

S-FPM 3

Code(d) **538747**

Code(e) **539743**

Refractive Index n_d	1.53775 1.537750	Abbe Number ν_d	74.70	Dispersion n_F-n_C	0.007199
Refractive Index n_e	1.539469	Abbe Number ν_e	74.34	Dispersion $n_F-n_{C'}$	0.007257

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.51738
n_{1970}	1.97009	1.52105
n_{1530}	1.52958	1.52500
n_{1129}	1.12864	1.52849
n_t	1.01398	1.52965
n_s	0.85211	1.53167
$n_{A'}$	0.76819	1.53304
n_r	0.70652	1.53430
n_C	0.65627	1.53555
$n_{C'}$	0.64385	1.53590
$n_{\text{He-Ne}}$	0.6328	1.53623
n_D	0.58929	1.53769
n_d	0.58756	1.53775
n_e	0.54607	1.53947
n_F	0.48613	1.54275
$n_{F'}$	0.47999	1.54316
$n_{\text{He-Cd}}$	0.44157	1.54612
n_g	0.435835	1.54664
n_h	0.404656	1.54984
n_i	0.365015	1.55525

Constants of Dispersion Formula	
A_1	8.09407286E-01
A_2	5.27007033E-01
A_3	9.09127704E-01
B_1	3.76072389E-03
B_2	1.35654895E-02
B_3	1.42503612E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	5.1
Phosphate Resistance PR	4.1

Mechanical Properties	
Young's Modulus E (GPa)	80.6
Rigidity Modulus G (GPa)	31.2
Poisson's Ratio σ	0.291
Knoop Hardness Hk(Class)	400 4
Abrasion Aa	418

Partial Dispersions	
n_C-n_t	0.005905
$n_C-n_{A'}$	0.002510
n_d-n_C	0.002196
n_e-n_C	0.003915
n_g-n_d	0.008885
n_g-n_F	0.003882
n_h-n_g	0.003203
n_i-n_g	0.008618
n_C-n_t	0.006255
$n_e-n_{C'}$	0.003565
$n_{F'}-n_e$	0.003692
$n_i-n_{F'}$	0.012092

Relative Partial Dispersions	
$\theta_{C,t}$	0.8203
$\theta_{C,A'}$	0.3487
$\theta_{d,C}$	0.3050
$\theta_{e,C}$	0.5438
$\theta_{g,d}$	1.2342
$\theta_{g,F}$	0.5392
$\theta_{h,g}$	0.4449
$\theta_{i,g}$	1.1971
$\theta'_{C,t}$	0.8619
$\theta'_{e,C'}$	0.4912
$\theta'_{F',e}$	0.5088
$\theta'_{i,F'}$	1.6663

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0769
$\Delta\theta_{C,A'}$	-0.0177
$\Delta\theta_{g,d}$	0.0246
$\Delta\theta_{g,F}$	0.0186
$\Delta\theta_{i,g}$	0.0976

Thermal Properties	
Strain Point StP (°C)	-
Annealing Point AP (°C)	-
Transformation Temperature Tg (°C)	496
Yield Point At (°C)	524
Softening Point SP (°C)	-
Expansion Coefficients (-30~+70°C)	115
α (10^{-7}K^{-1}) (+100~+300°C)	138
Thermal Conductivity λ W/(m·K)	0.805

Coloring			
λ_{80}	345	λ_5	
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	336	$\lambda_{0.05}$	284

CCI		
B	G	R
0.00	0.28	0.23

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	0.03
290	0.08
300	0.19
310	0.36
320	0.55
330	0.72
340	0.85
350	0.924
360	0.962
370	0.981
380	0.990
390	0.992
400	0.992
420	0.989
440	0.990
460	0.992
480	0.995
500	0.996
550	0.998
600	0.997
650	0.996
700	0.996
800	0.994
900	0.995
1000	0.996
1200	0.997
1400	0.997
1600	0.996
1800	0.995
2000	0.993
2200	0.987
2400	0.984

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
-40~-20	-3.9	-3.7	-3.7	-3.6	-3.5	-3.3	-3.2
-20~ 0	-4.2	-4.0	-4.0	-3.9	-3.8	-3.6	-3.4
0~20	-4.4	-4.2	-4.2	-4.2	-4.1	-3.8	-3.6
20~40	-4.6	-4.4	-4.4	-4.3	-4.2	-4.0	-3.8
40~60	-4.7	-4.5	-4.5	-4.4	-4.3	-4.1	-3.9
60~80	-4.8	-4.6	-4.6	-4.5	-4.4	-4.2	-4.0

Other Properties	
Photoelastic Constant β nm/(cm \cdot 10 5 Pa)	0.85
Specific Gravity d	3.64
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.