

# S-NBH 8

Code(d) **720347**

Code(e) **725345**

Refractive Index $n_d$	<b>1.72047</b> 1.720467	Abbe Number $\nu_d$	<b>34.71</b>	Dispersion $n_F-n_C$	<b>0.020758</b>
Refractive Index $n_e$	1.725385	Abbe Number $\nu_e$	34.47	Dispersion $n_F-n_C'$	0.021042

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.67534
$n_{1970}$	1.97009	1.68198
$n_{1530}$	1.52958	1.68941
$n_{1129}$	1.12864	1.69665
$n_t$	1.01398	1.69928
$n_s$	0.85211	1.70416
$n_{A'}$	0.76819	1.70767
$n_r$	0.70652	1.71099
$n_C$	0.65627	1.71437
$n_{C'}$	0.64385	1.71532
$n_{\text{He-Ne}}$	0.6328	1.71622
$n_D$	0.58929	1.72029
$n_d$	0.58756	1.72047
$n_e$	0.54607	1.72538
$n_F$	0.48613	1.73512
$n_{F'}$	0.47999	1.73636
$n_{\text{He-Cd}}$	0.44157	1.74559
$n_g$	0.435835	1.74723
$n_h$	0.404656	1.75777
$n_i$	0.365015	1.77689

Constants of Dispersion Formula	
$A_1$	1.61344136E+00
$A_2$	2.57295888E-01
$A_3$	1.98364455E+00
$B_1$	1.06386752E-02
$B_2$	4.87071624E-02
$B_3$	1.59784404E+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 ( $10^9\text{N/m}^2$ )	1017
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	407
Poisson's Ratio $\sigma$	0.250
Knoop Hardness Hk[Class]	590   6
Abrasion Aa	153
Photoelastic Constant $\beta$ nm/(cm · $10^5\text{Pa}$ )	2.90

Partial Dispersions	
$n_C-n_t$	0.015084
$n_C-n_{A'}$	0.006690
$n_d-n_C$	0.006102
$n_e-n_C$	0.011020
$n_g-n_d$	0.026767
$n_g-n_F$	0.012111
$n_h-n_g$	0.010534
$n_i-n_g$	0.029660
$n_C-n_t$	0.016041
$n_e-n_{C'}$	0.010063
$n_F-n_e$	0.010979
$n_i-n_{F'}$	0.040530

Relative Partial Dispersions	
$\theta_{C,t}$	0.7267
$\theta_{C,A'}$	0.3223
$\theta_{d,C}$	0.2940
$\theta_{e,C}$	0.5309
$\theta_{g,d}$	1.2895
$\theta_{g,F}$	0.5834
$\theta_{h,g}$	0.5075
$\theta_{i,g}$	1.4288
$\theta'_{C,t}$	0.7623
$\theta'_{e,C'}$	0.4782
$\theta'_{F,e}$	0.5218
$\theta'_{i,F'}$	1.9261

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0172
$\Delta\theta_{C,A'}$	0.0044
$\Delta\theta_{g,d}$	-0.0031
$\Delta\theta_{g,F}$	-0.0019
$\Delta\theta_{i,g}$	-0.0056

Thermal Properties	
Strain Point StP (°C)	476
Annealing Point AP (°C)	499
Transformation Temperature Tg (°C)	508
Yield Point At (°C)	555
Softening Point SP (°C)	611
Expansion Coefficients (-30~+70°C)	81
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	100
Thermal Conductivity $\lambda$ W/(m·K)	1.05

Coloring			
$\lambda_{80}$	390	$\lambda_5$	330
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	371	$\lambda_{0.05}$	331

CCI		
B	G	R
0.00	1.38	1.48

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	0.03
340	0.24
350	0.49
360	0.67
370	0.79
380	0.86
390	0.908
400	0.936
420	0.962
440	0.972
460	0.979
480	0.984
500	0.989
550	0.996
600	0.997
650	0.997
700	0.998
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.997
1600	0.997
1800	0.992
2000	0.984
2200	0.955
2400	0.88

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.2	3.0	3.0	3.3	3.6	4.3	5.2
-20~ 0	2.2	3.0	3.1	3.4	3.7	4.5	5.4
0~20	2.2	3.1	3.1	3.4	3.8	4.6	5.5
20~40	2.2	3.1	3.2	3.5	3.9	4.7	5.7
40~60	2.3	3.2	3.3	3.6	3.9	4.9	5.9
60~80	2.4	3.3	3.3	3.6	4.0	5.0	6.1

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.19
Remarks	

OHARA 17-04

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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.