S-LAL58

Code(d) **694508**
Code(e) **697505**

Refractive Index n_d	**1.693 50** 1.693 495	Abbe Number ν_d	**50.81**	Dispersion $n_F - n_C$	**0.013 649**
Refractive Index n_e	1.696 745	Abbe Number ν_e	50.53	Dispersion $n_{F'} - n_{C'}$	0.013 789

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.659 98
n_{1970}	1.970 09	1.665 38
n_{1530}	1.529 58	1.671 33
n_{1129}	1.128 64	1.676 89
n_t	1.013 98	1.678 83
n_s	0.852 11	1.682 33
$n_{A'}$	0.768 19	1.684 80
n_r	0.706 52	1.687 09
n_C	0.656 27	1.689 39
$n_{C'}$	0.643 85	1.690 04
$n_{He\text{-}Ne}$	0.632 8	1.690 65
n_D	0.589 29	1.693 37
n_d	0.587 56	1.693 50
n_e	0.546 07	1.696 75
n_F	0.486 13	1.703 04
$n_{F'}$	0.479 99	1.703 83
$n_{He\text{-}Cd}$	0.441 57	1.709 60
n_g	0.435 835	1.710 61
n_h	0.404 656	1.716 96
n_i	0.365 015	1.727 88

Constants of Dispersion Formula	
A_1	1.063 687 89E+00
A_2	7.449 390 67E-01
A_3	1.591 789 42E+00
B_1	1.851 996 40E-02
B_2	1.162 958 62E-03
B_3	1.566 360 25E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	52.2
Phosphate Resistance PR	2.2

Mechanical Properties		
Young's Modulus E (GPa)	92.8	
Rigidity Modulus G (GPa)	36.1	
Poisson's Ratio σ	0.285	
Knoop Hardness Hk[Class]	580	6
Abrasion Aa	158	

Partial Dispersions	
$n_C - n_t$	0.010 565
$n_C - n_{A'}$	0.004 596
$n_d - n_C$	0.004 102
$n_e - n_C$	0.007 352
$n_g - n_d$	0.017 117
$n_g - n_F$	0.007 570
$n_h - n_g$	0.006 343
$n_i - n_g$	0.017 264
$n_{C'} - n_t$	0.011 214
$n_e - n_{C'}$	0.006 703
$n_{F'} - n_e$	0.007 086
$n_i - n_{F'}$	0.024 045

Relative Partial Dispersions	
$\theta_{C,t}$	0.774 0
$\theta_{C,A'}$	0.336 7
$\theta_{d,C}$	0.300 5
$\theta_{e,C}$	0.538 6
$\theta_{g,d}$	1.254 1
$\theta_{g,F}$	0.554 6
$\theta_{h,g}$	0.464 7
$\theta_{i,g}$	1.264 9
$\theta'_{C,t}$	0.813 3
$\theta'_{e,C'}$	0.486 1
$\theta'_{F,e}$	0.513 9
$\theta'_{i,F'}$	1.743 8

Anomalous dispersion	
$\Delta\theta_{C,t}$	-0.011 1
$\Delta\theta_{C,A'}$	-0.000 8
$\Delta\theta_{g,d}$	-0.005 1
$\Delta\theta_{g,F}$	-0.004 7
$\Delta\theta_{i,g}$	-0.034 7

Coloring			
λ_{80}	370	λ_5	320
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	354	$\lambda_{0.05}$	322

CCI		
B	G	R
0.00	0.30	0.28

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	0.02
330	0.22
340	0.53
350	0.75
360	0.87
370	0.935
380	0.962
390	0.977
400	0.986
420	0.991
440	0.992
460	0.994
480	0.996
500	0.997
550	0.998
600	0.997
650	0.997
700	0.998
800	0.999
900	0.998
1 000	0.998
1 200	0.999
1 400	0.997
1 600	0.996
1 800	0.989
2 000	0.977
2 200	0.942
2 400	0.84

Thermal Properties		
Strain Point StP (°C)		633
Annealing Point AP (°C)		659
Transformation Temperature Tg (°C)		678
Yield Point At (°C)		730
Softening Point SP (°C)		770
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	74
	(100 °C ~ 300 °C)	87
Thermal Conductivity λ (W/(m·K))		0.728

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	62
-90 ~ -80	63
-80 ~ -70	64
-70 ~ -60	65
-60 ~ -50	67
-50 ~ -40	68
-40 ~ -30	69
-30 ~ -20	70
-20 ~ -10	71
-10 ~ 0	72
0 ~ 10	73
10 ~ 20	74
20 ~ 30	75
30 ~ 40	76
40 ~ 50	77
50 ~ 60	78
60 ~ 70	79
70 ~ 80	79
80 ~ 90	80
90 ~ 100	81
100 ~ 110	82
110 ~ 120	83
120 ~ 130	83
130 ~ 140	84
140 ~ 150	85
150 ~ 160	85
160 ~ 170	86
170 ~ 180	86
180 ~ 190	87
190 ~ 200	88
200 ~ 210	88
210 ~ 220	89
220 ~ 230	89
230 ~ 240	90
240 ~ 250	90
250 ~ 260	90
260 ~ 270	91
270 ~ 280	91
280 ~ 290	91
290 ~ 300	92

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	1.70
Specific Gravity *d*	4.03
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	0.9	1.0	1.4	1.5	1.5	1.7	1.8	2.2	2.2	2.7	3.1	3.9
-60 ~ -40	0.8	0.9	1.2	1.3	1.4	1.5	1.7	2.1	2.2	2.6	2.9	3.8
-40 ~ -20	0.7	0.9	1.2	1.3	1.4	1.5	1.7	2.1	2.1	2.6	3.0	3.8
-20 ~ 0	0.7	0.9	1.3	1.4	1.4	1.6	1.8	2.2	2.2	2.6	3.0	3.9
0 ~ 20	0.7	1.0	1.4	1.5	1.5	1.7	1.9	2.2	2.3	2.7	3.3	4.1
20 ~ 40	0.8	1.0	1.5	1.6	1.6	1.8	2.0	2.4	2.4	2.9	3.3	4.3
40 ~ 60	1.0	1.2	1.6	1.7	1.7	1.9	2.1	2.5	2.6	3.0	3.5	4.5
60 ~ 80	1.1	1.3	1.6	1.8	1.8	2.1	2.3	2.7	2.8	3.2	3.7	4.6
80 ~ 100	1.2	1.4	1.8	1.9	1.9	2.1	2.3	2.8	2.8	3.4	3.9	4.8
100 ~ 120	1.3	1.5	1.9	2.0	2.1	2.3	2.5	2.9	3.0	3.5	4.1	5.0
120 ~ 140	1.3	1.6	2.0	2.1	2.1	2.4	2.6	3.0	3.1	3.7	4.2	5.2
140 ~ 160	1.4	1.6	2.1	2.3	2.3	2.5	2.8	3.2	3.3	3.8	4.3	5.3
160 ~ 180	1.5	1.7	2.2	2.3	2.3	2.6	2.8	3.3	3.3	3.9	4.4	5.4

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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.