

# S-TIM39

Code(d) **667330**

Code(e) **672328**

Refractive Index $n_d$	<b>1.66680</b> 1.666800	Abbe Number $v_d$	<b>33.0</b> 33.05	Dispersion $n_F-n_C$	<b>0.02018</b> 0.020173
Refractive Index $n_e$	1.671568	Abbe Number $v_e$	32.80	Dispersion $n_F-n_C'$	0.020477

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.62567
$n_{1970}$	1.97009	1.63132
$n_{1530}$	1.52958	1.63776
$n_{1129}$	1.12864	1.64425
$n_t$	1.01398	1.64667
$n_s$	0.85211	1.65123
$n_{A'}$	0.76819	1.65454
$n_r$	0.70652	1.65769
$n_C$	0.65627	1.66092
$n_{C'}$	0.64385	1.66184
$n_{\text{He-Ne}}$	0.6328	1.66271
$n_D$	0.58929	1.66662
$n_d$	0.58756	1.66680
$n_e$	0.54607	1.67157
$n_F$	0.48613	1.68110
$n_{F'}$	0.47999	1.68232
$n_{\text{He-Cd}}$	0.44157	1.69148
$n_g$	0.435835	1.69311
$n_h$	0.404656	1.70373
$n_i$	0.365015	

Partial Dispersions	
$n_C-n_t$	0.014252
$n_C-n_{A'}$	0.006381
$n_d-n_C$	0.005875
$n_e-n_C$	0.010643
$n_g-n_d$	0.026315
$n_g-n_F$	0.012017
$n_h-n_g$	0.010616
$n_i-n_g$	
$n_C-n_t$	0.015170
$n_e-n_{C'}$	0.009725
$n_{F'}-n_e$	0.010752
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.7065
$\theta_{C,A'}$	0.3163
$\theta_{d,C}$	0.2912
$\theta_{e,C}$	0.5276
$\theta_{g,d}$	1.3045
$\theta_{g,F}$	0.5957
$\theta_{h,g}$	0.5262
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7408
$\theta'_{e,C'}$	0.4749
$\theta'_{F',e}$	0.5251
$\theta'_{i,F}$	

Thermal Properties	
Strain Point StP (°C)	544
Annealing Point AP (°C)	569
Transformation Temperature Tg (°C)	591
Yield Point At (°C)	621
Softening Point SP (°C)	682
Expansion Coefficients (-30~+70°C)	87
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	104
Thermal Conductivity k (W/m·K)	0.988

Coloring			
$\lambda_{80}$	40	$\lambda_5$	36
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	
350	
360	0.03
370	0.33
380	0.66
390	0.82
400	0.906
420	0.962
440	0.973
460	0.980
480	0.985
500	0.989
550	0.994
600	0.995
650	0.994
700	0.995
800	0.998
900	0.999
1000	0.998
1200	0.998
1400	0.995
1600	0.994
1800	0.983
2000	0.971
2200	0.937
2400	0.913

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0048
$\Delta\theta_{C,A'}$	0.0004
$\Delta\theta_{g,d}$	0.0084
$\Delta\theta_{g,F}$	0.0077
$\Delta\theta_{i,g}$	

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	817
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	328
Poisson's Ratio $\sigma$	0.246
Knoop Hardness Hk[Class]	550   6
Abrasion Aa	160
Photoelastic Constant $\beta$ (nm/cm/ $10^5\text{Pa}$ )	2.64

Constants of Dispersion Formula	
$A_1$	1.47008105E+00
$A_2$	2.24752746E-01
$A_3$	2.44968592E+00
$B_1$	1.02900432E-02
$B_2$	5.41276904E-02
$B_3$	2.37434940E+02

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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.92
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	0.4	1.1	1.2	1.3	1.7	2.5	3.4
-20~0	0.5	1.3	1.3	1.4	1.8	2.7	3.6
0~20	0.7	1.4	1.4	1.5	2.0	2.8	3.9
20~40	0.7	1.5	1.5	1.7	2.1	3.0	4.1
40~60	0.8	1.5	1.5	1.8	2.2	3.2	4.3
60~80	0.8	1.6	1.6	1.9	2.3	3.3	4.5