S-LAH60

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

Refractive Index n_d	**1.834 00** 1.834 000	Abbe Number ν_d	**37.16**	Dispersion $n_F - n_C$	**0.022 443**
Refractive Index n_e	1.839 323	Abbe Number ν_e	36.92	Dispersion $n_{F'} - n_{C'}$	0.022 736

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.784 73
n_{1970}	1.970 09	1.792 05
n_{1530}	1.529 58	1.800 18
n_{1129}	1.128 64	1.808 07
n_t	1.013 98	1.810 94
n_s	0.852 11	1.816 27
$n_{A'}$	0.768 19	1.820 09
n_r	0.706 52	1.823 70
n_C	0.656 27	1.827 38
$n_{C'}$	0.643 85	1.828 42
$n_{He\text{-}Ne}$	0.632 8	1.829 39
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 82
$n_{F'}$	0.479 99	1.851 15
$n_{He\text{-}Cd}$	0.441 57	1.861 03
n_g	0.435 835	1.862 78
n_h	0.404 656	1.873 96
n_i	0.365 015	1.894 03

Constants of Dispersion Formula	
A_1	1.952 434 69E+00
A_2	3.071 002 10E-01
A_3	1.565 780 94E+00
B_1	1.064 424 37E-02
B_2	4.567 353 02E-02
B_3	1.102 814 10E+02

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	4.2
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E (GPa)	124.8	
Rigidity Modulus G (GPa)	48.1	
Poisson's Ratio σ	0.296	
Knoop Hardness Hk[Class]	660	7
Abrasion Aa	79	

Partial Dispersions	
$n_C - n_t$	0.016 437
$n_C - n_{A'}$	0.007 283
$n_d - n_C$	0.006 624
$n_e - n_C$	0.011 947
$n_g - n_d$	0.028 781
$n_g - n_F$	0.012 962
$n_h - n_g$	0.011 183
$n_i - n_g$	0.031 249
$n_{C'} - n_t$	0.017 477
$n_e - n_{C'}$	0.010 907
$n_{F'} - n_e$	0.011 829
$n_i - n_{F'}$	0.042 878

Relative Partial Dispersions	
$\theta_{C,t}$	0.732 4
$\theta_{C,A'}$	0.324 5
$\theta_{d,C}$	0.295 1
$\theta_{e,C}$	0.532 3
$\theta_{g,d}$	1.282 4
$\theta_{g,F}$	0.577 6
$\theta_{h,g}$	0.498 3
$\theta_{i,g}$	1.392 4
$\theta'_{C',t}$	0.768 7
$\theta'_{e,C'}$	0.479 7
$\theta'_{F',e}$	0.520 3
$\theta'_{i,F'}$	1.885 9

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.011 4
$\Delta\theta_{C,A'}$	0.003 6
$\Delta\theta_{g,d}$	-0.005 1
$\Delta\theta_{g,F}$	-0.003 7
$\Delta\theta_{i,g}$	-0.021 5

Coloring			
λ_{80}	420	λ_5	340
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	377	$\lambda_{0.05}$	341

CCI		
B	G	R
0.00	1.57	1.66

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.03
350	0.27
360	0.54
370	0.72
380	0.83
390	0.88
400	0.924
420	0.957
440	0.972
460	0.980
480	0.986
500	0.990
550	0.996
600	0.997
650	0.997
700	0.998
800	0.999
900	0.998
1 000	0.997
1 200	0.996
1 400	0.993
1 600	0.992
1 800	0.984
2 000	0.964
2 200	0.906
2 400	0.72

Thermal Properties		
Strain Point StP (℃)		-
Annealing Point AP (℃)		-
Transformation Temperature Tg (℃)		608
Yield Point At (℃)		644
Softening Point SP (℃)		676
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	58
	(100 ℃ ~ 300 ℃)	73
Thermal Conductivity λ (W/(m·K))		0.872

Linear coefficient of thermal expansion	
Temperature range (℃)	α_l (10^{-7} K^{-1})
-100 ~ -90	45
-90 ~ -80	47
-80 ~ -70	48
-70 ~ -60	49
-60 ~ -50	50
-50 ~ -40	51
-40 ~ -30	52
-30 ~ -20	53
-20 ~ -10	54
-10 ~ 0	55
0 ~ 10	57
10 ~ 20	58
20 ~ 30	59
30 ~ 40	60
40 ~ 50	60
50 ~ 60	61
60 ~ 70	62
70 ~ 80	63
80 ~ 90	64
90 ~ 100	65
100 ~ 110	66
110 ~ 120	67
120 ~ 130	68
130 ~ 140	68
140 ~ 150	69
150 ~ 160	70
160 ~ 170	71
170 ~ 180	72
180 ~ 190	72
190 ~ 200	73
200 ~ 210	74
210 ~ 220	74
220 ~ 230	75
230 ~ 240	76
240 ~ 250	76
250 ~ 260	77
260 ~ 270	78
270 ~ 280	78
280 ~ 290	79
290 ~ 300	79

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.15
Specific Gravity *d*	4.43
Remarks	

Temperature Coefficients of Refractive Index												
Range of Temperature (℃)	$\Delta n_{rel}/\Delta T$ (10^{-6} K^{-1})											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	4.7	5.0	5.5	5.7	5.8	6.2	6.5	7.1	7.2	8.1	8.9	10.8
-60 ~ -40	4.7	4.9	5.5	5.7	5.7	6.2	6.5	7.2	7.2	8.1	9.1	10.9
-40 ~ -20	4.7	4.9	5.6	5.8	5.9	6.2	6.6	7.3	7.4	8.3	9.3	11.2
-20 ~ 0	4.8	5.1	5.8	6.0	6.0	6.4	6.7	7.6	7.7	8.6	9.6	11.7
0 ~ 20	4.9	5.3	5.9	6.2	6.2	6.6	6.9	7.8	7.9	8.9	9.9	12.0
20 ~ 40	5.0	5.5	6.2	6.4	6.5	6.9	7.2	8.0	8.1	9.2	10.3	12.5
40 ~ 60	5.3	5.7	6.4	6.6	6.7	7.1	7.5	8.3	8.4	9.6	10.7	13.0
60 ~ 80	5.5	5.8	6.6	6.8	6.9	7.3	7.8	8.7	8.8	9.9	11.0	13.4
80 ~ 100	5.6	6.0	6.8	7.1	7.1	7.6	8.0	8.9	9.0	10.2	11.4	13.9
100 ~ 120	5.8	6.2	7.0	7.3	7.4	7.8	8.3	9.2	9.3	10.5	11.7	14.4
120 ~ 140	6.0	6.4	7.2	7.5	7.6	8.0	8.5	9.4	9.6	10.8	12.1	14.8
140 ~ 160	6.1	6.5	7.4	7.6	7.7	8.2	8.7	9.7	9.8	11.0	12.5	15.2
160 ~ 180	6.2	6.6	7.5	7.8	8.0	8.4	8.9	10.0	10.1	11.4	12.7	15.6

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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.