

# S-TIL27

Code(d) **575415**

Code(e) **578412**

Refractive Index $n_d$	1.57501 1.575006	Abbe Number $\nu_d$	41.50	Dispersion $n_F-n_C$	0.013854
Refractive Index $n_e$	1.578291	Abbe Number $\nu_e$	41.22	Dispersion $n_F-n_C'$	0.014028

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.54162
$n_{1970}$	1.97009	1.54707
$n_{1530}$	1.52958	1.55304
$n_{1129}$	1.12864	1.55855
$n_t$	1.01398	1.56047
$n_s$	0.85211	1.56392
$n_{A'}$	0.76819	1.56635
$n_r$	0.70652	1.56861
$n_C$	0.65627	1.57090
$n_{C'}$	0.64385	1.57155
$n_{\text{He-Ne}}$	0.6328	1.57216
$n_D$	0.58929	1.57488
$n_d$	0.58756	1.57501
$n_e$	0.54607	1.57829
$n_F$	0.48613	1.58476
$n_{F'}$	0.47999	1.58558
$n_{\text{He-Cd}}$	0.44157	1.59167
$n_g$	0.435835	1.59275
$n_h$	0.404656	1.59966
$n_i$	0.365015	1.61218

Constants of Dispersion Formula	
$A_1$	1.31433154E+00
$A_2$	1.12300168E-01
$A_3$	1.41390100E+00
$B_1$	9.50404477E-03
$B_2$	5.24112772E-02
$B_3$	1.48429972E+02

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

Mechanical Properties	
Young's Modulus E (GPa)	74.9
Rigidity Modulus G (GPa)	30.8
Poisson's Ratio $\sigma$	0.217
Knoop Hardness Hk(Class)	540   5
Abrasion Aa	125

Partial Dispersions	
$n_C-n_t$	0.010433
$n_C-n_{A'}$	0.004553
$n_d-n_C$	0.004104
$n_e-n_C$	0.007389
$n_g-n_d$	0.017739
$n_g-n_F$	0.007989
$n_h-n_g$	0.006918
$n_i-n_g$	0.019440
$n_C-n_t$	0.011080
$n_e-n_{C'}$	0.006742
$n_{F'}-n_e$	0.007286
$n_i-n_{F'}$	0.026608

Relative Partial Dispersions	
$\theta_{C,t}$	0.7531
$\theta_{C,A'}$	0.3286
$\theta_{d,C}$	0.2962
$\theta_{e,C}$	0.5333
$\theta_{g,d}$	1.2804
$\theta_{g,F}$	0.5767
$\theta_{h,g}$	0.4994
$\theta_{i,g}$	1.4032
$\theta'_{C,t}$	0.7898
$\theta'_{e,C}$	0.4806
$\theta'_{F',e}$	0.5194
$\theta'_{i,F'}$	1.8968

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0117
$\Delta \theta_{C,A'}$	0.0024
$\Delta \theta_{g,d}$	0.0019
$\Delta \theta_{g,F}$	0.0024
$\Delta \theta_{i,g}$	0.0257

Thermal Properties	
Strain Point StP (°C)	511
Annealing Point AP (°C)	547
Transformation Temperature Tg (°C)	562
Yield Point At (°C)	599
Softening Point SP (°C)	700
Expansion Coefficients (-30~+70°C)	74
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	89
Thermal Conductivity $\lambda$ W/(m·K)	1.07

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

Internal transmission			
$\lambda_{0.80}$	371	$\lambda_{0.05}$	350

CCI		
B	G	R
0.00	0.45	0.47

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	0.05
360	0.44
370	0.78
380	0.913
390	0.961
400	0.979
420	0.990
440	0.993
460	0.994
480	0.995
500	0.996
550	0.998
600	0.998
650	0.998
700	0.998
800	0.999
900	0.999
1000	0.998
1200	0.998
1400	0.994
1600	0.993
1800	0.978
2000	0.955
2200	0.89
2400	0.87

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	2.9	3.0	3.1	3.3	3.9	4.5
-20~ 0	2.4	2.9	3.0	3.2	3.4	4.0	4.6
0~20	2.5	3.0	3.0	3.2	3.5	4.0	4.7
20~40	2.5	3.0	3.1	3.3	3.5	4.1	4.8
40~60	2.5	3.0	3.1	3.3	3.6	4.2	4.9
60~80	2.5	3.1	3.1	3.3	3.6	4.3	5.0

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.81
Specific Gravity d	2.58
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.