

# S-LAM54

Code(d) **757478**

Code(e) **761476**

Refractive Index $n_d$	<b>1.75700</b> 1.756998	Abbe Number $v_d$	<b>47.8</b> 47.82	Dispersion $n_F-n_C$	<b>0.01583</b> 0.015830
Refractive Index $n_e$	1.760765	Abbe Number $v_e$	47.57	Dispersion $n_F'-n_C'$	0.015991

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.71415
$n_{1970}$	1.97009	1.72188
$n_{1530}$	1.52958	1.73007
$n_{1129}$	1.12864	1.73729
$n_t$	1.01398	1.73970
$n_s$	0.85211	1.74394
$n_{A'}$	0.76819	1.74686
$n_r$	0.70652	1.74954
$n_C$	0.65627	1.75223
$n_{C'}$	0.64385	1.75299
$n_{\text{He-Ne}}$	0.6328	1.75370
$n_D$	0.58929	1.75686
$n_d$	0.58756	1.75700
$n_e$	0.54607	1.76076
$n_F$	0.48613	1.76806
$n_{F'}$	0.47999	1.76898
$n_{\text{He-Cd}}$	0.44157	1.77570
$n_g$	0.435835	1.77687
$n_h$	0.404656	1.78431
$n_i$	0.365015	1.79726

Partial Dispersions	
$n_C-n_t$	0.012530
$n_C-n_{A'}$	0.005376
$n_d-n_C$	0.004764
$n_e-n_C$	0.008531
$n_g-n_d$	0.019876
$n_g-n_F$	0.008810
$n_h-n_g$	0.007433
$n_i-n_g$	0.020388
$n_C-n_t$	0.013285
$n_e-n_{C'}$	0.007776
$n_{F'-n_e}$	0.008215
$n_i-n_{F'}$	0.028282

Relative Partial Dispersions	
$\theta_{C,t}$	0.7915
$\theta_{C,A'}$	0.3396
$\theta_{d,C}$	0.3009
$\theta_{e,C}$	0.5389
$\theta_{g,d}$	1.2556
$\theta_{g,F}$	0.5565
$\theta_{h,g}$	0.4696
$\theta_{i,g}$	1.2879
$\theta'_{C,t}$	0.8308
$\theta'_{e,C'}$	0.4863
$\theta'_{F',e}$	0.5137
$\theta'_{i,F}$	1.7686

Thermal Properties	
Strain Point StP (°C)	614
Annealing Point AP (°C)	637
Transformation Temperature Tg (°C)	664
Yield Point At (°C)	687
Softening Point SP (°C)	721
Expansion Coefficients (-30~+70°C)	57
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	69
Thermal Conductivity k (W/m·K)	0.891

Coloring			
$\lambda_{80}$	39	$\lambda_5$	34
$\lambda_{70}$			

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0205
$\Delta\theta_{C,A'}$	0.0058
$\Delta\theta_{g,d}$	-0.0098
$\Delta\theta_{g,F}$	-0.0076
$\Delta\theta_{i,g}$	-0.0367

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	1172
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	454
Poisson's Ratio $\sigma$	0.292
Knoop Hardness Hk[Class]	700   7
Abrasion Aa	62
Photoelastic Constant $\beta$ (nm/cm/ $10^5\text{Pa}$ )	1.70

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	0.05
350	0.33
360	0.65
370	0.82
380	0.909
390	0.945
400	0.963
420	0.979
440	0.985
460	0.990
480	0.993
500	0.995
550	0.997
600	0.997
650	0.998
700	0.998
800	0.999
900	0.998
1000	0.997
1200	0.997
1400	0.991
1600	0.991
1800	0.981
2000	0.954
2200	0.87
2400	0.62

Constants of Dispersion Formula	
A <sub>1</sub>	1.84213306E+00
A <sub>2</sub>	1.75468631E-01
A <sub>3</sub>	1.25750878E+00
B <sub>1</sub>	9.43993220E-03
B <sub>2</sub>	3.95281122E-02
B <sub>3</sub>	8.65463013E+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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.08
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	3.8	4.2	4.3	4.4	4.7	5.1	5.6
-20~0	4.0	4.4	4.5	4.7	4.9	5.4	5.9
0~20	4.2	4.7	4.7	4.9	5.1	5.6	6.2
20~40	4.4	4.9	4.9	5.1	5.3	5.9	6.4
40~60	4.5	5.1	5.1	5.3	5.6	6.1	6.7
60~80	4.7	5.3	5.3	5.5	5.8	6.4	7.0