

**TAFD55-W**

001-291

$n_d = 2.00100$   $\nu_d = 29.13$  ( 29.134 )  $n_F - n_C = 0.034358$   
 $n_e = 2.00912$   $\nu_e = 28.92$  ( 28.916 )  $n_{F'} - n_{C'} = 0.034898$

| 屈折率 Refractive Index |                |         |
|----------------------|----------------|---------|
|                      | $\lambda$ (nm) |         |
| $n_{1529.6}$         | 1529.60        | 1.95443 |
| $n_{1128.64}$        | 1128.64        | 1.96381 |
| $n_t$                | 1013.98        | 1.96756 |
| $n_s$                | 852.11         | 1.97488 |
| $n_A$                | 768.195        | 1.98035 |
| $n_r$                | 706.519        | 1.98561 |
| $n_C$                | 656.273        | 1.99105 |
| $n_{C'}$             | 643.847        | 1.99260 |
| $n_{833}$            | 632.8          | 1.99406 |
| $n_D$                | 589.294        | 2.00070 |
| $n_D$                | 587.562        | 2.00100 |
| $n_e$                | 546.074        | 2.00912 |
| $n_F$                | 486.133        | 2.02540 |
| $n_{F'}$             | 479.991        | 2.02750 |
| $n_g$                | 435.834        | 2.04600 |
| $n_h$                | 404.656        | 2.06423 |
| $n_i$                | 365.015        | 2.09808 |

| 分散式の定数 Constants of dispersion formula |                             |
|----------------------------------------|-----------------------------|
| $A_0$                                  | 3.8317578                   |
| $A_1$                                  | $-1.5266397 \times 10^{-2}$ |
| $A_2$                                  | $5.4573843 \times 10^{-2}$  |
| $A_3$                                  | $2.3109346 \times 10^{-3}$  |
| $A_4$                                  | $-4.4476201 \times 10^{-5}$ |
| $A_5$                                  | $1.6143887 \times 10^{-5}$  |

| 部分分散 Partial dispersions |          |
|--------------------------|----------|
| $n_C - n_t$              | 0.023484 |
| $n_d - n_C$              | 0.009957 |
| $n_F - n_d$              | 0.024401 |
| $n_g - n_F$              | 0.020597 |
| $n_{C'} - n_t$           | 0.025037 |
| $n_e - n_{C'}$           | 0.016523 |
| $n_{F'} - n_e$           | 0.018375 |
| $n_g - n_{F'}$           | 0.018504 |

| 部分分散比 Partial dispersion ratio |        |            |        |
|--------------------------------|--------|------------|--------|
| $P_{C,t}$                      | 0.6835 | $P'_{C,t}$ | 0.7174 |
| $P_{d,C}$                      | 0.2898 | $P'_{d,C}$ | 0.2408 |
| $P_{e,d}$                      | 0.2363 | $P'_{e,d}$ | 0.2326 |
| $P_{F,e}$                      | 0.4739 | $P'_{F,e}$ | 0.5265 |
| $P_{g,F}$                      | 0.5995 | $P'_{g,F}$ | 0.5302 |
| $P_{h,g}$                      | 0.5306 | $P'_{h,g}$ | 0.5224 |
| $P_{i,h}$                      | 0.9851 | $P'_{i,h}$ |        |

| 異常分散性 Anomalous dispersions |         |
|-----------------------------|---------|
| $\Delta P_{C,t}$            | 0.0015  |
| $\Delta P_{C,A'}$           | -0.0008 |
| $\Delta P_{g,d}$            | 0.0043  |
| $\Delta P_{g,F}$            | 0.0036  |
| $\Delta P_{i,g}$            |         |

| 光弾性定数 Photoelastic Constant |      |
|-----------------------------|------|
| $B (10^{-12}/Pa)$           | 0.82 |

| 比重 Specific Gravity |      |
|---------------------|------|
| $d$                 | 5.12 |

