

# L-BAL43

Code(d) **586597**

Code(e) **588594**

Refractive Index $n_d$	<b>1.58573</b> 1.585730	Abbe Number $\nu_d$	<b>59.70</b>	Dispersion $n_F-n_C$	<b>0.009812</b>
Refractive Index $n_e$	1.588070	Abbe Number $\nu_e$	59.45	Dispersion $n_F-n_{C'}$	0.009892

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.55621
$n_{1970}$	1.97009	1.56185
$n_{1530}$	1.52958	1.56781
$n_{1129}$	1.12864	1.57293
$n_t$	1.01398	1.57458
$n_s$	0.85211	1.57740
$n_{A'}$	0.76819	1.57930
$n_r$	0.70652	1.58103
$n_C$	0.65627	1.58274
$n_{C'}$	0.64385	1.58321
$n_{\text{He-Ne}}$	0.6328	1.58366
$n_D$	0.58929	1.58564
$n_d$	0.58756	1.58573
$n_e$	0.54607	1.58807
$n_F$	0.48613	1.59255
$n_{F'}$	0.47999	1.59311
$n_{\text{He-Cd}}$	0.44157	1.59716
$n_g$	0.435835	1.59786
$n_h$	0.404656	1.60227
$n_i$	0.365015	1.60976

Constants of Dispersion Formula	
$A_1$	1.04745291E+00
$A_2$	4.28452873E-01
$A_3$	1.14111303E+00
$B_1$	5.63209756E-03
$B_2$	1.88321416E-02
$B_3$	1.14197069E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	51.4
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E (GPa)	90.4
Rigidity Modulus G (GPa)	36.2
Poisson's Ratio $\sigma$	0.250
Knoop Hardness Hk(Class)	600   6
Abrasion Aa	118

Partial Dispersions	
$n_C-n_t$	0.008157
$n_C-n_{A'}$	0.003435
$n_d-n_C$	0.002993
$n_e-n_C$	0.005333
$n_g-n_d$	0.012132
$n_g-n_F$	0.005313
$n_h-n_g$	0.004404
$n_i-n_g$	0.011900
$n_C-n_t$	0.008634
$n_e-n_{C'}$	0.004856
$n_{F'}-n_e$	0.005036
$n_i-n_{F'}$	0.016656

Relative Partial Dispersions	
$\theta_{C,t}$	0.8313
$\theta_{C,A'}$	0.3501
$\theta_{d,C}$	0.3050
$\theta_{e,C}$	0.5435
$\theta_{g,d}$	1.2364
$\theta_{g,F}$	0.5415
$\theta_{h,g}$	0.4488
$\theta_{i,g}$	1.2128
$\theta'_{C,t}$	0.8728
$\theta'_{e,C'}$	0.4909
$\theta'_{F',e}$	0.5091
$\theta'_{i,F'}$	1.6838

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0045
$\Delta\theta_{C,A'}$	0.0019
$\Delta\theta_{g,d}$	-0.0043
$\Delta\theta_{g,F}$	-0.0034
$\Delta\theta_{i,g}$	-0.0123

Thermal Properties	
Strain Point StP (°C)	451
Annealing Point AP (°C)	482
Transformation Temperature Tg (°C)	506 *
Yield Point At (°C)	549 *
Softening Point SP (°C)	596
Expansion Coefficients (-30~+70°C)	73 *
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	93 *
Thermal Conductivity $\lambda$ W/(m·K)	1.03

Coloring			
$\lambda_{80}$	340	$\lambda_5$	285
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	328	$\lambda_{0.05}$	289

CCI		
B	G	R
0.00	0.10	0.10

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	0.29
310	0.51
320	0.70
330	0.83
340	0.906
350	0.949
360	0.971
370	0.983
380	0.988
390	0.990
400	0.996
420	0.997
440	0.996
460	0.998
480	0.999
500	0.999
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.993
1600	0.997
1800	0.988
2000	0.975
2200	0.914
2400	0.84

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} \text{K}^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	3.2	3.5	3.6	3.7	3.8	4.1	4.5
-20~ 0	3.1	3.5	3.6	3.7	3.8	4.2	4.5
0~20	3.1	3.5	3.6	3.7	3.8	4.2	4.5
20~40	3.0	3.5	3.5	3.6	3.8	4.1	4.5
40~60	3.0	3.5	3.5	3.6	3.8	4.2	4.6
60~80	3.2	3.6	3.7	3.8	4.0	4.4	4.7

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.18
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.