S-LAL61

Code(d) **741527**
Code(e) **744524**

Refractive Index n_d	**1.741 00** 1.740 999	Abbe Number ν_d	**52.64**	Dispersion $n_F - n_C$	**0.014 078**
Refractive Index n_e	1.744 354	Abbe Number ν_e	52.41	Dispersion $n_{F'} - n_{C'}$	0.014 203

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.700 16
n_{1970}	1.970 09	1.707 87
n_{1530}	1.529 58	1.715 98
n_{1129}	1.128 64	1.722 97
n_t	1.013 98	1.725 25
n_s	0.852 11	1.729 18
$n_{A'}$	0.768 19	1.731 86
n_r	0.706 52	1.734 30
n_C	0.656 27	1.736 73
$n_{C'}$	0.643 85	1.737 41
$n_{He\text{-}Ne}$	0.632 8	1.738 04
n_D	0.589 29	1.740 87
n_d	0.587 56	1.741 00
n_e	0.546 07	1.744 35
n_F	0.486 13	1.750 80
$n_{F'}$	0.479 99	1.751 61
$n_{He\text{-}Cd}$	0.441 57	1.757 48
n_g	0.435 835	1.758 50
n_h	0.404 656	1.764 91
n_i	0.365 015	1.775 89

Constants of Dispersion Formula	
A_1	1.110 732 92E+00
A_2	8.593 477 73E-01
A_3	1.267 074 33E+00
B_1	4.641 812 48E-03
B_2	1.929 892 61E-02
B_3	8.739 176 98E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	1～2
Acid Resistance(Surface) Group SR	51.0
Phosphate Resistance PR	2.0

Mechanical Properties		
Young's Modulus E (GPa)	119.0	
Rigidity Modulus G (GPa)	46.1	
Poisson's Ratio σ	0.291	
Knoop Hardness Hk[Class]	720	7
Abrasion Aa	71	

Partial Dispersions	
$n_C - n_t$	0.011 481
$n_C - n_{A'}$	0.004 871
$n_d - n_C$	0.004 272
$n_e - n_C$	0.007 627
$n_g - n_d$	0.017 502
$n_g - n_F$	0.007 696
$n_h - n_g$	0.006 413
$n_i - n_g$	0.017 393
$n_{C'} - n_t$	0.012 160
$n_e - n_{C'}$	0.006 948
$n_{F'} - n_e$	0.007 255
$n_i - n_{F'}$	0.024 285

Relative Partial Dispersions	
$\theta_{C,t}$	0.815 5
$\theta_{C,A'}$	0.346 0
$\theta_{d,C}$	0.303 5
$\theta_{e,C}$	0.541 8
$\theta_{g,d}$	1.243 2
$\theta_{g,F}$	0.546 7
$\theta_{h,g}$	0.455 5
$\theta_{i,g}$	1.235 5
$\theta'_{C,t}$	0.856 2
$\theta'_{e,C'}$	0.489 2
$\theta'_{F,e}$	0.510 8
$\theta'_{i,F'}$	1.709 9

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.021 8
$\Delta\theta_{C,A'}$	0.006 3
$\Delta\theta_{g,d}$	-0.012 2
$\Delta\theta_{g,F}$	-0.009 6
$\Delta\theta_{i,g}$	-0.048 7

Coloring			
λ_{80}	365	λ_5	280
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	358	$\lambda_{0.05}$	296

CCI		
B	G	R
0.00	0.58	0.59

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	0.02
300	0.07
310	0.15
320	0.27
330	0.43
340	0.59
350	0.72
360	0.82
370	0.89
380	0.935
390	0.958
400	0.971
420	0.982
440	0.988
460	0.991
480	0.994
500	0.996
550	0.997
600	0.997
650	0.997
700	0.998
800	0.998
900	0.998
1 000	0.998
1 200	0.998
1 400	0.994
1 600	0.994
1 800	0.985
2 000	0.959
2 200	0.88
2 400	0.62

Thermal Properties		
Strain Point StP (℃)		631
Annealing Point AP (℃)		646
Transformation Temperature Tg (℃)		668
Yield Point At (℃)		690
Softening Point SP (℃)		724
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	58
	(100 ℃ ~ 300 ℃)	72
Thermal Conductivity λ (W/(m·K))		0.861

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	56
0 ～ 10	57
10 ～ 20	58
20 ～ 30	59
30 ～ 40	59
40 ～ 50	60
50 ～ 60	61
60 ～ 70	62
70 ～ 80	63
80 ～ 90	64
90 ～ 100	65
100 ～ 110	66
110 ～ 120	66
120 ～ 130	67
130 ～ 140	68
140 ～ 150	69
150 ～ 160	69
160 ～ 170	70
170 ～ 180	71
180 ～ 190	71
190 ～ 200	72
200 ～ 210	72
210 ～ 220	73
220 ～ 230	74
230 ～ 240	74
240 ～ 250	75
250 ～ 260	75
260 ～ 270	76
270 ～ 280	76
280 ～ 290	76
290 ～ 300	77

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	1.55
Specific Gravity d	4.04
Remarks	

Temperature Coefficients of Refractive Index

Range of Temperature (℃)	Δn_{rel} / ΔT (10^{-6} K^{-1})											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	2.6	2.7	3.1	3.2	3.2	3.3	3.5	3.7	3.8	4.2	4.5	5.2
-60 ~ -40	2.5	2.7	3.0	3.1	3.1	3.2	3.4	3.7	3.7	4.1	4.5	5.1
-40 ~ -20	2.5	2.7	2.9	3.0	3.1	3.3	3.4	3.7	3.8	4.1	4.5	5.2
-20 ~ 0	2.6	2.8	3.1	3.2	3.2	3.3	3.5	3.9	3.9	4.3	4.7	5.3
0 ~ 20	2.7	2.8	3.2	3.3	3.3	3.4	3.6	4.0	4.1	4.4	4.8	5.5
20 ~ 40	2.8	3.0	3.3	3.4	3.4	3.6	3.8	4.1	4.1	4.5	5.0	5.7
40 ~ 60	2.9	3.1	3.4	3.5	3.6	3.7	3.9	4.3	4.4	4.8	5.2	5.9
60 ~ 80	3.0	3.3	3.6	3.7	3.7	3.9	4.1	4.4	4.5	4.9	5.3	6.1
80 ~ 100	3.1	3.3	3.7	3.9	3.9	4.1	4.2	4.6	4.7	5.1	5.5	6.3
100 ~ 120	3.2	3.4	3.7	3.9	3.9	4.1	4.4	4.7	4.8	5.2	5.6	6.4
120 ~ 140	3.3	3.5	3.9	4.0	4.1	4.3	4.4	4.8	4.9	5.3	5.8	6.6
140 ~ 160	3.4	3.6	4.0	4.1	4.1	4.3	4.5	4.9	4.9	5.4	5.8	6.7
160 ~ 180	3.4	3.6	3.9	4.1	4.1	4.3	4.5	4.9	4.9	5.4	5.9	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.