

# S-TIL25

Code(d) **581407**

Code(e) **585405**

Refractive Index $n_d$	<b>1.58144</b>	Abbe Number $\nu_d$	<b>40.75</b>	Dispersion $n_F-n_C$	<b>0.014270</b>
	1.581439				
Refractive Index $n_e$	1.584822	Abbe Number $\nu_e$	40.47	Dispersion $n_F-n_C'$	0.014451

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.54741
$n_{1970}$	1.97009	1.55292
$n_{1530}$	1.52958	1.55895
$n_{1129}$	1.12864	1.56456
$n_t$	1.01398	1.56651
$n_s$	0.85211	1.57005
$n_{A'}$	0.76819	1.57254
$n_f$	0.70652	1.57486
$n_C$	0.65627	1.57722
$n_{C'}$	0.64385	1.57788
$n_{\text{He-Ne}}$	0.6328	1.57850
$n_D$	0.58929	1.58131
$n_d$	0.58756	1.58144
$n_e$	0.54607	1.58482
$n_F$	0.48613	1.59149
$n_{F'}$	0.47999	1.59233
$n_{\text{He-Cd}}$	0.44157	1.59861
$n_g$	0.435835	1.59973
$n_h$	0.404656	1.60687
$n_i$	0.365015	1.61979

Constants of Dispersion Formula	
$A_1$	1.32122534E+00
$A_2$	1.23824976E-01
$A_3$	1.43685254E+00
$B_1$	9.52091436E-03
$B_2$	5.16062665E-02
$B_3$	1.49064883E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1~2
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	75.3
Rigidity Modulus G (GPa)	30.9
Poisson's Ratio $\sigma$	0.220
Knoop Hardness Hk(Class)	540   5
Abrasion Aa	117

Partial Dispersions	
$n_C-n_t$	0.010703
$n_C-n_{A'}$	0.004679
$n_d-n_C$	0.004223
$n_e-n_C$	0.007606
$n_g-n_d$	0.018287
$n_g-n_F$	0.008240
$n_h-n_g$	0.007140
$n_i-n_g$	0.020066
$n_C-n_t$	0.011368
$n_e-n_{C'}$	0.006941
$n_{F'}-n_e$	0.007510
$n_i-n_{F'}$	0.027460

Relative Partial Dispersions	
$\theta_{C,t}$	0.7500
$\theta_{C,A'}$	0.3279
$\theta_{d,C}$	0.2959
$\theta_{e,C}$	0.5330
$\theta_{g,d}$	1.2815
$\theta_{g,F}$	0.5774
$\theta_{h,g}$	0.5004
$\theta_{i,g}$	1.4062
$\theta'_{C,t}$	0.7867
$\theta'_{e,C}$	0.4803
$\theta'_{F',e}$	0.5197
$\theta'_{i,F'}$	1.9002

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0121
$\Delta \theta_{C,A'}$	0.0027
$\Delta \theta_{g,d}$	0.0014
$\Delta \theta_{g,F}$	0.0019
$\Delta \theta_{i,g}$	0.0224

Thermal Properties	
Strain Point StP (°C)	536
Annealing Point AP (°C)	564
Transformation Temperature Tg (°C)	588
Yield Point At (°C)	630
Softening Point SP (°C)	715
Expansion Coefficients (-30~+70°C)	74
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	88
Thermal Conductivity $\lambda$ W/(m·K)	1.05

Coloring			
$\lambda_{80}$	380	$\lambda_5$	350
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	378	$\lambda_{0.05}$	351

CCI		
B	G	R
0.00	0.73	0.73

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	0.01
360	0.28
370	0.65
380	0.85
390	0.929
400	0.964
420	0.986
440	0.991
460	0.993
480	0.994
500	0.995
550	0.998
600	0.998
650	0.997
700	0.998
800	0.999
900	0.999
1000	0.998
1200	0.998
1400	0.994
1600	0.994
1800	0.981
2000	0.963
2200	0.911
2400	0.89

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ( $10^{-6}\text{K}^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.4	3.0	3.0	3.2	3.4	4.0	4.6
-20~ 0	2.5	3.0	3.1	3.3	3.5	4.1	4.7
0~20	2.6	3.1	3.2	3.4	3.6	4.2	4.9
20~40	2.7	3.2	3.3	3.5	3.7	4.4	5.1
40~60	2.7	3.3	3.3	3.5	3.8	4.5	5.2
60~80	2.8	3.4	3.4	3.6	3.9	4.6	5.4

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.84
Specific Gravity d	2.59
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.