

S-TIH13

Code(d) **741278**

Code(e) **747276**

Refractive Index n_d	1.74077	Abbe Number v_d	27.8	Dispersion n_F-n_C	0.02666
	1.740769		27.79		0.026657
Refractive Index n_e	1.747055	Abbe Number v_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	

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
$\theta'_{i,F}$	

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
α (10 ⁻⁷ /°C) (+100~+300°C)	96
Thermal Conductivity k (W/m·K)	1.034

Coloring			
λ_{80}	42	λ_5	37
λ_{70}			

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

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
$\Delta\theta_{i,g}$	

Mechanical Properties	
Young's Modulus E (10 ⁸ N/m ²)	899
Rigidity Modulus G (10 ⁸ N/m ²)	360
Poisson's Ratio σ	0.249
Knoop Hardness Hk[Class]	510 5
Abrasion Aa	148
Photoelastic Constant β (nm/cm/10 ⁵ Pa)	2.83

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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.10
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	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