S-FPL51

Code(d) **497816**

Code(e) **498810**

Refractive Index	n_d	**1.49700** 1.496999	Abbe Number	ν_d **81.54**	Dispersion	n_F-n_C **0.006095**
Refractive Index	n_e	1.498455	Abbe Number	ν_e 81.14	Dispersion	$n_{F'}$-$n_{C'}$ 0.006143

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.47952
n_{1970}	1.97009	1.48269
n_{1530}	1.52958	1.48610
n_{1129}	1.12864	1.48911
n_t	1.01398	1.49010
n_s	0.85211	1.49183
$n_{A'}$	0.76819	1.49300
n_r	0.70652	1.49407
n_C	0.65627	1.49514
$n_{C'}$	0.64385	1.49543
n_{He-Ne}	0.6328	1.49571
n_D	0.58929	1.49694
n_d	0.58756	1.49700
n_e	0.54607	1.49845
n_F	0.48613	1.50123
$n_{F'}$	0.47999	1.50158
n_{He-Cd}	0.44157	1.50407
n_g	0.435835	1.50451
n_h	0.404656	1.50720
n_i	0.365015	1.51176

Constants of Dispersion Formula	
A_1	1.17010505E+00
A_2	4.75710783E-02
A_3	7.63832445E-01
B_1	6.16203924E-03
B_2	2.63372876E-02
B_3	1.41882642E+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	52.1
Phosphate Resistance PR	4.0

Mechanical Properties		
Young's Modulus E (GPa)	72.7	
Rigidity Modulus G (GPa)	28.0	
Poisson's Ratio σ	0.299	
Knoop Hardness Hk[Class]	360	4
Abrasion Aa	493	

Partial Dispersions	
n_C-n_t	0.005033
n_C-$n_{A'}$	0.002134
n_d-n_C	0.001863
n_e-n_C	0.003319
n_g-n_d	0.007508
n_g-n_F	0.003276
n_h-n_g	0.002698
n_i-n_g	0.007253
n_C-n_t	0.005330
n_e-$n_{C'}$	0.003022
$n_{F'}$-n_e	0.003121
n_i-$n_{F'}$	0.010184

Relative Partial Dispersions	
$\theta_{C,t}$	0.8258
$\theta_{C,A'}$	0.3501
$\theta_{d,C}$	0.3057
$\theta_{e,C}$	0.5445
$\theta_{g,d}$	1.2318
$\theta_{g,F}$	0.5375
$\theta_{h,g}$	0.4427
$\theta_{i,g}$	1.1900
$\theta'_{C',t}$	0.8677
$\theta'_{e,C'}$	0.4919
$\theta'_{F',e}$	0.5081
$\theta'_{i,F'}$	1.6578

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	-0.1035
$\Delta\theta_{C,A'}$	-0.0246
$\Delta\theta_{g,d}$	0.0364
$\Delta\theta_{g,F}$	0.0280
$\Delta\theta_{i,g}$	0.1478

Thermal Properties		
Strain Point StP (℃)		-
Annealing Point AP (℃)		-
Transformation Temperature Tg (℃)		458
Yield Point At (℃)		489
Softening Point SP (℃)		-
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	131
	(+100~+300℃)	155
Thermal Conductivity λ W/(m·K)		0.780

Coloring			
λ_{80}	340	λ_5	290
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	333	$\lambda_{0.05}$	290

CCI		
B	G	R
0.00	0.16	0.13

Internal Transmittance	
λ(nm)	τ 10mm
280	0.01
290	0.05
300	0.17
310	0.37
320	0.60
330	0.77
340	0.88
350	0.947
360	0.975
370	0.988
380	0.994
390	0.996
400	0.995
420	0.994
440	0.994
460	0.996
480	0.997
500	0.998
550	0.999
600	0.998
650	0.998
700	0.998
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.999
1800	0.999
2000	0.999
2200	0.997
2400	0.996

Temperature Coefficients of Refractive Index							
Range of Temperature (℃)	Δn/ΔT relative ($10^{-6}$$K^{-1}$)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	-5.7	-5.5	-5.5	-5.4	-5.4	-5.3	-5.1
-20~ 0	-5.9	-5.8	-5.7	-5.7	-5.6	-5.5	-5.3
0~20	-6.2	-6.0	-6.0	-5.9	-5.8	-5.7	-5.5
20~40	-6.4	-6.2	-6.2	-6.2	-6.1	-5.9	-5.8
40~60	-6.7	-6.5	-6.5	-6.4	-6.3	-6.1	-6.0
60~80	-6.9	-6.7	-6.7	-6.7	-6.6	-6.4	-6.2

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	0.74
Specific Gravity d	3.62
Remarks	

OHARA 24-01

※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.