

# DATA SHEET

# S-TIM 5 (1.6ND)

## S-TIM 5

Code(d) **603380**

Code(e) **607378**

Refractive Index $n_d$	1.60342 1.603420	Abbe Number $\nu_d$	38.03	Dispersion $n_F-n_C$	0.015868
Refractive Index $n_e$	1.607179	Abbe Number $\nu_e$	37.76	Dispersion $n_F-n_C$	0.016082

Refractive Indices		
$\lambda(\mu m)$		
$n_{2325}$	2.32542	1.56753
$n_{1970}$	1.97009	1.57306
$n_{1530}$	1.52958	1.57918
$n_{1125}$	1.12864	1.58500
$n_h$	1.01398	1.58708
$n_s$	0.85211	1.59089
$n_A$	0.76819	1.59360
$n_r$	0.70652	1.59615
$n_C$	0.65627	1.59875
$n_C$	0.64385	1.59948
$n_{He-Ne}$	0.6328	1.60017
$n_D$	0.58929	1.60328
$n_d$	0.58756	1.60342
$n_e$	0.54607	1.60718
$n_F$	0.48613	1.61462
$n_F$	0.47999	1.61556
$n_{He-Cd}$	0.44157	1.62262
$n_g$	0.435835	1.62388
$n_h$	0.404656	1.63196
$n_i$	0.365015	1.64676

Constants of Dispersion Formula	
$A_1$	1.38531342E+00
$A_2$	1.22372945E-01
$A_3$	1.40508326E+00
$B_1$	1.04074567E-02
$B_2$	5.57440088E-02
$B_3$	1.44878733E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
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	1.2

Mechanical Properties	
Young's Modulus E ( $10^9 N/m^2$ )	763
Rigidity Modulus G ( $10^9 N/m^2$ )	309
Poisson's Ratio $\sigma$	0.233
Knoop Hardness Hk(Class)	540   5
Abrasion Aa	128
Photoelastic Constant $\beta$ (nm/cm $10^5$ Pa)	2.84

Partial Dispersions	
$n_C-n_h$	0.011667
$n_C-n_A$	0.005143
$n_d-n_C$	0.004672
$n_e-n_C$	0.008431
$n_g-n_d$	0.020455
$n_g-n_F$	0.009259
$n_h-n_g$	0.008081
$n_i-n_g$	0.022880
$n_C-n_i$	0.012401
$n_e-n_C$	0.007697
$n_F-n_e$	0.008385
$n_i-n_F$	0.031191

Relative Partial Dispersions	
$\theta_{C,i}$	0.7353
$\theta_{C,A}$	0.3241
$\theta_{d,C}$	0.2944
$\theta_{e,C}$	0.5313
$\theta_{g,d}$	1.2891
$\theta_{g,F}$	0.5835
$\theta_{h,g}$	0.5093
$\theta_{i,g}$	1.4419
$\theta'_{C,i}$	0.7711
$\theta'_{e,C}$	0.4786
$\theta'_{F,e}$	0.5214
$\theta'_{i,F}$	1.9395

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,i}$	0.0102
$\Delta\theta_{C,A}$	0.0022
$\Delta\theta_{g,d}$	0.0034
$\Delta\theta_{g,F}$	0.0036
$\Delta\theta_{i,g}$	0.0353

Thermal Properties	
Strain Point STP ( $^{\circ}C$ )	535
Annealing Point AP ( $^{\circ}C$ )	565
Transformation Temperature Tg ( $^{\circ}C$ )	588
Yield Point At ( $^{\circ}C$ )	624
Softening Point SP ( $^{\circ}C$ )	700
Expansion Coefficients (-30~+70 $^{\circ}C$ )	83
$\alpha$ ( $10^{-7}/^{\circ}C$ ) (+100~+300 $^{\circ}C$ )	96
Thermal Conductivity k (W/mK)	1.04

Coloring			
$\lambda_{80}$	385	$\lambda_5$	350
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	378	$\lambda_{0.05}$	357

CCI		
B	G	R
0.00	0.79	0.81

Internal Transmittance		
$\lambda$ (nm)	$\tau$ 10mm	
280		
290		
300		
310		
320		
330		
340		
350		
360		0.19
370		0.60
380		0.84
390		0.931
400		0.963
420		0.984
440		0.989
460		0.991
480		0.993
500		0.995
550		0.997
600		0.997
650		0.997
700		0.997
800		0.999
900		0.998
1000		0.998
1200		0.998
1400		0.994
1600		0.994
1800		0.982
2000		0.966
2200		0.923
2400		0.902

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.63
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature ( $^{\circ}C$ )	dn/dT relative ( $10^{-5}/^{\circ}C$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.4	1.9	1.9	2.1	2.4	3.0	3.7
-20~ 0	1.4	2.0	2.1	2.3	2.5	3.2	3.9
0~20	1.4	2.1	2.2	2.4	2.7	3.4	4.1
20~40	1.6	2.3	2.3	2.5	2.8	3.6	4.4
40~60	1.7	2.4	2.4	2.7	3.0	3.7	4.6
60~80	1.7	2.5	2.6	2.8	3.1	3.9	4.8

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