S-TIH10

Code(d) **728285**
Code(e) **734282**

Refractive Index n_d	**1.728 25** 1.728 250	Abbe Number ν_d	**28.46**	Dispersion $n_F - n_C$	**0.025 588**
Refractive Index n_e	1.734 286	Abbe Number ν_e	28.23	Dispersion $n_{F'} - n_{C'}$	0.026 009

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.679 34
n_{1970}	1.970 09	1.685 62
n_{1530}	1.529 58	1.692 86
n_{1129}	1.128 64	1.700 40
n_t	1.013 98	1.703 30
n_s	0.852 11	1.708 84
$n_{A'}$	0.768 19	1.712 92
n_r	0.706 52	1.716 83
n_C	0.656 27	1.720 86
$n_{C'}$	0.643 85	1.722 02
$n_{He\text{-}Ne}$	0.632 8	1.723 10
n_D	0.589 29	1.728 03
n_d	0.587 56	1.728 25
n_e	0.546 07	1.734 29
n_F	0.486 13	1.746 45
$n_{F'}$	0.479 99	1.748 02
$n_{He\text{-}Cd}$	0.441 57	1.759 87
n_g	0.435 835	1.762 00
n_h	0.404 656	1.775 95
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	1.615 493 92E+00
A_2	2.624 332 39E-01
A_3	2.094 261 89E+00
B_1	1.198 308 97E-02
B_2	5.965 102 40E-02
B_3	1.816 575 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
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E (GPa)	102.4	
Rigidity Modulus G (GPa)	41.2	
Poisson's Ratio σ	0.243	
Knoop Hardness Hk[Class]	570	6
Abrasion Aa	158	

Partial Dispersions	
$n_C - n_t$	0.017 568
$n_C - n_{A'}$	0.007 944
$n_d - n_C$	0.007 385
$n_e - n_C$	0.013 421
$n_g - n_d$	0.033 752
$n_g - n_F$	0.015 549
$n_h - n_g$	0.013 943
$n_i - n_g$	
$n_{C'} - n_t$	0.018 718
$n_e - n_{C'}$	0.012 271
$n_{F'} - n_e$	0.013 738
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.686 6
$\theta_{C,A'}$	0.310 5
$\theta_{d,C}$	0.288 6
$\theta_{e,C}$	0.524 5
$\theta_{g,d}$	1.319 1
$\theta_{g,F}$	0.607 7
$\theta_{h,g}$	0.544 9
$\theta_{i,g}$	
$\theta'_{C,t}$	0.719 7
$\theta'_{e,C'}$	0.471 8
$\theta'_{F,e}$	0.528 2
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.006 4
$\Delta\theta_{C,A'}$	0.000 2
$\Delta\theta_{g,d}$	0.013 5
$\Delta\theta_{g,F}$	0.012 3
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}	410	λ_5	365
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	399	$\lambda_{0.05}$	369

CCI		
B	G	R
0.00	3.34	3.37

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.09
380	0.41
390	0.67
400	0.81
420	0.931
440	0.963
460	0.975
480	0.982
500	0.987
550	0.994
600	0.995
650	0.993
700	0.994
800	0.998
900	0.998
1 000	0.998
1 200	0.998
1 400	0.994
1 600	0.993
1 800	0.985
2 000	0.977
2 200	0.947
2 400	0.929

Thermal Properties		
Strain Point StP (°C)		569
Annealing Point AP (°C)		596
Transformation Temperature Tg (°C)		621
Yield Point At (°C)		658
Softening Point SP (°C)		703
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	84
	(100 °C ~ 300 °C)	100
Thermal Conductivity λ (W/(m·K))		1.04

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	69
-90 ~ -80	70
-80 ~ -70	72
-70 ~ -60	73
-60 ~ -50	74
-50 ~ -40	76
-40 ~ -30	77
-30 ~ -20	78
-20 ~ -10	79
-10 ~ 0	80
0 ~ 10	82
10 ~ 20	83
20 ~ 30	84
30 ~ 40	85
40 ~ 50	86
50 ~ 60	87
60 ~ 70	88
70 ~ 80	89
80 ~ 90	90
90 ~ 100	91
100 ~ 110	92
110 ~ 120	93
120 ~ 130	94
130 ~ 140	95
140 ~ 150	96
150 ~ 160	97
160 ~ 170	98
170 ~ 180	98
180 ~ 190	99
190 ~ 200	100
200 ~ 210	101
210 ~ 220	101
220 ~ 230	102
230 ~ 240	103
240 ~ 250	103
250 ~ 260	104
260 ~ 270	105
270 ~ 280	105
280 ~ 290	106
290 ~ 300	106

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.88
Specific Gravity *d*	3.06
Remarks	

Temperature Coefficients of Refractive Index												
Range of Temperature (°C)	$\Delta n_{rel}/\Delta T$ (10^{-6} K^{-1})											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	-0.6	-0.3	0.3	0.5	0.5	1.0	1.3	2.2	2.3	3.6	5.1	-
-60 ~ -40	-0.3	-0.1	0.6	0.8	0.8	1.2	1.6	2.4	2.5	3.9	5.4	-
-40 ~ -20	0.0	0.2	0.8	1.0	1.1	1.4	1.9	2.8	2.9	4.2	5.8	-
-20 ~ 0	0.2	0.6	1.1	1.4	1.4	1.8	2.2	3.1	3.2	4.6	6.1	-
0 ~ 20	0.5	0.8	1.4	1.6	1.7	2.1	2.4	3.5	3.6	4.9	6.5	-
20 ~ 40	0.8	1.0	1.7	1.9	1.9	2.3	2.7	3.6	3.8	5.2	6.8	-
40 ~ 60	0.9	1.2	1.8	2.1	2.1	2.5	2.9	3.9	4.1	5.4	7.0	-
60 ~ 80	1.0	1.4	2.0	2.2	2.3	2.7	3.1	4.0	4.2	5.5	7.2	-
80 ~ 100	1.1	1.4	2.0	2.2	2.3	2.8	3.2	4.1	4.3	5.6	7.3	-
100 ~ 120	1.1	1.4	2.0	2.2	2.3	2.7	3.2	4.2	4.3	5.7	7.4	-
120 ~ 140	1.0	1.3	2.0	2.1	2.2	2.7	3.1	4.1	4.2	5.6	7.3	-
140 ~ 160	0.8	1.1	1.8	2.1	2.1	2.5	3.0	3.9	4.1	5.5	7.2	-
160 ~ 180	0.6	0.9	1.6	1.8	1.9	2.3	2.7	3.7	3.8	5.2	6.9	-

OHARA Copyright© OHARA INC. All Rights Reserved.

※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.