S-LAH60MQ

Code(d) **834372**
Code(e) **839369**

Refractive Index n_d	**1.834 00** 1.834 000	Abbe Number ν_d	**37.17**	Dispersion $n_F - n_C$	**0.022 437**
Refractive Index n_e	1.839 321	Abbe Number ν_e	36.92	Dispersion $n_{F'} - n_{C'}$	0.022 735

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.788 10
n_{1970}	1.970 09	1.794 30
n_{1530}	1.529 58	1.801 35
n_{1129}	1.128 64	1.808 54
n_t	1.013 98	1.811 25
n_s	0.852 11	1.816 41
$n_{A'}$	0.768 19	1.820 17
n_r	0.706 52	1.823 74
n_C	0.656 27	1.827 39
$n_{C'}$	0.643 85	1.828 43
$n_{He\text{-}Ne}$	0.632 8	1.829 40
n_D	0.589 29	1.833 80
n_d	0.587 56	1.834 00
n_e	0.546 07	1.839 32
n_F	0.486 13	1.849 83
$n_{F'}$	0.479 99	1.851 16
$n_{He\text{-}Cd}$	0.441 57	1.861 06
n_g	0.435 835	1.862 81
n_h	0.404 656	1.874 01
n_i	0.365 015	1.894 07

Constants of Dispersion Formula	
A_1	1.955 390 63E+00
A_2	3.025 502 19E-01
A_3	1.343 113 90E+00
B_1	1.091 113 65E-02
B_2	4.546 667 00E-02
B_3	1.135 808 50E+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	1.2

Mechanical Properties		
Young's Modulus E (GPa)	95.3	
Rigidity Modulus G (GPa)	36.6	
Poisson's Ratio σ	0.302	
Knoop Hardness Hk[Class]	560	6
Abrasion Aa	160	

Partial Dispersions	
$n_C - n_t$	0.016 137
$n_C - n_{A'}$	0.007 222
$n_d - n_C$	0.006 608
$n_e - n_C$	0.011 929
$n_g - n_d$	0.028 810
$n_g - n_F$	0.012 981
$n_h - n_g$	0.011 196
$n_i - n_g$	0.031 262
$n_{C'} - n_t$	0.017 174
$n_e - n_{C'}$	0.010 892
$n_{F'} - n_e$	0.011 843
$n_i - n_{F'}$	0.042 908

Relative Partial Dispersions	
$\theta_{C,t}$	0.719 2
$\theta_{C,A'}$	0.321 9
$\theta_{d,C}$	0.294 5
$\theta_{e,C}$	0.531 7
$\theta_{g,d}$	1.284 0
$\theta_{g,F}$	0.578 6
$\theta_{h,g}$	0.499 0
$\theta_{i,g}$	1.393 3
$\theta'_{C',t}$	0.755 4
$\theta'_{e,C'}$	0.479 1
$\theta'_{F',e}$	0.520 9
$\theta'_{i,F'}$	1.887 3

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.001 9
$\Delta\theta_{C,A'}$	0.001 0
$\Delta\theta_{g,d}$	-0.003 5
$\Delta\theta_{g,F}$	-0.002 7
$\Delta\theta_{i,g}$	-0.020 5

Coloring			
λ_{80}	425	λ_5	340
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	377	$\lambda_{0.05}$	336

CCI		
B	G	R
0.00	1.58	1.64

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.08
350	0.31
360	0.56
370	0.73
380	0.83
390	0.89
400	0.927
420	0.957
440	0.968
460	0.976
480	0.983
500	0.989
550	0.995
600	0.995
650	0.995
700	0.997
800	0.998
900	0.998
1 000	0.998
1 200	0.999
1 400	0.998
1 600	0.995
1 800	0.986
2 000	0.968
2 200	0.927
2 400	0.80

Thermal Properties		
Strain Point StP (°C)		609
Annealing Point AP (°C)		635
Transformation Temperature Tg (°C)		659
Yield Point At (°C)		688
Softening Point SP (°C)		721
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	86
	(100 °C ~ 300 °C)	100
Thermal Conductivity λ (W/(m·K))		0.701

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	72
-90 ~ -80	73
-80 ~ -70	74
-70 ~ -60	76
-60 ~ -50	77
-50 ~ -40	78
-40 ~ -30	80
-30 ~ -20	81
-20 ~ -10	82
-10 ~ 0	83
0 ~ 10	84
10 ~ 20	86
20 ~ 30	87
30 ~ 40	88
40 ~ 50	89
50 ~ 60	90
60 ~ 70	91
70 ~ 80	92
80 ~ 90	92
90 ~ 100	93
100 ~ 110	94
110 ~ 120	95
120 ~ 130	96
130 ~ 140	96
140 ~ 150	97
150 ~ 160	98
160 ~ 170	98
170 ~ 180	99
180 ~ 190	100
190 ~ 200	100
200 ~ 210	101
210 ~ 220	101
220 ~ 230	101
230 ~ 240	102
240 ~ 250	102
250 ~ 260	103
260 ~ 270	103
270 ~ 280	103
280 ~ 290	103
290 ~ 300	104

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	1.36
Specific Gravity *d*	4.71
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	-2.1	-1.9	-1.5	-1.3	-1.3	-0.9	-0.7	-0.1	-0.1	0.7	1.5	3.2
-60 ~ -40	-2.2	-2.0	-1.5	-1.4	-1.3	-1.0	-0.7	-0.1	0.0	0.7	1.6	3.3
-40 ~ -20	-2.2	-2.0	-1.4	-1.3	-1.2	-0.9	-0.6	0.0	0.1	0.9	1.8	3.5
-20 ~ 0	-2.1	-1.9	-1.4	-1.2	-1.1	-0.8	-0.5	0.2	0.3	1.1	2.0	3.9
0 ~ 20	-2.0	-1.8	-1.2	-1.0	-1.0	-0.7	-0.4	0.4	0.5	1.3	2.2	4.2
20 ~ 40	-1.9	-1.6	-1.1	-0.9	-0.8	-0.5	-0.2	0.6	0.6	1.5	2.6	4.5
40 ~ 60	-1.8	-1.5	-0.9	-0.7	-0.6	-0.3	0.0	0.8	0.9	1.9	2.9	4.9
60 ~ 80	-1.7	-1.4	-0.8	-0.6	-0.5	-0.2	0.3	1.0	1.1	2.1	3.1	5.2
80 ~ 100	-1.6	-1.3	-0.6	-0.4	-0.3	0.0	0.4	1.2	1.3	2.3	3.4	5.6
100 ~ 120	-1.5	-1.2	-0.5	-0.3	-0.2	0.2	0.5	1.4	1.5	2.5	3.6	6.0
120 ~ 140	-1.4	-1.1	-0.4	-0.2	-0.1	0.3	0.7	1.5	1.6	2.7	3.8	6.2
140 ~ 160	-1.4	-1.1	-0.4	-0.1	-0.1	0.3	0.7	1.6	1.7	2.8	4.1	6.5
160 ~ 180	-1.4	-1.1	-0.3	-0.1	0.0	0.5	0.9	1.8	1.9	3.0	4.2	6.7

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※The name of the glass type is the model number assigned based on the main components of the composition: large, medium, small refractive index and serial number.