L-LAH91

Code(d) **765491**
Code(e) **768488**

Refractive Index n_d	**1.764 50** 1.764 500	Abbe Number ν_d	**49.09**	Dispersion $n_F - n_C$	**0.015 572**
Refractive Index n_e	1.768 208	Abbe Number ν_e	48.85	Dispersion $n_{F'} - n_{C'}$	0.015 726

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.724 04
n_{1970}	1.970 09	1.731 03
n_{1530}	1.529 58	1.738 52
n_{1129}	1.128 64	1.745 27
n_t	1.013 98	1.747 58
n_s	0.852 11	1.751 68
$n_{A'}$	0.768 19	1.754 53
n_r	0.706 52	1.757 16
n_C	0.656 27	1.759 81
$n_{C'}$	0.643 85	1.760 55
$n_{He\text{-}Ne}$	0.632 8	1.761 25
n_D	0.589 29	1.764 36
n_d	0.587 56	1.764 50
n_e	0.546 07	1.768 21
n_F	0.486 13	1.775 38
$n_{F'}$	0.479 99	1.776 28
$n_{He\text{-}Cd}$	0.441 57	1.782 84
n_g	0.435 835	1.783 99
n_h	0.404 656	1.791 20
n_i	0.365 015	1.803 60

Constants of Dispersion Formula	
A_1	1.261 441 28E+00
A_2	7.821 152 73E-01
A_3	1.158 236 45E+00
B_1	5.725 125 82E-03
B_2	2.198 297 52E-02
B_3	8.804 822 00E+01

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	52.2
Phosphate Resistance PR	2.0

Mechanical Properties		
Young's Modulus E (GPa)	114.4	
Rigidity Modulus G (GPa)	43.9	
Poisson's Ratio σ	0.301	
Knoop Hardness Hk[Class]	680	7
Abrasion Aa	68	

Partial Dispersions	
$n_C - n_t$	0.012 232
$n_C - n_{A'}$	0.005 282
$n_d - n_C$	0.004 692
$n_e - n_C$	0.008 400
$n_g - n_d$	0.019 488
$n_g - n_F$	0.008 608
$n_h - n_g$	0.007 208
$n_i - n_g$	0.019 614
$n_{C'} - n_t$	0.012 975
$n_e - n_{C'}$	0.007 657
$n_{F'} - n_e$	0.008 069
$n_i - n_{F'}$	0.027 325

Relative Partial Dispersions	
$\theta_{C,t}$	0.785 5
$\theta_{C,A'}$	0.339 2
$\theta_{d,C}$	0.301 3
$\theta_{e,C}$	0.539 4
$\theta_{g,d}$	1.251 5
$\theta_{g,F}$	0.552 8
$\theta_{h,g}$	0.462 9
$\theta_{i,g}$	1.259 6
$\theta'_{C',t}$	0.825 1
$\theta'_{e,C'}$	0.486 9
$\theta'_{F',e}$	0.513 1
$\theta'_{i,F'}$	1.737 6

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.008 5
$\Delta\theta_{C,A'}$	0.003 8
$\Delta\theta_{g,d}$	-0.011 3
$\Delta\theta_{g,F}$	-0.009 2
$\Delta\theta_{i,g}$	-0.054 4

Coloring			
λ_{80}	365	λ_5	275
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	333	$\lambda_{0.05}$	274

CCI		
B	G	R
0.00	0.30	0.31

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	0.15
290	0.32
300	0.46
310	0.59
320	0.69
330	0.78
340	0.85
350	0.902
360	0.937
370	0.954
380	0.973
390	0.981
400	0.986
420	0.991
440	0.993
460	0.996
480	0.997
500	0.998
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1 000	0.999
1 200	0.999
1 400	0.997
1 600	0.996
1 800	0.988
2 000	0.963
2 200	0.905
2 400	0.67

Thermal Properties		
Strain Point StP (°C)		578
Annealing Point AP (°C)		599
Transformation Temperature Tg (°C)		620
Yield Point At (°C)		650
Softening Point SP (°C)		676
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	59
	(100 °C ~ 300 °C)	73
Thermal Conductivity λ (W/(m·K))		0.841

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	45
-90 ~ -80	47
-80 ~ -70	48
-70 ~ -60	49
-60 ~ -50	50
-50 ~ -40	52
-40 ~ -30	53
-30 ~ -20	54
-20 ~ -10	55
-10 ~ 0	56
0 ~ 10	57
10 ~ 20	58
20 ~ 30	59
30 ~ 40	60
40 ~ 50	61
50 ~ 60	62
60 ~ 70	63
70 ~ 80	64
80 ~ 90	65
90 ~ 100	66
100 ~ 110	67
110 ~ 120	67
120 ~ 130	68
130 ~ 140	69
140 ~ 150	70
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	75
240 ~ 250	76
250 ~ 260	76
260 ~ 270	77
270 ~ 280	77
280 ~ 290	78
290 ~ 300	78

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	1.71
Specific Gravity *d*	4.29
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	4.2	4.5	5.0	5.1	5.2	5.4	5.8	6.2	6.3	6.9	7.5	8.5
-60 ~ -40	4.4	4.6	5.1	5.3	5.3	5.5	5.9	6.4	6.4	7.0	7.5	8.7
-40 ~ -20	4.5	4.9	5.4	5.5	5.5	5.8	6.0	6.5	6.6	7.3	7.8	8.9
-20 ~ 0	4.8	5.0	5.5	5.7	5.7	6.0	6.3	6.8	6.9	7.5	8.1	9.2
0 ~ 20	5.0	5.2	5.7	6.0	6.1	6.3	6.6	7.1	7.1	7.7	8.3	9.4
20 ~ 40	5.2	5.5	6.0	6.2	6.2	6.5	6.7	7.3	7.4	8.0	8.6	9.7
40 ~ 60	5.4	5.7	6.2	6.5	6.5	6.8	7.0	7.6	7.6	8.2	8.8	9.9
60 ~ 80	5.6	5.9	6.4	6.5	6.6	6.9	7.1	7.6	7.7	8.3	8.9	10.1
80 ~ 100	5.7	6.1	6.6	6.8	6.8	7.1	7.3	7.9	8.0	8.6	9.2	10.3
100 ~ 120	5.7	6.0	6.6	6.8	6.9	7.1	7.4	7.9	8.0	8.6	9.2	10.3
120 ~ 140	5.7	6.0	6.6	6.8	6.9	7.1	7.4	7.9	8.0	8.6	9.2	10.3
140 ~ 160	5.9	6.1	6.7	6.9	6.9	7.2	7.4	8.0	8.1	8.7	9.3	10.4
160 ~ 180	5.7	6.0	6.6	6.7	6.8	7.1	7.3	7.9	7.9	8.6	9.2	10.3

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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.