S-TIH 6

Code(d) **805254**
Code(e) **813252**

Refractive Index n_d	**1.805 18** 1.805 181	Abbe Number ν_d	**25.42**	Dispersion $n_F - n_C$	**0.031 669**
Refractive Index n_e	1.812 641	Abbe Number ν_e	25.22	Dispersion $n_{F'} - n_{C'}$	0.032 223

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.749 17
n_{1970}	1.970 09	1.755 58
n_{1530}	1.529 58	1.763 21
n_{1129}	1.128 64	1.771 60
n_t	1.013 98	1.774 95
n_s	0.852 11	1.781 51
$n_{A'}$	0.768 19	1.786 43
n_r	0.706 52	1.791 18
n_C	0.656 27	1.796 11
$n_{C'}$	0.643 85	1.797 52
$n_{He\text{-}Ne}$	0.632 8	1.798 85
n_D	0.589 29	1.804 91
n_d	0.587 56	1.805 18
n_e	0.546 07	1.812 64
n_F	0.486 13	1.827 77
$n_{F'}$	0.479 99	1.829 74
$n_{He\text{-}Cd}$	0.441 57	1.844 60
n_g	0.435 835	1.847 29
n_h	0.404 656	1.864 94
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	1.772 276 11E+00
A_2	3.456 912 50E-01
A_3	2.407 885 01E+00
B_1	1.311 826 33E-02
B_2	6.144 796 19E-02
B_3	2.007 532 54E+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 (GPa)	93.1	
Rigidity Modulus G (GPa)	36.9	
Poisson's Ratio σ	0.261	
Knoop Hardness Hk[Class]	530	5
Abrasion Aa	196	

Partial Dispersions	
$n_C - n_t$	0.021 155
$n_C - n_{A'}$	0.009 673
$n_d - n_C$	0.009 075
$n_e - n_C$	0.016 535
$n_g - n_d$	0.042 105
$n_g - n_F$	0.019 511
$n_h - n_g$	0.017 653
$n_i - n_g$	
$n_{C'} - n_t$	0.022 564
$n_e - n_{C'}$	0.015 126
$n_{F'} - n_e$	0.017 097
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.668 0
$\theta_{C,A'}$	0.305 4
$\theta_{d,C}$	0.286 6
$\theta_{e,C}$	0.522 1
$\theta_{g,d}$	1.329 5
$\theta_{g,F}$	0.616 1
$\theta_{h,g}$	0.557 4
$\theta_{i,g}$	
$\theta'_{C',t}$	0.700 2
$\theta'_{e,C'}$	0.469 4
$\theta'_{F',e}$	0.530 6
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.002 1
$\Delta\theta_{C,A'}$	-0.001 2
$\Delta\theta_{g,d}$	0.017 6
$\Delta\theta_{g,F}$	0.015 8
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}	440	λ_5	365
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	398	$\lambda_{0.05}$	368

CCI		
B	G	R
0.00	3.44	3.56

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.12
380	0.48
390	0.70
400	0.82
420	0.919
440	0.955
460	0.970
480	0.978
500	0.984
550	0.993
600	0.995
650	0.994
700	0.996
800	0.998
900	0.998
1 000	0.998
1 200	0.998
1 400	0.997
1 600	0.995
1 800	0.986
2 000	0.978
2 200	0.958
2 400	0.928

Thermal Properties		
Strain Point StP (℃)		571
Annealing Point AP (℃)		587
Transformation Temperature Tg (℃)		607
Yield Point At (℃)		640
Softening Point SP (℃)		690
Expansion Coefficients	(-30 ℃ ~ 70 ℃)	90
α_l (10^{-7} K^{-1})	(100 ℃ ~ 300 ℃)	109
Thermal Conductivity λ (W/(m·K))		1.01

Linear coefficient of thermal expansion	
Temperature range (℃)	α_l (10^{-7} K^{-1})
-100 ～ -90	74
-90 ～ -80	76
-80 ～ -70	77
-70 ～ -60	79
-60 ～ -50	80
-50 ～ -40	81
-40 ～ -30	83
-30 ～ -20	84
-20 ～ -10	86
-10 ～ 0	87
0 ～ 10	88
10 ～ 20	89
20 ～ 30	91
30 ～ 40	92
40 ～ 50	93
50 ～ 60	94
60 ～ 70	95
70 ～ 80	97
80 ～ 90	98
90 ～ 100	99
100 ～ 110	100
110 ～ 120	101
120 ～ 130	102
130 ～ 140	103
140 ～ 150	104
150 ～ 160	105
160 ～ 170	106
170 ～ 180	107
180 ～ 190	108
190 ～ 200	109
200 ～ 210	110
210 ～ 220	111
220 ～ 230	112
230 ～ 240	113
240 ～ 250	114
250 ～ 260	114
260 ～ 270	115
270 ～ 280	116
280 ～ 290	117
290 ～ 300	118

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.81
Specific Gravity *d*	3.37
Remarks	

Temperature Coefficients of Refractive Index

Range of Temperature (℃)	$\Delta n_{rel}/\Delta T$ (10^{-6} K^{-1})											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	-1.9	-1.7	-1.1	-0.9	-0.8	-0.4	-0.1	0.9	1.1	2.4	4.1	-
-60 ~ -40	-2.0	-1.7	-1.0	-0.8	-0.7	-0.3	0.1	1.1	1.3	2.7	4.5	-
-40 ~ -20	-1.9	-1.6	-0.9	-0.7	-0.6	-0.1	0.3	1.4	1.5	3.0	5.0	-
-20 ~ 0	-1.8	-1.5	-0.7	-0.4	-0.4	0.1	0.6	1.7	1.8	3.5	5.5	-
0 ~ 20	-1.7	-1.3	-0.5	-0.2	-0.2	0.3	0.8	2.0	2.2	4.0	6.1	-
20 ~ 40	-1.5	-1.2	-0.4	0.0	0.1	0.6	1.1	2.4	2.6	4.4	6.7	-
40 ~ 60	-1.4	-1.0	-0.1	0.2	0.3	0.8	1.4	2.7	2.9	4.8	7.3	-
60 ~ 80	-1.2	-0.8	0.1	0.4	0.5	1.0	1.6	3.1	3.3	5.3	7.8	-
80 ~ 100	-1.1	-0.7	0.3	0.6	0.7	1.3	1.9	3.4	3.6	5.6	8.3	-
100 ~ 120	-1.0	-0.6	0.4	0.8	0.9	1.5	2.1	3.6	3.8	6.0	8.7	-
120 ~ 140	-1.0	-0.5	0.5	0.9	1.0	1.6	2.3	3.9	4.1	6.3	9.1	-
140 ~ 160	-1.0	-0.5	0.5	0.9	1.0	1.7	2.4	4.0	4.3	6.6	9.6	-
160 ~ 180	-1.1	-0.6	0.5	0.9	1.1	1.7	2.5	4.2	4.5	6.9	10.0	-

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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.