

S-TIL 2

Code(d) **541472**

Code(e) **543469**

Refractive Index n_d	1.54072 1.540720	Abbe Number ν_d	47.23	Dispersion n_F-n_C	0.011449
Refractive Index n_e	1.543440	Abbe Number ν_e	46.94	Dispersion n_F-n_C'	0.011577

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.51118
n_{1970}	1.97009	1.51626
n_{1530}	1.52958	1.52176
n_{1129}	1.12864	1.52672
n_t	1.01398	1.52841
n_s	0.85211	1.53139
$n_{A'}$	0.76819	1.53346
n_f	0.70652	1.53537
n_C	0.65627	1.53730
$n_{C'}$	0.64385	1.53784
$n_{\text{He-Ne}}$	0.6328	1.53835
n_D	0.58929	1.54062
n_d	0.58756	1.54072
n_e	0.54607	1.54344
n_F	0.48613	1.54875
$n_{F'}$	0.47999	1.54942
$n_{\text{He-Cd}}$	0.44157	1.55435
n_g	0.435835	1.55522
n_h	0.404656	1.56074
n_i	0.365015	1.57052

Constants of Dispersion Formula	
A_1	1.23401499E+00
A_2	9.59796833E-02
A_3	1.20503991E+00
B_1	8.69507801E-03
B_2	4.65611429E-02
B_3	1.37953301E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	69.9
Rigidity Modulus G (GPa)	28.6
Poisson's Ratio σ	0.220
Knoop Hardness Hk(Class)	500 5
Abrasion Aa	122

Partial Dispersions	
n_C-n_t	0.008891
$n_C-n_{A'}$	0.003839
n_d-n_C	0.003423
n_e-n_C	0.006143
n_g-n_d	0.014496
n_g-n_F	0.006470
n_h-n_g	0.005521
n_i-n_g	0.015308
n_C-n_t	0.009432
$n_e-n_{C'}$	0.005602
$n_{F'}-n_e$	0.005975
$n_i-n_{F'}$	0.021109

Relative Partial Dispersions	
$\theta_{C,t}$	0.7766
$\theta_{C,A'}$	0.3353
$\theta_{d,C}$	0.2990
$\theta_{e,C}$	0.5366
$\theta_{g,d}$	1.2661
$\theta_{g,F}$	0.5651
$\theta_{h,g}$	0.4822
$\theta_{i,g}$	1.3371
$\theta'_{C,t}$	0.8147
$\theta'_{e,C}$	0.4839
$\theta'_{F,e}$	0.5161
$\theta'_{i,F'}$	1.8234

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0083
$\Delta \theta_{C,A'}$	0.0022
$\Delta \theta_{g,d}$	-0.0005
$\Delta \theta_{g,F}$	0.0000
$\Delta \theta_{i,g}$	0.0076

Thermal Properties	
Strain Point StP (°C)	448
Annealing Point AP (°C)	484
Transformation Temperature Tg (°C)	496
Yield Point At (°C)	538
Softening Point SP (°C)	658
Expansion Coefficients (-30~+70°C)	82
α (10^{-7}K^{-1}) (+100~+300°C)	98
Thermal Conductivity λ W/(m·K)	1.05

Coloring			
λ_{80}	370	λ_5	340
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	368	$\lambda_{0.05}$	340

CCI		
B	G	R
0.00	0.40	0.38

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	
300	
310	
320	
330	
340	0.04
350	0.32
360	0.66
370	0.84
380	0.925
390	0.962
400	0.979
420	0.990
440	0.994
460	0.995
480	0.996
500	0.997
550	0.998
600	0.998
650	0.997
700	0.998
800	0.999
900	0.998
1000	0.997
1200	0.997
1400	0.997
1600	0.995
1800	0.987
2000	0.970
2200	0.942
2400	0.917

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	1.3	1.7	1.7	1.9	2.0	2.5	2.9
-20~ 0	1.3	1.7	1.8	1.9	2.1	2.6	3.0
0~20	1.4	1.8	1.8	2.0	2.2	2.6	3.1
20~40	1.5	1.9	1.9	2.1	2.3	2.7	3.3
40~60	1.5	1.9	1.9	2.1	2.3	2.8	3.4
60~80	1.5	2.0	2.0	2.2	2.4	2.9	3.5

Other Properties	
Photoelastic Constant β nm/(cm·10 ⁵ Pa)	2.74
Specific Gravity d	2.52
Remarks	

OHARA 23-05

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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.