

TAF48

791-481  $n_d = 1.79091$   $\nu_d = 48.09$  ( 48.091 )  $n_F - n_C = 0.016446$   
 $n_e = 1.79482$   $\nu_e = 47.85$  ( 47.846 )  $n_{F'} - n_{C'} = 0.016612$

| 屈折率 Refractive Index |                |         |
|----------------------|----------------|---------|
|                      | $\lambda$ (nm) |         |
| $n_{1529.6}$         | 1529.60        | 1.76378 |
| $n_{1128.64}$        | 1128.64        | 1.77073 |
| $n_t$                | 1013.98        | 1.77313 |
| $n_s$                | 852.11         | 1.77741 |
| $n_{A'}$             | 768.195        | 1.78040 |
| $n_r$                | 706.519        | 1.78317 |
| $n_C$                | 656.273        | 1.78596 |
| $n_{C'}$             | 643.847        | 1.78674 |
| $n_{633}$            | 632.8          | 1.78748 |
| $n_D$                | 589.294        | 1.79076 |
| $n_d$                | 587.562        | 1.79091 |
| $n_e$                | 546.074        | 1.79482 |
| $n_F$                | 486.133        | 1.80241 |
| $n_{F'}$             | 479.991        | 1.80336 |
| $n_g$                | 435.834        | 1.81152 |
| $n_h$                | 404.656        | 1.81917 |
| $n_i$                | 365.015        | 1.83236 |

| 分散式の定数 Constants of dispersion formula |                             |
|----------------------------------------|-----------------------------|
| $A_0$                                  | 3.1330829                   |
| $A_1$                                  | $-1.4211012 \times 10^{-2}$ |
| $A_2$                                  | $2.5642638 \times 10^{-2}$  |
| $A_3$                                  | $6.0075458 \times 10^{-4}$  |
| $A_4$                                  | $-9.8658560 \times 10^{-6}$ |
| $A_5$                                  | $1.3351789 \times 10^{-6}$  |

| 部分分散 Partial dispersions |          |
|--------------------------|----------|
| $n_C - n_t$              | 0.012835 |
| $n_d - n_C$              | 0.004947 |
| $n_F - n_d$              | 0.011499 |
| $n_g - n_F$              | 0.009117 |
| $n_{C'} - n_t$           | 0.013619 |
| $n_e - n_{C'}$           | 0.008079 |
| $n_{F'} - n_e$           | 0.008533 |
| $n_g - n_{F'}$           | 0.008167 |

| 部分分散比 Partial dispersion rates |        |            |        |
|--------------------------------|--------|------------|--------|
| $P_{C,t}$                      | 0.7804 | $P'_{C,t}$ | 0.8198 |
| $P_{d,C}$                      | 0.3008 | $P'_{d,C}$ | 0.2506 |
| $P_{e,d}$                      | 0.2381 | $P'_{e,d}$ | 0.2357 |
| $P_{F,e}$                      | 0.4611 | $P'_{F,e}$ | 0.5137 |
| $P_{g,F}$                      | 0.5544 | $P'_{g,F}$ | 0.4916 |
| $P_{h,g}$                      | 0.4649 | $P'_{h,g}$ | 0.4602 |
| $P_{i,h}$                      | 0.8024 | $P'_{i,h}$ | 0.7944 |

| 異常分散性 Anomalous dispersions |         |
|-----------------------------|---------|
| $\Delta P_{C,t}$            | 0.0098  |
| $\Delta P_{C,A'}$           | 0.0026  |
| $\Delta P_{g,d}$            | -0.0087 |
| $\Delta P_{g,F}$            | -0.0074 |
| $\Delta P_{i,g}$            | -0.0482 |

