S-FSL 5

Code(d) **487702**
Code(e) **489701**

Refractive Index	n_d	**1.48749** 1.487490	Abbe Number	ν_d	**70.23**	Dispersion	n_F-n_C **0.006941**
Refractive Index	n_e	1.489147	Abbe Number	ν_e	70.04	Dispersion	$n_{F'}$-$n_{C'}$ 0.006984

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.46227
n_{1970}	1.97009	1.46765
n_{1530}	1.52958	1.47324
n_{1129}	1.12864	1.47778
n_t	1.01398	1.47915
n_s	0.85211	1.48138
$n_{A'}$	0.76819	1.48282
n_r	0.70652	1.48410
n_C	0.65627	1.48534
$n_{C'}$	0.64385	1.48569
n_{He-Ne}	0.6328	1.48601
n_D	0.58929	1.48743
n_d	0.58756	1.48749
n_e	0.54607	1.48915
n_F	0.48613	1.49228
$n_{F'}$	0.47999	1.49267
n_{He-Cd}	0.44157	1.49548
n_g	0.435835	1.49596
n_h	0.404656	1.49898
n_i	0.365015	1.50406

Constants of Dispersion Formula	
A_1	1.17447043E+00
A_2	1.40056154E-02
A_3	1.19272435E+00
B_1	8.41855181E-03
B_2	-5.81790767E-02
B_3	1.29599726E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	1～2
Acid Resistance(Surface) Group SR	3.0
Phosphate Resistance PR	2.0

Mechanical Properties		
Young's Modulus E (GPa)	62.3	
Rigidity Modulus G (GPa)	25.4	
Poisson's Ratio σ	0.227	
Knoop Hardness Hk[Class]	520	5
Abrasion Aa	117	

Partial Dispersions	
n_C-n_t	0.006194
n_C-$n_{A'}$	0.002522
n_d-n_C	0.002146
n_e-n_C	0.003803
n_g-n_d	0.008474
n_g-n_F	0.003679
n_h-n_g	0.003019
n_i-n_g	0.008099
n_C-n_t	0.006539
n_e-$n_{C'}$	0.003458
$n_{F'}$-n_e	0.003526
n_i-$n_{F'}$	0.011390

Relative Partial Dispersions	
$\theta_{C,t}$	0.8924
$\theta_{C,A'}$	0.3633
$\theta_{d,C}$	0.3092
$\theta_{e,C}$	0.5479
$\theta_{g,d}$	1.2209
$\theta_{g,F}$	0.5300
$\theta_{h,g}$	0.4350
$\theta_{i,g}$	1.1668
$\theta'_{C',t}$	0.9363
$\theta'_{e,C'}$	0.4951
$\theta'_{F',e}$	0.5049
$\theta'_{i,F'}$	1.6309

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	0.0162
$\Delta\theta_{C,A'}$	0.0023
$\Delta\theta_{g,d}$	0.0020
$\Delta\theta_{g,F}$	0.0022
$\Delta\theta_{i,g}$	0.0299

Thermal Properties		
Strain Point StP (℃)		457
Annealing Point AP (℃)		491
Transformation Temperature Tg (℃)		500
Yield Point At (℃)		568
Softening Point SP (℃)		679
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	90
	(+100~+300℃)	95
Thermal Conductivity λ W/(m·K)		1.01

Coloring			
λ_{80}	300	λ_5	265
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	304	$\lambda_{0.05}$	277

CCI		
B	G	R
0.00	0.00	0.00

Internal Transmittance	
λ(nm)	τ 10mm
280	0.13
290	0.43
300	0.73
310	0.89
320	0.961
330	0.984
340	0.992
350	0.995
360	0.995
370	0.998
380	0.998
390	0.999
400	0.999
420	0.999
440	0.999
460	0.999
480	0.999
500	0.999
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.998
1200	0.998
1400	0.982
1600	0.992
1800	0.985
2000	0.971
2200	0.88
2400	0.87

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	-1.3	-1.1	-1.1	-1.0	-0.9	-0.8	-0.6
-20~ 0	-1.2	-1.0	-1.0	-0.9	-0.9	-0.7	-0.5
0~20	-1.1	-0.9	-0.9	-0.9	-0.8	-0.6	-0.4
20~40	-1.1	-0.9	-0.9	-0.8	-0.7	-0.5	-0.3
40~60	-1.0	-0.7	-0.7	-0.6	-0.6	-0.4	-0.2
60~80	-0.8	-0.5	-0.5	-0.4	-0.3	-0.1	0.1

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	2.87
Specific Gravity d	2.46
Remarks	

OHARA 23-05

※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.