S-NBM51

Code(d) **613443**
Code(e) **617440**

Refractive Index	n_d	**1.61340** 1.613397	Abbe Number	ν_d **44.27**	Dispersion	n_F-n_C **0.013857**
Refractive Index	n_e	1.616690	Abbe Number	ν_e 44.02	Dispersion	$n_{F'}$-$n_{C'}$ 0.014008

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.57660
n_{1970}	1.97009	1.58313
n_{1530}	1.52958	1.59012
n_{1129}	1.12864	1.59633
n_t	1.01398	1.59841
n_s	0.85211	1.60206
$n_{A'}$	0.76819	1.60459
n_r	0.70652	1.60691
n_C	0.65627	1.60925
$n_{C'}$	0.64385	1.60990
n_{He-Ne}	0.6328	1.61052
n_D	0.58929	1.61328
n_d	0.58756	1.61340
n_e	0.54607	1.61669
n_F	0.48613	1.62311
$n_{F'}$	0.47999	1.62391
n_{He-Cd}	0.44157	1.62986
n_g	0.435835	1.63091
n_h	0.404656	1.63755
n_i	0.365015	1.64927

Constants of Dispersion Formula	
A_1	1.37023101E+00
A_2	1.77665568E-01
A_3	1.30515471E+00
B_1	8.71920342E-03
B_2	4.05725552E-02
B_3	1.12703058E+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)	81.7	
Rigidity Modulus G (GPa)	32.9	
Poisson's Ratio σ	0.243	
Knoop Hardness Hk[Class]	560	6
Abrasion Aa	125	

Partial Dispersions	
n_C-n_t	0.010843
n_C-$n_{A'}$	0.004663
n_d-n_C	0.004149
n_e-n_C	0.007442
n_g-n_d	0.017514
n_g-n_F	0.007806
n_h-n_g	0.006644
n_i-n_g	0.018359
n_C-n_t	0.011500
n_e-$n_{C'}$	0.006785
$n_{F'}$-n_e	0.007223
n_i-$n_{F'}$	0.025357

Relative Partial Dispersions	
$\theta_{C,t}$	0.7825
$\theta_{C,A'}$	0.3365
$\theta_{d,C}$	0.2994
$\theta_{e,C}$	0.5371
$\theta_{g,d}$	1.2639
$\theta_{g,F}$	0.5633
$\theta_{h,g}$	0.4795
$\theta_{i,g}$	1.3249
$\theta'_{C',t}$	0.8210
$\theta'_{e,C'}$	0.4844
$\theta'_{F',e}$	0.5156
$\theta'_{i,F'}$	1.8102

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	0.0281
$\Delta\theta_{C,A'}$	0.0070
$\Delta\theta_{g,d}$	-0.0089
$\Delta\theta_{g,F}$	-0.0065
$\Delta\theta_{i,g}$	-0.0294

Thermal Properties		
Strain Point StP (℃)		509
Annealing Point AP (℃)		531
Transformation Temperature Tg (℃)		554
Yield Point At (℃)		611
Softening Point SP (℃)		693
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	65
	(+100~+300℃)	78
Thermal Conductivity λ W/(m·K)		0.904

Coloring			
λ_{80}	350	λ_5	320
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	344	$\lambda_{0.05}$	319

CCI		
B	G	R
0.00	0.38	0.40

Internal Transmittance	
λ(nm)	τ 10mm
280	
290	
300	
310	
320	0.08
330	0.48
340	0.75
350	0.87
360	0.925
370	0.953
380	0.968
390	0.978
400	0.984
420	0.989
440	0.992
460	0.993
480	0.995
500	0.997
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.998
1600	0.994
1800	0.987
2000	0.972
2200	0.89
2400	0.76

Temperature Coefficients of Refractive Index							
Range of Temperature (℃)	Δn/ΔT relative ($10^{-6}$$K^{-1}$)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	3.0	3.4	3.4	3.6	3.8	4.2	4.7
-20~ 0	3.1	3.6	3.6	3.7	3.9	4.4	4.9
0~20	3.2	3.7	3.7	3.9	4.1	4.6	5.1
20~40	3.2	3.8	3.8	4.0	4.2	4.8	5.3
40~60	3.4	3.9	4.0	4.2	4.4	4.9	5.5
60~80	3.5	4.1	4.1	4.3	4.5	5.1	5.7

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	3.47
Specific Gravity d	2.93
Remarks	

OHARA 24-01

※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.