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

| 比重 Specific Gravity |      |
|---------------------|------|
| $d$                 | 4.39 |

| 化学的性質 Chemical Properties |   |
|---------------------------|---|
| $D_W$                     | 1 |
| $D_A$                     | 3 |
| $T_{Blue}$                | 2 |
| $D_{NaOH}$                | 1 |
| $D_{STPP}$                | 1 |
| $D_0$                     | 2 |
| $D_H$                     |   |

| 熱的性質 Thermal Properties                         |       |
|-------------------------------------------------|-------|
| $T_g$ (°C)                                      | 678   |
| $T_s$ (°C)                                      | 711   |
| $T_{10^{14.5}}$ (°C)                            | 655   |
| $T_{10^{13}}$ (°C)                              | 673   |
| $T_{10^{7.6}}$ (°C)                             | 742   |
| $\alpha$ -30/+70°C ( $10^{-7}/^\circ\text{C}$ ) | 60    |
| $\alpha$ 100/300°C ( $10^{-7}/^\circ\text{C}$ ) | 76    |
| $\lambda$ [W/(m·K)]                             | 0.826 |
| $C_p$ [kJ/(kg·K)]                               | 0.510 |

| 機械的性質 Mechanical Properties |         |
|-----------------------------|---------|
| $H_K$                       | 715 (7) |
| $F_A$                       | 55      |
| $E$ (GPa)                   | 121     |
| $G$ (GPa)                   | 46.6    |
| $\mu$                       | 0.300   |
| $\sigma_b$ (MPa)            |         |

| 内部透過率 Internal Transmittance |            |            |             |
|------------------------------|------------|------------|-------------|
| $\lambda$ (nm)               | $\tau$ 2mm | $\tau$ 5mm | $\tau$ 10mm |
| 2500                         | 0.892      | 0.752      | 0.566       |
| 2400                         | 0.930      | 0.834      | 0.696       |
| 2200                         | 0.980      | 0.950      | 0.903       |
| 2000                         | 0.993      | 0.982      | 0.965       |
| 1800                         | 0.998      | 0.994      | 0.988       |
| 1600                         | 0.999      | 0.998      | 0.996       |
| 1550                         | 0.999      | 0.998      | 0.997       |
| 1500                         | 0.999      | 0.998      | 0.996       |
| 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      | 0.999       |
| 650                          | 0.999      | 0.999      | 0.999       |
| 600                          | 0.999      | 0.999      | 0.997       |
| 550                          | 0.999      | 0.996      | 0.992       |
| 500                          | 0.999      | 0.999      | 0.999       |
| 480                          | 0.999      | 0.999      | 0.997       |
| 460                          | 0.999      | 0.998      | 0.995       |
| 440                          | 0.999      | 0.996      | 0.992       |
| 420                          | 0.998      | 0.995      | 0.989       |
| 400                          | 0.996      | 0.991      | 0.982       |
| 390                          | 0.995      | 0.987      | 0.975       |
| 380                          | 0.992      | 0.981      | 0.962       |
| 370                          | 0.988      | 0.970      | 0.941       |
| 360                          | 0.980      | 0.951      | 0.903       |
| 350                          | 0.968      | 0.922      | 0.849       |
| 340                          | 0.947      | 0.874      | 0.763       |
| 330                          | 0.912      | 0.794      | 0.630       |
| 320                          | 0.844      | 0.655      | 0.429       |
| 310                          | 0.699      | 0.408      | 0.166       |
| 300                          | 0.431      | 0.122      | 0.015       |
| 290                          |            |            |             |
| 280                          |            |            |             |

