

S-TIM27

Code(d) **640345**

Code(e) **644342**

Refractive Index n_d	1.63980	Abbe Number ν_d	34.46	Dispersion n_F-n_C	0.018564
	1.639799				
Refractive Index n_e	1.644189	Abbe Number ν_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 σ	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
α (10 ⁻⁷ K ⁻¹) (+100~+300°C)	99
Thermal Conductivity λ W/(m·K)	1.04

Coloring			
λ_{80}	390	λ_5	360
λ_{70}			

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

CCI		
B	G	R
0.00	1.37	1.38

Internal Transmittance	
$\lambda(\text{nm})$	τ 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 β nm/(cm·10 ⁵ 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.