

S-FPL51Y

Code(d) **497811**

Code(e) **498808**

Refractive Index n_d	1.49700 1.497003	Abbe Number v_d	81.1 81.14	Dispersion n_F-n_C	0.00613 0.006125
Refractive Index n_e	1.498466	Abbe Number v_e	80.74	Dispersion $n_F-n_{C'}$	0.006174

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.47980
n_{1970}	1.97009	1.48286
n_{1530}	1.52958	1.48617
n_{1129}	1.12864	1.48913
n_t	1.01398	1.49011
n_s	0.85211	1.49182
$n_{A'}$	0.76819	1.49299
n_r	0.70652	1.49407
n_C	0.65627	1.49513
$n_{C'}$	0.64385	1.49543
$n_{\text{He-Ne}}$	0.6328	1.49571
n_D	0.58929	1.49695
n_d	0.58756	1.49700
n_e	0.54607	1.49847
n_F	0.48613	1.50126
$n_{F'}$	0.47999	1.50160
$n_{\text{He-Cd}}$	0.44157	1.50412
n_g	0.435835	1.50455
n_h	0.404656	1.50727
n_i	0.365015	1.51185
n_{334}	0.334148	1.51673
n_{326}	0.326106	1.51826

Partial Dispersions	
n_C-n_t	0.005027
$n_C-n_{A'}$	0.002139
n_d-n_C	0.001870
n_e-n_C	0.003333
n_g-n_d	0.007551
n_g-n_F	0.003296
n_h-n_g	0.002716
n_i-n_g	0.007300
n_C-n_t	0.005325
$n_e-n_{C'}$	0.003035
$n_{F'-n_e}$	0.003139
$n_{F'-n_{F'}}$	0.010249

Relative Partial Dispersions	
$\theta_{C,t}$	0.8207
$\theta_{C,A'}$	0.3492
$\theta_{d,C}$	0.3053
$\theta_{e,C}$	0.5442
$\theta_{g,d}$	1.2328
$\theta_{g,F}$	0.5381
$\theta_{h,g}$	0.4434
$\theta_{i,g}$	1.1918
$\theta'_{C,t}$	0.8625
$\theta'_{e,C'}$	0.4916
$\theta'_{F',e}$	0.5084
$\theta'_{i,F}$	1.6600

Thermal Properties	
Strain Point StP (°C)	
Annealing Point AP (°C)	
Transformation Temperature Tg (°C)	448
Yield Point At (°C)	471
Softening Point SP (°C)	
Expansion Coefficients (-30~+70°C)	136
α (10 ⁻⁷ /°C) (+100~+300°C)	161
Thermal Conductivity k (W/m-K)	0.780

Coloring			
λ_{80}	31	λ_5	-

Internal Transmittance		
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$	$\tau_{25\text{mm}}$
240	0.04	
250	0.07	
260	0.21	0.02
270	0.34	0.06
280	0.51	0.19
290	0.67	0.37
300	0.80	0.58
310	0.89	0.75
320	0.943	0.86
330	0.971	0.930
340	0.986	0.966
350	0.994	0.985
360	0.996	0.991
365	0.997	0.993
370	0.998	0.995
380	0.999	0.997
390	0.999	0.998
400	0.999	0.998
420	0.999	0.998
440	0.999	0.998
460	0.999	0.998
480	0.999	0.998
500	0.999	0.999
550	0.999	0.999
600	0.999	0.999
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	0.996
1400	0.999	0.998
1600	0.999	0.997
1800	0.998	0.995
2000	0.998	0.995
2200	0.996	0.991
2400	0.995	0.987

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	-0.1067
$\Delta \theta_{C,A'}$	-0.0251
$\Delta \theta_{g,d}$	0.0366
$\Delta \theta_{g,F}$	0.0279
$\Delta \theta_{i,g}$	0.1462

Mechanical Properties	
Young's Modulus E (10 ⁸ N/m ²)	716
Rigidity Modulus G (10 ⁸ N/m ²)	275
Poisson's Ratio σ	0.302
Knoop Hardness Hk[Class]	380 4
Abrasion Aa	476
Photoelastic Constant β (nm/cm/10 ⁶ Pa)	

Constants of Dispersion Formula *1	
A ₁	1.14031443E+00
A ₂	7.71496272E-02
A ₃	1.43721957E+00
B ₁	5.95466872E-03
B ₂	2.23953953E-02
B ₃	2.74290057E+02

*1 By using these contents, refractive indices for any wavelength between 326 and 1129nm can be calculated. When calculateing refractive indices for any wavelength between 1129 and 2325nm, please refer to us.

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.66
Remarks	

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	51.0
Phosphate Resistance PR	4.2

Temperature Coefficients of Refractive Index								
Range of Temperature (°C)	dn/dt relative (10 ⁻⁶ /°C)							
	t	C'	He-Ne	D	e	F'	g	i
-40~20	-6.4	-6.3	-6.3	-6.3	-6.2	-6.0	-5.9	-5.5
-20~ 0	-6.7	-6.6	-6.6	-6.5	-6.4	-6.3	-6.1	-5.7
0~20	-6.9	-6.8	-6.8	-6.7	-6.7	-6.5	-6.4	-5.9
20~40	-7.2	-7.0	-7.0	-7.0	-6.9	-6.7	-6.6	-6.1
40~60	-7.4	-7.3	-7.3	-7.2	-7.1	-7.0	-6.8	-6.3
60~80	-7.7	-7.5	-7.5	-7.4	-7.4	-7.2	-7.0	-6.6