

# S-LAM52

Code(d) **720437**

Code(e) **724434**

Refractive Index $n_d$	<b>1.72000</b> 1.720000	Abbe Number $v_d$	<b>43.7</b> 43.69	Dispersion $n_F-n_C$	<b>0.01648</b> 0.016480
Refractive Index $n_e$	1.723914	Abbe Number $v_e$	43.40	Dispersion $n_F-n_C'$	0.016679

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.68281
$n_{1970}$	1.97009	1.68840
$n_{1530}$	1.52958	1.69463
$n_{1129}$	1.12864	1.70065
$n_t$	1.01398	1.70282
$n_s$	0.85211	1.70683
$n_{A'}$	0.76819	1.70969
$n_r$	0.70652	1.71238
$n_C$	0.65627	1.71511
$n_{C'}$	0.64385	1.71588
$n_{\text{He-Ne}}$	0.6328	1.71660
$n_D$	0.58929	1.71986
$n_d$	0.58756	1.72000
$n_e$	0.54607	1.72391
$n_F$	0.48613	1.73159
$n_{F'}$	0.47999	1.73256
$n_{\text{He-Cd}}$	0.44157	1.73972
$n_g$	0.435835	1.74098
$n_h$	0.404656	1.74901
$n_i$	0.365015	1.76328

Partial Dispersions	
$n_C-n_t$	0.012285
$n_C-n_{A'}$	0.005415
$n_d-n_C$	0.004895
$n_e-n_C$	0.008809
$n_g-n_d$	0.020977
$n_g-n_F$	0.009392
$n_h-n_g$	0.008035
$n_i-n_g$	0.022303
$n_C-n_t$	0.013056
$n_e-n_{C'}$	0.008038
$n_{F'-n_e}$	0.008641
$n_i-n_{F'}$	0.030725

Relative Partial Dispersions	
$\theta_{C,t}$	0.7454
$\theta_{C,A'}$	0.3286
$\theta_{d,C}$	0.2970
$\theta_{e,C}$	0.5345
$\theta_{g,d}$	1.2729
$\theta_{g,F}$	0.5699
$\theta_{h,g}$	0.4876
$\theta_{i,g}$	1.3533
$\theta'_{C,t}$	0.7828
$\theta'_{e,C'}$	0.4819
$\theta'_{F',e}$	0.5181
$\theta'_{i,F}$	1.8421

Thermal Properties	
Strain Point StP (°C)	604
Annealing Point AP (°C)	632
Transformation Temperature Tg (°C)	644
Yield Point At (°C)	685
Softening Point SP (°C)	743
Expansion Coefficients (-30~+70°C)	77
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	88
Thermal Conductivity k (W/m-K)	0.801

Coloring			
$\lambda_{80}$	40	$\lambda_5$	35
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	
350	0.10
360	0.39
370	0.65
380	0.80
390	0.88
400	0.930
420	0.965
440	0.977
460	0.984
480	0.988
500	0.992
550	0.996
600	0.996
650	0.995
700	0.997
800	0.998
900	0.997
1000	0.997
1200	0.998
1400	0.997
1600	0.996
1800	0.990
2000	0.979
2200	0.947
2400	0.85

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0063
$\Delta\theta_{C,A'}$	-0.0002
$\Delta\theta_{g,d}$	-0.0011
$\Delta\theta_{g,F}$	-0.0009
$\Delta\theta_{i,g}$	-0.0059

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	957
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	374
Poisson's Ratio $\sigma$	0.278
Knoop Hardness Hk[Class]	530   5
Abrasion Aa	160
Photoelastic Constant $\beta$ (nm/cm/ $10^5\text{Pa}$ )	1.53

Constants of Dispersion Formula	
$A_1$	1.73442942E+00
$A_2$	1.51553910E-01
$A_3$	1.46225433E+00
$B_1$	1.00690928E-02
$B_2$	4.70634701E-02
$B_3$	1.40084396E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	1.2

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.95
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.1	1.6	1.6	1.8	2.0	2.6	3.2
-20~0	1.1	1.6	1.7	1.9	2.1	2.7	3.3
0~20	1.1	1.7	1.8	2.0	2.2	2.8	3.5
20~40	1.1	1.8	1.8	2.0	2.3	3.0	3.6
40~60	1.2	1.9	1.9	2.1	2.4	3.1	3.8
60~80	1.2	1.9	2.0	2.2	2.5	3.2	3.9