

# S-BSM71

Code(d) **649530**

Code(e) **651527**

Refractive Index $n_d$	<b>1.64850</b> 1.648498	Abbe Number $\nu_d$	<b>53.02</b>	Dispersion $n_F-n_C$	<b>0.012231</b>
Refractive Index $n_e$	1.651410	Abbe Number $\nu_e$	52.73	Dispersion $n_F-n_{C'}$	0.012353

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.61657
$n_{1970}$	1.97009	1.62205
$n_{1530}$	1.52958	1.62799
$n_{1129}$	1.12864	1.63336
$n_t$	1.01398	1.63518
$n_s$	0.85211	1.63842
$n_{A'}$	0.76819	1.64067
$n_r$	0.70652	1.64274
$n_C$	0.65627	1.64482
$n_{C'}$	0.64385	1.64540
$n_{\text{He-Ne}}$	0.6328	1.64595
$n_D$	0.58929	1.64839
$n_d$	0.58756	1.64850
$n_e$	0.54607	1.65141
$n_F$	0.48613	1.65705
$n_{F'}$	0.47999	1.65775
$n_{\text{He-Cd}}$	0.44157	1.66293
$n_g$	0.435835	1.66383
$n_h$	0.404656	1.66954
$n_i$	0.365015	1.67943

Constants of Dispersion Formula	
$A_1$	1.50847885E+00
$A_2$	1.58099826E-01
$A_3$	1.36815368E+00
$B_1$	8.12769076E-03
$B_2$	3.54200898E-02
$B_3$	1.36110038E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	2~3
Acid Resistance(Surface) Group SR	53.2
Phosphate Resistance PR	4.0

Mechanical Properties	
Young's Modulus E (GPa)	86.2
Rigidity Modulus G (GPa)	33.9
Poisson's Ratio $\sigma$	0.273
Knoop Hardness Hk(Class)	570   6
Abrasion Aa	170

Partial Dispersions	
$n_C-n_t$	0.009631
$n_C-n_{A'}$	0.004150
$n_d-n_C$	0.003683
$n_e-n_C$	0.006595
$n_g-n_d$	0.015333
$n_g-n_F$	0.006785
$n_h-n_g$	0.005706
$n_i-n_g$	0.015599
$n_C-n_t$	0.010215
$n_e-n_{C'}$	0.006011
$n_{F'}-n_e$	0.006342
$n_i-n_{F'}$	0.021678

Relative Partial Dispersions	
$\theta_{C,t}$	0.7874
$\theta_{C,A'}$	0.3393
$\theta_{d,C}$	0.3011
$\theta_{e,C}$	0.5392
$\theta_{g,d}$	1.2536
$\theta_{g,F}$	0.5547
$\theta_{h,g}$	0.4665
$\theta_{i,g}$	1.2754
$\theta'_{C,t}$	0.8269
$\theta'_{e,C'}$	0.4866
$\theta'_{F',e}$	0.5134
$\theta'_{i,F'}$	1.7549

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0080
$\Delta\theta_{C,A'}$	-0.0008
$\Delta\theta_{g,d}$	-0.0010
$\Delta\theta_{g,F}$	-0.0010
$\Delta\theta_{i,g}$	-0.0057

Thermal Properties	
Strain Point StP (°C)	607
Annealing Point AP (°C)	635
Transformation Temperature Tg (°C)	651
Yield Point At (°C)	687
Softening Point SP (°C)	737
Expansion Coefficients (-30~+70°C)	71
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	83
Thermal Conductivity $\lambda$ W/(m·K)	0.773

Coloring			
$\lambda_{80}$	375	$\lambda_5$	335
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	366	$\lambda_{0.05}$	337

CCI		
B	G	R
0.00	0.59	0.55

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	0.15
350	0.47
360	0.72
370	0.86
380	0.926
390	0.958
400	0.973
420	0.985
440	0.988
460	0.990
480	0.993
500	0.995
550	0.998
600	0.997
650	0.996
700	0.997
800	0.998
900	0.998
1000	0.997
1200	0.997
1400	0.993
1600	0.993
1800	0.985
2000	0.972
2200	0.925
2400	0.82

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	1.3	1.5	1.6	1.7	1.8	2.1	2.6
-20~ 0	1.2	1.6	1.6	1.8	1.9	2.3	2.7
0~20	1.3	1.8	1.8	1.9	2.1	2.5	3.0
20~40	1.4	2.0	2.0	2.1	2.3	2.8	3.2
40~60	1.5	2.2	2.2	2.4	2.6	3.1	3.5
60~80	1.6	2.5	2.5	2.7	2.9	3.5	3.9

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	1.81
Specific Gravity d	3.74
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.