S-LAM 7

Code(d) **750353**
Code(e) **755350**

Refractive Index n_d	**1.749 50** 1.749 497	Abbe Number ν_d	**35.28**	Dispersion $n_F - n_C$	**0.021 243**
Refractive Index n_e	1.754 527	Abbe Number ν_e	35.02	Dispersion $n_{F'} - n_{C'}$	0.021 544

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.705 83
n_{1970}	1.970 09	1.711 84
n_{1530}	1.529 58	1.718 66
n_{1129}	1.128 64	1.725 53
n_t	1.013 98	1.728 11
n_s	0.852 11	1.732 96
$n_{A'}$	0.768 19	1.736 49
n_r	0.706 52	1.739 84
n_C	0.656 27	1.743 28
$n_{C'}$	0.643 85	1.744 25
$n_{He\text{-}Ne}$	0.632 8	1.745 17
n_D	0.589 29	1.749 31
n_d	0.587 56	1.749 50
n_e	0.546 07	1.754 53
n_F	0.486 13	1.764 52
$n_{F'}$	0.479 99	1.765 79
$n_{He\text{-}Cd}$	0.441 57	1.775 30
n_g	0.435 835	1.776 99
n_h	0.404 656	1.787 87
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	1.710 147 12E+00
A_2	2.569 432 92E-01
A_3	1.639 862 71E+00
B_1	1.051 610 80E-02
B_2	5.028 096 36E-02
B_3	1.461 812 17E+02

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

Mechanical Properties		
Young's Modulus E (GPa)	97.0	
Rigidity Modulus G (GPa)	38.1	
Poisson's Ratio σ	0.273	
Knoop Hardness Hk[Class]	570	6
Abrasion Aa	140	

Partial Dispersions	
$n_C - n_t$	0.015 167
$n_C - n_{A'}$	0.006 783
$n_d - n_C$	0.006 222
$n_e - n_C$	0.011 252
$n_g - n_d$	0.027 489
$n_g - n_F$	0.012 468
$n_h - n_g$	0.010 884
$n_i - n_g$	
$n_{C'} - n_t$	0.016 141
$n_e - n_{C'}$	0.010 278
$n_{F'} - n_e$	0.011 266
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.714 0
$\theta_{C,A'}$	0.319 3
$\theta_{d,C}$	0.292 9
$\theta_{e,C}$	0.529 7
$\theta_{g,d}$	1.294 0
$\theta_{g,F}$	0.586 9
$\theta_{h,g}$	0.512 4
$\theta_{i,g}$	
$\theta'_{C,t}$	0.749 2
$\theta'_{e,C'}$	0.477 1
$\theta'_{F,e}$	0.522 9
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.001 8
$\Delta\theta_{C,A'}$	0.000 7
$\Delta\theta_{g,d}$	0.002 6
$\Delta\theta_{g,F}$	0.002 5
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}	420	λ_5	355
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	396	$\lambda_{0.05}$	359

CCI		
B	G	R
0.00	2.84	2.97

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	
360	0.08
370	0.34
380	0.59
390	0.75
400	0.84
420	0.935
440	0.965
460	0.977
480	0.984
500	0.989
550	0.996
600	0.997
650	0.998
700	0.998
800	0.999
900	0.999
1 000	0.999
1 200	0.999
1 400	0.996
1 600	0.996
1 800	0.990
2 000	0.982
2 200	0.950
2 400	0.88

Thermal Properties		
Strain Point StP (°C)		583
Annealing Point AP (°C)		615
Transformation Temperature Tg (°C)		626
Yield Point At (°C)		690
Softening Point SP (°C)		739
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	68
	(100 °C ~ 300 °C)	81
Thermal Conductivity λ (W/(m·K))		0.871

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	55
-90 ~ -80	56
-80 ~ -70	57
-70 ~ -60	58
-60 ~ -50	60
-50 ~ -40	61
-40 ~ -30	62
-30 ~ -20	63
-20 ~ -10	64
-10 ~ 0	65
0 ~ 10	66
10 ~ 20	67
20 ~ 30	68
30 ~ 40	69
40 ~ 50	70
50 ~ 60	71
60 ~ 70	72
70 ~ 80	73
80 ~ 90	74
90 ~ 100	75
100 ~ 110	75
110 ~ 120	76
120 ~ 130	77
130 ~ 140	78
140 ~ 150	78
150 ~ 160	79
160 ~ 170	79
170 ~ 180	80
180 ~ 190	81
190 ~ 200	81
200 ~ 210	82
210 ~ 220	82
220 ~ 230	83
230 ~ 240	83
240 ~ 250	83
250 ~ 260	84
260 ~ 270	84
270 ~ 280	84
280 ~ 290	85
290 ~ 300	85

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.53
Specific Gravity d	3.81
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	3.2	3.4	4.0	4.1	4.2	4.4	4.8	5.5	5.6	6.5	7.4	-
-60 ~ -40	3.1	3.4	3.9	4.1	4.1	4.4	4.7	5.5	5.6	6.5	7.5	-
-40 ~ -20	3.2	3.4	3.9	4.1	4.2	4.5	4.8	5.5	5.6	6.5	7.7	-
-20 ~ 0	3.3	3.5	4.1	4.3	4.3	4.6	4.9	5.8	5.9	6.8	7.9	-
0 ~ 20	3.4	3.6	4.2	4.4	4.4	4.8	5.2	5.9	6.0	7.0	8.1	-
20 ~ 40	3.5	3.8	4.4	4.6	4.6	4.9	5.3	6.1	6.2	7.2	8.4	-
40 ~ 60	3.6	3.9	4.5	4.7	4.8	5.1	5.6	6.3	6.4	7.5	8.6	-
60 ~ 80	3.8	4.1	4.7	4.9	5.0	5.3	5.7	6.5	6.6	7.6	8.8	-
80 ~ 100	3.8	4.1	4.9	5.1	5.1	5.5	5.8	6.6	6.8	7.8	9.1	-
100 ~ 120	3.9	4.3	4.9	5.2	5.3	5.6	6.0	6.8	6.9	8.1	9.3	-
120 ~ 140	4.0	4.3	5.1	5.3	5.3	5.7	6.1	6.9	7.1	8.2	9.5	-
140 ~ 160	4.1	4.4	5.1	5.3	5.4	5.7	6.1	7.0	7.1	8.3	9.6	-
160 ~ 180	4.1	4.4	5.1	5.3	5.4	5.8	6.2	7.1	7.2	8.4	9.7	-

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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.