

# S-TIH11

Code(d) **785257**

Code(e) **792255**

Refractive Index $n_d$	1.78472 1.784723	Abbe Number $\nu_d$	25.68	Dispersion $n_F-n_C$	0.030554
Refractive Index $n_e$	1.791920	Abbe Number $\nu_e$	25.47	Dispersion $n_F-n_{C'}$	0.031088

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.72998
$n_{1970}$	1.97009	1.73639
$n_{1530}$	1.52958	1.74397
$n_{1129}$	1.12864	1.75222
$n_t$	1.01398	1.75549
$n_s$	0.85211	1.76186
$n_{A'}$	0.76819	1.76662
$n_r$	0.70652	1.77121
$n_C$	0.65627	1.77596
$n_{C'}$	0.64385	1.77733
$n_{\text{He-Ne}}$	0.6328	1.77861
$n_D$	0.58929	1.78446
$n_d$	0.58756	1.78472
$n_e$	0.54607	1.79192
$n_F$	0.48613	1.80652
$n_{F'}$	0.47999	1.80841
$n_{\text{He-Cd}}$	0.44157	1.82275
$n_g$	0.435835	1.82534
$n_h$	0.404656	1.84239
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.72677471E+00
$A_2$	3.24568628E-01
$A_3$	2.65816809E+00
$B_1$	1.29369958E-02
$B_2$	6.18255245E-02
$B_3$	2.21904637E+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)	91.2
Rigidity Modulus G (GPa)	36.3
Poisson's Ratio $\sigma$	0.255
Knoop Hardness Hk(Class)	550   6
Abrasion Aa	180

Partial Dispersions	
$n_C-n_t$	0.020476
$n_C-n_{A'}$	0.009346
$n_d-n_C$	0.008758
$n_e-n_C$	0.015955
$n_g-n_d$	0.040621
$n_g-n_F$	0.018825
$n_h-n_g$	0.017044
$n_i-n_g$	
$n_C-n_t$	0.021836
$n_e-n_{C'}$	0.014595
$n_{F'}-n_e$	0.016493
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6702
$\theta_{C,A'}$	0.3059
$\theta_{d,C}$	0.2866
$\theta_{e,C}$	0.5222
$\theta_{g,d}$	1.3295
$\theta_{g,F}$	0.6161
$\theta_{h,g}$	0.5578
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7024
$\theta'_{e,C}$	0.4695
$\theta'_{F,e}$	0.5305
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0030
$\Delta \theta_{C,A'}$	-0.0011
$\Delta \theta_{g,d}$	0.0181
$\Delta \theta_{g,F}$	0.0162
$\Delta \theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	569
Annealing Point AP (°C)	588
Transformation Temperature Tg (°C)	602
Yield Point At (°C)	633
Softening Point SP (°C)	686
Expansion Coefficients (-30~+70°C)	89
$\alpha$ (10 <sup>-7</sup> K <sup>-1</sup> ) (+100~+300°C)	103
Thermal Conductivity $\lambda$ W/(m·K)	1.02

Coloring			
$\lambda_{80}$	430	$\lambda_5$	365
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	400	$\lambda_{0.05}$	369

CCI		
B	G	R
0.00	3.80	3.85

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.08
380	0.40
390	0.66
400	0.80
420	0.915
440	0.948
460	0.964
480	0.973
500	0.980
550	0.992
600	0.992
650	0.990
700	0.992
800	0.998
900	0.998
1000	0.999
1200	0.999
1400	0.997
1600	0.996
1800	0.989
2000	0.982
2200	0.964
2400	0.942

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative (10 <sup>-6</sup> K <sup>-1</sup> )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	-0.3	0.5	0.6	0.9	1.4	2.6	4.1
-20~ 0	-0.2	0.7	0.7	1.1	1.6	2.9	4.5
0~20	-0.1	0.8	0.9	1.3	1.9	3.2	4.9
20~40	0.0	1.0	1.1	1.5	2.1	3.5	5.3
40~60	0.0	1.1	1.2	1.7	2.3	3.8	5.7
60~80	0.1	1.3	1.4	1.9	2.5	4.1	6.1

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.81
Specific Gravity d	3.24
Remarks	

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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.