

S-TIH57

Code(d) **963241**

Code(e) **972239**

Refractive Index n_d	1.96300 1.963000	Abbe Number ν_d	24.11	Dispersion n_F-n_C	0.039935
Refractive Index n_e	1.972398	Abbe Number ν_e	23.92	Dispersion $n_F-n_{C'}$	0.040656

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.89394
n_{1970}	1.97009	1.90163
n_{1530}	1.52958	1.91082
n_{1129}	1.12864	1.92106
n_t	1.01398	1.92520
n_s	0.85211	1.93335
$n_{A'}$	0.76819	1.93949
n_r	0.70652	1.94542
n_C	0.65627	1.95160
$n_{C'}$	0.64385	1.95337
$n_{\text{He-Ne}}$	0.6328	1.95504
n_D	0.58929	1.96266
n_d	0.58756	1.96300
n_e	0.54607	1.97240
n_F	0.48613	1.99153
$n_{F'}$	0.47999	1.99402
$n_{\text{He-Cd}}$	0.44157	2.01291
n_g	0.435835	2.01634
n_h	0.404656	2.03893
n_i	0.365015	

Constants of Dispersion Formula	
A_1	2.21103256E+00
A_2	4.50346986E-01
A_3	2.47746663E+00
B_1	1.42330268E-02
B_2	6.38573392E-02
B_3	1.61937600E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	3.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	117.0
Rigidity Modulus G (GPa)	45.3
Poisson's Ratio σ	0.292
Knoop Hardness Hk(Class)	640 6
Abrasion Aa	102

Partial Dispersions	
n_C-n_t	0.026394
$n_C-n_{A'}$	0.012111
n_d-n_C	0.011402
n_e-n_C	0.020800
n_g-n_d	0.053340
n_g-n_F	0.024807
n_h-n_g	0.022594
n_i-n_g	
n_C-n_t	0.028162
$n_e-n_{C'}$	0.019032
$n_{F'}-n_e$	0.021624
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6609
$\theta_{C,A'}$	0.3033
$\theta_{d,C}$	0.2855
$\theta_{e,C}$	0.5208
$\theta_{g,d}$	1.3357
$\theta_{g,F}$	0.6212
$\theta_{h,g}$	0.5658
$\theta_{i,g}$	
$\theta'_{C,t}$	0.6927
$\theta'_{e,C'}$	0.4681
$\theta'_{F',e}$	0.5319
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0011
$\Delta\theta_{C,A'}$	-0.0018
$\Delta\theta_{g,d}$	0.0211
$\Delta\theta_{g,F}$	0.0187
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	634
Annealing Point AP (°C)	661
Transformation Temperature Tg (°C)	672
Yield Point At (°C)	707
Softening Point SP (°C)	732
Expansion Coefficients (-30~+70°C)	75
α (10^{-7}K^{-1}) (+100~+300°C)	91
Thermal Conductivity λ W/(m·K)	0.970

Coloring			
λ_{80}		λ_5	375
λ_{70}	450		

Internal transmission			
$\lambda_{0.80}$	433	$\lambda_{0.05}$	373

CCI		
B	G	R
0.00	10.27	10.95

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.02
380	0.13
390	0.33
400	0.51
420	0.73
440	0.84
460	0.90
480	0.929
500	0.950
550	0.979
600	0.988
650	0.991
700	0.994
800	0.997
900	0.997
1000	0.997
1200	0.997
1400	0.997
1600	0.995
1800	0.989
2000	0.977
2200	0.947
2400	0.85

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative (10^{-6}K^{-1})						
	t	C'	He-Ne	D	e	F'	g
-40~-20	0.5	1.8	1.9	2.4	3.0	4.6	6.6
-20~ 0	0.5	1.9	2.0	2.5	3.2	5.0	7.1
0~20	0.6	2.1	2.2	2.8	3.5	5.4	7.6
20~40	0.7	2.3	2.4	3.0	3.8	5.8	8.1
40~60	0.9	2.6	2.7	3.3	4.1	6.2	8.7
60~80	1.1	2.8	2.9	3.6	4.4	6.6	9.3

Other Properties	
Photoelastic Constant β nm/(cm·10 ⁵ Pa)	1.73
Specific Gravity d	4.20
Remarks	

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※The name of the glass type is the model number assigned based on the main components of the composition: large, medium, small refractive index and serial number.