

# DATA SHEET

# S-TIM35 (1.698)

## S-TIM35

Code(d) **699301**

Code(e) **704299**

Refractive Index $n_d$	1.69895 1.698947	Abbe Number $\nu_d$	30.13	Dispersion $n_F-n_C$	0.023199
Refractive Index $n_e$	1.704424	Abbe Number $\nu_e$	29.89	Dispersion $n_F-n_C$	0.023567

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.65283
$n_{1970}$	1.97009	1.65905
$n_{1530}$	1.52958	1.66615
$n_{1129}$	1.12864	1.67335
$n_t$	1.01398	1.67606
$n_s$	0.85211	1.68120
$n_{A'}$	0.76819	1.68496
$n_r$	0.70652	1.68854
$n_c$	0.65627	1.69222
$n_{c'}$	0.64385	1.69327
$n_{He-Ne}$	0.6328	1.69426
$n_D$	0.58929	1.69875
$n_d$	0.58756	1.69895
$n_e$	0.54607	1.70442
$n_F$	0.48613	1.71542
$n_{F'}$	0.47999	1.71684
$n_{He-Cd}$	0.44157	1.72750
$n_g$	0.435835	1.72941
$n_h$	0.404656	1.74189
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.55849775E+00
$A_2$	2.30767007E-01
$A_3$	1.84436099E+00
$B_1$	1.15367235E-02
$B_2$	5.86095947E-02
$B_3$	1.62981888E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
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

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	875
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	353
Poisson's Ratio $\sigma$	0.238
Knoop Hardness Hk(Class)	500   5
Abrasion Aa	136
Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa)	3.04

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	dn/dT relative (10 <sup>-5</sup> /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.0	2.8	2.8	3.1	3.5	4.4	5.5
-20~ 0	2.1	2.9	3.0	3.3	3.7	4.6	5.8
0~20	2.1	3.0	3.1	3.4	3.8	4.9	6.1
20~40	2.3	3.2	3.2	3.6	4.0	5.1	6.4
40~60	2.4	3.3	3.4	3.7	4.2	5.3	6.7
60~80	2.4	3.4	3.5	3.9	4.4	5.6	7.0

Partial Dispersions	
$n_C-n_t$	0.016161
$n_C-n_{A'}$	0.007266
$n_D-n_C$	0.006722
$n_e-n_C$	0.012199
$n_g-n_d$	0.030465
$n_g-n_F$	0.013988
$n_h-n_g$	0.012478
$n_i-n_g$	
$n_C-n_t$	0.017210
$n_e-n_C$	0.011150
$n_F-n_e$	0.012417
$n_i-n_F$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6966
$\theta_{C,A'}$	0.3132
$\theta_{d,C}$	0.2898
$\theta_{e,C}$	0.5258
$\theta_{g,d}$	1.3132
$\theta_{g,F}$	0.6030
$\theta_{h,g}$	0.5379
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7303
$\theta'_{e,C}$	0.4731
$\theta'_{F,e}$	0.5269
$\theta'_{i,F}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0086
$\Delta\theta_{C,A'}$	0.0008
$\Delta\theta_{g,d}$	0.0111
$\Delta\theta_{g,F}$	0.0103
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	579
Annealing Point AP (°C)	603
Transformation Temperature Tg (°C)	622
Yield Point At (°C)	648
Softening Point SP (°C)	716
Expansion Coefficients (-30~+70°C)	75
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	89
Thermal Conductivity k (W/m·K)	1.05

Coloring			
$\lambda_{90}$	400	$\lambda_s$	360
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	397	$\lambda_{0.05}$	367

CCI		
B	G	R
0.00	2.94	2.98

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.14
380	0.48
390	0.72
400	0.84
420	0.939
440	0.964
460	0.974
480	0.981
500	0.986
550	0.994
600	0.994
650	0.993
700	0.995
800	0.998
900	0.999
1000	0.999
1200	0.999
1400	0.995
1600	0.995
1800	0.988
2000	0.980
2200	0.942
2400	0.931

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.96
Remarks	

OHARA 17-04

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