

S-TIL27

Code(d) **575415**

Code(e) **578412**

Refractive Index n_d	1.57501 1.575006	Abbe Number ν_d	41.50	Dispersion n_F-n_C	0.013854
Refractive Index n_e	1.578291	Abbe Number ν_e	41.22	Dispersion n_F-n_C'	0.014028

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.54162
n_{1970}	1.97009	1.54707
n_{1530}	1.52958	1.55304
n_{1129}	1.12864	1.55855
n_t	1.01398	1.56047
n_s	0.85211	1.56392
$n_{A'}$	0.76819	1.56635
n_r	0.70652	1.56861
n_C	0.65627	1.57090
$n_{C'}$	0.64385	1.57155
$n_{\text{He-Ne}}$	0.6328	1.57216
n_D	0.58929	1.57488
n_d	0.58756	1.57501
n_e	0.54607	1.57829
n_F	0.48613	1.58476
$n_{F'}$	0.47999	1.58558
$n_{\text{He-Cd}}$	0.44157	1.59167
n_g	0.435835	1.59275
n_h	0.404656	1.59966
n_i	0.365015	1.61218

Constants of Dispersion Formula	
A_1	1.31433154E+00
A_2	1.12300168E-01
A_3	1.41390100E+00
B_1	9.50404477E-03
B_2	5.24112772E-02
B_3	1.48429972E+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 (10^9N/m^2)	749
Rigidity Modulus G (10^8N/m^2)	308
Poisson's Ratio σ	0.217
Knoop Hardness Hk[Class]	540 5
Abrasion Aa	120
Photoelastic Constant β (nm/cm/ 10^9Pa)	2.81

Partial Dispersions	
n_C-n_t	0.010433
$n_C-n_{A'}$	0.004553
n_d-n_C	0.004104
n_e-n_C	0.007389
n_g-n_d	0.017739
n_g-n_F	0.007989
n_h-n_g	0.006918
n_i-n_g	0.019440
n_C-n_t	0.011080
$n_e-n_{C'}$	0.006742
n_F-n_e	0.007286
$n_i-n_{F'}$	0.026608

Relative Partial Dispersions	
$\theta_{C,t}$	0.7531
$\theta_{C,A'}$	0.3286
$\theta_{d,C}$	0.2962
$\theta_{e,C}$	0.5333
$\theta_{g,d}$	1.2804
$\theta_{g,F}$	0.5767
$\theta_{h,g}$	0.4994
$\theta_{i,g}$	1.4032
$\theta'_{C,t}$	0.7898
$\theta'_{e,C'}$	0.4806
$\theta'_{F,e}$	0.5194
$\theta'_{i,F'}$	1.8968

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0117
$\Delta\theta_{C,A'}$	0.0024
$\Delta\theta_{g,d}$	0.0019
$\Delta\theta_{g,F}$	0.0024
$\Delta\theta_{i,g}$	0.0257

Thermal Properties	
Strain Point StP ($^{\circ}\text{C}$)	511
Annealing Point AP ($^{\circ}\text{C}$)	547
Transformation Temperature Tg ($^{\circ}\text{C}$)	562
Yield Point At ($^{\circ}\text{C}$)	599
Softening Point SP ($^{\circ}\text{C}$)	700
Expansion Coefficients (-30~+70 $^{\circ}\text{C}$)	74
α ($10^{-7}/^{\circ}\text{C}$) (+100~+300 $^{\circ}\text{C}$)	89
Thermal Conductivity k (W/m·K)	1.07

Coloring			
λ_{80}	380	λ_5	350
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	371	$\lambda_{0.05}$	350

CCI		
B	G	R
0.00	0.45	0.47

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	
300	
310	
320	
330	
340	
350	0.05
360	0.44
370	0.78
380	0.913
390	0.961
400	0.979
420	0.990
440	0.993
460	0.994
480	0.995
500	0.996
550	0.998
600	0.998
650	0.998
700	0.998
800	0.999
900	0.999
1000	0.998
1200	0.998
1400	0.994
1600	0.993
1800	0.978
2000	0.955
2200	0.89
2400	0.87

Temperature Coefficients of Refractive Index							
Range of Temperature ($^{\circ}\text{C}$)	dn/dT relative ($10^{-6}/^{\circ}\text{C}$)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.4	2.9	3.0	3.1	3.3	3.9	4.5
-20~ 0	2.4	2.9	3.0	3.2	3.4	4.0	4.6
0~20	2.5	3.0	3.0	3.2	3.5	4.0	4.7
20~40	2.5	3.0	3.1	3.3	3.5	4.1	4.8
40~60	2.5	3.0	3.1	3.3	3.6	4.2	4.9
60~80	2.5	3.1	3.1	3.3	3.6	4.3	5.0

Other Properties	
Bubble Quality Group B	B
Specific Gravity d	2.58
Remarks	

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