

# S-NBH57

Code(d) **850300**

Code(e) **857298**

Refractive Index $n_d$	<b>1.85025</b> 1.850250	Abbe Number $\nu_d$	<b>30.05</b>	Dispersion $n_F-n_C$	<b>0.028299</b>
Refractive Index $n_e$	1.856938	Abbe Number $\nu_e$	29.82	Dispersion $n_F-n_{C'}$	0.028738

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.79733
$n_{1970}$	1.97009	1.80374
$n_{1530}$	1.52958	1.81127
$n_{1129}$	1.12864	1.81935
$n_t$	1.01398	1.82252
$n_s$	0.85211	1.82864
$n_{A'}$	0.76819	1.83319
$n_r$	0.70652	1.83754
$n_C$	0.65627	1.84204
$n_{C'}$	0.64385	1.84332
$n_{\text{He-Ne}}$	0.6328	1.84453
$n_D$	0.58929	1.85000
$n_d$	0.58756	1.85025
$n_e$	0.54607	1.85694
$n_F$	0.48613	1.87034
$n_{F'}$	0.47999	1.87206
$n_{\text{He-Cd}}$	0.44157	1.88495
$n_g$	0.435835	1.88726
$n_h$	0.404656	1.90220
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	1.92026488E+00
$A_2$	3.71535240E-01
$A_3$	2.55205704E+00
$B_1$	1.18468028E-02
$B_2$	5.32105472E-02
$B_3$	2.04549300E+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	3.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (GPa)	111.7
Rigidity Modulus G (GPa)	43.8
Poisson's Ratio $\sigma$	0.275
Knoop Hardness Hk(Class)	580   6
Abrasion Aa	143

Partial Dispersions	
$n_C-n_t$	0.019520
$n_C-n_{A'}$	0.008849
$n_d-n_C$	0.008213
$n_e-n_C$	0.014901
$n_g-n_d$	0.037005
$n_g-n_F$	0.016919
$n_h-n_g$	0.014947
$n_i-n_g$	
$n_C-n_t$	0.020801
$n_e-n_{C'}$	0.013620
$n_{F'}-n_e$	0.015118
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6898
$\theta_{C,A'}$	0.3127
$\theta_{d,C}$	0.2902
$\theta_{e,C}$	0.5266
$\theta_{g,d}$	1.3076
$\theta_{g,F}$	0.5979
$\theta_{h,g}$	0.5282
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7238
$\theta'_{e,C'}$	0.4739
$\theta'_{F',e}$	0.5261
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0021
$\Delta\theta_{C,A'}$	0.0004
$\Delta\theta_{g,d}$	0.0053
$\Delta\theta_{g,F}$	0.0051
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	-
Annealing Point AP (°C)	-
Transformation Temperature Tg (°C)	625
Yield Point At (°C)	679
Softening Point SP (°C)	-
Expansion Coefficients (-30~+70°C)	77
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	92
Thermal Conductivity $\lambda$ W/(m·K)	0.988

Coloring			
$\lambda_{80}$		$\lambda_5$	355
$\lambda_{70}$	410		

Internal transmission			
$\lambda_{0.80}$	399	$\lambda_{0.05}$	355

CCI		
B	G	R
0.00	3.97	4.14

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	0.17
370	0.42
380	0.60
390	0.72
400	0.81
420	0.89
440	0.936
460	0.955
480	0.968
500	0.978
550	0.993
600	0.994
650	0.994
700	0.996
800	0.998
900	0.999
1000	0.999
1200	0.999
1400	0.998
1600	0.997
1800	0.992
2000	0.984
2200	0.968
2400	0.921

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} \text{K}^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.5	2.5	2.5	2.8	3.3	4.3	5.6
-20~ 0	1.5	2.5	2.6	2.9	3.4	4.5	5.9
0~20	1.4	2.5	2.6	3.0	3.4	4.7	6.1
20~40	1.4	2.6	2.6	3.0	3.5	4.8	6.3
40~60	1.5	2.7	2.7	3.1	3.7	5.0	6.6
60~80	1.6	2.8	2.9	3.3	3.9	5.3	6.9

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	1.95
Specific Gravity d	4.00
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.