

# L-LAM69

Code(d) **731405**

Code(e) **735403**

Refractive Index $n_d$	<b>1.73077</b> 1.730770	Abbe Number $\nu_d$	<b>40.51</b>	Dispersion $n_F-n_C$	<b>0.018040</b>
Refractive Index $n_e$	1.735051	Abbe Number $\nu_e$	40.25	Dispersion $n_F-n_{C'}$	0.018262

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.68805
$n_{1970}$	1.97009	1.69488
$n_{1530}$	1.52958	1.70237
$n_{1129}$	1.12864	1.70939
$n_t$	1.01398	1.71185
$n_s$	0.85211	1.71632
$n_{A'}$	0.76819	1.71948
$n_r$	0.70652	1.72243
$n_C$	0.65627	1.72542
$n_{C'}$	0.64385	1.72626
$n_{\text{He-Ne}}$	0.6328	1.72705
$n_D$	0.58929	1.73061
$n_d$	0.58756	1.73077
$n_e$	0.54607	1.73505
$n_F$	0.48613	1.74346
$n_{F'}$	0.47999	1.74452
$n_{\text{He-Cd}}$	0.44157	1.75240
$n_g$	0.435835	1.75379
$n_h$	0.404656	1.76267
$n_i$	0.365015	1.77858

Constants of Dispersion Formula	
$A_1$	1.74038960E+00
$A_2$	1.76996917E-01
$A_3$	1.76775413E+00
$B_1$	1.03398870E-02
$B_2$	4.84822765E-02
$B_3$	1.36671996E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	52.2
Phosphate Resistance PR	3.1

Mechanical Properties	
Young's Modulus E (GPa)	113.3
Rigidity Modulus G (GPa)	44.5
Poisson's Ratio $\sigma$	0.273
Knoop Hardness Hk(Class)	630   6
Abrasion Aa	121

Partial Dispersions	
$n_C-n_t$	0.013567
$n_C-n_{A'}$	0.005939
$n_d-n_C$	0.005354
$n_e-n_C$	0.009635
$n_g-n_d$	0.023019
$n_g-n_F$	0.010333
$n_h-n_g$	0.008885
$n_i-n_g$	0.024789
$n_C-n_t$	0.014410
$n_e-n_{C'}$	0.008792
$n_{F'}-n_e$	0.009470
$n_i-n_{F'}$	0.034057

Relative Partial Dispersions	
$\theta_{C,t}$	0.7521
$\theta_{C,A'}$	0.3292
$\theta_{d,C}$	0.2968
$\theta_{e,C}$	0.5341
$\theta_{g,d}$	1.2760
$\theta_{g,F}$	0.5728
$\theta_{h,g}$	0.4925
$\theta_{i,g}$	1.3741
$\theta'_{C,t}$	0.7891
$\theta'_{e,C'}$	0.4814
$\theta'_{F',e}$	0.5186
$\theta'_{i,F'}$	1.8649

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0154
$\Delta\theta_{C,A'}$	0.0042
$\Delta\theta_{g,d}$	-0.0046
$\Delta\theta_{g,F}$	-0.0031
$\Delta\theta_{i,g}$	-0.0117

Thermal Properties	
Strain Point StP (°C)	461
Annealing Point AP (°C)	489
Transformation Temperature Tg (°C)	500 *
Yield Point At (°C)	539 *
Softening Point SP (°C)	574
Expansion Coefficients (-30~+70°C)	87 *
$\alpha$ (10 <sup>-7</sup> K <sup>-1</sup> ) (+100~+300°C)	109 *
Thermal Conductivity $\lambda$ W/(m·K)	1.11

Coloring			
$\lambda_{80}$	410	$\lambda_5$	340
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	379	$\lambda_{0.05}$	340

CCI		
B	G	R
0.00	1.88	1.91

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	0.04
350	0.26
360	0.53
370	0.71
380	0.81
390	0.87
400	0.910
420	0.947
440	0.963
460	0.974
480	0.983
500	0.989
550	0.995
600	0.994
650	0.994
700	0.996
800	0.998
900	0.998
1000	0.998
1200	0.999
1400	0.997
1600	0.995
1800	0.987
2000	0.971
2200	0.925
2400	0.76

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative (10 <sup>-6</sup> K <sup>-1</sup> )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.1	2.8	2.8	3.0	3.3	4.0	4.7
-20~ 0	2.1	2.8	2.8	3.1	3.4	4.0	4.8
0~20	2.1	2.8	2.8	3.1	3.4	4.1	4.9
20~40	2.0	2.8	2.9	3.1	3.4	4.2	5.0
40~60	2.0	2.8	2.9	3.1	3.5	4.3	5.1
60~80	2.0	2.8	2.9	3.1	3.5	4.3	5.3

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.03
Specific Gravity $d$	3.24
Remarks	

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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.