

# J-LAF3

$n_d = 1.717000$

$n_e = 1.720556$

$v_d = 47.98$

$v_e = 47.71$

|                |        |
|----------------|--------|
| Glass code (d) | 717480 |
| Glass code (e) | 721477 |

| Spectral l. | Refractive idx |
|-------------|----------------|
| 2.058       | 1.68438        |
| 1.970       | 1.68584        |
| 1.530       | 1.69261        |
| 1.129       | 1.69881        |
| 1.064       | 1.69998        |
| t           | 1.70095        |
| s           | 1.70480        |
| A'          | 1.707495       |
| r           | 1.709998       |
| C           | 1.712517       |
| C'          | 1.713226       |
| He-Ne       | 1.713889       |
| D           | 1.716868       |
| d           | 1.717000       |
| e           | 1.720556       |
| F           | 1.727462       |
| F'          | 1.728330       |
| g           | 1.735809       |
| h           | 1.742854       |
| 0.389       | 1.747207       |
| i           | 1.755135       |

| Coef. disp. form. (pwr ser.) |                 |
|------------------------------|-----------------|
| A0                           | 2.88297779E+00  |
| A1                           | -1.15922463E-02 |
| A2                           | -1.15749419E-04 |
| A3                           | 2.24704179E-02  |
| A4                           | 4.75179381E-04  |
| A5                           | -1.96471810E-06 |
| A6                           | 1.41116684E-06  |
| A7                           | 0.00000000E+00  |
| A8                           | 0.00000000E+00  |

| Partial dispersion |          |
|--------------------|----------|
| F-C                | 0.014945 |
| F'-C'              | 0.015104 |
| C-t                | 0.011564 |
| C-A'               | 0.005022 |
| d-C                | 0.004483 |
| e-C                | 0.008039 |
| g-d                | 0.018809 |
| g-F                | 0.008347 |
| h-g                | 0.007045 |
| i-g                | 0.019326 |
| C'-t               | 0.012273 |
| e-C'               | 0.007330 |
| F'-e               | 0.007774 |
| i-F'               | 0.026805 |

| Relative partial dispersion |        |
|-----------------------------|--------|
| C-t/F-C                     | 0.7738 |
| C-A'/F-C                    | 0.3360 |
| d-C/F-C                     | 0.3000 |
| e-C/F-C                     | 0.5379 |
| g-d/F-C                     | 1.2585 |
| g-F/F-C                     | 0.5585 |
| h-g/F-C                     | 0.4714 |
| i-g/F-C                     | 1.2931 |
| C'-t/F'-C'                  | 0.8126 |
| e-C'/F'-C'                  | 0.4853 |
| F'-e/F'-C'                  | 0.5147 |
| i-F'/F'-C'                  | 1.7747 |

| Deviation of relative partial disp. |         |
|-------------------------------------|---------|
| $\Delta PdC$                        | 0.0011  |
| $\Delta PgF$                        | -0.0053 |

| Internal CC (80%/5%) |  |
|----------------------|--|
| 365/333              |  |

| Color Code (80%/5%) |  |
|---------------------|--|
| 380/335             |  |

| CCI |      |
|-----|------|
| B   | 0.00 |
| G   | 0.56 |
| R   | 0.55 |

| Thermal properties       |       |
|--------------------------|-------|
| CTE(-30,70) [1E-7/°C]    | 61    |
| CTE(100,300) [1E-7/°C]   | 79    |
| Tg [°C]                  | 640   |
| At [°C]                  | 681   |
| Ht condct. [W/m·K]       | 0.767 |
| Sp. heat [kJ/kg·K]       | 0.516 |
| Ht diffus. [1E-6 m2/sec] | 0.378 |

| Chemical properties [class] |   |
|-----------------------------|---|
| Acid res. (surface)         | 5 |
| Alkaline detergent res.     | 2 |
| Climate resistance          | 1 |
| Water res. (powder)         | 2 |
| Acid res. (powder)          | 4 |

