

# PBM 8Y

Code(d) **596393**

Code(e) **599390**

Refractive Index $n_d$	<b>1.59551</b> 1.595509	Abbe Number $\nu_d$	<b>39.26</b>	Dispersion $n_F-n_C$	<b>0.015169</b>
Refractive Index $n_e$	1.599108	Abbe Number $\nu_e$	38.99	Dispersion $n_F-n_{C'}$	0.015365

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.56224
$n_{1970}$	1.97009	1.56716
$n_{1530}$	1.52958	1.57263
$n_{1129}$	1.12864	1.57797
$n_t$	1.01398	1.57992
$n_s$	0.85211	1.58352
$n_{A'}$	0.76819	1.58611
$n_r$	0.70652	1.58855
$n_C$	0.65627	1.59103
$n_{C'}$	0.64385	1.59173
$n_{\text{He-Ne}}$	0.6328	1.59239
$n_D$	0.58929	1.59538
$n_d$	0.58756	1.59551
$n_e$	0.54607	1.59911
$n_F$	0.48613	1.60620
$n_{F'}$	0.47999	1.60710
$n_{\text{He-Cd}}$	0.44157	1.61377
$n_g$	0.435835	1.61495
$n_h$	0.404656	1.62249
$n_i$	0.365015	1.63604
$n_{334}$	0.334148	1.65185
$n_{326}$	0.326106	1.65718

Constants of Dispersion Formula	
$A_1$	1.35351322E+00
$A_2$	1.30212912E-01
$A_3$	1.58337266E-01
$B_1$	1.05624626E-02
$B_2$	4.96606652E-02
$B_3$	2.07965806E+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)	58.8
Rigidity Modulus G (GPa)	24.1
Poisson's Ratio $\sigma$	0.222
Knoop Hardness HK(Class)	400 4
Abrasion Aa	154

Partial Dispersions	
$n_C-n_t$	0.011109
$n_C-n_{A'}$	0.004923
$n_d-n_C$	0.004479
$n_e-n_C$	0.008078
$n_g-n_d$	0.019438
$n_g-n_F$	0.008748
$n_h-n_g$	0.007545
$n_i-n_g$	0.021090
$n_C-n_t$	0.011813
$n_e-n_{C'}$	0.007374
$n_{F'}-n_e$	0.007991
$n_i-n_{F'}$	0.028938

Relative Partial Dispersions	
$\theta_{C,t}$	0.7323
$\theta_{C,A'}$	0.3245
$\theta_{d,C}$	0.2953
$\theta_{e,C}$	0.5325
$\theta_{g,d}$	1.2814
$\theta_{g,F}$	0.5767
$\theta_{h,g}$	0.4974
$\theta_{i,g}$	1.3903
$\theta'_{C,t}$	0.7688
$\theta'_{e,C}$	0.4799
$\theta'_{F',e}$	0.5201
$\theta'_{i,F'}$	1.8834

※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
$\Delta\theta_{g,d}$	-0.0018
$\Delta\theta_{g,F}$	-0.0012
$\Delta\theta_{i,g}$	-0.0060

Thermal Properties	
Strain Point StP (°C)	390
Annealing Point AP (°C)	426
Transformation Temperature Tg (°C)	445
Yield Point At (°C)	485
Softening Point SP (°C)	590
Expansion Coefficients (-30~+70°C)	85
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	96
Thermal Conductivity $\lambda$ W/(m·K)	0.878

Coloring			
$\lambda_{80}$	340	$\lambda_5$	315
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	336	$\lambda_{0.05}$	318

CCI		
B	G	R
0.00	0.04	0.04

Internal Transmittance		
$\lambda(\text{nm})$	$\tau$ 10mm	$\tau$ 25mm
240		
250		
260		
270		
280		
290		
300		
310		
320	0.17	0.01
330	0.65	0.34
340	0.89	0.75
350	0.966	0.918
360	0.987	0.968
365	0.991	0.977
370	0.993	0.983
380	0.996	0.990
390	0.997	0.993
400	0.998	0.995
420	0.998	0.996
440	0.998	0.996
460	0.998	0.996
480	0.999	0.997
500	0.999	0.998
550	0.999	0.998
600	0.999	0.998
650	0.999	0.998
700	0.999	0.998
800	0.999	0.998
900	0.999	0.998
1000	0.998	0.995
1200	0.998	0.995
1400	0.995	0.988
1600	0.994	0.986
1800	0.981	0.953
2000	0.960	0.903
2200	0.916	0.80
2400	0.88	0.74

Other Properties	
Photoelastic Constant $\beta$ nm/(cm $\cdot$ 10 $^5$ Pa)	2.87
Specific Gravity d	3.36
Remarks	

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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	1.9	2.6	2.7	2.9	3.2	3.8	4.6	6.8
-20~ 0	2.0	2.7	2.8	3.0	3.3	4.0	4.8	7.1
0~20	2.1	2.9	2.9	3.2	3.5	4.2	5.0	7.4
20~40	2.2	3.0	3.0	3.3	3.6	4.4	5.2	7.7
40~60	2.3	3.1	3.2	3.4	3.8	4.5	5.4	8.0
60~80	2.5	3.3	3.3	3.5	3.9	4.7	5.6	8.3

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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.