

Refractive Index n_d	1.916 50 1.916 500	Abbe Number ν_d	31.60	Dispersion $n_F - n_C$	0.028 999
Refractive Index n_e	1.923 361	Abbe Number ν_e	31.38	Dispersion $n_{F'} - n_{C'}$	0.029 426

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.858 14
n_{1970}	1.970 09	1.866 07
n_{1530}	1.529 58	1.875 03
n_{1129}	1.128 64	1.884 13
n_t	1.013 98	1.887 56
n_s	0.852 11	1.894 08
$n_{A'}$	0.768 19	1.898 84
n_F	0.706 52	1.903 38
n_C	0.656 27	1.908 03
$n_{C'}$	0.643 85	1.909 36
n_{He-Ne}	0.632 8	1.910 60
n_D	0.589 29	1.916 25
n_d	0.587 56	1.916 50
n_e	0.546 07	1.923 36
n_F	0.486 13	1.937 03
$n_{F'}$	0.479 99	1.938 78
n_{He-Cd}	0.441 57	1.951 85
n_g	0.435 835	1.954 18
n_h	0.404 656	1.969 20
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	2.128 443 40E+00
A_2	4.050 821 39E-01
A_3	1.679 184 61E+00
B_1	1.173 098 15E-02
B_2	5.087 065 99E-02
B_3	1.070 914 56E+02

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

Mechanical Properties	
Young's Modulus E (GPa)	113.5
Rigidity Modulus G (GPa)	45.7
Poisson's Ratio σ	0.242
Knoop Hardness Hk[Class]	670 7
Abrasion Aa	69

Partial Dispersions	
$n_C - n_t$	0.020 471
$n_C - n_{A'}$	0.009 192
$n_d - n_C$	0.008 465
$n_e - n_C$	0.015 326
$n_g - n_d$	0.037 676
$n_g - n_F$	0.017 142
$n_h - n_g$	0.015 029
$n_i - n_g$	
$n_C - n_t$	0.021 794
$n_e - n_{C'}$	0.014 003
$n_{F'} - n_e$	0.015 423
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.705 9
$\theta_{C,A'}$	0.317 0
$\theta_{d,C}$	0.291 9
$\theta_{e,C}$	0.528 5
$\theta_{g,d}$	1.299 2
$\theta_{g,F}$	0.591 1
$\theta_{h,g}$	0.518 3
$\theta_{i,g}$	
$\theta'_{C,t}$	0.740 6
$\theta'_{e,C'}$	0.475 9
$\theta'_{F',e}$	0.524 1
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.011 0
$\Delta\theta_{C,A'}$	0.002 9
$\Delta\theta_{g,d}$	0.000 1
$\Delta\theta_{g,F}$	0.000 8
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}		λ_5	355
λ_{70}	400		
Internal transmission			
$\lambda_{0.80}$	389	$\lambda_{0.05}$	353
CCI			
B	G	R	
0.00	2.51	2.67	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	0.01
360	0.16
370	0.45
380	0.68
390	0.81
400	0.87
420	0.936
440	0.961
460	0.973
480	0.981
500	0.987
550	0.994
600	0.996
650	0.997
700	0.998
800	0.999
900	0.999
1 000	0.999
1 200	0.999
1 400	0.995
1 600	0.994
1 800	0.985
2 000	0.963
2 200	0.89
2 400	0.71

Thermal Properties	
Strain Point StP (°C)	581
Annealing Point AP (°C)	601
Transformation Temperature Tg (°C)	625
Yield Point At (°C)	658
Softening Point SP (°C)	677
Expansion Coefficients (-30 °C ~ 70 °C)	59
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	72
Thermal Conductivity λ (W/(mK))	0.894

Linear coefficient of thermal expansion	
Temperature range (°C)	α_i (10 ⁻⁷ K ⁻¹)
-100 ~ -90	46
-90 ~ -80	47
-80 ~ -70	48
-70 ~ -60	50
-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	66
110 ~ 120	67
120 ~ 130	68
130 ~ 140	69
140 ~ 150	69
150 ~ 160	70
160 ~ 170	71
170 ~ 180	71
180 ~ 190	72
190 ~ 200	72
200 ~ 210	73
210 ~ 220	74
220 ~ 230	74
230 ~ 240	75
240 ~ 250	75
250 ~ 260	75
260 ~ 270	76
270 ~ 280	76
280 ~ 290	77
290 ~ 300	77

Other Properties	
Photoelastic Constant β nm/(cm ³ 105Pa)	1.90
Specific Gravity d	4.74
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	3.7	4.0	4.6	4.8	4.9	5.2	5.7	6.5	6.6	7.8	9.1	-
-60 ~ -40	3.7	4.0	4.7	4.9	5.0	5.4	5.8	6.6	6.8	8.0	9.3	-
-40 ~ -20	3.8	4.1	4.9	5.1	5.2	5.5	5.9	7.0	7.1	8.3	9.7	-
-20 ~ 0	3.9	4.4	5.1	5.3	5.4	5.8	6.2	7.3	7.4	8.7	10.2	-
0 ~ 20	4.1	4.6	5.3	5.6	5.6	6.1	6.5	7.5	7.7	9.1	10.7	-
20 ~ 40	4.4	4.7	5.5	5.9	5.9	6.4	6.8	7.9	8.0	9.4	11.2	-
40 ~ 60	4.5	4.9	5.8	6.1	6.2	6.7	7.1	8.2	8.4	9.9	11.6	-
60 ~ 80	4.8	5.2	6.0	6.3	6.4	6.9	7.4	8.5	8.7	10.2	12.1	-
80 ~ 100	4.8	5.3	6.2	6.5	6.6	7.1	7.7	8.9	9.0	10.6	12.5	-
100 ~ 120	5.0	5.4	6.3	6.6	6.7	7.2	7.9	9.1	9.3	11.0	12.9	-
120 ~ 140	5.0	5.5	6.4	6.8	6.9	7.4	8.0	9.4	9.5	11.3	13.2	-
140 ~ 160	5.1	5.5	6.5	6.8	6.9	7.6	8.2	9.5	9.7	11.5	13.5	-
160 ~ 180	5.1	5.6	6.6	7.0	7.1	7.7	8.3	9.6	9.8	11.7	13.8	-