

S-TIL 1

Code(d) **548458**

Code(e) **551455**

Refractive Index n_d	1.54814 1.548141	Abbe Number v_d	45.8 45.79	Dispersion n_F-n_C	0.01197 0.011972
Refractive Index n_e	1.550984	Abbe Number v_e	45.49	Dispersion n_F-n_C	0.012112

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.51797
n_{1970}	1.97009	1.52307
n_{1530}	1.52958	1.52861
n_{1129}	1.12864	1.53365
n_t	1.01398	1.53537
n_s	0.85211	1.53844
$n_{A'}$	0.76819	1.54058
n_r	0.70652	1.54257
n_C	0.65627	1.54457
$n_{C'}$	0.64385	1.54514
$n_{\text{He-Ne}}$	0.6328	1.54566
n_D	0.58929	1.54804
n_d	0.58756	1.54814
n_e	0.54607	1.55098
n_F	0.48613	1.55654
$n_{F'}$	0.47999	1.55725
$n_{\text{He-Cd}}$	0.44157	1.56244
n_g	0.435835	1.56335
n_h	0.404656	1.56918
n_i	0.365015	1.57959

Partial Dispersions	
n_C-n_t	0.009202
$n_C-n_{A'}$	0.003988
n_d-n_C	0.003569
n_e-n_C	0.006412
n_g-n_d	0.015210
n_g-n_F	0.006807
n_h-n_g	0.005833
n_i-n_g	0.016236
n_C-n_t	0.009765
$n_e-n_{C'}$	0.005849
$n_{F'-n_e}$	0.006263
$n_i-n_{F'}$	0.022340

Relative Partial Dispersions	
$\theta_{C,t}$	0.7686
$\theta_{C,A'}$	0.3331
$\theta_{d,C}$	0.2981
$\theta_{e,C}$	0.5356
$\theta_{g,d}$	1.2705
$\theta_{g,F}$	0.5686
$\theta_{h,g}$	0.4872
$\theta_{i,g}$	1.3562
$\theta'_{C,t}$	0.8062
$\theta'_{e,C'}$	0.4829
$\theta'_{F',e}$	0.5171
$\theta'_{i,F}$	1.8445

Thermal Properties	
Strain Point StP (°C)	452
Annealing Point AP (°C)	487
Transformation Temperature Tg (°C)	501
Yield Point At (°C)	542
Softening Point SP (°C)	654
Expansion Coefficients (-30~+70°C)	86
α ($10^{-7}/^\circ\text{C}$) (+100~+300°C)	101
Thermal Conductivity k (W/m-K)	1.039

Coloring			
λ_{80}	37	λ_5	34
λ_{70}			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	0.01
350	0.29
360	0.69
370	0.87
380	0.944
390	0.972
400	0.984
420	0.992
440	0.994
460	0.995
480	0.996
500	0.997
550	0.998
600	0.998
650	0.998
700	0.998
800	0.998
900	0.998
1000	0.997
1200	0.997
1400	0.996
1600	0.993
1800	0.977
2000	0.948
2200	0.89
2400	0.85

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0071
$\Delta\theta_{C,A'}$	0.0017
$\Delta\theta_{g,d}$	0.0009
$\Delta\theta_{g,F}$	0.0012
$\Delta\theta_{i,g}$	0.0146

Mechanical Properties	
Young's Modulus E (10^8N/m^2)	705
Rigidity Modulus G (10^8N/m^2)	288
Poisson's Ratio σ	0.222
Knoop Hardness Hk[Class]	490 5
Abrasion Aa	128
Photoelastic Constant β (nm/cm/ 10^5Pa)	2.68

Constants of Dispersion Formula	
A ₁	1.25088944E+00
A ₂	9.97973327E-02
A ₃	1.20583504E+00
B ₁	8.83921279E-03
B ₂	4.82685052E-02
B ₃	1.37414953E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Other Properties	
Bubble Quality Group B	B
Specific Gravity d	2.54
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	1.1	1.5	1.5	1.7	1.9	2.3	2.8
-20~0	1.1	1.5	1.6	1.7	1.9	2.4	2.9
0~20	1.1	1.5	1.6	1.7	2.0	2.4	3.0
20~40	1.1	1.6	1.6	1.8	2.0	2.5	3.1
40~60	1.1	1.6	1.6	1.8	2.0	2.6	3.1
60~80	1.1	1.6	1.6	1.8	2.1	2.6	3.2