S-NBH58

Code(d) **789284**
Code(e) **795282**

Refractive Index n_d	**1.788 80** 1.788 800	Abbe Number ν_d	**28.43**	Dispersion $n_F - n_C$	**0.027 747**
Refractive Index n_e	1.795 354	Abbe Number ν_e	28.22	Dispersion $n_{F'} - n_{C'}$	0.028 184

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.734 59
n_{1970}	1.970 09	1.741 70
n_{1530}	1.529 58	1.749 87
n_{1129}	1.128 64	1.758 29
n_t	1.013 98	1.761 49
n_s	0.852 11	1.767 59
$n_{A'}$	0.768 19	1.772 07
n_r	0.706 52	1.776 35
n_C	0.656 27	1.780 76
$n_{C'}$	0.643 85	1.782 01
$n_{He\text{-}Ne}$	0.632 8	1.783 19
n_D	0.589 29	1.788 56
n_d	0.587 56	1.788 80
n_e	0.546 07	1.795 35
n_F	0.486 13	1.808 50
$n_{F'}$	0.479 99	1.810 20
$n_{He\text{-}Cd}$	0.441 57	1.822 90
n_g	0.435 835	1.825 18
n_h	0.404 656	1.839 97
n_i	0.365 015	

Constants of Dispersion Formula	
A_1	1.714 082 19E+00
A_2	3.629 661 67E-01
A_3	2.564 862 66E+00
B_1	1.168 127 75E-02
B_2	5.408 473 47E-02
B_3	1.887 857 00E+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)	105.1	
Rigidity Modulus G (GPa)	42.3	
Poisson's Ratio σ	0.244	
Knoop Hardness Hk[Class]	610	6
Abrasion Aa	131	

Partial Dispersions	
$n_C - n_t$	0.019 265
$n_C - n_{A'}$	0.008 684
$n_d - n_C$	0.008 043
$n_e - n_C$	0.014 597
$n_g - n_d$	0.036 376
$n_g - n_F$	0.016 672
$n_h - n_g$	0.014 799
$n_i - n_g$	
$n_{C'} - n_t$	0.020 520
$n_e - n_{C'}$	0.013 342
$n_{F'} - n_e$	0.014 842
$n_i - n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.694 3
$\theta_{C,A'}$	0.313 0
$\theta_{d,C}$	0.289 9
$\theta_{e,C}$	0.526 1
$\theta_{g,d}$	1.311 0
$\theta_{g,F}$	0.600 9
$\theta_{h,g}$	0.533 4
$\theta_{i,g}$	
$\theta'_{C,t}$	0.728 1
$\theta'_{e,C'}$	0.473 4
$\theta'_{F',e}$	0.526 6
$\theta'_{i,F'}$	

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.014 2
$\Delta\theta_{C,A'}$	0.002 7
$\Delta\theta_{g,d}$	0.005 3
$\Delta\theta_{g,F}$	0.005 4
$\Delta\theta_{i,g}$	

Coloring			
λ_{80}	410	λ_5	345
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	376	$\lambda_{0.05}$	344

CCI		
B	G	R
0.00	1.27	1.35

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	0.14
360	0.48
370	0.73
380	0.85
390	0.907
400	0.936
420	0.966
440	0.979
460	0.985
480	0.989
500	0.992
550	0.997
600	0.998
650	0.998
700	0.999
800	0.999
900	0.999
1 000	0.999
1 200	0.999
1 400	0.997
1 600	0.996
1 800	0.992
2 000	0.987
2 200	0.965
2 400	0.946

Thermal Properties		
Strain Point StP (°C)		515
Annealing Point AP (°C)		540
Transformation Temperature Tg (°C)		558
Yield Point At (°C)		599
Softening Point SP (°C)		652
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	76
	(100 °C ~ 300 °C)	98
Thermal Conductivity λ (W/(m·K))		1.13

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	56
-90 ~ -80	58
-80 ~ -70	60
-70 ~ -60	62
-60 ~ -50	64
-50 ~ -40	65
-40 ~ -30	67
-30 ~ -20	69
-20 ~ -10	70
-10 ~ 0	72
0 ~ 10	74
10 ~ 20	75
20 ~ 30	77
30 ~ 40	78
40 ~ 50	80
50 ~ 60	81
60 ~ 70	83
70 ~ 80	84
80 ~ 90	85
90 ~ 100	87
100 ~ 110	88
110 ~ 120	89
120 ~ 130	90
130 ~ 140	92
140 ~ 150	93
150 ~ 160	94
160 ~ 170	95
170 ~ 180	96
180 ~ 190	97
190 ~ 200	98
200 ~ 210	99
210 ~ 220	100
220 ~ 230	101
230 ~ 240	101
240 ~ 250	102
250 ~ 260	103
260 ~ 270	104
270 ~ 280	104
280 ~ 290	105
290 ~ 300	106

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	3.15
Specific Gravity d	3.33
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	1.9	2.1	2.7	2.9	3.0	3.3	3.7	4.5	4.7	5.7	7.1	-
-60 ~ -40	1.9	2.1	2.8	3.0	3.1	3.4	3.8	4.6	4.7	6.0	7.3	-
-40 ~ -20	1.9	2.3	2.9	3.1	3.2	3.5	3.9	4.9	5.0	6.2	7.6	-
-20 ~ 0	2.1	2.4	3.1	3.3	3.4	3.8	4.2	5.1	5.2	6.5	8.1	-
0 ~ 20	2.2	2.5	3.3	3.5	3.6	4.0	4.4	5.4	5.5	6.9	8.5	-
20 ~ 40	2.3	2.6	3.3	3.6	3.8	4.2	4.6	5.6	5.8	7.2	8.8	-
40 ~ 60	2.3	2.7	3.6	3.8	3.9	4.3	4.8	5.9	6.0	7.5	9.2	-
60 ~ 80	2.5	2.8	3.6	3.9	4.0	4.4	4.9	6.0	6.2	7.8	9.6	-
80 ~ 100	2.5	2.8	3.7	4.0	4.1	4.6	5.1	6.2	6.4	7.9	9.8	-
100 ~ 120	2.4	2.8	3.7	4.0	4.1	4.6	5.2	6.3	6.5	8.1	10.0	-
120 ~ 140	2.3	2.8	3.7	4.0	4.1	4.6	5.2	6.4	6.6	8.3	10.2	-
140 ~ 160	2.3	2.7	3.6	3.9	4.0	4.6	5.1	6.4	6.6	8.3	10.4	-
160 ~ 180	2.1	2.5	3.4	3.8	3.9	4.4	5.0	6.3	6.5	8.3	10.3	-

※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.