| 500 | 0.998 |
| 550 | 0.999 |
| 600 | 0.999 |
| 650 | 0.998 |
| 700 | 0.999 |
| 800 | 0.999 |
| 900 | 0.999 |
| 1000 | 0.998 |
| 1200 | 0.998 |
| 1400 | 0.989 |
| 1600 | 0.995 |
| 1800 | 0.988 |
| 2000 | 0.979 |
| 2200 | 0.929 |
| 2400 | 0.89 |

| Deviation of Relative Dispersions $\Delta\theta$ from "Normal" | |
|--|---------|
| $\Delta\theta_{C,t}$ | -0.0004 |
| $\Delta\theta_{C,A'}$ | 0.0006 |
| $\Delta\theta_{g,d}$ | -0.0029 |
| $\Delta\theta_{g,F}$ | -0.0024 |
| $\Delta\theta_{i,g}$ | -0.0113 |

| Mechanical Properties | |
|---|---------|
| Young's Modulus E (10^8N/m^2) | 819 |
| Rigidity Modulus G (10^8N/m^2) | 331 |
| Poisson's Ratio σ | 0.237 |
| Knoop Hardness Hk[Class] | 590 6 |
| Abrasion Aa | 109 |
| Photoelastic Constant β (nm/cm/ 10^5Pa) | 2.42 |

| Constants of Dispersion Formula | |
|---------------------------------|----------------|
| A_1 | 8.21314256E-01 |
| A_2 | 6.12586478E-01 |
| A_3 | 1.24859637E+00 |
| B_1 | 3.51436131E-03 |
| B_2 | 1.79762375E-02 |
| B_3 | 1.33456670E+02 |

| Chemical Properties | |
|---|-------|
| Water Resistance(Powder) Group RW(P) | 1 |
| Acid Resistance(Powder) Group RA(P) | 1 |
| Weathering Resistance(Surface) Group W(S) | 2 ~ 3 |
| Acid Resistance(Surface) Group SR | 2.0 |
| Phosphate Resistance PR | 1.0 |

| Other Properties | |
|------------------------|------|
| Bubble Quality Group B | |
| Specific Gravity d | 3.02 |
| Remarks | |

| Temperature Coefficients of Refractive Index | | | | | | | |
|--|---|-----|-------|-----|-----|-----|-----|
| Range of Temperature (°C) | dn/dt relative ($10^{-6}/^\circ\text{C}$) | | | | | | |
| | t | C' | He-Ne | D | e | F' | g |
| -40~-20 | 3.0 | 3.4 | 3.5 | 3.6 | 3.7 | 4.0 | 4.3 |
| -20~0 | 3.1 | 3.5 | 3.5 | 3.7 | 3.8 | 4.1 | 4.4 |
| 0~20 | 3.2 | 3.6 | 3.6 | 3.7 | 3.9 | 4.2 | 4.6 |
| 20~40 | 3.2 | 3.6 | 3.7 | 3.8 | 4.0 | 4.3 | 4.7 |
| 40~60 | 3.3 | 3.7 | 3.7 | 3.9 | 4.0 | 4.4 | 4.8 |
| 60~80 | 3.3 | 3.8 | 3.8 | 3.9 | 4.1 | 4.5 | 4.9 |