S-TIL 6

Code(d) **532489**
Code(e) **534485**

Refractive Index n_d	**1.531 72** 1.531 717	Abbe Number ν_d	**48.84**	Dispersion $n_F - n_C$	**0.010 887**
Refractive Index n_e	1.534 304	Abbe Number ν_e	48.55	Dispersion $n_{F'} - n_{C'}$	0.011 006

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.502 92
n_{1970}	1.970 09	1.507 97
n_{1530}	1.529 58	1.513 42
n_{1129}	1.128 64	1.518 29
n_t	1.013 98	1.519 93
n_s	0.852 11	1.522 80
$n_{A'}$	0.768 19	1.524 79
n_r	0.706 52	1.526 62
n_C	0.656 27	1.528 46
$n_{C'}$	0.643 85	1.528 97
$n_{He\text{-}Ne}$	0.632 8	1.529 46
n_D	0.589 29	1.531 62
n_d	0.587 56	1.531 72
n_e	0.546 07	1.534 30
n_F	0.486 13	1.539 34
$n_{F'}$	0.479 99	1.539 98
$n_{He\text{-}Cd}$	0.441 57	1.544 65
n_g	0.435 835	1.545 47
n_h	0.404 656	1.550 69
n_i	0.365 015	1.559 89

Constants of Dispersion Formula	
A_1	1.177 017 77E+00
A_2	1.279 580 30E-01
A_3	1.347 401 24E+00
B_1	7.710 876 86E-03
B_2	4.113 253 28E-02
B_3	1.545 316 92E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	2～3
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E (GPa)	64.8	
Rigidity Modulus G (GPa)	28.3	
Poisson's Ratio σ	0.146	
Knoop Hardness Hk[Class]	490	5
Abrasion Aa	121	

Partial Dispersions	
$n_C - n_t$	0.008 529
$n_C - n_{A'}$	0.003 667
$n_d - n_C$	0.003 261
$n_e - n_C$	0.005 848
$n_g - n_d$	0.013 756
$n_g - n_F$	0.006 130
$n_h - n_g$	0.005 216
$n_i - n_g$	0.014 418
$n_{C'} - n_t$	0.009 045
$n_e - n_{C'}$	0.005 332
$n_{F'} - n_e$	0.005 674
$n_i - n_{F'}$	0.019 913

Relative Partial Dispersions	
$\theta_{C,t}$	0.783 4
$\theta_{C,A'}$	0.336 8
$\theta_{d,C}$	0.299 5
$\theta_{e,C}$	0.537 2
$\theta_{g,d}$	1.263 5
$\theta_{g,F}$	0.563 1
$\theta_{h,g}$	0.479 1
$\theta_{i,g}$	1.324 3
$\theta'_{C',t}$	0.821 8
$\theta'_{e,C'}$	0.484 5
$\theta'_{F',e}$	0.515 5
$\theta'_{i,F'}$	1.809 3

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.007 6
$\Delta\theta_{C,A'}$	0.001 7
$\Delta\theta_{g,d}$	0.000 2
$\Delta\theta_{g,F}$	0.000 7
$\Delta\theta_{i,g}$	0.008 2

Coloring			
λ_{80}	365	λ_5	335
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	364	$\lambda_{0.05}$	339

CCI		
B	G	R
0.00	0.28	0.24

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	0.07
350	0.44
360	0.74
370	0.88
380	0.948
390	0.973
400	0.985
420	0.990
440	0.989
460	0.990
480	0.991
500	0.993
550	0.994
600	0.994
650	0.992
700	0.996
800	0.998
900	0.997
1 000	0.997
1 200	0.996
1 400	0.995
1 600	0.993
1 800	0.977
2 000	0.947
2 200	0.89
2 400	0.85

Thermal Properties		
Strain Point StP (℃)		438
Annealing Point AP (℃)		468
Transformation Temperature Tg (℃)		478
Yield Point At (℃)		552
Softening Point SP (℃)		648
Expansion Coefficients	(-30 ℃ ~ 70 ℃)	83
α_l (10^{-7} K^{-1})	(100 ℃ ~ 300 ℃)	101
Thermal Conductivity λ (W/(m·K))		1.06

Linear coefficient of thermal expansion	
Temperature range (℃)	α_l (10^{-7} K^{-1})
-100 ～ -90	67
-90 ～ -80	69
-80 ～ -70	71
-70 ～ -60	72
-60 ～ -50	74
-50 ～ -40	75
-40 ～ -30	77
-30 ～ -20	78
-20 ～ -10	80
-10 ～ 0	81
0 ～ 10	83
10 ～ 20	84
20 ～ 30	85
30 ～ 40	87
40 ～ 50	88
50 ～ 60	89
60 ～ 70	90
70 ～ 80	91
80 ～ 90	92
90 ～ 100	93
100 ～ 110	94
110 ～ 120	95
120 ～ 130	96
130 ～ 140	97
140 ～ 150	98
150 ～ 160	98
160 ～ 170	99
170 ～ 180	100
180 ～ 190	100
190 ～ 200	101
200 ～ 210	102
210 ～ 220	102
220 ～ 230	103
230 ～ 240	103
240 ～ 250	103
250 ～ 260	104
260 ～ 270	104
270 ～ 280	104
280 ～ 290	105
290 ～ 300	105

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.81
Specific Gravity *d*	2.50
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	1.0	1.1	1.4	1.5	1.5	1.7	1.8	2.1	2.1	2.5	3.0	3.8
-60 ~ -40	0.8	0.9	1.3	1.4	1.4	1.5	1.7	2.0	2.0	2.4	2.8	3.8
-40 ~ -20	0.7	0.8	1.2	1.3	1.3	1.5	1.6	1.9	2.0	2.4	2.8	3.8
-20 ~ 0	0.7	0.8	1.2	1.3	1.3	1.5	1.6	2.0	2.0	2.4	2.9	3.9
0 ~ 20	0.7	0.9	1.2	1.3	1.3	1.4	1.6	2.0	2.0	2.6	3.0	4.0
20 ~ 40	0.8	0.9	1.2	1.3	1.3	1.5	1.7	2.2	2.2	2.7	3.1	4.1
40 ~ 60	0.9	1.0	1.3	1.4	1.5	1.7	1.8	2.2	2.3	2.7	3.2	4.3
60 ~ 80	0.8	1.0	1.3	1.4	1.5	1.7	2.0	2.3	2.4	2.9	3.4	4.5
80 ~ 100	0.9	1.1	1.4	1.5	1.6	1.8	1.9	2.4	2.4	3.0	3.6	4.6
100 ~ 120	0.9	1.1	1.5	1.6	1.6	1.8	2.0	2.4	2.5	3.1	3.7	4.8
120 ~ 140	1.0	1.1	1.6	1.6	1.7	2.0	2.2	2.6	2.7	3.2	3.8	4.9
140 ~ 160	1.0	1.2	1.6	1.7	1.8	2.0	2.2	2.6	2.7	3.2	3.8	5.0
160 ~ 180	1.0	1.2	1.6	1.7	1.8	2.0	2.2	2.7	2.7	3.3	3.9	5.1

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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.