

# S-FPM2

Code(d) **595677**

Code(e) **597674**

Refractive Index $n_d$	<b>1.59522</b> 1.595220	Abbe Number $\nu_d$	<b>67.74</b>	Dispersion $n_F-n_C$	<b>0.008787</b>
Refractive Index $n_e$	1.597316	Abbe Number $\nu_e$	67.37	Dispersion $n_F-n_C'$	0.008866

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.57252
$n_{1970}$	1.97009	1.57631
$n_{1530}$	1.52958	1.58045
$n_{1129}$	1.12864	1.58426
$n_t$	1.01398	1.58557
$n_s$	0.85211	1.58791
$n_{A'}$	0.76819	1.58954
$n_r$	0.70652	1.59105
$n_C$	0.65627	1.59255
$n_{C'}$	0.64385	1.59298
$n_{\text{He-Ne}}$	0.6328	1.59337
$n_D$	0.58929	1.59514
$n_d$	0.58756	1.59522
$n_e$	0.54607	1.59732
$n_F$	0.48613	1.60134
$n_{F'}$	0.47999	1.60184
$n_{\text{He-Cd}}$	0.44157	1.60549
$n_g$	0.435835	1.60612
$n_h$	0.404656	1.61008
$n_i$	0.365015	1.61681

Constants of Dispersion Formula	
$A_1$	7.61242785E-01
$A_2$	7.47033375E-01
$A_3$	9.38928947E-01
$B_1$	3.21174095E-03
$B_2$	1.40234423E-02
$B_3$	1.39523530E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	51.3
Phosphate Resistance PR	4.1

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	757
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	294
Poisson's Ratio $\sigma$	0.287
Knoop Hardness Hk[Class]	390   4
Abrasion Aa	521
Photoelastic Constant $\beta$ nm/(cm $\cdot$ 10 $^5$ Pa)	0.51

Partial Dispersions	
$n_C-n_t$	0.006988
$n_C-n_{A'}$	0.003015
$n_d-n_C$	0.002665
$n_e-n_C$	0.004761
$n_g-n_d$	0.010904
$n_g-n_F$	0.004782
$n_h-n_g$	0.003960
$n_i-n_g$	0.010681
$n_C-n_t$	0.007411
$n_e-n_{C'}$	0.004338
$n_F-n_e$	0.004528
$n_i-n_{F'}$	0.014961

Relative Partial Dispersions	
$\theta_{C,t}$	0.7953
$\theta_{C,A'}$	0.3431
$\theta_{d,C}$	0.3033
$\theta_{e,C}$	0.5418
$\theta_{g,d}$	1.2409
$\theta_{g,F}$	0.5442
$\theta_{h,g}$	0.4507
$\theta_{i,g}$	1.2155
$\theta'_{C,t}$	0.8359
$\theta'_{e,C'}$	0.4893
$\theta'_{F,e}$	0.5107
$\theta'_{i,F'}$	1.6875

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0692
$\Delta\theta_{C,A'}$	-0.0149
$\Delta\theta_{g,d}$	0.0169
$\Delta\theta_{g,F}$	0.0123
$\Delta\theta_{i,g}$	0.0577

Thermal Properties	
Strain Point StP (°C)	
Annealing Point AP (°C)	
Transformation Temperature Tg (°C)	571
Yield Point At (°C)	596
Softening Point SP (°C)	
Expansion Coefficients (-30~+70°C)	117
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	135
Thermal Conductivity $\lambda$ W/(m·K)	0.624

Coloring			
$\lambda_{80}$	355	$\lambda_5$	295
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	347	$\lambda_{0.05}$	302

CCI		
B	G	R
0.00	0.32	0.27

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	0.18
320	0.35
330	0.54
340	0.72
350	0.84
360	0.917
370	0.958
380	0.980
390	0.988
400	0.991
420	0.989
440	0.989
460	0.992
480	0.994
500	0.996
550	0.998
600	0.997
650	0.996
700	0.996
800	0.995
900	0.995
1000	0.996
1200	0.997
1400	0.997
1600	0.997
1800	0.995
2000	0.992
2200	0.989
2400	0.983

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	-5.8	-5.5	-5.5	-5.4	-5.3	-5.1	-4.9
-20~ 0	-6.0	-5.7	-5.7	-5.6	-5.5	-5.3	-5.1
0~20	-6.1	-5.9	-5.9	-5.8	-5.7	-5.5	-5.2
20~40	-6.3	-6.1	-6.1	-6.0	-5.9	-5.6	-5.4
40~60	-6.4	-6.2	-6.1	-6.1	-5.9	-5.7	-5.4
60~80	-6.5	-6.2	-6.2	-6.1	-6.0	-5.7	-5.5

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.17
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.