

# S-BSL 7

Code(d) **516641**

Code(e) **518639**

|                        |                            |                     |              |                         |                 |
|------------------------|----------------------------|---------------------|--------------|-------------------------|-----------------|
| Refractive Index $n_d$ | <b>1.51633</b><br>1.516330 | Abbe Number $\nu_d$ | <b>64.14</b> | Dispersion $n_F-n_C$    | <b>0.008050</b> |
| Refractive Index $n_e$ | 1.518251                   | Abbe Number $\nu_e$ | 63.93        | Dispersion $n_F-n_{C'}$ | 0.008107        |

| Refractive Indices     |          |         |
|------------------------|----------|---------|
| $\lambda(\mu\text{m})$ |          |         |
| $n_{2325}$             | 2.32542  | 1.48899 |
| $n_{1970}$             | 1.97009  | 1.49462 |
| $n_{1530}$             | 1.52958  | 1.50050 |
| $n_{1129}$             | 1.12864  | 1.50536 |
| $n_t$                  | 1.01398  | 1.50686 |
| $n_s$                  | 0.85211  | 1.50935 |
| $n_{A'}$               | 0.76819  | 1.51097 |
| $n_r$                  | 0.70652  | 1.51243 |
| $n_C$                  | 0.65627  | 1.51386 |
| $n_{C'}$               | 0.64385  | 1.51425 |
| $n_{\text{He-Ne}}$     | 0.6328   | 1.51462 |
| $n_D$                  | 0.58929  | 1.51626 |
| $n_d$                  | 0.58756  | 1.51633 |
| $n_e$                  | 0.54607  | 1.51825 |
| $n_F$                  | 0.48613  | 1.52191 |
| $n_{F'}$               | 0.47999  | 1.52236 |
| $n_{\text{He-Cd}}$     | 0.44157  | 1.52564 |
| $n_g$                  | 0.435835 | 1.52621 |
| $n_h$                  | 0.404656 | 1.52977 |
| $n_i$                  | 0.365015 | 1.53578 |

| Constants of Dispersion Formula |                 |
|---------------------------------|-----------------|
| $A_1$                           | 1.15150190E+00  |
| $A_2$                           | 1.18583612E-01  |
| $A_3$                           | 1.26301359E+00  |
| $B_1$                           | 1.05984130E-02  |
| $B_2$                           | -1.18225190E-02 |
| $B_3$                           | 1.29617662E+02  |

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

| Mechanical Properties    |         |
|--------------------------|---------|
| Young's Modulus E (GPa)  | 80.0    |
| Rigidity Modulus G (GPa) | 33.2    |
| Poisson's Ratio $\sigma$ | 0.205   |
| Knoop Hardness Hk(Class) | 570   6 |
| Abrasion Aa              | 94      |

| Partial Dispersions |          |
|---------------------|----------|
| $n_C-n_t$           | 0.006993 |
| $n_C-n_{A'}$        | 0.002882 |
| $n_d-n_C$           | 0.002475 |
| $n_e-n_C$           | 0.004396 |
| $n_g-n_d$           | 0.009884 |
| $n_g-n_F$           | 0.004309 |
| $n_h-n_g$           | 0.003554 |
| $n_i-n_g$           | 0.009571 |
| $n_C-n_t$           | 0.007389 |
| $n_e-n_{C'}$        | 0.004000 |
| $n_{F'}-n_e$        | 0.004107 |
| $n_i-n_{F'}$        | 0.013427 |

| Relative Partial Dispersions |        |
|------------------------------|--------|
| $\theta_{C,t}$               | 0.8687 |
| $\theta_{C,A'}$              | 0.3580 |
| $\theta_{d,C}$               | 0.3075 |
| $\theta_{e,C}$               | 0.5461 |
| $\theta_{g,d}$               | 1.2278 |
| $\theta_{g,F}$               | 0.5353 |
| $\theta_{h,g}$               | 0.4415 |
| $\theta_{i,g}$               | 1.1889 |
| $\theta'_{C,t}$              | 0.9114 |
| $\theta'_{e,C'}$             | 0.4934 |
| $\theta'_{F',e}$             | 0.5066 |
| $\theta'_{i,F'}$             | 1.6562 |

