

PBL25Y

Code(d) **581408**

Code(e) **585405**

Refractive Index n_d	1.58144 1.581439	Abbe Number ν_d	40.77	Dispersion n_F-n_C	0.014263
Refractive Index n_e	1.584824	Abbe Number ν_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 σ	0.219
Knoop Hardness Hk[Class]	430 4
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)	434 *
Yield Point At (°C)	490 *
Softening Point SP (°C)	590
Expansion Coefficients (-30~+70°C)	88 *
$\alpha (10^{-7} K^{-1})$ (+100~+300°C)	103 *
Thermal Conductivity λ W/(m·K)	0.899

Coloring			
λ_{80}	335	λ_5	310
λ_{70}			

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

CCI		
B	G	R
0.00	0.03	0.03

Internal Transmittance		
$\lambda(\text{nm})$	τ 10mm	τ 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 β nm/(cm·10 ⁶ 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 ($10^{-6} K^{-1}$)							
	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