

# S-TIH 3

Code(d) **740283**

Code(e) **746281**

Refractive Index $n_d$	<b>1.74000</b> 1.739998	Abbe Number $\nu_d$	<b>28.30</b>	Dispersion $n_F-n_C$	<b>0.026152</b>
Refractive Index $n_e$	1.746167	Abbe Number $\nu_e$	28.07	Dispersion $n_F-n_C'$	0.026584

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.69065
$n_{1970}$	1.97009	1.69685
$n_{1530}$	1.52958	1.70405
$n_{1129}$	1.12864	1.71162
$n_t$	1.01398	1.71455
$n_s$	0.85211	1.72018
$n_{A'}$	0.76819	1.72434
$n_r$	0.70652	1.72833
$n_C$	0.65627	1.73245
$n_{C'}$	0.64385	1.73363
$n_{\text{He-Ne}}$	0.6328	1.73474
$n_D$	0.58929	1.73977
$n_d$	0.58756	1.74000
$n_e$	0.54607	1.74617
$n_F$	0.48613	1.75861
$n_{F'}$	0.47999	1.76021
$n_{\text{He-Cd}}$	0.44157	1.77232
$n_g$	0.435835	1.77450
$n_h$	0.404656	1.78876
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.64797648E+00
$A_2$	2.67261917E-01
$A_3$	2.19772845E+00
$B_1$	1.21917693E-02
$B_2$	5.97893039E-02
$B_3$	1.92158340E+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 ( $10^9\text{N/m}^2$ )	908
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	362
Poisson's Ratio $\sigma$	0.254
Knoop Hardness Hk[Class]	560   6
Abrasion Aa	173
Photoelastic Constant $\beta$ nm/(cm · $10^5\text{Pa}$ )	2.81

Partial Dispersions	
$n_C-n_t$	0.017900
$n_C-n_{A'}$	0.008108
$n_d-n_C$	0.007545
$n_e-n_C$	0.013714
$n_g-n_d$	0.034504
$n_g-n_F$	0.015897
$n_h-n_g$	0.014254
$n_i-n_g$	
$n_C-n_t$	0.019075
$n_e-n_{C'}$	0.012539
$n_F-n_e$	0.014045
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6845
$\theta_{C,A'}$	0.3100
$\theta_{d,C}$	0.2885
$\theta_{e,C}$	0.5244
$\theta_{g,d}$	1.3194
$\theta_{g,F}$	0.6079
$\theta_{h,g}$	0.5450
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7175
$\theta'_{e,C'}$	0.4717
$\theta'_{F,e}$	0.5283
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0051
$\Delta\theta_{C,A'}$	-0.0001
$\Delta\theta_{g,d}$	0.0135
$\Delta\theta_{g,F}$	0.0122
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	566
Annealing Point AP (°C)	591
Transformation Temperature Tg (°C)	615
Yield Point At (°C)	644
Softening Point SP (°C)	723
Expansion Coefficients (-30~+70°C)	85
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	100
Thermal Conductivity $\lambda$ W/(m·K)	1.03

Coloring			
$\lambda_{80}$	420	$\lambda_5$	360
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	395	$\lambda_{0.05}$	367

CCI		
B	G	R
0.00	2.81	2.86

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.16
380	0.51
390	0.74
400	0.85
420	0.940
440	0.964
460	0.975
480	0.981
500	0.986
550	0.994
600	0.994
650	0.993
700	0.995
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.997
1600	0.996
1800	0.988
2000	0.980
2200	0.955
2400	0.933

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	0.6	1.5	1.6	1.9	2.3	3.4	4.6
-20~ 0	0.9	1.7	1.7	2.1	2.5	3.6	4.9
0~20	0.9	1.8	1.9	2.2	2.7	3.8	5.2
20~40	0.9	1.9	2.0	2.4	2.8	4.1	5.5
40~60	1.0	2.0	2.1	2.5	3.0	4.3	5.9
60~80	1.2	2.2	2.2	2.7	3.2	4.5	6.2

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.11
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.