| Deviation of Relative Dispersions $\Delta\theta$ from "Normal" |         |
|--|---------|
| $\Delta\theta_{C,t}$   | 0.0211  |
| $\Delta\theta_{C,A'}$  | 0.0044  |
| $\Delta\theta_{g,d}$   | -0.0037 |
| $\Delta\theta_{g,F}$   | -0.0024 |
| $\Delta\theta_{i,g}$   | 0.0010  |

| Thermal Properties                                 |      |
|--|------|
| Strain Point StP (°C)                              | 532  |
| Annealing Point AP (°C)                            | 563  |
| Transformation Temperature Tg (°C)                 | 576  |
| Yield Point At (°C)                                | 625  |
| Softening Point SP (°C)                            | 718  |
| Expansion Coefficients (-30~+70°C)                 | 72   |
| $\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C) | 86   |
| Thermal Conductivity $\lambda$ W/(m·K)             | 1.13 |

| Coloring       |     |             |     |
|----------------|-----|-------------|-----|
| $\lambda_{80}$ | 320 | $\lambda_5$ | 280 |
| $\lambda_{70}$ |     |             |     |

| Internal transmission |     |                  |     |
|-----------------------|-----|------------------|-----|
| $\lambda_{0.80}$      | 315 | $\lambda_{0.05}$ | 278 |

| CCI  |      |      |
|------|------|------|
| B    | G    | R    |
| 0.00 | 0.06 | 0.04 |

| Internal Transmittance |             |
|------------------------|-------------|
| $\lambda(\text{nm})$   | $\tau$ 10mm |
| 280                    | 0.06        |
| 290                    | 0.25        |
| 300                    | 0.52        |
| 310                    | 0.74        |
| 320                    | 0.87        |
| 330                    | 0.936       |
| 340                    | 0.969       |
| 350                    | 0.984       |
| 360                    | 0.991       |
| 370                    | 0.994       |
| 380                    | 0.995       |
| 390                    | 0.997       |
| 400                    | 0.998       |
| 420                    | 0.998       |
| 440                    | 0.997       |
| 460                    | 0.997       |
| 480                    | 0.997       |
| 500                    | 0.998       |
| 550                    | 0.999       |
| 600                    | 0.999       |
| 650                    | 0.998       |
| 700                    | 0.999       |
| 800                    | 0.999       |
| 900                    | 0.998       |
| 1000                   | 0.998       |
| 1200                   | 0.998       |
| 1400                   | 0.973       |
| 1600                   | 0.989       |
| 1800                   | 0.968       |
| 2000                   | 0.933       |
| 2200                   | 0.82        |
| 2400                   | 0.77        |

| Temperature Coefficients of Refractive Index |  |     |       |     |     |     |     |
|--|--|-----|-------|-----|-----|-----|-----|
| Range of Temperature (°C)                    | $\Delta n / \Delta T$ relative ( $10^{-6} \text{K}^{-1}$ ) |     |       |     |     |     |     |
|  | t  | C'  | He-Ne | D   | e   | F'  | g   |
| -40~-20                                      | 2.1  | 2.3 | 2.3   | 2.4 | 2.5 | 2.7 | 3.0 |
| -20~ 0                                       | 2.1  | 2.4 | 2.4   | 2.5 | 2.6 | 2.8 | 3.1 |
| 0~20   | 2.2  | 2.5 | 2.5   | 2.6 | 2.7 | 3.0 | 3.2 |
| 20~40  | 2.2  | 2.6 | 2.6   | 2.7 | 2.8 | 3.1 | 3.3 |
| 40~60  | 2.3  | 2.6 | 2.7   | 2.8 | 2.9 | 3.2 | 3.5 |
| 60~80  | 2.4  | 2.7 | 2.7   | 2.9 | 3.0 | 3.3 | 3.6 |

| Other Properties   |      |
|--|------|
| Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa) | 2.79 |
| Specific Gravity d                                       | 2.52 |
| Remarks  |      |

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※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.