

L-BAL42

Code(d) **583594**

Code(e) **585591**

Refractive Index n_d	1.58313 1.583126	Abbe Number ν_d	59.38	Dispersion n_F-n_C	0.009820
Refractive Index n_e	1.585468	Abbe Number ν_e	59.13	Dispersion $n_F-n_{C'}$	0.009901

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.55402
n_{1970}	1.97009	1.55949
n_{1530}	1.52958	1.56533
n_{1129}	1.12864	1.57038
n_t	1.01398	1.57201
n_s	0.85211	1.57482
$n_{A'}$	0.76819	1.57671
n_r	0.70652	1.57843
n_C	0.65627	1.58013
$n_{C'}$	0.64385	1.58061
$n_{\text{He-Ne}}$	0.6328	1.58106
n_D	0.58929	1.58304
n_d	0.58756	1.58313
n_e	0.54607	1.58547
n_F	0.48613	1.58995
$n_{F'}$	0.47999	1.59051
$n_{\text{He-Cd}}$	0.44157	1.59457
n_g	0.435835	1.59528
n_h	0.404656	1.59969
n_i	0.365015	1.60719

Constants of Dispersion Formula	
A_1	1.39528097E+00
A_2	7.25519520E-02
A_3	1.66335848E+00
B_1	1.11862030E-02
B_2	-2.46748575E-02
B_3	1.67717958E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	1~2
Acid Resistance(Surface) Group SR	5.2
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E (GPa)	89.1
Rigidity Modulus G (GPa)	35.7
Poisson's Ratio σ	0.247
Knoop Hardness Hk(Class)	590 6
Abrasion Aa	117

Partial Dispersions	
n_C-n_t	0.008122
$n_C-n_{A'}$	0.003426
n_d-n_C	0.002992
n_e-n_C	0.005334
n_g-n_d	0.012153
n_g-n_F	0.005325
n_h-n_g	0.004412
n_i-n_g	0.011910
n_C-n_t	0.008599
$n_e-n_{C'}$	0.004857
$n_{F'}-n_e$	0.005044
$n_i-n_{F'}$	0.016677

Relative Partial Dispersions	
$\theta_{C,t}$	0.8271
$\theta_{C,A'}$	0.3489
$\theta_{d,C}$	0.3047
$\theta_{e,C}$	0.5432
$\theta_{g,d}$	1.2376
$\theta_{g,F}$	0.5423
$\theta_{h,g}$	0.4493
$\theta_{i,g}$	1.2128
$\theta'_{C,t}$	0.8685
$\theta'_{e,C'}$	0.4906
$\theta'_{F',e}$	0.5094
$\theta'_{i,F'}$	1.6844

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0018
$\Delta\theta_{C,A'}$	0.0010
$\Delta\theta_{g,d}$	-0.0038
$\Delta\theta_{g,F}$	-0.0031
$\Delta\theta_{i,g}$	-0.0150

Thermal Properties	
Strain Point StP (°C)	467
Annealing Point AP (°C)	494
Transformation Temperature Tg (°C)	502 *
Yield Point At (°C)	551 *
Softening Point SP (°C)	607
Expansion Coefficients (-30~+70°C)	72 *
α (10 ⁻⁷ K ⁻¹) (+100~+300°C)	92 *
Thermal Conductivity λ W/(m·K)	1.03

Coloring			
λ_{80}	340	λ_5	285
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	326	$\lambda_{0.05}$	282

CCI		
B	G	R
0.00	0.17	0.14

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	0.03
290	0.14
300	0.32
310	0.55
320	0.73
330	0.85
340	0.924
350	0.960
360	0.978
370	0.987
380	0.992
390	0.994
400	0.995
420	0.996
440	0.996
460	0.996
480	0.998
500	0.998
550	0.999
600	0.999
650	0.998
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.988
1600	0.993
1800	0.983
2000	0.968
2200	0.901
2400	0.83

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative (10 ⁻⁶ K ⁻¹)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	3.3	3.7	3.7	3.8	4.0	4.3	4.6
-20~ 0	3.2	3.6	3.6	3.8	3.9	4.3	4.6
0~20	3.1	3.6	3.6	3.7	3.9	4.2	4.6
20~40	3.1	3.5	3.6	3.7	3.9	4.2	4.6
40~60	3.1	3.6	3.6	3.7	3.9	4.3	4.6
60~80	3.2	3.7	3.7	3.8	4.0	4.4	4.8

Other Properties	
Photoelastic Constant β nm/(cm·10 ⁵ Pa)	2.19
Specific Gravity d	3.05
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.