S-TIH53W

Code(d) **847238**

Code(e) **855236**

Refractive Index	n_d	**1.84666** 1.846660	Abbe Number	ν_d **23.78**	Dispersion	n_F-n_C **0.035608**
Refractive Index	n_e	1.855041	Abbe Number	ν_e 23.59	Dispersion	$n_{F'}$-$n_{C'}$ 0.036247

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.78519
n_{1970}	1.97009	1.79199
n_{1530}	1.52958	1.80013
n_{1129}	1.12864	1.80925
n_t	1.01398	1.81294
n_s	0.85211	1.82021
$n_{A'}$	0.76819	1.82568
n_r	0.70652	1.83098
n_C	0.65627	1.83649
$n_{C'}$	0.64385	1.83807
n_{He-Ne}	0.6328	1.83956
n_D	0.58929	1.84635
n_d	0.58756	1.84666
n_e	0.54607	1.85504
n_F	0.48613	1.87210
$n_{F'}$	0.47999	1.87431
n_{He-Cd}	0.44157	1.89114
n_g	0.435835	1.89419
n_h	0.404656	1.91429
n_i	0.365015	

Constants of Dispersion Formula	
A_1	1.87904886E+00
A_2	3.69719775E-01
A_3	2.33730863E+00
B_1	1.44121770E-02
B_2	6.38817990E-02
B_3	1.82668180E+02

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

Mechanical Properties		
Young's Modulus E (GPa)	96.0	
Rigidity Modulus G (GPa)	37.9	
Poisson's Ratio σ	0.266	
Knoop Hardness Hk[Class]	550	6
Abrasion Aa	188	

Partial Dispersions	
n_C-n_t	0.023550
n_C-$n_{A'}$	0.010806
n_d-n_C	0.010172
n_e-n_C	0.018553
n_g-n_d	0.047529
n_g-n_F	0.022093
n_h-n_g	0.020105
n_i-n_g	
n_C-n_t	0.025128
n_e-$n_{C'}$	0.016975
$n_{F'}$-n_e	0.019272
n_i-$n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6614
$\theta_{C,A'}$	0.3035
$\theta_{d,C}$	0.2857
$\theta_{e,C}$	0.5210
$\theta_{g,d}$	1.3348
$\theta_{g,F}$	0.6205
$\theta_{h,g}$	0.5646
$\theta_{i,g}$	
$\theta'_{C',t}$	0.6932
$\theta'_{e,C'}$	0.4683
$\theta'_{F',e}$	0.5317
$\theta'_{i,F'}$	

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	0.0032
$\Delta\theta_{C,A'}$	-0.0012
$\Delta\theta_{g,d}$	0.0195
$\Delta\theta_{g,F}$	0.0175
$\Delta\theta_{i,g}$	

Thermal Properties		
Strain Point StP (℃)		576
Annealing Point AP (℃)		596
Transformation Temperature Tg (℃)		624
Yield Point At (℃)		658
Softening Point SP (℃)		692
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	88
	(+100~+300℃)	104
Thermal Conductivity λ W/(m·K)		1.00

Coloring			
λ_{80}		λ_5	368
λ_{70}	404		

Internal transmission			
$\lambda_{0.80}$	398	$\lambda_{0.05}$	368

CCI		
B	G	R
0.00	3.49	3.70

Internal Transmittance	
λ(nm)	τ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.11
380	0.45
390	0.71
400	0.83
420	0.918
440	0.954
460	0.971
480	0.980
500	0.986
550	0.995
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.999
1800	0.994
2000	0.985
2200	0.961
2400	0.925

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	-0.8	0.4	0.4	0.9	1.4	2.8	4.5
-20~ 0	-0.8	0.5	0.6	1.0	1.6	3.1	5.0
0~20	-0.7	0.6	0.7	1.2	1.8	3.4	5.4
20~40	-0.7	0.7	0.8	1.3	2.0	3.7	5.8
40~60	-0.6	0.9	1.0	1.5	2.2	4.0	6.2
60~80	-0.6	1.0	1.1	1.6	2.4	4.3	6.6

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	2.81
Specific Gravity d	3.54
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.