

S-LAH63Q

Code(d) 804396
Code(e) 809393

Refractive Index n_d	1.804 40 1.804 400	Abbe Number ν_d	39.58	Dispersion $n_F - n_C$	0.020 323
Refractive Index n_e	1.809 222	Abbe Number ν_e	39.31	Dispersion $n_{F'} - n_{C'}$	0.020 586

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.760 63
n_{1970}	1.970 09	1.766 95
n_{1530}	1.529 58	1.774 01
n_{1129}	1.128 64	1.780 98
n_t	1.013 98	1.783 55
n_s	0.852 11	1.788 34
$n_{A'}$	0.768 19	1.791 80
n_F	0.706 52	1.795 07
n_C	0.656 27	1.798 40
$n_{C'}$	0.643 85	1.799 34
n_{He-Ne}	0.632 8	1.800 23
n_D	0.589 29	1.804 22
n_d	0.587 56	1.804 40
n_e	0.546 07	1.809 22
n_F	0.486 13	1.818 72
$n_{F'}$	0.479 99	1.819 93
n_{He-Cd}	0.441 57	1.828 85
n_g	0.435 835	1.830 43
n_h	0.404 656	1.840 52
n_i	0.365 015	1.858 62

Constants of Dispersion Formula	
A_1	1.967 230 17E+00
A_2	1.949 539 15E-01
A_3	1.253 862 82E+00
B_1	1.104 560 86E-02
B_2	4.971 370 61E-02
B_3	1.048 435 20E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	102.6
Rigidity Modulus G (GPa)	39.5
Poisson's Ratio σ	0.300
Knoop Hardness Hk[Class]	620 6
Abrasion Aa	121

Partial Dispersions	
$n_C - n_t$	0.014 851
$n_C - n_{A'}$	0.006 597
$n_d - n_C$	0.006 003
$n_e - n_C$	0.010 825
$n_g - n_d$	0.026 030
$n_g - n_F$	0.011 710
$n_h - n_g$	0.010 090
$n_i - n_g$	0.028 188
$n_{C'} - n_t$	0.015 794
$n_e - n_{C'}$	0.009 882
$n_{F'} - n_e$	0.010 704
$n_i - n_{F'}$	0.038 692

Relative Partial Dispersions	
$\theta_{C,t}$	0.730 7
$\theta_{C,A'}$	0.324 6
$\theta_{d,C}$	0.295 4
$\theta_{e,C}$	0.532 6
$\theta_{g,d}$	1.280 8
$\theta_{g,F}$	0.576 2
$\theta_{h,g}$	0.496 5
$\theta_{i,g}$	1.387 0
$\theta'_{C,t}$	0.767 2
$\theta'_{e,C'}$	0.480 0
$\theta'_{F',e}$	0.520 0
$\theta'_{i,F'}$	1.879 5

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.001 7
$\Delta\theta_{C,A'}$	0.000 8
$\Delta\theta_{g,d}$	-0.001 7
$\Delta\theta_{g,F}$	-0.001 2
$\Delta\theta_{i,g}$	-0.006 6

Coloring			
λ_{80}	415	λ_5	345
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	378	$\lambda_{0.05}$	343
CCI			
B	G	R	
0.00	1.51	1.56	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.01
350	0.14
360	0.44
370	0.69
380	0.82
390	0.89
400	0.927
420	0.959
440	0.973
460	0.981
480	0.987
500	0.991
550	0.996
600	0.996
650	0.996
700	0.997
800	0.998
900	0.998
1 000	0.999
1 200	0.999
1 400	0.998
1 600	0.995
1 800	0.987
2 000	0.968
2 200	0.923
2 400	0.77

Thermal Properties	
Strain Point StP (°C)	626
Annealing Point AP (°C)	654
Transformation Temperature Tg (°C)	671
Yield Point At (°C)	705
Softening Point SP (°C)	732
Expansion Coefficients (-30 °C ~ 70 °C)	81
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	95
Thermal Conductivity λ (W/(mK))	0.738

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10 ⁻⁷ K ⁻¹)
-100 ~ -90	68
-90 ~ -80	69
-80 ~ -70	70
-70 ~ -60	71
-60 ~ -50	73
-50 ~ -40	74
-40 ~ -30	75
-30 ~ -20	76
-20 ~ -10	77
-10 ~ 0	78
0 ~ 10	79
10 ~ 20	80
20 ~ 30	81
30 ~ 40	82
40 ~ 50	83
50 ~ 60	84
60 ~ 70	85
70 ~ 80	86
80 ~ 90	87
90 ~ 100	88
100 ~ 110	88
110 ~ 120	89
120 ~ 130	90
130 ~ 140	91
140 ~ 150	91
150 ~ 160	92
160 ~ 170	93
170 ~ 180	94
180 ~ 190	94
190 ~ 200	95
200 ~ 210	95
210 ~ 220	96
220 ~ 230	97
230 ~ 240	97
240 ~ 250	98
250 ~ 260	98
260 ~ 270	99
270 ~ 280	99
280 ~ 290	99
290 ~ 300	100

Other Properties	
Photoelastic Constant β nm/(cm ³ 105Pa)	1.39
Specific Gravity d	4.45
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	-0.5	-0.3	0.2	0.3	0.4	0.6	0.8	1.4	1.5	2.1	2.8	4.4
-60 ~ -40	-0.6	-0.4	0.1	0.2	0.3	0.5	0.8	1.4	1.5	2.2	2.9	4.5
-40 ~ -20	-0.6	-0.4	0.1	0.2	0.3	0.6	0.9	1.5	1.5	2.2	3.1	4.7
-20 ~ 0	-0.6	-0.4	0.2	0.4	0.4	0.7	1.0	1.6	1.6	2.4	3.3	5.0
0 ~ 20	-0.4	-0.2	0.3	0.5	0.5	0.8	1.1	1.7	1.8	2.7	3.5	5.3
20 ~ 40	-0.4	-0.2	0.5	0.6	0.7	1.0	1.3	1.9	2.0	2.9	3.7	5.7
40 ~ 60	-0.3	0.0	0.6	0.8	0.8	1.1	1.5	2.1	2.2	3.1	4.0	6.0
60 ~ 80	-0.2	0.1	0.7	0.9	0.9	1.3	1.6	2.3	2.5	3.4	4.4	6.4
80 ~ 100	0.0	0.2	0.8	1.0	1.1	1.4	1.8	2.5	2.6	3.5	4.5	6.7
100 ~ 120	0.0	0.3	0.9	1.2	1.2	1.6	1.9	2.7	2.8	3.8	4.8	7.0
120 ~ 140	0.1	0.4	1.0	1.3	1.3	1.7	2.0	2.8	2.9	3.9	5.0	7.3
140 ~ 160	0.1	0.4	1.1	1.3	1.4	1.8	2.1	3.0	3.1	4.1	5.2	7.6
160 ~ 180	0.1	0.4	1.1	1.3	1.4	1.8	2.2	3.0	3.2	4.3	5.4	7.9

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