

# L-BAL35

Code(d) **589612**

Code(e) **591609**

Refractive Index $n_d$	<b>1.58913</b>	Abbe Number $\nu_d$	<b>61.15</b>	Dispersion $n_F-n_C$	<b>0.009634</b>
	1.589130				
Refractive Index $n_e$	1.591428	Abbe Number $\nu_e$	60.93	Dispersion $n_F-n_C'$	0.009706

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.55775
$n_{1970}$	1.97009	1.56407
$n_{1530}$	1.52958	1.57069
$n_{1129}$	1.12864	1.57622
$n_t$	1.01398	1.57795
$n_s$	0.85211	1.58085
$n_{A'}$	0.76819	1.58276
$n_r$	0.70652	1.58448
$n_C$	0.65627	1.58618
$n_{C'}$	0.64385	1.58665
$n_{\text{He-Ne}}$	0.6328	1.58709
$n_D$	0.58929	1.58904
$n_d$	0.58756	1.58913
$n_e$	0.54607	1.59143
$n_F$	0.48613	1.59581
$n_{F'}$	0.47999	1.59636
$n_{\text{He-Cd}}$	0.44157	1.60031
$n_g$	0.435835	1.60100
$n_h$	0.404656	1.60528
$n_i$	0.365015	1.61256

Constants of Dispersion Formula	
$A_1$	1.16262630E+00
$A_2$	3.25661051E-01
$A_3$	1.35132486E+00
$B_1$	1.25957437E-02
$B_2$	-3.26911050E-03
$B_3$	1.19214596E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	52.2
Phosphate Resistance PR	3.2

Mechanical Properties	
Young's Modulus E (GPa)	100.8
Rigidity Modulus G (GPa)	40.3
Poisson's Ratio $\sigma$	0.252
Knoop Hardness Hk[Class]	640 * 6
Abrasion Aa	100

Partial Dispersions	
$n_C-n_t$	0.008230
$n_C-n_{A'}$	0.003418
$n_d-n_C$	0.002952
$n_e-n_C$	0.005250
$n_g-n_d$	0.011867
$n_g-n_F$	0.005185
$n_h-n_g$	0.004288
$n_i-n_g$	0.011567
$n_C-n_t$	0.008702
$n_e-n_{C'}$	0.004778
$n_{F'}-n_e$	0.004928
$n_i-n_{F'}$	0.016208

Relative Partial Dispersions	
$\theta_{C,t}$	0.8543
$\theta_{C,A'}$	0.3548
$\theta_{d,C}$	0.3064
$\theta_{e,C}$	0.5449
$\theta_{g,d}$	1.2318
$\theta_{g,F}$	0.5382
$\theta_{h,g}$	0.4451
$\theta_{i,g}$	1.2006
$\theta'_{C,t}$	0.8966
$\theta'_{e,C}$	0.4923
$\theta'_{F',e}$	0.5077
$\theta'_{i,F'}$	1.6699

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0207
$\Delta \theta_{C,A'}$	0.0048
$\Delta \theta_{g,d}$	-0.0059
$\Delta \theta_{g,F}$	-0.0043
$\Delta \theta_{i,g}$	-0.0124

Thermal Properties	
Strain Point StP (°C)	489
Annealing Point AP (°C)	520
Transformation Temperature Tg (°C)	527
Yield Point At (°C)	567
Softening Point SP (°C)	619
Expansion Coefficients (-30~+70°C)	66
$\alpha$ (10 <sup>-7</sup> K <sup>-1</sup> ) (+100~+300°C)	81
Thermal Conductivity $\lambda$ W/(m·K)	1.13

Coloring			
$\lambda_{80}$	345	$\lambda_5$	295
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	336	$\lambda_{0.05}$	300

CCI		
B	G	R
0.00	0.23	0.20

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	0.06
310	0.27
320	0.53
330	0.73
340	0.85
350	0.922
360	0.956
370	0.975
380	0.984
390	0.989
400	0.992
420	0.993
440	0.993
460	0.995
480	0.996
500	0.998
550	0.999
600	0.998
650	0.998
700	0.998
800	0.999
900	0.998
1000	0.997
1200	0.997
1400	0.991
1600	0.994
1800	0.989
2000	0.978
2200	0.934
2400	0.81

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	3.9	4.3	4.3	4.4	4.5	4.8	5.1
-20~ 0	3.9	4.3	4.3	4.5	4.6	4.9	5.2
0~20	4.0	4.4	4.4	4.5	4.7	5.0	5.3
20~40	4.0	4.4	4.5	4.6	4.7	5.1	5.4
40~60	4.1	4.5	4.5	4.7	4.8	5.2	5.5
60~80	4.1	4.5	4.6	4.8	4.9	5.2	5.6

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.29
Specific Gravity d	2.82
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.