

# S-TIL 1

Code(d) **548458**

Code(e) **551455**

Refractive Index $n_d$	<b>1.54814</b>	Abbe Number $\nu_d$	<b>45.79</b>	Dispersion $n_F-n_C$	<b>0.011972</b>
	1.548141				
Refractive Index $n_e$	1.550984	Abbe Number $\nu_e$	45.49	Dispersion $n_F-n_C'$	0.012112

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.51797
$n_{1970}$	1.97009	1.52307
$n_{1530}$	1.52958	1.52861
$n_{1129}$	1.12864	1.53365
$n_t$	1.01398	1.53537
$n_s$	0.85211	1.53844
$n_{A'}$	0.76819	1.54058
$n_f$	0.70652	1.54257
$n_C$	0.65627	1.54457
$n_{C'}$	0.64385	1.54514
$n_{\text{He-Ne}}$	0.6328	1.54566
$n_D$	0.58929	1.54804
$n_d$	0.58756	1.54814
$n_e$	0.54607	1.55098
$n_F$	0.48613	1.55654
$n_{F'}$	0.47999	1.55725
$n_{\text{He-Cd}}$	0.44157	1.56244
$n_g$	0.435835	1.56335
$n_h$	0.404656	1.56918
$n_i$	0.365015	1.57959

Constants of Dispersion Formula	
$A_1$	1.25088944E+00
$A_2$	9.97973327E-02
$A_3$	1.20583504E+00
$B_1$	8.83921279E-03
$B_2$	4.82685052E-02
$B_3$	1.37414953E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
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

Mechanical Properties	
Young's Modulus E (GPa)	70.5
Rigidity Modulus G (GPa)	28.8
Poisson's Ratio $\sigma$	0.222
Knoop Hardness Hk(Class)	490   5
Abrasion Aa	132

Partial Dispersions	
$n_C-n_t$	0.009202
$n_C-n_{A'}$	0.003988
$n_d-n_C$	0.003569
$n_e-n_C$	0.006412
$n_g-n_d$	0.015210
$n_g-n_F$	0.006807
$n_h-n_g$	0.005833
$n_i-n_g$	0.016236
$n_C-n_t$	0.009765
$n_e-n_{C'}$	0.005849
$n_{F'}-n_e$	0.006263
$n_i-n_{F'}$	0.022340

Relative Partial Dispersions	
$\theta_{C,t}$	0.7686
$\theta_{C,A'}$	0.3331
$\theta_{d,C}$	0.2981
$\theta_{e,C}$	0.5356
$\theta_{g,d}$	1.2705
$\theta_{g,F}$	0.5686
$\theta_{h,g}$	0.4872
$\theta_{i,g}$	1.3562
$\theta'_{C,t}$	0.8062
$\theta'_{e,C}$	0.4829
$\theta'_{F,e}$	0.5171
$\theta'_{i,F'}$	1.8445

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0071
$\Delta \theta_{C,A'}$	0.0017
$\Delta \theta_{g,d}$	0.0009
$\Delta \theta_{g,F}$	0.0012
$\Delta \theta_{i,g}$	0.0146

Thermal Properties	
Strain Point StP (°C)	452
Annealing Point AP (°C)	487
Transformation Temperature Tg (°C)	501
Yield Point At (°C)	542
Softening Point SP (°C)	654
Expansion Coefficients (-30~+70°C)	86
$\alpha$ (10 <sup>-7</sup> K <sup>-1</sup> ) (+100~+300°C)	101
Thermal Conductivity $\lambda$ W/(m·K)	1.04

Coloring			
$\lambda_{80}$	370	$\lambda_5$	340
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	366	$\lambda_{0.05}$	341

CCI		
B	G	R
0.00	0.32	0.33

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	0.01
350	0.29
360	0.69
370	0.87
380	0.944
390	0.972
400	0.984
420	0.992
440	0.994
460	0.995
480	0.996
500	0.997
550	0.998
600	0.998
650	0.998
700	0.998
800	0.998
900	0.998
1000	0.997
1200	0.997
1400	0.996
1600	0.993
1800	0.977
2000	0.948
2200	0.89
2400	0.85

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative (10 <sup>-6</sup> K <sup>-1</sup> )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.1	1.5	1.5	1.7	1.9	2.3	2.8
-20~ 0	1.1	1.5	1.6	1.7	1.9	2.4	2.9
0~20	1.1	1.5	1.6	1.7	2.0	2.4	3.0
20~40	1.1	1.6	1.6	1.8	2.0	2.5	3.1
40~60	1.1	1.6	1.6	1.8	2.0	2.6	3.1
60~80	1.1	1.6	1.6	1.8	2.1	2.6	3.2

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.68
Specific Gravity d	2.54
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.