

S-LAH53V

Code(d) 806409

Code(e) 811407

Refractive Index n_d	1.806 10 1.806 100	Abbe Number ν_d	40.93	Dispersion $n_F - n_C$	0.019 695
Refractive Index n_e	1.810 776	Abbe Number ν_e	40.67	Dispersion $n_{F'} - n_{C'}$	0.019 937

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.762 01
n_{1970}	1.970 09	1.768 65
n_{1530}	1.529 58	1.776 00
n_{1129}	1.128 64	1.783 09
n_t	1.013 98	1.785 66
n_s	0.852 11	1.790 41
$n_{A'}$	0.768 19	1.793 81
n_F	0.706 52	1.797 01
n_C	0.656 27	1.800 26
$n_{C'}$	0.643 85	1.801 18
n_{He-Ne}	0.632 8	1.802 04
n_D	0.589 29	1.805 93
n_d	0.587 56	1.806 10
n_e	0.546 07	1.810 78
n_F	0.486 13	1.819 95
$n_{F'}$	0.479 99	1.821 11
n_{He-Cd}	0.441 57	1.829 69
n_g	0.435 835	1.831 21
n_h	0.404 656	1.840 84
n_i	0.365 015	1.857 98

Constants of Dispersion Formula	
A_1	1.966 009 55E+00
A_2	2.051 433 05E-01
A_3	1.232 009 34E+00
B_1	1.078 177 85E-02
B_2	4.637 278 69E-02
B_3	9.769 406 00E+01

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	51.2
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E (GPa)	113.5
Rigidity Modulus G (GPa)	43.4
Poisson's Ratio σ	0.309
Knoop Hardness Hk[Class]	650 7
Abrasion Aa	66

Partial Dispersions	
$n_C - n_t$	0.014 601
$n_C - n_{A'}$	0.006 450
$n_d - n_C$	0.005 841
$n_e - n_C$	0.010 517
$n_g - n_d$	0.025 106
$n_g - n_F$	0.011 252
$n_h - n_g$	0.009 639
$n_i - n_g$	0.026 774
$n_C - n_t$	0.015 520
$n_e - n_{C'}$	0.009 598
$n_{F'} - n_e$	0.010 339
$n_i - n_{F'}$	0.036 865

Relative Partial Dispersions	
$\theta_{C,t}$	0.741 4
$\theta_{C,A'}$	0.327 5
$\theta_{d,C}$	0.296 6
$\theta_{e,C}$	0.534 0
$\theta_{g,d}$	1.274 7
$\theta_{g,F}$	0.571 3
$\theta_{h,g}$	0.489 4
$\theta_{i,g}$	1.359 4
$\theta'_{C,t}$	0.778 5
$\theta'_{e,C'}$	0.481 4
$\theta'_{F',e}$	0.518 6
$\theta'_{i,F'}$	1.849 1

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.002 7
$\Delta\theta_{C,A'}$	0.002 0
$\Delta\theta_{g,d}$	-0.005 0
$\Delta\theta_{g,F}$	-0.003 9
$\Delta\theta_{i,g}$	-0.022 9

Coloring			
λ_{80}	400	λ_5	345
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	372	$\lambda_{0.05}$	341
CCI			
B	G	R	
0.00	0.95	0.98	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.02
350	0.23
360	0.56
370	0.78
380	0.88
390	0.931
400	0.954
420	0.975
440	0.984
460	0.989
480	0.992
500	0.995
550	0.998
600	0.998
650	0.998
700	0.999
800	0.999
900	0.999
1 000	0.999
1 200	0.999
1 400	0.996
1 600	0.995
1 800	0.987
2 000	0.966
2 200	0.916
2 400	0.73

Thermal Properties	
Strain Point StP (°C)	569
Annealing Point AP (°C)	589
Transformation Temperature Tg (°C)	610
Yield Point At (°C)	645
Softening Point SP (°C)	670
Expansion Coefficients (-30 °C ~ 70 °C)	60
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	76
Thermal Conductivity λ (W/(m·K))	0.859

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	55
-20 ~ -10	56
-10 ~ 0	57
0 ~ 10	58
10 ~ 20	59
20 ~ 30	61
30 ~ 40	62
40 ~ 50	63
50 ~ 60	64
60 ~ 70	65
70 ~ 80	66
80 ~ 90	67
90 ~ 100	68
100 ~ 110	69
110 ~ 120	70
120 ~ 130	70
130 ~ 140	71
140 ~ 150	72
150 ~ 160	73
160 ~ 170	74
170 ~ 180	74
180 ~ 190	75
190 ~ 200	76
200 ~ 210	77
210 ~ 220	77
220 ~ 230	78
230 ~ 240	79
240 ~ 250	79
250 ~ 260	80
260 ~ 270	80
270 ~ 280	81
280 ~ 290	81
290 ~ 300	82

Other Properties	
Photoelastic Constant β nm/(cm ³ 105Pa)	2.13
Specific Gravity d	4.41
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	6.2	6.4	7.1	7.3	7.3	7.6	7.9	8.6	8.7	9.5	10.3	12.0
-60 ~ -40	6.1	6.4	7.1	7.3	7.3	7.6	7.9	8.7	8.7	9.5	10.4	12.2
-40 ~ -20	6.2	6.5	7.1	7.3	7.4	7.8	8.1	8.8	8.9	9.7	10.6	12.4
-20 ~ 0	6.3	6.6	7.3	7.5	7.6	7.9	8.3	9.0	9.1	10.0	10.9	12.7
0 ~ 20	6.5	6.9	7.5	7.7	7.8	8.1	8.5	9.2	9.3	10.3	11.2	13.1
20 ~ 40	6.7	7.0	7.8	8.0	8.0	8.4	8.7	9.5	9.6	10.5	11.5	13.5
40 ~ 60	6.8	7.3	7.9	8.2	8.2	8.6	9.0	9.7	9.8	10.8	11.7	13.8
60 ~ 80	7.0	7.4	8.1	8.3	8.4	8.8	9.1	9.9	10.1	11.1	12.1	14.2
80 ~ 100	7.2	7.6	8.3	8.5	8.6	9.0	9.4	10.2	10.3	11.3	12.4	14.6
100 ~ 120	7.3	7.7	8.5	8.7	8.8	9.2	9.6	10.4	10.5	11.5	12.6	14.8
120 ~ 140	7.4	7.8	8.6	8.8	8.9	9.3	9.7	10.6	10.7	11.7	12.9	15.1
140 ~ 160	7.5	7.9	8.6	8.9	9.0	9.4	9.8	10.7	10.8	11.9	13.0	15.4
160 ~ 180	7.5	7.9	8.7	8.9	9.0	9.4	9.9	10.8	11.0	12.1	13.3	15.6