

# S-TIM27

Code(d) **640345**

Code(e) **644342**

Refractive Index $n_d$	<b>1.63980</b> 1.639799	Abbe Number $\nu_d$	<b>34.46</b>	Dispersion $n_F-n_C$	<b>0.018564</b>
Refractive Index $n_e$	1.644189	Abbe Number $\nu_e$	34.20	Dispersion $n_F-n_{C'}$	0.018835

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.60036
$n_{1970}$	1.97009	1.60608
$n_{1530}$	1.52958	1.61249
$n_{1129}$	1.12864	1.61878
$n_t$	1.01398	1.62108
$n_s$	0.85211	1.62537
$n_{A'}$	0.76819	1.62846
$n_r$	0.70652	1.63138
$n_C$	0.65627	1.63438
$n_{C'}$	0.64385	1.63522
$n_{\text{He-Ne}}$	0.6328	1.63602
$n_D$	0.58929	1.63964
$n_d$	0.58756	1.63980
$n_e$	0.54607	1.64419
$n_F$	0.48613	1.65294
$n_{F'}$	0.47999	1.65406
$n_{\text{He-Cd}}$	0.44157	1.66244
$n_g$	0.435835	1.66393
$n_h$	0.404656	1.67361
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.41680470E+00
$A_2$	1.96785057E-01
$A_3$	1.68001322E+00
$B_1$	1.00732158E-02
$B_2$	5.37616908E-02
$B_3$	1.64672436E+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)	79.3
Rigidity Modulus G (GPa)	32.1
Poisson's Ratio $\sigma$	0.236
Knoop Hardness Hk(Class)	560   6
Abrasion Aa	146

Partial Dispersions	
$n_C-n_t$	0.013292
$n_C-n_{A'}$	0.005916
$n_d-n_C$	0.005424
$n_e-n_C$	0.009814
$n_g-n_d$	0.024134
$n_g-n_F$	0.010994
$n_h-n_g$	0.009680
$n_i-n_g$	
$n_C-n_t$	0.014141
$n_e-n_{C'}$	0.008965
$n_{F'}-n_e$	0.009870
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.7160
$\theta_{C,A'}$	0.3187
$\theta_{d,C}$	0.2922
$\theta_{e,C}$	0.5287
$\theta_{g,d}$	1.3000
$\theta_{g,F}$	0.5922
$\theta_{h,g}$	0.5214
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7508
$\theta'_{e,C'}$	0.4760
$\theta'_{F',e}$	0.5240
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0076
$\Delta\theta_{C,A'}$	0.0011
$\Delta\theta_{g,d}$	0.0069
$\Delta\theta_{g,F}$	0.0065
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	543
Annealing Point AP (°C)	572
Transformation Temperature Tg (°C)	594
Yield Point At (°C)	629
Softening Point SP (°C)	696
Expansion Coefficients (-30~+70°C)	80
$\alpha (10^{-7} K^{-1})$ (+100~+300°C)	99
Thermal Conductivity $\lambda$ W/(m·K)	1.04

Coloring			
$\lambda_{80}$	390	$\lambda_5$	360
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	385	$\lambda_{0.05}$	360

CCI		
B	G	R
0.00	1.37	1.38

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	0.05
370	0.41
380	0.73
390	0.87
400	0.935
420	0.973
440	0.983
460	0.987
480	0.990
500	0.992
550	0.997
600	0.997
650	0.996
700	0.997
800	0.999
900	0.998
1000	0.998
1200	0.998
1400	0.995
1600	0.994
1800	0.984
2000	0.973
2200	0.936
2400	0.919

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} K^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.2	1.9	1.9	2.2	2.5	3.2	4.0
-20~ 0	1.3	2.0	2.0	2.3	2.6	3.3	4.2
0~20	1.3	2.1	2.1	2.4	2.7	3.5	4.4
20~40	1.4	2.1	2.2	2.5	2.8	3.7	4.6
40~60	1.4	2.2	2.3	2.6	2.9	3.8	4.8
60~80	1.5	2.3	2.4	2.7	3.0	4.0	5.1

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.83
Specific Gravity d	2.76
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.