

S-TIH 3

Code(d) **740283**

Code(e) **746281**

Refractive Index n_d	Abbe Number v_d	Dispersion n_F-n_C
1.74000 1.739998	28.3 28.30	0.02616 0.026152
Refractive Index n_e	Abbe Number v_e	Dispersion n_F-n_C'
1.746167	28.07	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	

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
$\theta'_{i,F}$	

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
α (10 ⁻⁷ /°C) (+100~+300°C)	100
Thermal Conductivity k (W/m-K)	1.027

Coloring			
λ_{80}	42	λ_5	36
λ_{70}			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
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

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
$\Delta\theta_{i,g}$	

Mechanical Properties	
Young's Modulus E (10 ⁸ N/m ²)	908
Rigidity Modulus G (10 ⁸ N/m ²)	362
Poisson's Ratio σ	0.254
Knoop Hardness Hk[Class]	560 6
Abrasion Aa	165
Photoelastic Constant β (nm/cm/10 ⁵ Pa)	2.81

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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.11
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	dn/dt relative (10 ⁻⁶ /°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