

# S-TIH53

Code(d) **847238**

Code(e) **855236**

Refractive Index $n_d$	<b>1.84666</b> 1.846660	Abbe Number $v_d$	<b>23.8</b> 23.78	Dispersion $n_F-n_C$	<b>0.03561</b> 0.035608
Refractive Index $n_e$	1.855041	Abbe Number $v_e$	23.59	Dispersion $n_F'-n_C'$	0.036247

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.78519
$n_{1970}$	1.97009	1.79199
$n_{1530}$	1.52958	1.80013
$n_{1129}$	1.12864	1.80925
$n_t$	1.01398	1.81294
$n_s$	0.85211	1.82021
$n_{A'}$	0.76819	1.82568
$n_r$	0.70652	1.83098
$n_C$	0.65627	1.83649
$n_{C'}$	0.64385	1.83807
$n_{\text{He-Ne}}$	0.6328	1.83956
$n_D$	0.58929	1.84635
$n_d$	0.58756	1.84666
$n_e$	0.54607	1.85504
$n_F$	0.48613	1.87210
$n_{F'}$	0.47999	1.87431
$n_{\text{He-Cd}}$	0.44157	1.89114
$n_g$	0.435835	1.89419
$n_h$	0.404656	1.91429
$n_i$	0.365015	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0032
$\Delta\theta_{C,A'}$	-0.0012
$\Delta\theta_{g,d}$	0.0195
$\Delta\theta_{g,F}$	0.0175
$\Delta\theta_{i,g}$	

Constants of Dispersion Formula	
$A_1$	1.87904886E+00
$A_2$	3.69719775E-01
$A_3$	2.33730863E+00
$B_1$	1.44121770E-02
$B_2$	6.38817990E-02
$B_3$	1.82668180E+02

Other Properties	
Bubble Quality Group B	B
Specific Gravity d	3.54
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	-0.8	0.4	0.4	0.9	1.4	2.8	4.5
-20~0	-0.8	0.5	0.6	1.0	1.6	3.1	5.0
0~20	-0.7	0.6	0.7	1.2	1.8	3.4	5.4
20~40	-0.7	0.7	0.8	1.3	2.0	3.7	5.8
40~60	-0.6	0.9	1.0	1.5	2.2	4.0	6.2
60~80	-0.6	1.0	1.1	1.6	2.4	4.3	6.6

Partial Dispersions	
$n_C-n_t$	0.023550
$n_C-n_{A'}$	0.010806
$n_d-n_C$	0.010172
$n_e-n_C$	0.018553
$n_g-n_d$	0.047529
$n_g-n_F$	0.022093
$n_h-n_g$	0.020105
$n_i-n_g$	
$n_C-n_t$	0.025128
$n_e-n_{C'}$	0.016975
$n_{F'-n_e}$	0.019272
$n_i-n_{F'}$	

Thermal Properties	
Strain Point StP (°C)	576
Annealing Point AP (°C)	596
Transformation Temperature Tg (°C)	624
Yield Point At (°C)	658
Softening Point SP (°C)	692
Expansion Coefficients (-30~+70°C)	88
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	104
Thermal Conductivity k (W/m-K)	1

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	960
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	379
Poisson's Ratio $\sigma$	0.266
Knoop Hardness Hk[Class]	520   5
Abrasion Aa	170
Photoelastic Constant $\beta$ (nm/cm/ $10^6\text{Pa}$ )	2.81

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

Relative Partial Dispersions	
$\theta_{C,t}$	0.6614
$\theta_{C,A'}$	0.3035
$\theta_{d,C}$	0.2857
$\theta_{e,C}$	0.5210
$\theta_{g,d}$	1.3348
$\theta_{g,F}$	0.6205
$\theta_{h,g}$	0.5646
$\theta_{i,g}$	
$\theta'_{C,t}$	0.6932
$\theta'_{e,C'}$	0.4683
$\theta'_{F',e}$	0.5317
$\theta'_{i,F}$	

Coloring			
$\lambda_{80}$		$\lambda_5$	37
$\lambda_{70}$	42		

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.06
380	0.35
390	0.61
400	0.75
420	0.87
440	0.927
460	0.948
480	0.961
500	0.971
550	0.987
600	0.989
650	0.985
700	0.989
800	0.997
900	0.998
1000	0.999
1200	0.999
1400	0.998
1600	0.997
1800	0.991
2000	0.986
2200	0.974
2400	0.955