

# PBL25Y

Code(d) **581408**

Code(e) **585405**

Refractive Index $n_d$	<b>1.58144</b> 1.581439	Abbe Number $\nu_d$	<b>40.77</b>	Dispersion $n_F-n_C$	<b>0.014263</b>
Refractive Index $n_e$	1.584824	Abbe Number $\nu_e$	40.49	Dispersion $n_F-n_{C'}$	0.014442

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.54936
$n_{1970}$	1.97009	1.55423
$n_{1530}$	1.52958	1.55961
$n_{1129}$	1.12864	1.56480
$n_t$	1.01398	1.56667
$n_s$	0.85211	1.57011
$n_{A'}$	0.76819	1.57256
$n_r$	0.70652	1.57487
$n_C$	0.65627	1.57722
$n_{C'}$	0.64385	1.57788
$n_{\text{He-Ne}}$	0.6328	1.57850
$n_D$	0.58929	1.58131
$n_d$	0.58756	1.58144
$n_e$	0.54607	1.58482
$n_F$	0.48613	1.59148
$n_{F'}$	0.47999	1.59232
$n_{\text{He-Cd}}$	0.44157	1.59856
$n_g$	0.435835	1.59967
$n_h$	0.404656	1.60670
$n_i$	0.365015	1.61928
$n_{334}$	0.334148	1.63387
$n_{326}$	0.326106	1.63876

Constants of Dispersion Formula	
$A_1$	1.31960626E+00
$A_2$	1.23752633E-01
$A_3$	2.10055351E-01
$B_1$	1.01863415E-02
$B_2$	4.83593508E-02
$B_3$	2.73272029E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E (GPa)	58.5
Rigidity Modulus G (GPa)	24.0
Poisson's Ratio $\sigma$	0.219
Knoop Hardness HK(Class)	460   5
Abrasion Aa	145

Partial Dispersions	
$n_C-n_t$	0.010546
$n_C-n_{A'}$	0.004656
$n_d-n_C$	0.004222
$n_e-n_C$	0.007607
$n_g-n_d$	0.018226
$n_g-n_F$	0.008185
$n_h-n_g$	0.007038
$n_i-n_g$	0.019619
$n_C-n_t$	0.011210
$n_e-n_{C'}$	0.006943
$n_{F'}-n_e$	0.007499
$n_i-n_{F'}$	0.026961

Relative Partial Dispersions	
$\theta_{C,t}$	0.7394
$\theta_{C,A'}$	0.3264
$\theta_{d,C}$	0.2960
$\theta_{e,C}$	0.5333
$\theta_{g,d}$	1.2779
$\theta_{g,F}$	0.5739
$\theta_{h,g}$	0.4934
$\theta_{i,g}$	1.3755
$\theta'_{C,t}$	0.7762
$\theta'_{e,C}$	0.4808
$\theta'_{F',e}$	0.5192
$\theta'_{i,F'}$	1.8668

※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"	
$\Delta\theta_{C,t}$	0.0014
$\Delta\theta_{C,A'}$	0.0011
$\Delta\theta_{g,d}$	-0.0021
$\Delta\theta_{g,F}$	-0.0016
$\Delta\theta_{i,g}$	-0.0081

Thermal Properties	
Strain Point StP (°C)	381
Annealing Point AP (°C)	420
Transformation Temperature Tg (°C)	440
Yield Point At (°C)	468
Softening Point SP (°C)	590
Expansion Coefficients (-30~+70°C)	87
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	98
Thermal Conductivity $\lambda$ W/(m·K)	0.899

Coloring			
$\lambda_{80}$	335	$\lambda_5$	310
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	331	$\lambda_{0.05}$	311

CCI		
B	G	R
0.00	0.03	0.03

Internal Transmittance		
$\lambda(\text{nm})$	$\tau$ 10mm	$\tau$ 25mm
240		
250		
260		
270		
280		
290		
300		
310	0.01	
320	0.35	0.07
330	0.78	0.54
340	0.940	0.85
350	0.981	0.954
360	0.993	0.982
365	0.995	0.986
370	0.996	0.990
380	0.997	0.993
390	0.998	0.995
400	0.998	0.996
420	0.998	0.996
440	0.998	0.996
460	0.999	0.997
480	0.999	0.998
500	0.999	0.998
550	0.999	0.998
600	0.999	0.998
650	0.999	0.998
700	0.999	0.999
800	0.999	0.999
900	0.999	0.998
1000	0.998	0.996
1200	0.998	0.995
1400	0.996	0.990
1600	0.994	0.984
1800	0.979	0.948
2000	0.953	0.88
2200	0.905	0.78
2400	0.87	0.70

Other Properties	
Photoelastic Constant $\beta$ nm/(cm $\cdot$ 10 $^5$ Pa)	2.99
Specific Gravity d	3.23
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	1.8	2.4	2.5	2.7	2.9	3.5	4.2	6.3	
-20~ 0	1.9	2.5	2.6	2.8	3.1	3.7	4.4	6.5	
0~20	1.9	2.6	2.7	2.9	3.2	3.8	4.5	6.8	
20~40	2.0	2.7	2.8	3.0	3.3	4.0	4.7	7.0	
40~60	2.1	2.8	2.9	3.1	3.4	4.1	4.9	7.3	
60~80	2.1	2.9	3.0	3.2	3.5	4.3	5.1	7.5	