

# DATA SHEET

# S-TIH10 (1.72ND)

## S-TIH10

Code(d) **728285**

Code(e) **734282**

Refractive Index $n_d$	1.72825 1.728250	Abbe Number $\nu_d$	28.46	Dispersion $n_F-n_C$	0.025588
Refractive Index $n_e$	1.734286	Abbe Number $\nu_e$	28.23	Dispersion $n_F-n_C'$	0.026009

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.67934
$n_{1970}$	1.97009	1.68562
$n_{1530}$	1.52958	1.69286
$n_{1129}$	1.12864	1.70040
$n_t$	1.01398	1.70330
$n_s$	0.85211	1.70884
$n_A$	0.76819	1.71292
$n_r$	0.70652	1.71683
$n_C$	0.65627	1.72086
$n_{C'}$	0.64385	1.72202
$n_{\text{He-Ne}}$	0.6328	1.72310
$n_D$	0.58929	1.72803
$n_d$	0.58756	1.72825
$n_e$	0.54607	1.73429
$n_F$	0.48613	1.74645
$n_{F'}$	0.47999	1.74802
$n_{\text{He-Cd}}$	0.44157	1.75987
$n_g$	0.435835	1.76200
$n_h$	0.404656	1.77595
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.61549392E+00
$A_2$	2.62433239E-01
$A_3$	2.09426189E+00
$B_1$	1.19830897E-02
$B_2$	5.96510240E-02
$B_3$	1.81657554E+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)	102.4
Rigidity Modulus G (GPa)	41.2
Poisson's Ratio $\sigma$	0.243
Knoop Hardness Hk(Class)	570   6
Abrasion Aa	158

Partial Dispersions	
$n_C-n_t$	0.017568
$n_C-n_{A'}$	0.007944
$n_d-n_C$	0.007385
$n_e-n_C$	0.013421
$n_g-n_d$	0.033752
$n_g-n_F$	0.015549
$n_h-n_g$	0.013943
$n_i-n_h$	
$n_C-n_{F'}$	0.018718
$n_g-n_{C'}$	0.012271
$n_{F'-n_e}$	0.013738
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6866
$\theta_{C,A'}$	0.3105
$\theta_{d,C}$	0.2886
$\theta_{e,C}$	0.5245
$\theta_{g,d}$	1.3191
$\theta_{g,F}$	0.6077
$\theta_{h,g}$	0.5449
$\theta_{i,g}$	
$\theta_{C',t}$	0.7197
$\theta'_{e,C'}$	0.4718
$\theta'_{F',e}$	0.5282
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0064
$\Delta\theta_{C,A'}$	0.0002
$\Delta\theta_{g,d}$	0.0135
$\Delta\theta_{g,F}$	0.0123
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	569
Annealing Point AP (°C)	596
Transformation Temperature Tg (°C)	617
Yield Point At (°C)	642
Softening Point SP (°C)	703
Expansion Coefficients (-30~+70°C)	80
$\alpha (10^{-7} K^{-1})$ (+100~+300°C)	97
Thermal Conductivity $\lambda$ W/(m·K)	1.04

Coloring			
$\lambda_{90}$	410	$\lambda_5$	365
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	399	$\lambda_{0.05}$	369

CCI		
B	G	R
0.00	3.34	3.37

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.09
380	0.41
390	0.67
400	0.81
420	0.931
440	0.963
460	0.975
480	0.982
500	0.987
550	0.994
600	0.995
650	0.993
700	0.994
800	0.998
900	0.998
1000	0.998
1200	0.998
1400	0.994
1600	0.993
1800	0.985
2000	0.977
2200	0.947
2400	0.929

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} K^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.1	2.0	2.1	2.3	2.8	3.8	5.0
-20~ 0	1.3	2.1	2.2	2.5	3.0	4.0	5.3
0~20	1.4	2.3	2.3	2.7	3.1	4.3	5.7
20~40	1.5	2.4	2.5	2.8	3.3	4.5	6.0
40~60	1.5	2.5	2.6	3.0	3.5	4.8	6.3
60~80	1.5	2.6	2.7	3.1	3.7	5.0	6.6

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.88
Specific Gravity d	3.06
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.