| 屈折率の温度係数 $dn/dT$ ( $\times 10^{-6}/^\circ\text{C}$ )<br>Temperature Coefficient of Refractive Index |           | アッペ数の温度係数 $d\nu/dT$ ( $\times 10^{-3}/^\circ\text{C}$ )<br>Temperature Coefficient of Abbe-number |        |          |        |        |        |           |          |        |        |           |         |  |  |
|-----------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------|--------|----------|--------|--------|--------|-----------|----------|--------|--------|-----------|---------|--|--|
|                                                                                                     | (°C)      | $dn/dT$                                                                                           |        |          |        |        |        |           |          |        |        | $d\nu/dT$ |         |  |  |
|                                                                                                     |           | $n_h$                                                                                             | $n_g$  | $n_{F'}$ | $n_F$  | $n_e$  | $n_d$  | $n_{633}$ | $n_{C'}$ | $n_C$  | $n_r$  | $\nu_e$   | $\nu_d$ |  |  |
|                                                                                                     |           | 404.66                                                                                            | 435.84 | 479.99   | 486.13 | 546.07 | 587.56 | 632.80    | 643.85   | 656.27 | 706.52 | 546.07    | 587.56  |  |  |
| $dn/dT$ & $d\nu/dT$ (rel.)                                                                          | -40 / -20 | 6.3                                                                                               | 5.9    | 5.4      | 5.3    | 4.8    | 4.6    | 4.4       | 4.4      | 4.3    | 4.2    | -2.6      | -2.6    |  |  |
|                                                                                                     | -20 / 0   | 6.3                                                                                               | 5.8    | 5.3      | 5.2    | 4.8    | 4.5    | 4.3       | 4.3      | 4.2    | 4.1    | -2.6      | -2.7    |  |  |
|                                                                                                     | 0 / 20    | 6.3                                                                                               | 5.8    | 5.3      | 5.2    | 4.7    | 4.5    | 4.3       | 4.3      | 4.2    | 4.1    | -2.7      | -2.7    |  |  |
|                                                                                                     | 20 / 40   | 6.4                                                                                               | 5.9    | 5.3      | 5.3    | 4.8    | 4.5    | 4.3       | 4.3      | 4.2    | 4.1    | -2.8      | -2.8    |  |  |
|                                                                                                     | 40 / 60   | 6.5                                                                                               | 6.0    | 5.4      | 5.4    | 4.9    | 4.6    | 4.4       | 4.3      | 4.3    | 4.1    | -2.8      | -2.8    |  |  |
|                                                                                                     | 60 / 80   | 6.6                                                                                               | 6.1    | 5.5      | 5.5    | 4.9    | 4.7    | 4.5       | 4.4      | 4.4    | 4.2    | -2.9      | -3.0    |  |  |
|                                                                                                     | 80 / 100  | 6.8                                                                                               | 6.3    | 5.7      | 5.6    | 5.1    | 4.8    | 4.6       | 4.5      | 4.5    | 4.3    | -3.0      | -3.0    |  |  |
|                                                                                                     | 100 / 120 | 7.0                                                                                               | 6.4    | 5.8      | 5.7    | 5.2    | 4.9    | 4.7       | 4.6      | 4.6    | 4.4    | -3.1      | -3.1    |  |  |
|                                                                                                     | 120 / 140 | 7.1                                                                                               | 6.6    | 6.0      | 5.9    | 5.3    | 5.0    | 4.8       | 4.7      | 4.7    | 4.5    | -3.2      | -3.2    |  |  |
|                                                                                                     | 140 / 150 | 7.3                                                                                               | 6.7    | 6.1      | 6.0    | 5.4    | 5.1    | 4.9       | 4.8      | 4.8    | 4.6    | -3.2      | -3.2    |  |  |
| $dn/dT$ & $d\nu/dT$ (abs.)                                                                          | -40 / -20 | 3.8                                                                                               | 3.4    | 2.9      | 2.8    | 2.4    | 2.2    | 2.0       | 2.0      | 1.9    | 1.8    | -2.6      | -2.6    |  |  |
|                                                                                                     | -20 / 0   | 4.1                                                                                               | 3.7    | 3.2      | 3.1    | 2.7    | 2.5    | 2.3       | 2.2      | 2.2    | 2.0    | -2.6      | -2.7    |  |  |
|                                                                                                     | 0 / 20    | 4.5                                                                                               | 4.0    | 3.5      | 3.4    | 3.0    | 2.7    | 2.5       | 2.5      | 2.4    | 2.3    | -2.7      | -2.7    |  |  |
|                                                                                                     | 20 / 40   | 4.8                                                                                               | 4.3    | 3.8      | 3.7    | 3.2    | 3.0    | 2.8       | 2.7      | 2.7    | 2.5    | -2.8      | -2.8    |  |  |
|                                                                                                     | 40 / 60   | 5.1                                                                                               | 4.6    | 4.0      | 4.0    | 3.5    | 3.2    | 3.0       | 3.0      | 2.9    | 2.7    | -2.9      | -2.9    |  |  |
|                                                                                                     | 60 / 80   | 5.4                                                                                               | 4.9    | 4.3      | 4.2    | 3.7    | 3.5    | 3.2       | 3.2      | 3.1    | 3.0    | -2.9      | -2.9    |  |  |
|                                                                                                     | 80 / 100  | 5.7                                                                                               | 5.1    | 4.6      | 4.5    | 4.0    | 3.7    | 3.5       | 3.4      | 3.4    | 3.2    | -3.0      | -3.0    |  |  |
|                                                                                                     | 100 / 120 | 6.0                                                                                               | 5.4    | 4.8      | 4.7    | 4.2    | 3.9    | 3.7       | 3.6      | 3.6    | 3.4    | -3.1      | -3.1    |  |  |
|                                                                                                     | 120 / 140 | 6.2                                                                                               | 5.7    | 5.1      | 5.0    | 4.4    | 4.2    | 3.9       | 3.9      | 3.8    | 3.6    | -3.1      | -3.2    |  |  |
|                                                                                                     | 140 / 150 | 6.4                                                                                               | 5.9    | 5.2      | 5.2    | 4.6    | 4.3    | 4.1       | 4.0      | 4.0    | 3.8    | -3.2      | -3.2    |  |  |

