

S-LAM 3

Code(d) 717479
Code(e) 721476

Refractive Index n_d	1.717 00 1.717 004	Abbe Number ν_d	47.92	Dispersion $n_F - n_C$	0.014 961
Refractive Index n_e	1.720 563	Abbe Number ν_e	47.64	Dispersion $n_{F'} - n_{C'}$	0.015 124

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.681 33
n_{1970}	1.970 09	1.686 99
n_{1530}	1.529 58	1.693 20
n_{1129}	1.128 64	1.699 05
n_t	1.013 98	1.701 11
n_s	0.852 11	1.704 88
$n_{A'}$	0.768 19	1.707 54
n_F	0.706 52	1.710 02
n_C	0.656 27	1.712 53
$n_{C'}$	0.643 85	1.713 23
n_{He-Ne}	0.632 8	1.713 90
n_D	0.589 29	1.716 87
n_d	0.587 56	1.717 00
n_e	0.546 07	1.720 56
n_F	0.486 13	1.727 49
$n_{F'}$	0.479 99	1.728 36
n_{He-Cd}	0.441 57	1.734 75
n_g	0.435 835	1.735 87
n_h	0.404 656	1.742 96
n_i	0.365 015	1.755 31

Constants of Dispersion Formula	
A_1	1.642 587 13E+00
A_2	2.396 346 10E-01
A_3	1.224 830 26E+00
B_1	8.682 460 20E-03
B_2	3.512 262 42E-02
B_3	1.166 043 69E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	53.2
Phosphate Resistance PR	4.2

Mechanical Properties	
Young's Modulus E (GPa)	86.8
Rigidity Modulus G (GPa)	33.5
Poisson's Ratio σ	0.294
Knoop Hardness Hk[Class]	530 5
Abrasion Aa	184

Partial Dispersions	
$n_C - n_t$	0.011 413
$n_C - n_{A'}$	0.004 990
$n_d - n_C$	0.004 476
$n_e - n_C$	0.008 035
$n_g - n_d$	0.018 871
$n_g - n_F$	0.008 386
$n_h - n_g$	0.007 085
$n_i - n_g$	0.019 433
$n_{C'} - n_t$	0.012 120
$n_e - n_{C'}$	0.007 328
$n_{F'} - n_e$	0.007 796
$n_i - n_{F'}$	0.026 949

Relative Partial Dispersions	
$\theta_{C,t}$	0.762 9
$\theta_{C,A'}$	0.333 5
$\theta_{d,C}$	0.299 2
$\theta_{e,C}$	0.537 1
$\theta_{g,d}$	1.261 3
$\theta_{g,F}$	0.560 5
$\theta_{h,g}$	0.473 6
$\theta_{i,g}$	1.298 9
$\theta'_{C,t}$	0.801 4
$\theta'_{e,C'}$	0.484 5
$\theta'_{F',e}$	0.515 5
$\theta'_{i,F'}$	1.781 9

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.008 6
$\Delta\theta_{C,A'}$	-0.000 4
$\Delta\theta_{g,d}$	-0.003 9
$\Delta\theta_{g,F}$	-0.003 4
$\Delta\theta_{i,g}$	-0.024 9

Coloring			
λ_{80}	385	λ_5	340
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	368	$\lambda_{0.05}$	338
CCI			
B	G	R	
0.00	0.65	0.63	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.10
350	0.41
360	0.69
370	0.83
380	0.916
390	0.951
400	0.968
420	0.982
440	0.987
460	0.990
480	0.993
500	0.995
550	0.997
600	0.996
650	0.996
700	0.997
800	0.999
900	0.997
1 000	0.997
1 200	0.996
1 400	0.994
1 600	0.992
1 800	0.983
2 000	0.966
2 200	0.920
2 400	0.77

Thermal Properties	
Strain Point StP (°C)	588
Annealing Point AP (°C)	614
Transformation Temperature Tg (°C)	631
Yield Point At (°C)	666
Softening Point SP (°C)	701
Expansion Coefficients (-30 °C ~ 70 °C)	84
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	97
Thermal Conductivity λ (W/(m·K))	0.655

Linear coefficient of thermal expansion	
Temperature range (°C)	α_i (10 ⁻⁷ K ⁻¹)
-100 ~ -90	71
-90 ~ -80	72
-80 ~ -70	74
-70 ~ -60	75
-60 ~ -50	76
-50 ~ -40	77
-40 ~ -30	78
-30 ~ -20	79
-20 ~ -10	80
-10 ~ 0	81
0 ~ 10	82
10 ~ 20	83
20 ~ 30	84
30 ~ 40	85
40 ~ 50	86
50 ~ 60	87
60 ~ 70	88
70 ~ 80	89
80 ~ 90	90
90 ~ 100	91
100 ~ 110	91
110 ~ 120	92
120 ~ 130	93
130 ~ 140	94
140 ~ 150	94
150 ~ 160	95
160 ~ 170	96
170 ~ 180	96
180 ~ 190	97
190 ~ 200	97
200 ~ 210	98
210 ~ 220	99
220 ~ 230	99
230 ~ 240	100
240 ~ 250	100
250 ~ 260	101
260 ~ 270	101
270 ~ 280	101
280 ~ 290	102
290 ~ 300	102

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	1.51
Specific Gravity d	4.25
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	-1.2	-1.0	-0.8	-0.7	-0.7	-0.5	-0.3	0.0	0.1	0.5	1.0	1.7
-60 ~ -40	-1.4	-1.3	-1.0	-0.8	-0.8	-0.6	-0.5	-0.1	-0.1	0.3	0.9	1.7
-40 ~ -20	-1.5	-1.3	-1.0	-0.9	-0.9	-0.7	-0.5	-0.1	-0.1	0.4	0.8	1.8
-20 ~ 0	-1.5	-1.4	-1.0	-0.9	-0.8	-0.7	-0.5	-0.1	0.0	0.4	1.0	1.9
0 ~ 20	-1.4	-1.3	-0.9	-0.8	-0.8	-0.6	-0.4	0.0	0.0	0.6	1.1	2.1
20 ~ 40	-1.3	-1.2	-0.8	-0.7	-0.7	-0.5	-0.3	0.1	0.2	0.7	1.2	2.4
40 ~ 60	-1.3	-1.1	-0.7	-0.6	-0.6	-0.4	-0.2	0.3	0.3	1.0	1.5	2.6
60 ~ 80	-1.3	-1.0	-0.6	-0.5	-0.4	-0.2	0.0	0.5	0.5	1.1	1.7	2.8
80 ~ 100	-1.1	-1.0	-0.5	-0.4	-0.4	-0.1	0.1	0.7	0.7	1.3	1.9	3.1
100 ~ 120	-1.1	-0.8	-0.4	-0.3	-0.2	0.0	0.3	0.7	0.8	1.5	2.1	3.4
120 ~ 140	-1.0	-0.8	-0.3	-0.2	-0.1	0.2	0.4	1.0	1.0	1.7	2.3	3.6
140 ~ 160	-0.9	-0.6	-0.1	0.0	0.1	0.3	0.6	1.1	1.2	1.8	2.5	3.8
160 ~ 180	-0.8	-0.6	-0.1	0.1	0.1	0.4	0.7	1.2	1.3	2.0	2.7	4.0