S-LAH95

Code(d) **904313**
Code(e) **910311**

Refractive Index n_d	**1.903 66** 1.903 660	Abbe Number ν_d	**31.34**	Dispersion $n_F - n_C$	**0.028 832**
Refractive Index n_e	1.910 476	Abbe Number ν_e	31.10	Dispersion $n_{F'} - n_{C'}$	0.029 272

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.848 25
n_{1970}	1.970 09	1.855 30
n_{1530}	1.529 58	1.863 42
n_{1129}	1.128 64	1.871 94
n_t	1.013 98	1.875 23
n_s	0.852 11	1.881 55
$n_{A'}$	0.768 19	1.886 22
n_r	0.706 52	1.890 68
n_C	0.656 27	1.895 28
$n_{C'}$	0.643 85	1.896 59
$n_{He\text{-}Ne}$	0.632 8	1.897 82
n_D	0.589 29	1.903 41
n_d	0.587 56	1.903 66
n_e	0.546 07	1.910 48
n_F	0.486 13	1.924 11
$n_{F'}$	0.479 99	1.925 86
$n_{He\text{-}Cd}$	0.441 57	1.938 96
n_g	0.435 835	1.941 30
n_h	0.404 656	1.956 48
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	2.156 366 17E+00
A_2	3.295 581 78E-01
A_3	1.721 789 35E+00
B_1	1.228 805 10E-02
B_2	5.555 078 35E-02
B_3	1.244 393 40E+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	4.0
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E (GPa)	117.7	
Rigidity Modulus G (GPa)	45.2	
Poisson's Ratio σ	0.302	
Knoop Hardness Hk[Class]	660	7
Abrasion Aa	85	

Partial Dispersions	
$n_C - n_t$	0.020 047
$n_C - n_{A'}$	0.009 057
$n_d - n_C$	0.008 383
$n_e - n_C$	0.015 199
$n_g - n_d$	0.037 641
$n_g - n_F$	0.017 192
$n_h - n_g$	0.015 178
$n_i - n_g$	
$n_{C'} - n_t$	0.021 356
$n_e - n_{C'}$	0.013 890
$n_{F'} - n_e$	0.015 382
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.695 3
$\theta_{C,A'}$	0.314 1
$\theta_{d,C}$	0.290 8
$\theta_{e,C}$	0.527 2
$\theta_{g,d}$	1.305 5
$\theta_{g,F}$	0.596 3
$\theta_{h,g}$	0.526 4
$\theta_{i,g}$	
$\theta'_{C,t}$	0.729 6
$\theta'_{e,C'}$	0.474 5
$\theta'_{F,e}$	0.525 5
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.001 6
$\Delta\theta_{C,A'}$	0.000 3
$\Delta\theta_{g,d}$	0.005 9
$\Delta\theta_{g,F}$	0.005 5
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}		λ_5	360
λ_{70}	410		

Internal transmission			
$\lambda_{0.80}$	400	$\lambda_{0.05}$	360

CCI		
B	G	R
0.00	4.11	4.35

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	
360	0.06
370	0.31
380	0.56
390	0.71
400	0.80
420	0.89
440	0.934
460	0.956
480	0.970
500	0.980
550	0.992
600	0.995
650	0.996
700	0.997
800	0.998
900	0.998
1 000	0.998
1 200	0.999
1 400	0.997
1 600	0.995
1 800	0.988
2 000	0.972
2 200	0.933
2 400	0.81

Thermal Properties		
Strain Point StP (℃)		615
Annealing Point AP (℃)		638
Transformation Temperature Tg (℃)		650
Yield Point At (℃)		686
Softening Point SP (℃)		713
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	73
	(100 ℃ ~ 300 ℃)	87
Thermal Conductivity λ (W/(m·K))		0.861

Linear coefficient of thermal expansion	
Temperature range (℃)	α_l (10^{-7} K^{-1})
-100 ~ -90	59
-90 ~ -80	60
-80 ~ -70	62
-70 ~ -60	63
-60 ~ -50	64
-50 ~ -40	65
-40 ~ -30	66
-30 ~ -20	68
-20 ~ -10	69
-10 ~ 0	70
0 ~ 10	71
10 ~ 20	72
20 ~ 30	73
30 ~ 40	74
40 ~ 50	75
50 ~ 60	76
60 ~ 70	77
70 ~ 80	78
80 ~ 90	79
90 ~ 100	80
100 ~ 110	81
110 ~ 120	81
120 ~ 130	82
130 ~ 140	83
140 ~ 150	84
150 ~ 160	85
160 ~ 170	85
170 ~ 180	86
180 ~ 190	87
190 ~ 200	87
200 ~ 210	88
210 ~ 220	89
220 ~ 230	89
230 ~ 240	90
240 ~ 250	90
250 ~ 260	91
260 ~ 270	91
270 ~ 280	92
280 ~ 290	92
290 ~ 300	93

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	1.43
Specific Gravity *d*	4.64
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	1.4	1.6	2.4	2.6	2.6	3.0	3.4	4.3	4.5	5.6	7.1	-
-60 ~ -40	1.4	1.7	2.4	2.7	2.8	3.1	3.5	4.4	4.6	5.9	7.3	-
-40 ~ -20	1.5	1.9	2.6	2.8	2.9	3.3	3.7	4.7	4.8	6.2	7.7	-
-20 ~ 0	1.7	2.0	2.8	3.1	3.1	3.6	4.0	5.1	5.2	6.6	8.1	-
0 ~ 20	1.9	2.3	3.1	3.3	3.4	3.8	4.3	5.3	5.5	7.0	8.6	-
20 ~ 40	2.1	2.5	3.2	3.6	3.7	4.1	4.6	5.7	5.8	7.3	9.0	-
40 ~ 60	2.3	2.7	3.5	3.7	3.9	4.4	4.9	6.0	6.1	7.6	9.4	-
60 ~ 80	2.4	2.9	3.7	4.0	4.1	4.6	5.1	6.2	6.4	8.0	9.9	-
80 ~ 100	2.6	3.0	3.8	4.1	4.3	4.8	5.4	6.5	6.7	8.3	10.2	-
100 ~ 120	2.7	3.1	4.0	4.3	4.4	4.9	5.5	6.8	6.9	8.6	10.5	-
120 ~ 140	2.7	3.2	4.1	4.4	4.5	5.0	5.6	6.9	7.1	8.8	10.8	-
140 ~ 160	2.7	3.2	4.1	4.4	4.5	5.1	5.8	7.0	7.2	9.0	11.0	-
160 ~ 180	2.8	3.2	4.2	4.5	4.6	5.2	5.8	7.1	7.3	9.1	11.1	-

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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.