S-TIM35

Code(d) **699301**
Code(e) **704299**

Refractive Index n_d	**1.698 95** 1.698 947	Abbe Number ν_d	**30.13**	Dispersion $n_F - n_C$	**0.023 199**
Refractive Index n_e	1.704 424	Abbe Number ν_e	29.89	Dispersion $n_{F'} - n_{C'}$	0.023 567

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.652 83
n_{1970}	1.970 09	1.659 05
n_{1530}	1.529 58	1.666 15
n_{1129}	1.128 64	1.673 35
n_t	1.013 98	1.676 06
n_s	0.852 11	1.681 20
$n_{A'}$	0.768 19	1.684 96
n_r	0.706 52	1.688 54
n_C	0.656 27	1.692 22
$n_{C'}$	0.643 85	1.693 27
$n_{He\text{-}Ne}$	0.632 8	1.694 26
n_D	0.589 29	1.698 75
n_d	0.587 56	1.698 95
n_e	0.546 07	1.704 42
n_F	0.486 13	1.715 42
$n_{F'}$	0.479 99	1.716 84
$n_{He\text{-}Cd}$	0.441 57	1.727 50
n_g	0.435 835	1.729 41
n_h	0.404 656	1.741 89
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	1.558 497 75E+00
A_2	2.307 670 07E-01
A_3	1.844 360 99E+00
B_1	1.153 672 35E-02
B_2	5.860 959 47E-02
B_3	1.629 818 88E+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)	87.5	
Rigidity Modulus G (GPa)	35.3	
Poisson's Ratio σ	0.238	
Knoop Hardness Hk[Class]	550	6
Abrasion Aa	142	

Partial Dispersions	
$n_C - n_t$	0.016 161
$n_C - n_{A'}$	0.007 266
$n_d - n_C$	0.006 722
$n_e - n_C$	0.012 199
$n_g - n_d$	0.030 465
$n_g - n_F$	0.013 988
$n_h - n_g$	0.012 478
$n_i - n_g$	
$n_{C'} - n_t$	0.017 210
$n_e - n_{C'}$	0.011 150
$n_{F'} - n_e$	0.012 417
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.696 6
$\theta_{C,A'}$	0.313 2
$\theta_{d,C}$	0.289 8
$\theta_{e,C}$	0.525 8
$\theta_{g,d}$	1.313 2
$\theta_{g,F}$	0.603 0
$\theta_{h,g}$	0.537 9
$\theta_{i,g}$	
$\theta'_{C',t}$	0.730 3
$\theta'_{e,C'}$	0.473 1
$\theta'_{F',e}$	0.526 9
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.008 6
$\Delta\theta_{C,A'}$	0.000 8
$\Delta\theta_{g,d}$	0.011 1
$\Delta\theta_{g,F}$	0.010 3
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}	400	λ_5	360
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	397	$\lambda_{0.05}$	367

CCI		
B	G	R
0.00	2.94	2.98

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	0.14
380	0.48
390	0.72
400	0.84
420	0.939
440	0.964
460	0.974
480	0.981
500	0.986
550	0.994
600	0.994
650	0.993
700	0.995
800	0.998
900	0.999
1 000	0.999
1 200	0.999
1 400	0.995
1 600	0.995
1 800	0.988
2 000	0.980
2 200	0.942
2 400	0.931

Thermal Properties		
Strain Point StP (°C)		579
Annealing Point AP (°C)		603
Transformation Temperature Tg (°C)		625
Yield Point At (°C)		665
Softening Point SP (°C)		716
Expansion Coefficients	(-30 ℃ ~ 70 ℃)	77
α_l (10^{-7} K^{-1})	(100 °C ~ 300 °C)	94
Thermal Conductivity λ (W/(m·K))		1.05

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ～ -90	63
-90 ～ -80	64
-80 ～ -70	65
-70 ～ -60	67
-60 ～ -50	68
-50 ～ -40	69
-40 ～ -30	71
-30 ～ -20	72
-20 ～ -10	73
-10 ～ 0	74
0 ～ 10	75
10 ～ 20	77
20 ～ 30	78
30 ～ 40	79
40 ～ 50	80
50 ～ 60	81
60 ～ 70	82
70 ～ 80	83
80 ～ 90	84
90 ～ 100	85
100 ～ 110	86
110 ～ 120	87
120 ～ 130	88
130 ～ 140	89
140 ～ 150	90
150 ～ 160	91
160 ～ 170	92
170 ～ 180	92
180 ～ 190	93
190 ～ 200	94
200 ～ 210	95
210 ～ 220	95
220 ～ 230	96
230 ～ 240	97
240 ～ 250	97
250 ～ 260	98
260 ～ 270	99
270 ～ 280	99
280 ～ 290	100
290 ～ 300	100

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	3.04
Specific Gravity *d*	2.96
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	1.1	1.3	1.8	2.0	2.0	2.3	2.6	3.3	3.4	4.4	5.6	-
-60 ~ -40	1.0	1.3	1.7	1.9	2.0	2.2	2.7	3.4	3.5	4.5	5.8	-
-40 ~ -20	1.0	1.3	1.8	2.0	2.1	2.4	2.7	3.5	3.7	4.7	6.0	-
-20 ~ 0	1.1	1.4	2.0	2.2	2.2	2.6	2.9	3.7	3.8	4.9	6.4	-
0 ~ 20	1.2	1.5	2.1	2.3	2.4	2.7	3.1	3.9	4.0	5.3	6.7	-
20 ~ 40	1.3	1.6	2.3	2.5	2.6	2.9	3.3	4.2	4.3	5.6	7.0	-
40 ~ 60	1.5	1.8	2.4	2.7	2.7	3.1	3.5	4.4	4.6	5.8	7.5	-
60 ~ 80	1.6	1.9	2.5	2.8	2.8	3.3	3.8	4.7	4.9	6.2	7.8	-
80 ~ 100	1.7	2.0	2.7	2.9	3.0	3.4	3.9	5.0	5.1	6.5	8.2	-
100 ~ 120	1.8	2.1	2.8	3.1	3.1	3.6	4.0	5.1	5.2	6.8	8.5	-
120 ~ 140	1.8	2.1	2.9	3.2	3.2	3.7	4.2	5.2	5.5	7.0	8.8	-
140 ~ 160	1.8	2.2	3.0	3.3	3.4	3.9	4.3	5.5	5.6	7.2	9.1	-
160 ~ 180	1.9	2.2	3.0	3.3	3.4	3.9	4.4	5.5	5.7	7.3	9.3	-

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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.