| 化学的性質 Chemical Properties |   |
|---------------------------|---|
| $D_W$                     | 1 |
| $D_A$                     | 1 |
| $T_{Blue}$                | 1 |
| $D_{NaOH}$                | 1 |
| $D_{STPP}$                | 1 |
| $D_O$                     | 1 |
| $D_H$                     |   |

| 熱的性質 Thermal Properties                            |       |
|----------------------------------------------------|-------|
| $T_g (^{\circ}C)$                                  | 709   |
| $T_z (^{\circ}C)$                                  | 752   |
| $T_{10/4.5} (^{\circ}C)$                           | 694   |
| $T_{10/3} (^{\circ}C)$                             | 705   |
| $T_{10/7.5} (^{\circ}C)$                           | 799   |
| $\alpha_{-30/+70} (^{\circ}C) (10^{-7}/^{\circ}C)$ | 73    |
| $\alpha_{100/300} (^{\circ}C) (10^{-7}/^{\circ}C)$ | 90    |
| $\lambda [W/(m \cdot K)]$                          | 0.817 |
| $C_p [kJ/(kg \cdot K)]$                            | 0.421 |

| 機械的性質 Mechanical Properties |        |
|-----------------------------|--------|
| $H_K$                       | 655(7) |
| $F_A$                       | 55     |
| $E (GPa)$                   | 130    |
| $G (GPa)$                   | 49.7   |
| $\mu$                       | 0.305  |
| $\sigma_b (MPa)$            | 106    |

| 内部透過率 Internal Transmittance |              |              |               |  |
|------------------------------|--------------|--------------|---------------|--|
| $\lambda$ (nm)               | $\tau_{2mm}$ | $\tau_{5mm}$ | $\tau_{10mm}$ |  |
| 2500                         | 0.925        | 0.823        | 0.678         |  |
| 2400                         | 0.946        | 0.870        | 0.756         |  |
| 2200                         | 0.982        | 0.956        | 0.914         |  |
| 2000                         | 0.992        | 0.979        | 0.959         |  |
| 1800                         | 0.996        | 0.991        | 0.982         |  |
| 1600                         | 0.999        | 0.997        | 0.993         |  |
| 1550                         | 0.999        | 0.997        | 0.995         |  |
| 1500                         | 0.999        | 0.997        | 0.993         |  |
| 1400                         | 0.999        | 0.999        | 0.998         |  |
| 1300                         | 0.999        | 0.999        | 0.999         |  |
| 1200                         | 0.999        | 0.999        | 0.999         |  |
| 1100                         | 0.999        | 0.999        | 0.999         |  |
| 1060                         | 0.999        | 0.999        | 0.999         |  |
| 1050                         | 0.999        | 0.999        | 0.999         |  |
| 1000                         | 0.999        | 0.999        | 0.999         |  |
| 950                          | 0.999        | 0.999        | 0.999         |  |
| 900                          | 0.999        | 0.999        | 0.999         |  |
| 850                          | 0.999        | 0.999        | 0.999         |  |
| 830                          | 0.999        | 0.999        | 0.999         |  |
| 800                          | 0.999        | 0.999        | 0.999         |  |
| 780                          | 0.999        | 0.999        | 0.999         |  |
| 750                          | 0.999        | 0.999        | 0.999         |  |
| 700                          | 0.999        | 0.999        | 0.997         |  |
| 650                          | 0.999        | 0.998        | 0.997         |  |
| 600                          | 0.999        | 0.998        | 0.996         |  |
| 550                          | 0.999        | 0.997        | 0.994         |  |
| 500                          | 0.997        | 0.993        | 0.986         |  |
| 480                          | 0.996        | 0.990        | 0.980         |  |