| Mechanical properties                |         |
|--------------------------------------|---------|
| Knoop hardness                       | 526 (5) |
| Abrasion hardness                    | 131     |
| Young's mod. [GPa]                   | 99.0    |
| Shear mod. [GPa]                     | 38.4    |
| Poisson's ratio                      | 0.291   |
| Stress optical coef. [1E-5 nm/cm/Pa] | 2.00    |

| Internal trans. (10mm) |        |
|------------------------|--------|
| $\lambda$ [nm]         | $\tau$ |
| 280                    | 0.00   |
| 290                    | 0.00   |
| 300                    | 0.00   |
| 310                    | 0.00   |
| 320                    | 0.00   |
| 330                    | 0.02   |
| 340                    | 0.16   |
| 350                    | 0.45   |
| 360                    | 0.71   |
| 370                    | 0.86   |
| 380                    | 0.925  |
| 390                    | 0.957  |
| 400                    | 0.973  |
| 420                    | 0.985  |
| 440                    | 0.990  |
| 460                    | 0.993  |
| 480                    | 0.995  |
| 500                    | 0.997  |
| 550                    | 0.999  |
| 600                    | 0.998  |
| 650                    | 0.998  |
| 700                    | 0.998  |
| 800                    | 0.997  |
| 900                    | 0.995  |
| 1000                   | 0.996  |
| 1200                   | 0.998  |
| 1400                   | 0.993  |
| 1600                   | 0.993  |
| 1800                   | 0.986  |
| 2000                   | 0.970  |
| 2200                   | 0.921  |
| 2400                   | 0.77   |

| Specific gravity |  |
|------------------|--|
| 3.93             |  |

| Relative $\Delta n / \Delta T$ [1E-6/°C] |       |     |     |     |     |     |     |       |     |     |     |     |     |     |       |  |
|--|-------|-----|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|-------|--|
| Temp. [°C]                               | 1.083 | t   | s   | A'  | r   | C   | C'  | He-Ne | d   | e   | F   | F'  | g   | h   | 0.389 |  |
| 80 to 90 (ref.)                          | 3.7   | 3.7 | 3.9 | 4.1 | 4.2 | 4.4 | 4.5 | 4.5   | 4.8 | 5.0 | 5.6 | 5.7 | 6.4 | 7.1 | 7.5   |  |
| 60 to 80 (ref.)                          | 3.6   | 3.6 | 3.8 | 4.0 | 4.1 | 4.3 | 4.4 | 4.4   | 4.6 | 4.9 | 5.4 | 5.5 | 6.2 | 6.8 | 7.3   |  |
| 40 to 60                                 | 3.4   | 3.5 | 3.7 | 3.8 | 4.0 | 4.2 | 4.2 | 4.2   | 4.5 | 4.7 | 5.2 | 5.3 | 5.9 | 6.6 | 7.0   |  |
| 20 to 40                                 | 3.4   | 3.4 | 3.6 | 3.7 | 3.9 | 4.0 | 4.1 | 4.1   | 4.3 | 4.6 | 5.1 | 5.1 | 5.7 | 6.4 | 6.7   |  |
| 0 to 20                                  | 3.3   | 3.3 | 3.5 | 3.7 | 3.8 | 4.0 | 4.0 | 4.0   | 4.2 | 4.5 | 4.9 | 5.0 | 5.6 | 6.2 | 6.5   |  |
| -20 to 0                                 | 3.3   | 3.3 | 3.5 | 3.6 | 3.8 | 3.9 | 4.0 | 4.0   | 4.2 | 4.4 | 4.9 | 4.9 | 5.5 | 6.1 | 6.4   |  |
| -40 to -20                               | 3.4   | 3.4 | 3.6 | 3.7 | 3.8 | 4.0 | 4.0 | 4.1   | 4.2 | 4.4 | 4.9 | 4.9 | 5.5 | 6.0 | 6.3   |  |
| -60 to -40 (ref.)                        | 3.5   | 3.6 | 3.7 | 3.9 | 4.0 | 4.1 | 4.2 | 4.2   | 4.4 | 4.6 | 5.0 | 5.0 | 5.5 | 6.0 | 6.3   |  |
| -70 to -60 (ref.)                        | 3.7   | 3.8 | 3.9 | 4.0 | 4.2 | 4.3 | 4.3 | 4.4   | 4.5 | 4.7 | 5.1 | 5.2 | 5.7 | 6.2 | 6.5   |  |

