

# S-TIH 4

Code(d) **755275**

Code(e) **762273**

Refractive Index $n_d$	<b>1.75520</b> 1.755199	Abbe Number $\nu_d$	<b>27.51</b>	Dispersion $n_F-n_C$	<b>0.027450</b>
Refractive Index $n_e$	1.761671	Abbe Number $\nu_e$	27.29	Dispersion $n_F-n_C'$	0.027911

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.70430
$n_{1970}$	1.97009	1.71054
$n_{1530}$	1.52958	1.71784
$n_{1129}$	1.12864	1.72561
$n_t$	1.01398	1.72864
$n_s$	0.85211	1.73448
$n_{A'}$	0.76819	1.73882
$n_r$	0.70652	1.74299
$n_C$	0.65627	1.74730
$n_{C'}$	0.64385	1.74853
$n_{\text{He-Ne}}$	0.6328	1.74968
$n_D$	0.58929	1.75496
$n_d$	0.58756	1.75520
$n_e$	0.54607	1.76167
$n_F$	0.48613	1.77475
$n_{F'}$	0.47999	1.77644
$n_{\text{He-Cd}}$	0.44157	1.78920
$n_g$	0.435835	1.79150
$n_h$	0.404656	1.80656
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.66755531E+00
$A_2$	2.94411865E-01
$A_3$	2.49422119E+00
$B_1$	1.22052137E-02
$B_2$	5.97775329E-02
$B_3$	2.14869618E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1~2
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	919
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	367
Poisson's Ratio $\sigma$	0.254
Knoop Hardness Hk[Class]	570   6
Abrasion Aa	168
Photoelastic Constant $\beta$ nm/(cm· $10^5\text{Pa}$ )	2.76

Partial Dispersions	
$n_C-n_t$	0.018659
$n_C-n_{A'}$	0.008473
$n_d-n_C$	0.007904
$n_e-n_C$	0.014376
$n_g-n_d$	0.036298
$n_g-n_F$	0.016752
$n_h-n_g$	0.015059
$n_i-n_g$	
$n_C-n_t$	0.019889
$n_e-n_{C'}$	0.013146
$n_F-n_e$	0.014765
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6797
$\theta_{C,A'}$	0.3087
$\theta_{d,C}$	0.2879
$\theta_{e,C}$	0.5237
$\theta_{g,d}$	1.3223
$\theta_{g,F}$	0.6103
$\theta_{h,g}$	0.5486
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7126
$\theta'_{e,C'}$	0.4710
$\theta'_{F,e}$	0.5290
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0040
$\Delta\theta_{C,A'}$	-0.0005
$\Delta\theta_{g,d}$	0.0147
$\Delta\theta_{g,F}$	0.0133
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	565
Annealing Point AP (°C)	591
Transformation Temperature Tg (°C)	613
Yield Point At (°C)	640
Softening Point SP (°C)	694
Expansion Coefficients (-30~+70°C)	85
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	100
Thermal Conductivity $\lambda$ W/(m·K)	1.01

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

Internal transmission			
$\lambda_{0.80}$	398	$\lambda_{0.05}$	368

CCI		
B	G	R
0.00	3.28	3.30

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.12
380	0.45
390	0.70
400	0.82
420	0.929
440	0.962
460	0.973
480	0.980
500	0.986
550	0.995
600	0.994
650	0.993
700	0.995
800	0.999
900	0.999
1000	0.999
1200	0.997
1400	0.995
1600	0.994
1800	0.987
2000	0.981
2200	0.961
2400	0.942

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	0.5	1.2	1.2	1.6	2.0	3.1	4.4
-20~ 0	0.6	1.3	1.4	1.8	2.2	3.3	4.7
0~20	0.6	1.4	1.5	1.9	2.4	3.6	5.1
20~40	0.7	1.6	1.7	2.1	2.6	3.9	5.4
40~60	0.7	1.7	1.8	2.3	2.7	4.1	5.8
60~80	0.7	1.8	1.9	2.4	2.9	4.4	6.1

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.15
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.