| 屈折率の温度係数 $dn/dT$ ( $\times 10^{-6}/^{\circ}C$ )<br>Temperature Coefficient of Refractive Index |           |         |        |          |        |        |        |           |          |        |        |
|------------------------------------------------------------------------------------------------|-----------|---------|--------|----------|--------|--------|--------|-----------|----------|--------|--------|
| アッペ数の温度係数 $d\nu/dT$ ( $\times 10^{-3}/^{\circ}C$ )<br>Temperature Coefficient of Abbe-number   |           |         |        |          |        |        |        |           |          |        |        |
|                                                                                                | (°C)      | $dn/dT$ |        |          |        |        |        |           |          |        |        |
|                                                                                                |           | $n_h$   | $n_g$  | $n_{F'}$ | $n_F$  | $n_e$  | $n_d$  | $n_{833}$ | $n_{C'}$ | $n_C$  | $n_r$  |
|                                                                                                |           | 404.66  | 435.84 | 479.99   | 486.13 | 546.07 | 587.56 | 632.80    | 643.85   | 656.27 | 706.52 |
| $dn/dT$ & $d\nu/dT$ (rel.)                                                                     | -40 / -20 | 9.4     | 7.6    | 6.0      | 5.8    | 4.5    | 4.0    | 3.5       | 3.4      | 3.3    | 3.0    |
|                                                                                                | -20 / 0   | 9.7     | 7.9    | 6.2      | 6.0    | 4.7    | 4.1    | 3.7       | 3.6      | 3.5    | 3.1    |
|                                                                                                | 0 / 20    | 10.1    | 8.1    | 6.4      | 6.2    | 4.9    | 4.3    | 3.8       | 3.7      | 3.6    | 3.3    |
|                                                                                                | 20 / 40   | 10.4    | 8.4    | 6.6      | 6.4    | 5.0    | 4.4    | 3.9       | 3.8      | 3.7    | 3.3    |
|                                                                                                | 40 / 60   | 10.7    | 8.6    | 6.7      | 6.5    | 5.1    | 4.5    | 4.0       | 3.9      | 3.8    | 3.4    |
|                                                                                                | 60 / 80   | 10.9    | 8.8    | 6.9      | 6.7    | 5.2    | 4.5    | 4.0       | 3.9      | 3.8    | 3.4    |
|                                                                                                | 80 / 100  | 11.1    | 8.9    | 6.9      | 6.7    | 5.2    | 4.5    | 4.0       | 3.8      | 3.7    | 3.3    |
|                                                                                                | 100 / 120 | 11.2    | 8.9    | 6.9      | 6.7    | 5.1    | 4.4    | 3.8       | 3.7      | 3.6    | 3.2    |
|                                                                                                | 120 / 140 | 11.2    | 8.9    | 6.8      | 6.6    | 5.0    | 4.3    | 3.7       | 3.6      | 3.4    | 3.0    |
|                                                                                                | 140 / 150 | 11.2    | 8.8    | 6.7      | 6.4    | 4.8    | 4.1    | 3.5       | 3.4      | 3.3    | 2.8    |
| $dn/dT$ & $d\nu/dT$ (abs.)                                                                     | -40 / -20 | 6.5     | 4.8    | 3.2      | 3.0    | 1.8    | 1.3    | 0.8       | 0.7      | 0.7    | 0.3    |
|                                                                                                | -20 / 0   | 7.3     | 5.5    | 3.8      | 3.6    | 2.4    | 1.8    | 1.4       | 1.3      | 1.2    | 0.8    |
|                                                                                                | 0 / 20    | 8.0     | 6.1    | 4.4      | 4.2    | 2.9    | 2.3    | 1.8       | 1.7      | 1.6    | 1.3    |
|                                                                                                | 20 / 40   | 8.6     | 6.6    | 4.8      | 4.6    | 3.3    | 2.7    | 2.2       | 2.1      | 2.0    | 1.6    |
|                                                                                                | 40 / 60   | 9.1     | 7.0    | 5.2      | 5.0    | 3.6    | 3.0    | 2.4       | 2.3      | 2.2    | 1.9    |
|                                                                                                | 60 / 80   | 9.5     | 7.4    | 5.5      | 5.3    | 3.8    | 3.2    | 2.6       | 2.5      | 2.4    | 2.0    |
|                                                                                                | 80 / 100  | 9.8     | 7.6    | 5.7      | 5.4    | 4.0    | 3.3    | 2.7       | 2.6      | 2.5    | 2.1    |
|                                                                                                | 100 / 120 | 10.1    | 7.8    | 5.8      | 5.5    | 4.0    | 3.3    | 2.8       | 2.6      | 2.5    | 2.1    |
|                                                                                                | 120 / 140 | 10.2    | 7.9    | 5.8      | 5.6    | 4.0    | 3.3    | 2.7       | 2.6      | 2.5    | 2.0    |
|                                                                                                | 140 / 150 | 10.2    | 7.9    | 5.7      | 5.5    | 3.9    | 3.2    | 2.6       | 2.5      | 2.3    | 1.9    |

