

L-LAM69

Code(d) **731405**

Code(e) **735403**

Refractive Index n_d	1.73077 1.730770	Abbe Number ν_d	40.51	Dispersion n_F-n_C	0.018040
Refractive Index n_e	1.735051	Abbe Number ν_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 (10^9N/m^2)	1133
Rigidity Modulus G (10^9N/m^2)	445
Poisson's Ratio σ	0.273
Knoop Hardness Hk[Class]	630 6
Abrasion Aa	121
Photoelastic Constant β nm/(cm · 10^5Pa)	2.03

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)	497
Yield Point At (°C)	529
Softening Point SP (°C)	574
Expansion Coefficients (-30~+70°C)	86
α ($10^{-7}/^\circ\text{C}$) (+100~+300°C)	105
Thermal Conductivity λ W/(m·K)	1.11

Coloring			
λ_{80}	410	λ_5	340
λ_{70}			

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

CCI		
B	G	R
0.00	1.88	1.91

Internal Transmittance	
$\lambda(\text{nm})$	τ 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 ($10^{-6}/^\circ\text{C}$)						
	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	
Bubble Quality Group B	B
Specific Gravity d	3.24
Remarks	

OHARA 17-04

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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.