

S-TIH53

Code(d) **847238**

Code(e) **855236**

Refractive Index n_d	1.84666 1.846660	Abbe Number ν_d	23.78	Dispersion n_F-n_C	0.035608
Refractive Index n_e	1.855041	Abbe Number ν_e	23.59	Dispersion $n_F-n_{C'}$	0.036247

Refractive Indices		
$\lambda(\mu m)$		
n_{2325}	2.32542	1.78519
n_{1970}	1.97009	1.79199
n_{1530}	1.52958	1.80013
n_{1129}	1.12864	1.80925
n_t	1.01398	1.81294
n_s	0.85211	1.82021
$n_{A'}$	0.76819	1.82568
n_r	0.70652	1.83098
n_C	0.65627	1.83649
$n_{C'}$	0.64385	1.83807
n_{He-Ne}	0.6328	1.83956
n_D	0.58929	1.84635
n_d	0.58756	1.84666
n_e	0.54607	1.85504
n_F	0.48613	1.87210
$n_{F'}$	0.47999	1.87431
n_{He-Cd}	0.44157	1.89114
n_g	0.435835	1.89419
n_h	0.404656	1.91429
n_i	0.365015	

Constants of Dispersion Formula	
A_1	1.87904886E+00
A_2	3.69719775E-01
A_3	2.33730863E+00
B_1	1.44121770E-02
B_2	6.38817990E-02
B_3	1.82668180E+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	1.0
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E ($10^8 N/m^2$)	960	
Rigidity Modulus G ($10^8 N/m^2$)	379	
Poisson's Ratio σ	0.266	
Knoop Hardness Hk[Class]	520	5
Abrasion Aa	188	
Photoelastic Constant β nm/(cm $\cdot$ 10 ⁵ Pa)	2.81	

Partial Dispersions	
n_C-n_t	0.023550
$n_C-n_{A'}$	0.010806
n_d-n_C	0.010172
n_e-n_C	0.018553
n_g-n_d	0.047529
n_g-n_F	0.022093
n_h-n_g	0.020105
n_i-n_g	
n_C-n_t	0.025128
$n_e-n_{C'}$	0.016975
$n_{F'}-n_e$	0.019272
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6614
$\theta_{C,A'}$	0.3035
$\theta_{d,C}$	0.2857
$\theta_{e,C}$	0.5210
$\theta_{g,d}$	1.3348
$\theta_{g,F}$	0.6205
$\theta_{h,g}$	0.5646
$\theta_{i,g}$	
$\theta'_{C',t}$	0.6932
$\theta'_{e,C'}$	0.4683
$\theta'_{F',e}$	0.5317
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0032
$\Delta\theta_{C,A'}$	-0.0012
$\Delta\theta_{g,d}$	0.0195
$\Delta\theta_{g,F}$	0.0175
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	576
Annealing Point AP (°C)	596
Transformation Temperature Tg (°C)	624
Yield Point At (°C)	658
Softening Point SP (°C)	692
Expansion Coefficients (-30~+70°C)	88
α (10 ⁻⁷ /°C) (+100~+300°C)	104
Thermal Conductivity λ W/(m·K)	1.00

Coloring			
λ_{80}		λ_5	370
λ_{70}	420		

Internal transmission			
$\lambda_{0.80}$	408	$\lambda_{0.05}$	370

CCI		
B	G	R
0.00	4.97	5.06

Internal Transmittance	
$\lambda(nm)$	τ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.06
380	0.35
390	0.61
400	0.75
420	0.87
440	0.927
460	0.948
480	0.961
500	0.971
550	0.987
600	0.989
650	0.985
700	0.989
800	0.997
900	0.998
1000	0.999
1200	0.999
1400	0.998
1600	0.997
1800	0.991
2000	0.986
2200	0.974
2400	0.955

Other Properties	
Bubble Quality Group B	B
Specific Gravity d	3.54
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative (10 ⁻⁶ /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	-0.8	0.4	0.4	0.9	1.4	2.8	4.5
-20~ 0	-0.8	0.5	0.6	1.0	1.6	3.1	5.0
0~20	-0.7	0.6	0.7	1.2	1.8	3.4	5.4
20~40	-0.7	0.7	0.8	1.3	2.0	3.7	5.8
40~60	-0.6	0.9	1.0	1.5	2.2	4.0	6.2
60~80	-0.6	1.0	1.1	1.6	2.4	4.3	6.6

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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.

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