| 線膨張係数 $\alpha$<br>( $\times 10^{-7}/^{\circ}C$ )<br>Coefficient of Thermal Expansion |          |
|--------------------------------------------------------------------------------------|----------|
| (°C)                                                                                 | $\alpha$ |
| -40 / -30                                                                            | 68       |
| -30 / -20                                                                            | 69       |
| -20 / -10                                                                            | 71       |
| -10 / 0                                                                              | 72       |
| 0 / 10                                                                               | 73       |
| 10 / 20                                                                              | 74       |
| 20 / 30                                                                              | 74       |
| 30 / 40                                                                              | 75       |
| 40 / 50                                                                              | 75       |
| 50 / 60                                                                              | 75       |
| 60 / 70                                                                              | 76       |
| 70 / 80                                                                              | 76       |
| 80 / 90                                                                              | 76       |
| 90 / 100                                                                             | 76       |
| 100 / 110                                                                            | 77       |
| 110 / 120                                                                            | 77       |
| 120 / 130                                                                            | 78       |
| 130 / 140                                                                            | 79       |
| 140 / 150                                                                            | 80       |

|     |       |       |       |
|-----|-------|-------|-------|
| 460 | 0.934 | 0.986 | 0.972 |
| 440 | 0.992 | 0.980 | 0.960 |
| 420 | 0.987 | 0.967 | 0.935 |
| 400 | 0.971 | 0.930 | 0.864 |
| 390 | 0.951 | 0.882 | 0.777 |
| 380 | 0.904 | 0.777 | 0.603 |
| 370 | 0.793 | 0.559 | 0.313 |
| 360 | 0.540 | 0.214 | 0.046 |
| 350 | 0.154 |       |       |
| 340 |       |       |       |
| 330 |       |       |       |
| 320 |       |       |       |
| 310 |       |       |       |
| 300 |       |       |       |
| 290 |       |       |       |
| 280 |       |       |       |

| 若色度 Coloration Code                      |           |
|------------------------------------------|-----------|
| $\lambda_{80}(\lambda_{70})/\lambda_5$   | (405)/360 |
| 若色度 Coloration of Internal Transmittance |           |
| $\lambda = 80/\lambda = 5$               | 392/360   |

| CCI Color Contribution Index |      |
|------------------------------|------|
| CCI(G)                       | 2.64 |
| CCI(R)                       | 2.81 |

| 冷却速度による屈折率の変化 Difference of refractive indices by cooling rate |  |
|----------------------------------------------------------------|--|
| $\beta_C$                                                      |  |
| $\beta_d$                                                      |  |
| $\beta_F$                                                      |  |
| $\beta_g$                                                      |  |

| 備考 Remarks                        |                                         |
|-----------------------------------|-----------------------------------------|
| 確種対照表 Glass Cross Reference Index |                                         |
| Glass_Type                        | HOYA SCHOTT OHARA HIKARI SUMITA CDGM    |
| Code                              | 001-291 001-291 001-291 001-291 001-291 |

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