

# S-LAM51

Code(d) **700481**

Code(e) **703478**

Refractive Index $n_d$	<b>1.70000</b> 1.699998	Abbe Number $v_d$	<b>48.1</b> 48.08	Dispersion $n_F-n_C$	<b>0.01456</b> 0.014559
Refractive Index $n_e$	1.703462	Abbe Number $v_e$	47.80	Dispersion $n_F-n_C$	0.014717

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.66451
$n_{1970}$	1.97009	1.67024
$n_{1530}$	1.52958	1.67652
$n_{1129}$	1.12864	1.68239
$n_t$	1.01398	1.68444
$n_s$	0.85211	1.68815
$n_{A'}$	0.76819	1.69076
$n_r$	0.70652	1.69319
$n_C$	0.65627	1.69564
$n_{C'}$	0.64385	1.69633
$n_{\text{He-Ne}}$	0.6328	1.69697
$n_D$	0.58929	1.69987
$n_d$	0.58756	1.70000
$n_e$	0.54607	1.70346
$n_F$	0.48613	1.71020
$n_{F'}$	0.47999	1.71104
$n_{\text{He-Cd}}$	0.44157	1.71725
$n_g$	0.435835	1.71834
$n_h$	0.404656	1.72522
$n_i$	0.365015	1.73721

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0034
$\Delta\theta_{C,A'}$	0.0008
$\Delta\theta_{g,d}$	-0.0049
$\Delta\theta_{g,F}$	-0.0041
$\Delta\theta_{i,g}$	-0.0262

Constants of Dispersion Formula	
$A_1$	1.63847200E+00
$A_2$	1.88330533E-01
$A_3$	1.47502357E+00
$B_1$	9.04853452E-03
$B_2$	3.72740173E-02
$B_3$	1.37770050E+02

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.79
Remarks	

Partial Dispersions	
$n_C-n_t$	0.011194
$n_C-n_{A'}$	0.004876
$n_d-n_C$	0.004362
$n_e-n_C$	0.007826
$n_g-n_d$	0.018344
$n_g-n_F$	0.008147
$n_h-n_g$	0.006879
$n_i-n_g$	0.018871
$n_C-n_t$	0.011883
$n_e-n_{C'}$	0.007137
$n_{F'}-n_e$	0.007580
$n_i-n_{F'}$	0.026171

Thermal Properties	
Strain Point StP (°C)	597
Annealing Point AP (°C)	624
Transformation Temperature Tg (°C)	640
Yield Point At (°C)	680
Softening Point SP (°C)	736
Expansion Coefficients (-30~+70°C)	71
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	80
Thermal Conductivity k (W/m-K)	0.867

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	1007
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	394
Poisson's Ratio $\sigma$	0.278
Knoop Hardness Hk[Class]	570   6
Abrasion Aa	140
Photoelastic Constant $\beta$ (nm/cm/ $10^5\text{Pa}$ )	1.71

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	1.0

Relative Partial Dispersions	
$\theta_{C,t}$	0.7689
$\theta_{C,A'}$	0.3349
$\theta_{d,C}$	0.2996
$\theta_{e,C}$	0.5375
$\theta_{g,d}$	1.2600
$\theta_{g,F}$	0.5596
$\theta_{h,g}$	0.4725
$\theta_{i,g}$	1.2962
$\theta'_{C,t}$	0.8074
$\theta'_{e,C'}$	0.4849
$\theta'_{F',e}$	0.5151
$\theta'_{i,F}$	1.7783

Coloring			
$\lambda_{80}$	38	$\lambda_5$	34
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	0.14
350	0.45
360	0.70
370	0.84
380	0.914
390	0.948
400	0.966
420	0.980
440	0.985
460	0.989
480	0.992
500	0.995
550	0.997
600	0.996
650	0.996
700	0.997
800	0.997
900	0.997
1000	0.996
1200	0.996
1400	0.995
1600	0.995
1800	0.989
2000	0.980
2200	0.951
2400	0.85

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	2.4	2.8	2.8	2.9	3.2	3.6	4.1
-20~ 0	2.4	2.8	2.9	3.0	3.3	3.7	4.3
0~20	2.5	2.9	2.9	3.1	3.3	3.8	4.4
20~40	2.5	3.0	3.0	3.2	3.4	3.9	4.5
40~60	2.6	3.0	3.0	3.3	3.5	4.0	4.6
60~80	2.6	3.1	3.1	3.4	3.6	4.1	4.7