

# S-TIH53W

Code(d) **847238**

Code(e) **855236**

Refractive Index $n_d$	<b>1.84666</b>	Abbe Number $\nu_d$	<b>23.8</b>	Dispersion $n_F-n_C$	<b>0.03561</b>
	1.846660		23.78		0.035608
Refractive Index $n_e$	1.855041	Abbe Number $\nu_e$	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
$n_g-n_C$	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/ $10^5\text{Pa}$ )	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			
$\lambda_{90}$		$\lambda_5$	368
$\lambda_{70}$	404		

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.11
380	0.45
390	0.71
400	0.83
420	0.918
440	0.954
460	0.971
480	0.980
500	0.986
550	0.995
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.999
1800	0.994
2000	0.985
2200	0.961
2400	0.925