

# S-NBH51

Code(d) **750353**

Code(e) **755351**

Refractive Index $n_d$	1.74950 1.749505	Abbe Number $\nu_d$	35.33	Dispersion $n_F-n_C$	0.021214
Refractive Index $n_e$	1.754531	Abbe Number $\nu_e$	35.10	Dispersion $n_F-n_{C'}$	0.021498

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.70260
$n_{1970}$	1.97009	1.70965
$n_{1530}$	1.52958	1.71748
$n_{1129}$	1.12864	1.72503
$n_t$	1.01398	1.72776
$n_s$	0.85211	1.73279
$n_{A'}$	0.76819	1.73640
$n_f$	0.70652	1.73980
$n_C$	0.65627	1.74326
$n_{C'}$	0.64385	1.74424
$n_{\text{He-Ne}}$	0.6328	1.74516
$n_D$	0.58929	1.74932
$n_d$	0.58756	1.74950
$n_e$	0.54607	1.75453
$n_F$	0.48613	1.76447
$n_{F'}$	0.47999	1.76574
$n_{\text{He-Cd}}$	0.44157	1.77515
$n_g$	0.435835	1.77681
$n_h$	0.404656	1.78753
$n_i$	0.365015	1.80695

Constants of Dispersion Formula	
$A_1$	1.71203689E+00
$A_2$	2.55989588E-01
$A_3$	1.81456998E+00
$B_1$	1.07724134E-02
$B_2$	4.88593504E-02
$B_3$	1.36359013E+02

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

Mechanical Properties	
Young's Modulus E (GPa)	109.7
Rigidity Modulus G (GPa)	43.8
Poisson's Ratio $\sigma$	0.253
Knoop Hardness Hk[Class]	610 * 6
Abrasion Aa	113

Partial Dispersions	
$n_C-n_t$	0.015503
$n_C-n_{A'}$	0.006860
$n_d-n_C$	0.006246
$n_e-n_C$	0.011272
$n_g-n_d$	0.027310
$n_g-n_F$	0.012342
$n_h-n_g$	0.010718
$n_i-n_g$	0.030139
$n_C-n_t$	0.016484
$n_e-n_{C'}$	0.010291
$n_{F'}-n_e$	0.011207
$n_i-n_{F'}$	0.041216

Relative Partial Dispersions	
$\theta_{C,t}$	0.7308
$\theta_{C,A'}$	0.3234
$\theta_{d,C}$	0.2944
$\theta_{e,C}$	0.5313
$\theta_{g,d}$	1.2874
$\theta_{g,F}$	0.5818
$\theta_{h,g}$	0.5052
$\theta_{i,g}$	1.4207
$\theta'_{C,t}$	0.7668
$\theta'_{e,C}$	0.4787
$\theta'_{F,e}$	0.5213
$\theta'_{i,F'}$	1.9172

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0184
$\Delta \theta_{C,A'}$	0.0047
$\Delta \theta_{g,d}$	-0.0039
$\Delta \theta_{g,F}$	-0.0025
$\Delta \theta_{i,g}$	-0.0085

Thermal Properties	
Strain Point StP (°C)	500
Annealing Point AP (°C)	521
Transformation Temperature Tg (°C)	535
Yield Point At (°C)	578
Softening Point SP (°C)	631
Expansion Coefficients (-30~+70°C)	73
$\alpha$ (10 <sup>-7</sup> K <sup>-1</sup> ) (+100~+300°C)	92
Thermal Conductivity $\lambda$ W/(m·K)	1.12

Coloring			
$\lambda_{80}$	400	$\lambda_5$	330
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	370	$\lambda_{0.05}$	331

CCI		
B	G	R
0.00	1.22	1.30

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	0.02
340	0.22
350	0.49
360	0.68
370	0.80
380	0.87
390	0.918
400	0.943
420	0.967
440	0.976
460	0.982
480	0.987
500	0.991
550	0.997
600	0.997
650	0.998
700	0.998
800	0.999
900	0.998
1000	0.998
1200	0.998
1400	0.995
1600	0.994
1800	0.989
2000	0.980
2200	0.945
2400	0.87

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative (10 <sup>-6</sup> K <sup>-1</sup> )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	4.1	4.9	4.9	5.2	5.5	6.3	7.1
-20~ 0	4.1	4.9	5.0	5.2	5.6	6.4	7.3
0~20	4.1	4.9	5.0	5.3	5.6	6.5	7.5
20~40	4.1	5.0	5.0	5.3	5.7	6.6	7.6
40~60	4.1	5.0	5.1	5.4	5.8	6.7	7.8
60~80	4.1	5.1	5.1	5.4	5.9	6.9	8.0

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	2.66
Specific Gravity d	3.29
Remarks	

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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.