

# BAL15Y

Code(d) **557587**

Code(e) **559585**

Refractive Index $n_d$	<b>1.55671</b> 1.556711	Abbe Number $\nu_d$	<b>58.68</b>	Dispersion $n_F-n_C$	<b>0.009488</b>
Refractive Index $n_e$	1.558973	Abbe Number $\nu_e$	58.41	Dispersion $n_F-n_C'$	0.009569

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.52907
$n_{1970}$	1.97009	1.53423
$n_{1530}$	1.52958	1.53972
$n_{1129}$	1.12864	1.54449
$n_t$	1.01398	1.54604
$n_s$	0.85211	1.54872
$n_{A'}$	0.76819	1.55053
$n_r$	0.70652	1.55218
$n_C$	0.65627	1.55383
$n_{C'}$	0.64385	1.55429
$n_{\text{He-Ne}}$	0.6328	1.55471
$n_D$	0.58929	1.55663
$n_d$	0.58756	1.55671
$n_e$	0.54607	1.55897
$n_F$	0.48613	1.56331
$n_{F'}$	0.47999	1.56385
$n_{\text{He-Cd}}$	0.44157	1.56779
$n_g$	0.435835	1.56848
$n_h$	0.404656	1.57277
$n_i$	0.365015	1.58012
$n_{334}$	0.334148	1.58807
$n_{326}$	0.326106	1.59060

Constants of Dispersion Formula	
$A_1$	1.28348331E+00
$A_2$	1.02800765E-01
$A_3$	4.04609885E-01
$B_1$	7.90900515E-03
$B_2$	3.05971274E-02
$B_3$	4.65268356E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1~2
Acid Resistance(Surface) Group SR	1.2
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	78.3
Rigidity Modulus G (GPa)	31.7
Poisson's Ratio $\sigma$	0.236
Knoop Hardness HK(Class)	560 6
Abrasion Aa	118

Partial Dispersions	
$n_C-n_t$	0.007785
$n_C-n_{A'}$	0.003296
$n_d-n_C$	0.002885
$n_e-n_C$	0.005147
$n_g-n_d$	0.011768
$n_g-n_F$	0.005165
$n_h-n_g$	0.004295
$n_i-n_g$	0.011636
$n_C-n_t$	0.008244
$n_e-n_{C'}$	0.004688
$n_{F'}-n_e$	0.004881
$n_i-n_{F'}$	0.016261

Relative Partial Dispersions	
$\theta_{C,t}$	0.8205
$\theta_{C,A'}$	0.3474
$\theta_{d,C}$	0.3041
$\theta_{e,C}$	0.5425
$\theta_{g,d}$	1.2403
$\theta_{g,F}$	0.5444
$\theta_{h,g}$	0.4527
$\theta_{i,g}$	1.2264
$\theta'_{C,t}$	0.8615
$\theta'_{e,C}$	0.4899
$\theta'_{F',e}$	0.5101
$\theta'_{i,F'}$	1.6993

※Refractive Indices of the wavelength nm can be calculated from 326 to 1129 nm by this constant. Use the appended list of the constants to calculate 1129-2325nm.

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0015
$\Delta\theta_{C,A'}$	0.0004
$\Delta\theta_{g,d}$	-0.0026
$\Delta\theta_{g,F}$	-0.0021
$\Delta\theta_{i,g}$	-0.0073

Thermal Properties	
Strain Point StP (°C)	-
Annealing Point AP (°C)	-
Transformation Temperature Tg (°C)	507
Yield Point At (°C)	547
Softening Point SP (°C)	642
Expansion Coefficients (-30~+70°C)	76
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	90
Thermal Conductivity $\lambda$ W/(m·K)	1.00

Coloring			
$\lambda_{80}$	325	$\lambda_5$	295
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	318	$\lambda_{0.05}$	297

CCI		
B	G	R
0.00	0.04	0.02

Internal Transmittance		
$\lambda(\text{nm})$	$\tau$ 10mm	$\tau$ 25mm
240		
250		
260		
270		
280		
290		
300	0.17	0.01
310	0.59	0.27
320	0.84	0.65
330	0.937	0.85
340	0.971	0.929
350	0.985	0.963
360	0.992	0.979
365	0.994	0.984
370	0.995	0.988
380	0.996	0.990
390	0.997	0.993
400	0.998	0.994
420	0.998	0.995
440	0.998	0.995
460	0.998	0.996
480	0.998	0.996
500	0.999	0.997
550	0.999	0.997
600	0.999	0.997
650	0.998	0.996
700	0.999	0.997
800	0.999	0.997
900	0.998	0.995
1000	0.996	0.990
1200	0.995	0.988
1400	0.989	0.972
1600	0.992	0.980
1800	0.984	0.961
2000	0.972	0.932
2200	0.927	0.82
2400	0.89	0.75

Other Properties	
Photoelastic Constant $\beta$ nm/(cm $\cdot$ 10 $^5$ Pa)	
Specific Gravity d	2.90
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.

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	i
-40~-20	2.2	2.5	2.5	2.6	2.8	3.0	3.3	4.2
-20~ 0	2.2	2.5	2.6	2.7	2.8	3.1	3.5	4.3
0~20	2.3	2.6	2.6	2.8	2.9	3.2	3.6	4.5
20~40	2.4	2.7	2.7	2.8	3.0	3.3	3.7	4.6
40~60	2.4	2.8	2.8	2.9	3.1	3.4	3.8	4.8
60~80	2.4	2.8	2.9	3.0	3.1	3.5	3.9	4.9