L-BSL 7

Code(d) **516641**
Code(e) **518638**

Refractive Index n_d	**1.516 33** 1.516 330	Abbe Number ν_d	**64.06**	Dispersion $n_F - n_C$	**0.008 060**
Refractive Index n_e	1.518 253	Abbe Number ν_e	63.87	Dispersion $n_{F'} - n_{C'}$	0.008 114

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.488 10
n_{1970}	1.970 09	1.494 04
n_{1530}	1.529 58	1.500 20
n_{1129}	1.128 64	1.505 23
n_t	1.013 98	1.506 77
n_s	0.852 11	1.509 30
$n_{A'}$	0.768 19	1.510 94
n_r	0.706 52	1.512 41
n_C	0.656 27	1.513 85
$n_{C'}$	0.643 85	1.514 24
$n_{He\text{-}Ne}$	0.632 8	1.514 62
n_D	0.589 29	1.516 26
n_d	0.587 56	1.516 33
n_e	0.546 07	1.518 25
n_F	0.486 13	1.521 91
$n_{F'}$	0.479 99	1.522 36
$n_{He\text{-}Cd}$	0.441 57	1.525 64
n_g	0.435 835	1.526 20
n_h	0.404 656	1.529 75
n_i	0.365 015	1.535 74

Constants of Dispersion Formula	
A_1	9.174 739 18E-01
A_2	3.526 876 65E-01
A_3	1.055 797 88E+00
B_1	5.277 014 11E-03
B_2	1.708 094 97E-02
B_3	1.043 025 83E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.2

Mechanical Properties		
Young's Modulus E (GPa)	79.3	
Rigidity Modulus G (GPa)	32.7	
Poisson's Ratio σ	0.214	
Knoop Hardness Hk[Class]	570	6
Abrasion Aa	72	

Partial Dispersions	
$n_C - n_t$	0.007 081
$n_C - n_{A'}$	0.002 904
$n_d - n_C$	0.002 484
$n_e - n_C$	0.004 407
$n_g - n_d$	0.009 874
$n_g - n_F$	0.004 298
$n_h - n_g$	0.003 544
$n_i - n_g$	0.009 541
$n_{C'} - n_t$	0.007 479
$n_e - n_{C'}$	0.004 009
$n_{F'} - n_e$	0.004 105
$n_i - n_{F'}$	0.013 387

Relative Partial Dispersions	
$\theta_{C,t}$	0.878 5
$\theta_{C,A'}$	0.360 3
$\theta_{d,C}$	0.308 2
$\theta_{e,C}$	0.546 8
$\theta_{g,d}$	1.225 1
$\theta_{g,F}$	0.533 3
$\theta_{h,g}$	0.439 7
$\theta_{i,g}$	1.183 7
$\theta'_{C',t}$	0.921 7
$\theta'_{e,C'}$	0.494 1
$\theta'_{F',e}$	0.505 9
$\theta'_{i,F'}$	1.649 9

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.031 2
$\Delta\theta_{C,A'}$	0.006 8
$\Delta\theta_{g,d}$	-0.006 6
$\Delta\theta_{g,F}$	-0.004 5
$\Delta\theta_{i,g}$	-0.004 9

Coloring			
λ_{80}	330	λ_5	295
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	326	$\lambda_{0.05}$	299

CCI		
B	G	R
0.00	0.08	0.09

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	0.08
310	0.40
320	0.71
330	0.87
340	0.942
350	0.973
360	0.986
370	0.992
380	0.994
390	0.996
400	0.997
420	0.997
440	0.997
460	0.997
480	0.998
500	0.999
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	0.974
1 600	0.994
1 800	0.988
2 000	0.974
2 200	0.87
2 400	0.80

Thermal Properties		
Strain Point StP (°C)		464
Annealing Point AP (°C)		488
Transformation Temperature Tg (°C)		497
Yield Point At (°C)		560
Softening Point SP (°C)		630
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	59
	(100 °C ~ 300 °C)	72
Thermal Conductivity λ (W/(m·K))		1.17

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	45
-90 ~ -80	46
-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	58
10 ~ 20	59
20 ~ 30	60
30 ~ 40	61
40 ~ 50	62
50 ~ 60	63
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	69
150 ~ 160	70
160 ~ 170	70
170 ~ 180	71
180 ~ 190	71
190 ~ 200	72
200 ~ 210	72
210 ~ 220	73
220 ~ 230	73
230 ~ 240	73
240 ~ 250	73
250 ~ 260	74
260 ~ 270	74
270 ~ 280	74
280 ~ 290	74
290 ~ 300	74

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.93
Specific Gravity d	2.38
Remarks	

Temperature Coefficients of Refractive Index

Range of Temperature (°C)	Δn_{rel} / ΔT (10^{-6} K^{-1})											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	3.6	3.7	3.8	3.9	3.9	3.9	4.1	4.3	4.3	4.5	4.7	5.1
-60 ~ -40	3.4	3.5	3.7	3.7	3.8	3.8	4.0	4.2	4.2	4.4	4.6	5.0
-40 ~ -20	3.4	3.5	3.7	3.7	3.8	3.9	4.0	4.2	4.2	4.4	4.6	5.0
-20 ~ 0	3.4	3.5	3.7	3.8	3.8	4.0	4.1	4.3	4.3	4.5	4.7	5.2
0 ~ 20	3.5	3.7	3.8	3.9	3.9	4.0	4.1	4.3	4.3	4.6	4.9	5.4
20 ~ 40	3.6	3.7	3.9	4.0	4.0	4.1	4.2	4.5	4.5	4.8	5.1	5.6
40 ~ 60	3.7	3.8	4.1	4.2	4.2	4.3	4.4	4.7	4.7	5.0	5.2	5.7
60 ~ 80	3.8	4.0	4.2	4.3	4.3	4.4	4.5	4.8	4.9	5.2	5.4	6.0
80 ~ 100	4.0	4.1	4.3	4.4	4.4	4.6	4.7	4.9	5.0	5.2	5.5	6.2
100 ~ 120	4.1	4.2	4.5	4.5	4.6	4.7	4.8	5.1	5.1	5.4	5.7	6.4
120 ~ 140	4.1	4.3	4.5	4.6	4.6	4.9	4.9	5.3	5.3	5.6	5.9	6.5
140 ~ 160	4.3	4.4	4.7	4.8	4.8	5.0	5.1	5.4	5.4	5.7	6.1	6.7
160 ~ 180	4.3	4.5	4.8	4.9	4.9	5.0	5.2	5.5	5.5	5.8	6.2	6.8

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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.