

# S-TIH13

Code(d) **741278**

Code(e) **747276**

Refractive Index $n_d$	<b>1.74077</b> 1.740769	Abbe Number $\nu_d$	<b>27.79</b>	Dispersion $n_F-n_C$	<b>0.026657</b>
Refractive Index $n_e$	1.747055	Abbe Number $\nu_e$	27.56	Dispersion $n_F-n_{C'}$	0.027102

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.69062
$n_{1970}$	1.97009	1.69693
$n_{1530}$	1.52958	1.70425
$n_{1129}$	1.12864	1.71193
$n_t$	1.01398	1.71490
$n_s$	0.85211	1.72062
$n_{A'}$	0.76819	1.72485
$n_r$	0.70652	1.72890
$n_C$	0.65627	1.73309
$n_{C'}$	0.64385	1.73428
$n_{\text{He-Ne}}$	0.6328	1.73541
$n_D$	0.58929	1.74054
$n_d$	0.58756	1.74077
$n_e$	0.54607	1.74705
$n_F$	0.48613	1.75975
$n_{F'}$	0.47999	1.76139
$n_{\text{He-Cd}}$	0.44157	1.77376
$n_g$	0.435835	1.77599
$n_h$	0.404656	1.79059
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.62224674E+00
$A_2$	2.93844589E-01
$A_3$	1.99225164E+00
$B_1$	1.18368386E-02
$B_2$	5.90208025E-02
$B_3$	1.71959976E+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)	89.9
Rigidity Modulus G (GPa)	36.0
Poisson's Ratio $\sigma$	0.249
Knoop Hardness Hk(Class)	590   6
Abrasion Aa	167

Partial Dispersions	
$n_C-n_t$	0.018185
$n_C-n_{A'}$	0.008244
$n_d-n_C$	0.007680
$n_e-n_C$	0.013966
$n_g-n_d$	0.035225
$n_g-n_F$	0.016248
$n_h-n_g$	0.014593
$n_i-n_g$	
$n_C-n_t$	0.019380
$n_e-n_{C'}$	0.012771
$n_{F'}-n_e$	0.014331
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6822
$\theta_{C,A'}$	0.3093
$\theta_{d,C}$	0.2881
$\theta_{e,C}$	0.5239
$\theta_{g,d}$	1.3214
$\theta_{g,F}$	0.6095
$\theta_{h,g}$	0.5474
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7151
$\theta'_{e,C'}$	0.4712
$\theta'_{F',e}$	0.5288
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0051
$\Delta\theta_{C,A'}$	-0.0002
$\Delta\theta_{g,d}$	0.0144
$\Delta\theta_{g,F}$	0.0130
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	573
Annealing Point AP (°C)	595
Transformation Temperature Tg (°C)	616
Yield Point At (°C)	642
Softening Point SP (°C)	700
Expansion Coefficients (-30~+70°C)	83
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	96
Thermal Conductivity $\lambda$ W/(m·K)	1.03

Coloring			
$\lambda_{80}$	415	$\lambda_5$	365
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	400	$\lambda_{0.05}$	368

CCI		
B	G	R
0.00	3.64	3.67

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.08
380	0.38
390	0.64
400	0.80
420	0.921
440	0.957
460	0.970
480	0.978
500	0.984
550	0.993
600	0.993
650	0.991
700	0.994
800	0.997
900	0.998
1000	0.997
1200	0.998
1400	0.994
1600	0.993
1800	0.983
2000	0.974
2200	0.944
2400	0.920

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} \text{K}^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.0	1.8	1.8	2.1	2.6	3.6	4.9
-20~ 0	1.0	1.9	1.9	2.3	2.7	3.9	5.2
0~20	1.1	2.0	2.1	2.4	2.9	4.1	5.5
20~40	1.1	2.1	2.2	2.5	3.0	4.3	5.8
40~60	1.2	2.2	2.3	2.7	3.2	4.5	6.1
60~80	1.3	2.3	2.4	2.8	3.4	4.7	6.4

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.83
Specific Gravity d	3.10
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.