

S-NBH53V

Code(d) 738323
Code(e) 743321

Refractive Index n_d	1.738 00 1.738 000	Abbe Number v_d	32.33	Dispersion $n_F - n_C$	0.022 830
Refractive Index n_e	1.743 402	Abbe Number v_e	32.10	Dispersion $n_{F'} - n_{C'}$	0.023 159

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.690 06
n_{1970}	1.970 09	1.696 88
n_{1530}	1.529 58	1.704 57
n_{1129}	1.128 64	1.712 18
n_t	1.013 98	1.714 99
n_s	0.852 11	1.720 24
$n_{A'}$	0.768 19	1.724 04
n_F	0.706 52	1.727 64
n_C	0.656 27	1.731 32
$n_{C'}$	0.643 85	1.732 37
n_{He-Ne}	0.632 8	1.733 35
n_D	0.589 29	1.737 80
n_d	0.587 56	1.738 00
n_e	0.546 07	1.743 40
n_F	0.486 13	1.754 15
$n_{F'}$	0.479 99	1.755 53
n_{He-Cd}	0.441 57	1.765 79
n_g	0.435 835	1.767 62
n_h	0.404 656	1.779 43
n_i	0.365 015	1.801 14

Constants of Dispersion Formula	
A_1	1.654 441 41E+00
A_2	2.674 539 27E-01
A_3	2.145 303 47E+00
B_1	1.124 855 33E-02
B_2	5.202 727 40E-02
B_3	1.673 661 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)	102.7
Rigidity Modulus G (GPa)	41.5
Poisson's Ratio σ	0.237
Knoop Hardness Hk[Class]	600 6
Abrasion Aa	126

Partial Dispersions	
$n_C - n_t$	0.016 332
$n_C - n_{A'}$	0.007 282
$n_d - n_C$	0.006 678
$n_e - n_C$	0.012 080
$n_g - n_d$	0.029 621
$n_g - n_F$	0.013 469
$n_h - n_g$	0.011 812
$n_i - n_g$	0.033 515
$n_{C'} - n_t$	0.017 378
$n_e - n_{C'}$	0.011 034
$n_{F'} - n_e$	0.012 125
$n_i - n_{F'}$	0.045 609

Relative Partial Dispersions	
$\theta_{C,t}$	0.715 4
$\theta_{C,A'}$	0.319 0
$\theta_{d,C}$	0.292 5
$\theta_{e,C}$	0.529 1
$\theta_{g,d}$	1.297 5
$\theta_{g,F}$	0.590 0
$\theta_{h,g}$	0.517 4
$\theta_{i,g}$	1.468 0
$\theta'_{C,t}$	0.750 4
$\theta'_{e,C'}$	0.476 4
$\theta'_{F',e}$	0.523 6
$\theta'_{i,F'}$	1.969 4

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.017 0
$\Delta\theta_{C,A'}$	0.004 0
$\Delta\theta_{g,d}$	-0.000 1
$\Delta\theta_{g,F}$	0.000 8
$\Delta\theta_{i,g}$	0.013 7

Coloring			
λ_{80}	385	λ_5	330
λ_{70}			
Internal transmission			
$\lambda_{0.80}$	361	$\lambda_{0.05}$	331
CCI			
B	G	R	
0.00	0.61	0.67	

Internal Transmittance	
λ (nm)	τ_i (10 mm)
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
1 000	0.999
1 200	0.999
1 400	0.995
1 600	0.995
1 800	0.990
2 000	0.984
2 200	0.951
2 400	0.928

Thermal Properties	
Strain Point StP (°C)	501
Annealing Point AP (°C)	523
Transformation Temperature Tg (°C)	543
Yield Point At (°C)	593
Softening Point SP (°C)	640
Expansion Coefficients (-30 °C ~ 70 °C)	74
α_i (10 ⁻⁷ K ⁻¹) (100 °C ~ 300 °C)	96
Thermal Conductivity λ (W/(m·K))	1.13

Linear coefficient of thermal expansion	
Temperature range (°C)	α_i (10 ⁻⁷ K ⁻¹)
-100 ~ -90	55
-90 ~ -80	57
-80 ~ -70	59
-70 ~ -60	61
-60 ~ -50	62
-50 ~ -40	64
-40 ~ -30	66
-30 ~ -20	67
-20 ~ -10	69
-10 ~ 0	70
0 ~ 10	72
10 ~ 20	73
20 ~ 30	75
30 ~ 40	76
40 ~ 50	78
50 ~ 60	79
60 ~ 70	80
70 ~ 80	82
80 ~ 90	83
90 ~ 100	84
100 ~ 110	86
110 ~ 120	87
120 ~ 130	88
130 ~ 140	89
140 ~ 150	90
150 ~ 160	91
160 ~ 170	92
170 ~ 180	93
180 ~ 190	95
190 ~ 200	96
200 ~ 210	97
210 ~ 220	97
220 ~ 230	98
230 ~ 240	99
240 ~ 250	100
250 ~ 260	101
260 ~ 270	102
270 ~ 280	103
280 ~ 290	103
290 ~ 300	104

Other Properties	
Photoelastic Constant β nm/(cm ³ ·105Pa)	2.99
Specific Gravity d	3.19
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	2.8	3.0	3.5	3.6	3.8	4.0	4.3	4.9	5.0	5.9	6.9	9.2
-60 ~ -40	2.7	2.9	3.5	3.7	3.7	4.0	4.3	5.1	5.2	6.0	7.0	9.5
-40 ~ -20	2.8	3.0	3.5	3.7	3.7	4.1	4.4	5.1	5.2	6.1	7.3	9.7
-20 ~ 0	2.8	3.1	3.7	3.9	3.9	4.2	4.5	5.2	5.3	6.4	7.4	10.0
0 ~ 20	3.0	3.2	3.8	4.0	4.0	4.3	4.7	5.5	5.6	6.6	7.7	10.3
20 ~ 40	3.1	3.3	3.9	4.1	4.2	4.5	4.8	5.6	5.7	6.8	8.0	10.7
40 ~ 60	3.1	3.4	4.0	4.2	4.2	4.6	4.9	5.8	5.9	7.0	8.2	11.0
60 ~ 80	3.1	3.5	4.1	4.3	4.4	4.7	5.1	5.9	6.0	7.1	8.4	11.4
80 ~ 100	3.2	3.5	4.1	4.4	4.5	4.8	5.2	6.1	6.2	7.3	8.6	11.6
100 ~ 120	3.2	3.5	4.1	4.3	4.4	4.8	5.3	6.1	6.3	7.4	8.7	11.8
120 ~ 140	3.1	3.4	4.2	4.4	4.5	4.9	5.3	6.2	6.3	7.5	8.8	12.0
140 ~ 160	3.0	3.4	4.1	4.3	4.4	4.8	5.2	6.1	6.2	7.5	8.8	12.1
160 ~ 180	2.9	3.2	3.9	4.2	4.2	4.6	5.1	6.0	6.1	7.4	8.8	12.1

OHARA 25-04