

# S-LAM 7

Code(d) **750353**

Code(e) **755350**

Refractive Index $n_d$	<b>1.74950</b> 1.749497	Abbe Number $v_d$	<b>35.3</b> 35.28	Dispersion $n_F-n_C$	<b>0.02124</b> 0.021243
Refractive Index $n_e$	1.754527	Abbe Number $v_e$	35.02	Dispersion $n_F'-n_C'$	0.021544

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.70583
$n_{1970}$	1.97009	1.71184
$n_{1530}$	1.52958	1.71866
$n_{1129}$	1.12864	1.72553
$n_t$	1.01398	1.72811
$n_s$	0.85211	1.73296
$n_{A'}$	0.76819	1.73649
$n_r$	0.70652	1.73984
$n_C$	0.65627	1.74328
$n_{C'}$	0.64385	1.74425
$n_{\text{He-Ne}}$	0.6328	1.74517
$n_D$	0.58929	1.74931
$n_d$	0.58756	1.74950
$n_e$	0.54607	1.75453
$n_F$	0.48613	1.76452
$n_{F'}$	0.47999	1.76579
$n_{\text{He-Cd}}$	0.44157	1.77530
$n_g$	0.435835	1.77699
$n_h$	0.404656	1.78787
$n_i$	0.365015	

Partial Dispersions	
$n_C-n_t$	0.015167
$n_C-n_{A'}$	0.006783
$n_d-n_C$	0.006222
$n_e-n_C$	0.011252
$n_g-n_d$	0.027489
$n_g-n_F$	0.012468
$n_h-n_g$	0.010884
$n_i-n_g$	
$n_C-n_t$	0.016141
$n_e-n_{C'}$	0.010278
$n_{F'-n_e}$	0.011266
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.7140
$\theta_{C,A'}$	0.3193
$\theta_{d,C}$	0.2929
$\theta_{e,C}$	0.5297
$\theta_{g,d}$	1.2940
$\theta_{g,F}$	0.5869
$\theta_{h,g}$	0.5124
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7492
$\theta'_{e,C'}$	0.4771
$\theta'_{F',e}$	0.5229
$\theta'_{i,F}$	

Thermal Properties	
Strain Point StP (°C)	583
Annealing Point AP (°C)	615
Transformation Temperature Tg (°C)	628
Yield Point At (°C)	673
Softening Point SP (°C)	739
Expansion Coefficients (-30~+70°C)	67
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	79
Thermal Conductivity k (W/m·K)	0.871

Coloring			
$\lambda_{80}$	42	$\lambda_5$	36
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
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
1000	0.999
1200	0.999
1400	0.996
1600	0.996
1800	0.990
2000	0.982
2200	0.950
2400	0.88

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0018
$\Delta\theta_{C,A'}$	0.0007
$\Delta\theta_{g,d}$	0.0026
$\Delta\theta_{g,F}$	0.0025
$\Delta\theta_{i,g}$	

Mechanical Properties	
Young's Modulus E (10 <sup>8</sup> N/m <sup>2</sup> )	970
Rigidity Modulus G (10 <sup>8</sup> N/m <sup>2</sup> )	381
Poisson's Ratio $\sigma$	0.273
Knoop Hardness Hk[Class]	560   6
Abrasion Aa	147
Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa)	2.53

Constants of Dispersion Formula	
A <sub>1</sub>	1.71014712E+00
A <sub>2</sub>	2.56943292E-01
A <sub>3</sub>	1.63986271E+00
B <sub>1</sub>	1.05161080E-02
B <sub>2</sub>	5.02809636E-02
B <sub>3</sub>	1.46181217E+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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.81
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative (10 <sup>-6</sup> /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	4.2	5.0	5.1	5.3	5.7	6.5	7.5
-20~0	4.4	5.2	5.2	5.5	5.9	6.7	7.7
0~20	4.4	5.3	5.3	5.6	6.0	6.9	8.0
20~40	4.5	5.4	5.5	5.8	6.2	7.1	8.2
40~60	4.6	5.5	5.6	6.0	6.3	7.3	8.4
60~80	4.6	5.6	5.7	6.2	6.5	7.5	8.7