| 線膨張係数 $\alpha$<br>( $\times 10^{-7}/^\circ\text{C}$ )<br>Coefficient of Thermal Expansion |          |
|-------------------------------------------------------------------------------------------|----------|
| (°C)                                                                                      | $\alpha$ |
| -40 / -30                                                                                 | 56       |
| -30 / -20                                                                                 | 58       |
| -20 / -10                                                                                 | 58       |
| -10 / 0                                                                                   | 59       |
| 0 / 10                                                                                    | 60       |
| 10 / 20                                                                                   | 60       |
| 20 / 30                                                                                   | 60       |
| 30 / 40                                                                                   | 61       |
| 40 / 50                                                                                   | 61       |
| 50 / 60                                                                                   | 61       |
| 60 / 70                                                                                   | 61       |
| 70 / 80                                                                                   | 62       |
| 80 / 90                                                                                   | 62       |
| 90 / 100                                                                                  | 62       |
| 100 / 110                                                                                 | 63       |
| 110 / 120                                                                                 | 64       |
| 120 / 130                                                                                 | 65       |
| 130 / 140                                                                                 | 66       |
| 140 / 150                                                                                 | 67       |

| 着色度 Coloration Code                              |         |
|--------------------------------------------------|---------|
| $\lambda_{80}(\lambda_{70})/\lambda_5$           | 375/305 |
| 着色度 (内部透過率) Coloration of Internal Transmittance |         |
| $\lambda_{\tau 80}/\lambda_{\tau 5}$             | 344/303 |

| CCI Color Contribution Index |      |
|------------------------------|------|
| CCI (G)                      | 0.37 |
| CCI (R)                      | 0.38 |

| 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                           |         |        |       |        |        |      |
|--------------------------------------|---------|--------|-------|--------|--------|------|
| 硝種対照表 Glass Cross Reference Index    |         |        |       |        |        |      |
|                                      | HOYA    | SCHOTT | OHARA | HIKARI | SUMITA | CDGM |
| Glass_Type                           | TAF48   |        |       |        |        |      |
| Code                                 | 791-481 |        |       |        |        |      |
| Excel File Name : HOYA20250701M.xlsm |         |        |       |        |        |      |