

# S-TIH14

Code(d) **762265**

Code(e) **769263**

Refractive Index $n_d$	<b>1.76182</b> 1.761821	Abbe Number $v_d$	<b>26.5</b> 26.52	Dispersion $n_F-n_C$	<b>0.02873</b> 0.028729
Refractive Index $n_e$	1.768591	Abbe Number $v_e$	26.30	Dispersion $n_F-n_C$	0.029221

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.70916
$n_{1970}$	1.97009	1.71554
$n_{1530}$	1.52958	1.72302
$n_{1129}$	1.12864	1.73102
$n_t$	1.01398	1.73415
$n_s$	0.85211	1.74022
$n_{A'}$	0.76819	1.74474
$n_r$	0.70652	1.74908
$n_C$	0.65627	1.75357
$n_{C'}$	0.64385	1.75485
$n_{\text{He-Ne}}$	0.6328	1.75606
$n_D$	0.58929	1.76157
$n_d$	0.58756	1.76182
$n_e$	0.54607	1.76859
$n_F$	0.48613	1.78230
$n_{F'}$	0.47999	1.78407
$n_{\text{He-Cd}}$	0.44157	1.79750
$n_g$	0.435835	1.79992
$n_h$	0.404656	1.81584
$n_i$	0.365015	

Partial Dispersions	
$n_C-n_t$	0.019413
$n_C-n_{A'}$	0.008831
$n_d-n_C$	0.008254
$n_e-n_C$	0.015024
$n_g-n_d$	0.038102
$n_g-n_F$	0.017627
$n_h-n_g$	0.015917
$n_i-n_g$	
$n_C-n_t$	0.020697
$n_e-n_{C'}$	0.013740
$n_{F'}-n_e$	0.015481
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6757
$\theta_{C,A'}$	0.3074
$\theta_{d,C}$	0.2873
$\theta_{e,C}$	0.5230
$\theta_{g,d}$	1.3263
$\theta_{g,F}$	0.6136
$\theta_{h,g}$	0.5540
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7083
$\theta'_{e,C'}$	0.4702
$\theta'_{F',e}$	0.5298
$\theta'_{i,F}$	

Thermal Properties	
Strain Point StP (°C)	565
Annealing Point AP (°C)	590
Transformation Temperature Tg (°C)	609
Yield Point At (°C)	634
Softening Point SP (°C)	693
Expansion Coefficients (-30~+70°C)	87
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	100
Thermal Conductivity k (W/m·K)	1.027

Coloring			
$\lambda_{80}$	42	$\lambda_5$	37
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.1
380	0.43
390	0.70
400	0.84
420	0.934
440	0.960
460	0.971
480	0.977
500	0.983
550	0.993
600	0.993
650	0.990
700	0.992
800	0.997
900	0.999
1000	0.999
1200	0.999
1400	0.997
1600	0.996
1800	0.988
2000	0.982
2200	0.961
2400	0.942

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0046
$\Delta\theta_{C,A'}$	-0.0006
$\Delta\theta_{g,d}$	0.0167
$\Delta\theta_{g,F}$	0.0150
$\Delta\theta_{i,g}$	

Mechanical Properties	
Young's Modulus E (10 <sup>8</sup> N/m <sup>2</sup> )	888
Rigidity Modulus G (10 <sup>8</sup> N/m <sup>2</sup> )	354
Poisson's Ratio $\sigma$	0.254
Knoop Hardness Hk[Class]	550   6
Abrasion Aa	163
Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa)	2.86

Constants of Dispersion Formula	
A <sub>1</sub>	1.68915108E+00
A <sub>2</sub>	2.90462024E-01
A <sub>3</sub>	2.37971516E+00
B <sub>1</sub>	1.28202514E-02
B <sub>2</sub>	6.18090841E-02
B <sub>3</sub>	2.01094352E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.17
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative (10 <sup>-6</sup> /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	0.2	0.9	1.0	1.4	1.8	2.9	4.3
-20~0	0.3	1.1	1.2	1.6	2.0	3.2	4.7
0~20	0.4	1.2	1.3	1.7	2.2	3.5	5.1
20~40	0.5	1.4	1.5	2.0	2.4	3.8	5.5
40~60	0.6	1.6	1.7	2.2	2.7	4.1	5.9
60~80	0.7	1.7	1.8	2.4	2.9	4.4	6.2