

# S-NBH53V

Code(d) **738323**

Code(e) **743321**

Refractive Index $n_d$	<b>1.73800</b> 1.738000	Abbe Number $\nu_d$	<b>32.33</b>	Dispersion $n_F-n_C$	<b>0.022830</b>
Refractive Index $n_e$	1.743402	Abbe Number $\nu_e$	32.10	Dispersion $n_F-n_{C'}$	0.023159

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.69006
$n_{1970}$	1.97009	1.69688
$n_{1530}$	1.52958	1.70457
$n_{1129}$	1.12864	1.71218
$n_t$	1.01398	1.71499
$n_s$	0.85211	1.72024
$n_{A'}$	0.76819	1.72404
$n_r$	0.70652	1.72764
$n_C$	0.65627	1.73132
$n_{C'}$	0.64385	1.73237
$n_{\text{He-Ne}}$	0.6328	1.73335
$n_D$	0.58929	1.73780
$n_d$	0.58756	1.73800
$n_e$	0.54607	1.74340
$n_F$	0.48613	1.75415
$n_{F'}$	0.47999	1.75553
$n_{\text{He-Cd}}$	0.44157	1.76579
$n_g$	0.435835	1.76762
$n_h$	0.404656	1.77943
$n_i$	0.365015	1.80114

Constants of Dispersion Formula	
$A_1$	1.65444141E+00
$A_2$	2.67453927E-01
$A_3$	2.14530347E+00
$B_1$	1.12485533E-02
$B_2$	5.20272740E-02
$B_3$	1.67366100E+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 ( $10^9\text{N/m}^2$ )	1027
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	415
Poisson's Ratio $\sigma$	0.237
Knoop Hardness Hk[Class]	600   6
Abrasion Aa	126
Photoelastic Constant $\beta$ nm/(cm · $10^5\text{Pa}$ )	2.99

Partial Dispersions	
$n_C-n_t$	0.016332
$n_C-n_{A'}$	0.007282
$n_d-n_C$	0.006678
$n_e-n_C$	0.012080
$n_g-n_d$	0.029621
$n_g-n_F$	0.013469
$n_h-n_g$	0.011812
$n_i-n_g$	0.033515
$n_C-n_t$	0.017378
$n_e-n_{C'}$	0.011034
$n_F-n_e$	0.012125
$n_i-n_F$	0.045609

Relative Partial Dispersions	
$\theta_{C,t}$	0.7154
$\theta_{C,A'}$	0.3190
$\theta_{d,C}$	0.2925
$\theta_{e,C}$	0.5291
$\theta_{g,d}$	1.2975
$\theta_{g,F}$	0.5900
$\theta_{h,g}$	0.5174
$\theta_{i,g}$	1.4680
$\theta'_{C,t}$	0.7504
$\theta'_{e,C'}$	0.4764
$\theta'_{F,e}$	0.5236
$\theta'_{i,F'}$	1.9694

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0170
$\Delta\theta_{C,A'}$	0.0040
$\Delta\theta_{g,d}$	-0.0001
$\Delta\theta_{g,F}$	0.0008
$\Delta\theta_{i,g}$	0.0137

Thermal Properties	
Strain Point StP (°C)	501
Annealing Point AP (°C)	523
Transformation Temperature Tg (°C)	538
Yield Point At (°C)	582
Softening Point SP (°C)	640
Expansion Coefficients (-30~+70°C)	71
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	93
Thermal Conductivity $\lambda$ W/(m·K)	1.13

Coloring			
$\lambda_{80}$	385	$\lambda_5$	330
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	361	$\lambda_{0.05}$	331

CCI		
B	G	R
0.00	0.61	0.67

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	0.03
340	0.28
350	0.61
360	0.79
370	0.88
380	0.927
390	0.952
400	0.968
420	0.982
440	0.988
460	0.991
480	0.993
500	0.995
550	0.997
600	0.998
650	0.998
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.995
1600	0.995
1800	0.990
2000	0.984
2200	0.951
2400	0.928

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	4.0	4.8	4.8	5.1	5.5	6.3	7.3
-20~ 0	3.9	4.7	4.8	5.1	5.5	6.4	7.5
0~20	3.8	4.7	4.8	5.1	5.5	6.5	7.6
20~40	3.8	4.7	4.8	5.1	5.5	6.6	7.7
40~60	3.8	4.8	4.9	5.2	5.6	6.7	7.8
60~80	3.8	4.9	4.9	5.3	5.8	6.9	8.1

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.19
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.