

S-FPL53

Code(d) **439950**

Code(e) **440946**

Refractive Index n_d	1.43875 1.438750	Abbe Number ν_d	94.93	Dispersion n_F-n_C	0.004622
Refractive Index n_e	1.439854	Abbe Number ν_e	94.49	Dispersion n_F-n_C'	0.004655

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.42512
n_{1970}	1.97009	1.42762
n_{1530}	1.52958	1.43032
n_{1129}	1.12864	1.43269
n_t	1.01398	1.43346
n_s	0.85211	1.43480
$n_{A'}$	0.76819	1.43570
n_r	0.70652	1.43652
n_C	0.65627	1.43733
$n_{C'}$	0.64385	1.43756
$n_{\text{He-Ne}}$	0.6328	1.43777
n_D	0.58929	1.43871
n_d	0.58756	1.43875
n_e	0.54607	1.43985
n_F	0.48613	1.44195
$n_{F'}$	0.47999	1.44221
$n_{\text{He-Cd}}$	0.44157	1.44410
n_g	0.435835	1.44442
n_h	0.404656	1.44645
n_i	0.365015	1.44986

Constants of Dispersion Formula	
A_1	9.83532327E-01
A_2	6.95688140E-02
A_3	1.11409238E+00
B_1	4.92234955E-03
B_2	1.93581091E-02
B_3	2.64275294E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	2
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	52.3
Phosphate Resistance PR	4.3

Mechanical Properties	
Young's Modulus E (GPa)	69.1
Rigidity Modulus G (GPa)	26.5
Poisson's Ratio σ	0.303
Knoop Hardness Hk(Class)	320 3
Abrasion Aa	480

Partial Dispersions	
n_C-n_t	0.003870
$n_C-n_{A'}$	0.001631
n_d-n_C	0.001417
n_e-n_C	0.002521
n_g-n_d	0.005673
n_g-n_F	0.002468
n_h-n_g	0.002028
n_i-n_g	0.005437
n_C-n_t	0.004097
$n_e-n_{C'}$	0.002294
$n_{F'}-n_e$	0.002361
$n_i-n_{F'}$	0.007645

Relative Partial Dispersions	
$\theta_{C,t}$	0.8373
$\theta_{C,A'}$	0.3529
$\theta_{d,C}$	0.3066
$\theta_{e,C}$	0.5454
$\theta_{g,d}$	1.2274
$\theta_{g,F}$	0.5340
$\theta_{h,g}$	0.4388
$\theta_{i,g}$	1.1763
$\theta'_{C,t}$	0.8801
$\theta'_{e,C}$	0.4928
$\theta'_{F',e}$	0.5072
$\theta'_{i,F'}$	1.6423

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	-0.1548
$\Delta \theta_{C,A'}$	-0.0381
$\Delta \theta_{g,d}$	0.0598
$\Delta \theta_{g,F}$	0.0461
$\Delta \theta_{i,g}$	0.2462

Thermal Properties	
Strain Point StP (°C)	-
Annealing Point AP (°C)	-
Transformation Temperature Tg (°C)	426
Yield Point At (°C)	456
Softening Point SP (°C)	-
Expansion Coefficients (-30~+70°C)	145
α (10^{-7}K^{-1}) (+100~+300°C)	169
Thermal Conductivity λ W/(m·K)	0.857

Coloring			
λ_{80}	330	λ_5	280
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	326	$\lambda_{0.05}$	283

CCI		
B	G	R
0.00	0.13	0.08

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	0.04
290	0.12
300	0.28
310	0.51
320	0.71
330	0.85
340	0.928
350	0.967
360	0.985
370	0.992
380	0.996
390	0.997
400	0.996
420	0.995
440	0.995
460	0.996
480	0.997
500	0.998
550	0.999
600	0.998
650	0.997
700	0.998
800	0.998
900	0.997
1000	0.997
1200	0.998
1400	0.998
1600	0.998
1800	0.998
2000	0.998
2200	0.997
2400	0.998

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	-5.9	-5.8	-5.8	-5.7	-5.7	-5.6	-5.5
-20~ 0	-6.2	-6.1	-6.1	-6.1	-6.0	-5.9	-5.8
0~20	-6.5	-6.4	-6.4	-6.4	-6.3	-6.2	-6.1
20~40	-6.9	-6.8	-6.7	-6.7	-6.6	-6.5	-6.4
40~60	-7.2	-7.1	-7.1	-7.0	-7.0	-6.8	-6.7
60~80	-7.5	-7.4	-7.4	-7.3	-7.3	-7.2	-7.0

Other Properties	
Photoelastic Constant β nm/(cm·10 ⁵ Pa)	0.57
Specific Gravity d	3.62
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.