| Absolute $\Delta n / \Delta T$ [1E-6/°C] |       |     |     |     |     |     |     |       |     |     |     |     |     |     |       |  |
|--|-------|-----|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-----|-------|--|
| Temp. [°C]                               | 1.083 | t   | s   | A'  | r   | C   | C'  | He-Ne | d   | e   | F   | F'  | g   | h   | 0.389 |  |
| 80 to 90                                 | 2.6   | 2.7 | 2.8 | 3.0 | 3.2 | 3.4 | 3.4 | 3.5   | 3.7 | 3.9 | 4.5 | 4.6 | 5.3 | 5.9 | 6.4   |  |
| 60 to 80                                 | 2.4   | 2.5 | 2.6 | 2.8 | 3.0 | 3.1 | 3.2 | 3.2   | 3.5 | 3.7 | 4.2 | 4.3 | 5.0 | 5.6 | 6.1   |  |
| 40 to 60                                 | 2.2   | 2.2 | 2.4 | 2.5 | 2.7 | 2.8 | 2.9 | 2.9   | 3.1 | 3.4 | 3.9 | 4.0 | 4.6 | 5.2 | 5.6   |  |
| 20 to 40                                 | 1.9   | 1.9 | 2.1 | 2.2 | 2.4 | 2.6 | 2.6 | 2.6   | 2.8 | 3.1 | 3.6 | 3.6 | 4.2 | 4.8 | 5.2   |  |
| 0 to 20                                  | 1.6   | 1.7 | 1.8 | 2.0 | 2.1 | 2.3 | 2.3 | 2.3   | 2.5 | 2.7 | 3.2 | 3.3 | 3.8 | 4.4 | 4.8   |  |
| -20 to 0                                 | 1.4   | 1.4 | 1.5 | 1.7 | 1.8 | 2.0 | 2.0 | 2.0   | 2.2 | 2.4 | 2.9 | 2.9 | 3.5 | 4.0 | 4.3   |  |
| -40 to -20                               | 1.1   | 1.1 | 1.3 | 1.4 | 1.5 | 1.7 | 1.7 | 1.7   | 1.9 | 2.1 | 2.5 | 2.6 | 3.1 | 3.6 | 3.9   |  |
| -60 to -40                               | 0.8   | 0.9 | 1.0 | 1.1 | 1.2 | 1.4 | 1.4 | 1.4   | 1.6 | 1.8 | 2.2 | 2.2 | 2.7 | 3.2 | 3.5   |  |
| -70 to -60                               | 0.6   | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.2   | 1.4 | 1.5 | 1.9 | 2.0 | 2.4 | 2.9 | 3.1   |  |

| Coef. disp. form. (frac. eq.) (ref.) |                |
|--------------------------------------|----------------|
| P1                                   | 1.07530916E-01 |
| Q1                                   | 7.45015661E+01 |
| P2                                   | 1.48535752E-02 |
| Q2                                   | 3.95541614E-02 |
| P3                                   | 3.70747892E-01 |
| Q3                                   | 6.11229540E-03 |

| Fitting error of disp. form. $\sigma$ [1E-6] |         |          |
|--|---------|----------|
|  | Visible | Infrared |
| Power ser. eq.                               | 0.6     | 4.2      |
| Frac. eq. (ref.)                             | 0.6     | 4.8      |

|                      |   |
|----------------------|---|
| Prod. Freq. (A to D) | C |
|----------------------|---|

| Similar glass type |        |        |      |
|--------------------|--------|--------|------|
| OHARA              | S-LAM3 | HOYA   | LAF3 |
| CDGM               | H-LaF2 | SCHOTT | -    |

|          |                         |
|----------|-------------------------|
| 2019-4-1 | Transmittance           |
| 2018-4-1 | Prod. Freq.             |
| 2015-4-1 | Color Code, Prod. Freq. |