

Refractive Index n_d	1.677 90 1.677 900	Abbe Number ν_d	55.34	Dispersion $n_F - n_C$	0.012 250
Refractive Index n_e	1.680 820	Abbe Number ν_e	55.08	Dispersion $n_{F'} - n_{C'}$	0.012 361

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.644 14
n_{1970}	1.970 09	1.650 21
n_{1530}	1.529 58	1.656 69
n_{1129}	1.128 64	1.662 42
n_t	1.013 98	1.664 33
n_s	0.852 11	1.667 68
$n_{A'}$	0.768 19	1.669 98
n_F	0.706 52	1.672 08
n_C	0.656 27	1.674 19
$n_{C'}$	0.643 85	1.674 78
n_{He-Ne}	0.632 8	1.675 33
n_D	0.589 29	1.677 79
n_d	0.587 56	1.677 90
n_e	0.546 07	1.680 82
n_F	0.486 13	1.686 44
$n_{F'}$	0.479 99	1.687 14
n_{He-Cd}	0.441 57	1.692 25
n_g	0.435 835	1.693 14
n_h	0.404 656	1.698 72
n_i	0.365 015	1.708 26

Constants of Dispersion Formula	
A_1	9.920 538 95E-01
A_2	7.713 777 31E-01
A_3	1.182 962 64E+00
B_1	1.670 950 63E-02
B_2	2.367 501 56E-03
B_3	1.059 010 80E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	5
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	53.0
Phosphate Resistance PR	4.2

Mechanical Properties	
Young's Modulus E (GPa)	91.0
Rigidity Modulus G (GPa)	35.4
Poisson's Ratio σ	0.284
Knoop Hardness Hk[Class]	560 6
Abrasion Aa	166

Partial Dispersions	
$n_C - n_t$	0.009 855
$n_C - n_{A'}$	0.004 212
$n_d - n_C$	0.003 712
$n_e - n_C$	0.006 632
$n_g - n_d$	0.015 241
$n_g - n_F$	0.006 703
$n_h - n_g$	0.005 580
$n_i - n_g$	0.015 119
$n_{C'} - n_t$	0.010 445
$n_e - n_{C'}$	0.006 042
$n_{F'} - n_e$	0.006 319
$n_i - n_{F'}$	0.021 121

Relative Partial Dispersions	
$\theta_{C,t}$	0.804 5
$\theta_{C,A'}$	0.343 8
$\theta_{d,C}$	0.303 0
$\theta_{e,C}$	0.541 4
$\theta_{g,d}$	1.244 2
$\theta_{g,F}$	0.547 2
$\theta_{h,g}$	0.455 5
$\theta_{i,g}$	1.234 2
$\theta'_{C,t}$	0.845 0
$\theta'_{e,C'}$	0.488 8
$\theta'_{F',e}$	0.511 2
$\theta'_{i,F'}$	1.708 7

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.001 8
$\Delta\theta_{C,A'}$	0.000 8
$\Delta\theta_{g,d}$	-0.005 6
$\Delta\theta_{g,F}$	-0.004 7
$\Delta\theta_{i,g}$	-0.027 4

Coloring			
λ_{80}	360	λ_5	285
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	337	$\lambda_{0.05}$	279
CCI			
B	G	R	
0.00	0.26	0.24	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	0.06
290	0.15
300	0.29
310	0.45
320	0.61
330	0.73
340	0.83
350	0.89
360	0.938
370	0.962
380	0.976
390	0.984
400	0.988
420	0.992
440	0.994
460	0.995
480	0.997
500	0.998
550	0.999
600	0.998
650	0.998
700	0.998
800	0.999
900	0.997
1 000	0.996
1 200	0.996
1 400	0.991
1 600	0.991
1 800	0.981
2 000	0.963
2 200	0.901
2 400	0.73

Thermal Properties	
Strain Point StP (°C)	604
Annealing Point AP (°C)	630
Transformation Temperature Tg (°C)	652
Yield Point At (°C)	682
Softening Point SP (°C)	716
Expansion Coefficients (-30 °C ~ 70 °C)	73
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	86
Thermal Conductivity λ (W/(m·K))	0.717

Linear coefficient of thermal expansion	
Temperature range (°C)	α_i (10 ⁻⁷ K ⁻¹)
-100 ~ -90	61
-90 ~ -80	62
-80 ~ -70	63
-70 ~ -60	64
-60 ~ -50	65
-50 ~ -40	66
-40 ~ -30	68
-30 ~ -20	69
-20 ~ -10	70
-10 ~ 0	71
0 ~ 10	72
10 ~ 20	73
20 ~ 30	74
30 ~ 40	75
40 ~ 50	75
50 ~ 60	76
60 ~ 70	77
70 ~ 80	78
80 ~ 90	79
90 ~ 100	80
100 ~ 110	80
110 ~ 120	81
120 ~ 130	82
130 ~ 140	83
140 ~ 150	83
150 ~ 160	84
160 ~ 170	85
170 ~ 180	85
180 ~ 190	86
190 ~ 200	86
200 ~ 210	87
210 ~ 220	87
220 ~ 230	88
230 ~ 240	88
240 ~ 250	89
250 ~ 260	89
260 ~ 270	90
270 ~ 280	90
280 ~ 290	91
290 ~ 300	91

Other Properties	
Photoelastic Constant β nm/(cm ³ ·105Pa)	1.61
Specific Gravity d	4.01
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	-0.2	-0.1	0.1	0.2	0.3	0.4	0.5	0.8	0.8	1.1	1.4	2.0
-60 ~ -40	-0.4	-0.2	0.1	0.1	0.2	0.3	0.4	0.7	0.7	1.1	1.4	1.9
-40 ~ -20	-0.4	-0.3	0.1	0.2	0.2	0.3	0.5	0.7	0.7	1.0	1.4	2.0
-20 ~ 0	-0.3	-0.2	0.1	0.2	0.2	0.3	0.6	0.8	0.9	1.2	1.5	2.1
0 ~ 20	-0.2	-0.1	0.3	0.4	0.4	0.5	0.7	0.9	1.0	1.3	1.6	2.3
20 ~ 40	-0.1	0.0	0.3	0.5	0.5	0.7	0.8	1.1	1.1	1.5	1.8	2.4
40 ~ 60	0.1	0.2	0.5	0.6	0.6	0.8	0.9	1.2	1.2	1.6	1.9	2.7
60 ~ 80	0.1	0.3	0.6	0.7	0.7	0.8	1.0	1.4	1.4	1.8	2.1	2.8
80 ~ 100	0.3	0.4	0.7	0.8	0.8	1.0	1.1	1.4	1.5	1.8	2.3	3.0
100 ~ 120	0.3	0.5	0.8	0.9	0.9	1.1	1.2	1.6	1.6	2.0	2.3	3.1
120 ~ 140	0.4	0.5	0.9	1.0	1.0	1.1	1.3	1.6	1.7	2.1	2.5	3.2
140 ~ 160	0.4	0.6	0.9	1.0	1.0	1.2	1.4	1.8	1.8	2.2	2.6	3.3
160 ~ 180	0.5	0.6	1.0	1.1	1.1	1.3	1.4	1.8	1.8	2.2	2.6	3.3