

Refractive Index n_d	1.806 10 1.806 098	Abbe Number ν_d	40.92	Dispersion $n_F - n_C$	0.019 697
Refractive Index n_e	1.810 775	Abbe Number ν_e	40.67	Dispersion $n_{F'} - n_{C'}$	0.019 935

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.760 51
n_{1970}	1.970 09	1.767 64
n_{1530}	1.529 58	1.775 46
n_{1129}	1.128 64	1.782 87
n_t	1.013 98	1.785 51
n_s	0.852 11	1.790 34
$n_{A'}$	0.768 19	1.793 77
n_F	0.706 52	1.796 99
n_C	0.656 27	1.800 25
$n_{C'}$	0.643 85	1.801 17
n_{He-Ne}	0.632 8	1.802 03
n_D	0.589 29	1.805 92
n_d	0.587 56	1.806 10
n_e	0.546 07	1.810 78
n_F	0.486 13	1.819 94
$n_{F'}$	0.479 99	1.821 10
n_{He-Cd}	0.441 57	1.829 67
n_g	0.435 835	1.831 17
n_h	0.404 656	1.840 78
n_i	0.365 015	1.857 82

Constants of Dispersion Formula	
A_1	1.918 116 19E+00
A_2	2.537 243 99E-01
A_3	1.394 738 85E+00
B_1	1.021 476 84E-02
B_2	4.331 760 11E-02
B_3	1.019 380 21E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	4,2
Phosphate Resistance PR	2,0

Mechanical Properties	
Young's Modulus E (GPa)	112.7
Rigidity Modulus G (GPa)	43.4
Poisson's Ratio σ	0.299
Knoop Hardness Hk[Class]	650 7
Abrasion Aa	80

Partial Dispersions	
$n_C - n_t$	0.014 740
$n_C - n_{A'}$	0.006 479
$n_d - n_C$	0.005 850
$n_e - n_C$	0.010 527
$n_g - n_d$	0.025 076
$n_g - n_F$	0.011 229
$n_h - n_g$	0.009 607
$n_i - n_g$	0.026 650
$n_{C'} - n_t$	0.015 661
$n_e - n_{C'}$	0.009 606
$n_{F'} - n_e$	0.010 329
$n_i - n_{F'}$	0.036 720

Relative Partial Dispersions	
$\theta_{C,t}$	0.748 3
$\theta_{C,A'}$	0.328 9
$\theta_{d,C}$	0.297 0
$\theta_{e,C}$	0.534 4
$\theta_{g,d}$	1.273 1
$\theta_{g,F}$	0.570 1
$\theta_{h,g}$	0.487 7
$\theta_{i,g}$	1.353 0
$\theta'_{C,t}$	0.785 6
$\theta'_{e,C'}$	0.481 9
$\theta'_{F,e}$	0.518 1
$\theta'_{i,F'}$	1.842 0

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.009 6
$\Delta\theta_{C,A'}$	0.003 4
$\Delta\theta_{g,d}$	-0.006 6
$\Delta\theta_{g,F}$	-0.005 2
$\Delta\theta_{i,g}$	-0.029 4

Coloring			
λ_{80}	405	λ_5	340
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	370	$\lambda_{0.05}$	340
CCI			
B	G	R	
0.00	1.07	1.13	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.06
350	0.38
360	0.65
370	0.80
380	0.88
390	0.925
400	0.947
420	0.969
440	0.979
460	0.985
480	0.989
500	0.993
550	0.996
600	0.996
650	0.997
700	0.998
800	0.998
900	0.999
1 000	0.999
1 200	0.999
1 400	0.997
1 600	0.996
1 800	0.989
2 000	0.969
2 200	0.915
2 400	0.72

Thermal Properties	
Strain Point StP (°C)	-
Annealing Point AP (°C)	-
Transformation Temperature Tg (°C)	611
Yield Point At (°C)	648
Softening Point SP (°C)	687
Expansion Coefficients (-30 °C ~ 70 °C)	59
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	73
Thermal Conductivity λ (W/(m·K))	0.860

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10 ⁻⁷ K ⁻¹)
-100 ~ -90	46
-90 ~ -80	47
-80 ~ -70	48
-70 ~ -60	49
-60 ~ -50	51
-50 ~ -40	52
-40 ~ -30	53
-30 ~ -20	54
-20 ~ -10	55
-10 ~ 0	56
0 ~ 10	57
10 ~ 20	58
20 ~ 30	59
30 ~ 40	60
40 ~ 50	61
50 ~ 60	62
60 ~ 70	63
70 ~ 80	64
80 ~ 90	65
90 ~ 100	66
100 ~ 110	67
110 ~ 120	67
120 ~ 130	68
130 ~ 140	69
140 ~ 150	70
150 ~ 160	70
160 ~ 170	71
170 ~ 180	72
180 ~ 190	72
190 ~ 200	73
200 ~ 210	73
210 ~ 220	74
220 ~ 230	75
230 ~ 240	75
240 ~ 250	76
250 ~ 260	76
260 ~ 270	76
270 ~ 280	77
280 ~ 290	77
290 ~ 300	78

Other Properties	
Photoelastic Constant β nm/(cm ³ 105Pa)	1.96
Specific Gravity d	4.43
Remarks	

Temperature Coefficients of Refractive Index												
Range of Temperature (°C)	$\Delta n_{rel} / \Delta T$ (10 ⁻⁶ K ⁻¹)											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	4.2	4.5	5.0	5.2	5.2	5.5	5.7	6.3	6.4	7.0	7.8	9.2
-60 ~ -40	4.1	4.4	4.9	5.1	5.2	5.4	5.7	6.3	6.4	7.1	7.8	9.4
-40 ~ -20	4.2	4.4	4.9	5.1	5.2	5.5	5.8	6.4	6.5	7.2	7.9	9.6
-20 ~ 0	4.2	4.5	5.1	5.3	5.3	5.6	5.9	6.5	6.6	7.4	8.2	9.8
0 ~ 20	4.3	4.7	5.2	5.4	5.5	5.8	6.1	6.7	6.8	7.7	8.5	10.1
20 ~ 40	4.5	4.8	5.3	5.6	5.7	6.0	6.3	6.9	7.0	7.9	8.7	10.5
40 ~ 60	4.6	5.0	5.6	5.8	5.9	6.2	6.5	7.2	7.3	8.1	9.0	10.9
60 ~ 80	4.8	5.1	5.7	5.9	6.0	6.3	6.7	7.5	7.6	8.5	9.4	11.2
80 ~ 100	5.0	5.3	5.9	6.1	6.2	6.5	6.9	7.6	7.7	8.6	9.6	11.6
100 ~ 120	5.1	5.4	6.1	6.3	6.4	6.7	7.1	7.9	7.9	8.9	9.9	11.8
120 ~ 140	5.2	5.5	6.2	6.5	6.5	6.9	7.3	8.0	8.1	9.1	10.1	12.1
140 ~ 160	5.3	5.6	6.3	6.6	6.6	7.0	7.4	8.2	8.3	9.3	10.3	12.5
160 ~ 180	5.3	5.7	6.4	6.6	6.7	7.1	7.5	8.3	8.5	9.5	10.6	12.8