S-TIM 2

Code(d) **620363**
Code(e) **624360**

Refractive Index n_d	**1.620 04** 1.620 041	Abbe Number ν_d	**36.26**	Dispersion $n_F - n_C$	**0.017 099**
Refractive Index n_e	1.624 088	Abbe Number ν_e	35.99	Dispersion $n_{F'} - n_{C'}$	0.017 339

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.582 40
n_{1970}	1.970 09	1.588 06
n_{1530}	1.529 58	1.594 35
n_{1129}	1.128 64	1.600 41
n_t	1.013 98	1.602 60
n_s	0.852 11	1.606 63
$n_{A'}$	0.768 19	1.609 52
n_r	0.706 52	1.612 25
n_C	0.656 27	1.615 02
$n_{C'}$	0.643 85	1.615 81
$n_{He\text{-}Ne}$	0.632 8	1.616 55
n_D	0.589 29	1.619 89
n_d	0.587 56	1.620 04
n_e	0.546 07	1.624 09
n_F	0.486 13	1.632 12
$n_{F'}$	0.479 99	1.633 15
$n_{He\text{-}Cd}$	0.441 57	1.640 81
n_g	0.435 835	1.642 18
n_h	0.404 656	1.651 00
n_i	0.365 015	1.667 28

Constants of Dispersion Formula	
A_1	1.421 938 46E+00
A_2	1.338 279 68E-01
A_3	1.450 605 74E+00
B_1	1.072 915 11E-02
B_2	5.725 875 46E-02
B_3	1.453 818 05E+02

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

Mechanical Properties		
Young's Modulus E (GPa)	77.6	
Rigidity Modulus G (GPa)	31.5	
Poisson's Ratio σ	0.230	
Knoop Hardness Hk[Class]	540	5
Abrasion Aa	141	

Partial Dispersions	
$n_C - n_t$	0.012 426
$n_C - n_{A'}$	0.005 500
$n_d - n_C$	0.005 017
$n_e - n_C$	0.009 064
$n_g - n_d$	0.022 135
$n_g - n_F$	0.010 053
$n_h - n_g$	0.008 822
$n_i - n_g$	0.025 105
$n_{C'} - n_t$	0.013 213
$n_e - n_{C'}$	0.008 277
$n_{F'} - n_e$	0.009 062
$n_i - n_{F'}$	0.034 131

Relative Partial Dispersions	
$\theta_{C,t}$	0.726 7
$\theta_{C,A'}$	0.321 7
$\theta_{d,C}$	0.293 4
$\theta_{e,C}$	0.530 1
$\theta_{g,d}$	1.294 5
$\theta_{g,F}$	0.587 9
$\theta_{h,g}$	0.515 9
$\theta_{i,g}$	1.468 2
$\theta'_{C',t}$	0.762 0
$\theta'_{e,C'}$	0.477 4
$\theta'_{F',e}$	0.522 6
$\theta'_{i,F'}$	1.968 5

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.009 9
$\Delta\theta_{C,A'}$	0.001 9
$\Delta\theta_{g,d}$	0.005 1
$\Delta\theta_{g,F}$	0.005 1
$\Delta\theta_{i,g}$	0.046 8

Coloring			
λ_{80}	390	λ_5	355
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	385	$\lambda_{0.05}$	359

CCI		
B	G	R
0.00	1.20	1.19

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	
360	0.08
370	0.44
380	0.73
390	0.87
400	0.942
420	0.978
440	0.987
460	0.990
480	0.992
500	0.994
550	0.997
600	0.997
650	0.996
700	0.997
800	0.999
900	0.999
1 000	0.999
1 200	0.999
1 400	0.995
1 600	0.995
1 800	0.984
2 000	0.971
2 200	0.930
2 400	0.914

Thermal Properties		
Strain Point StP (°C)		551
Annealing Point AP (°C)		576
Transformation Temperature Tg (°C)		599
Yield Point At (°C)		640
Softening Point SP (°C)		703
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	84
	(100 °C ~ 300 °C)	101
Thermal Conductivity λ (W/(m·K))		1.04

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	65
-90 ~ -80	67
-80 ~ -70	69
-70 ~ -60	71
-60 ~ -50	73
-50 ~ -40	75
-40 ~ -30	76
-30 ~ -20	78
-20 ~ -10	79
-10 ~ 0	81
0 ~ 10	83
10 ~ 20	84
20 ~ 30	85
30 ~ 40	87
40 ~ 50	88
50 ~ 60	89
60 ~ 70	91
70 ~ 80	92
80 ~ 90	93
90 ~ 100	94
100 ~ 110	95
110 ~ 120	96
120 ~ 130	97
130 ~ 140	98
140 ~ 150	99
150 ~ 160	99
160 ~ 170	100
170 ~ 180	101
180 ~ 190	101
190 ~ 200	102
200 ~ 210	102
210 ~ 220	103
220 ~ 230	103
230 ~ 240	104
240 ~ 250	104
250 ~ 260	104
260 ~ 270	104
270 ~ 280	105
280 ~ 290	105
290 ~ 300	105

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.86
Specific Gravity d	2.69
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	1.0	1.2	1.6	1.7	1.7	1.9	2.2	2.7	2.8	3.5	4.3	6.1
-60 ~ -40	0.9	1.0	1.5	1.6	1.7	1.9	2.1	2.7	2.8	3.5	4.3	6.3
-40 ~ -20	0.8	1.0	1.5	1.6	1.7	1.9	2.1	2.7	2.8	3.6	4.4	6.4
-20 ~ 0	0.9	1.1	1.6	1.7	1.8	2.0	2.2	2.8	2.9	3.7	4.5	6.7
0 ~ 20	1.0	1.2	1.6	1.7	1.8	2.0	2.3	2.9	3.0	3.9	4.8	7.0
20 ~ 40	1.0	1.2	1.7	1.9	1.9	2.2	2.4	3.1	3.2	4.1	5.0	7.3
40 ~ 60	1.1	1.3	1.8	1.9	2.0	2.3	2.6	3.3	3.4	4.2	5.2	7.6
60 ~ 80	1.2	1.4	1.9	2.1	2.1	2.4	2.7	3.4	3.5	4.4	5.4	7.9
80 ~ 100	1.2	1.5	2.0	2.1	2.2	2.5	2.8	3.5	3.6	4.5	5.6	8.1
100 ~ 120	1.3	1.5	2.0	2.2	2.3	2.6	2.9	3.6	3.7	4.7	5.8	8.4
120 ~ 140	1.3	1.5	2.1	2.2	2.3	2.6	3.0	3.7	3.8	4.8	6.0	8.7
140 ~ 160	1.2	1.5	2.0	2.2	2.3	2.6	3.0	3.7	3.8	4.9	6.1	8.9
160 ~ 180	1.1	1.4	2.1	2.3	2.4	2.7	3.0	3.8	3.9	5.0	6.2	9.1

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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.