

# S-BSM18

Code(d) **639554**

Code(e) **641551**

Refractive Index $n_d$	<b>1.63854</b> 1.638539	Abbe Number $v_d$	<b>55.4</b> 55.38	Dispersion $n_F-n_C$	<b>0.01153</b> 0.011531
Refractive Index $n_e$	1.641287	Abbe Number $v_e$	55.10	Dispersion $n_F'-n_C'$	0.011638

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.60779
$n_{1970}$	1.97009	1.61314
$n_{1530}$	1.52958	1.61892
$n_{1129}$	1.12864	1.62411
$n_t$	1.01398	1.62586
$n_s$	0.85211	1.62896
$n_{A'}$	0.76819	1.63111
$n_r$	0.70652	1.63308
$n_C$	0.65627	1.63505
$n_{C'}$	0.64385	1.63560
$n_{\text{He-Ne}}$	0.6328	1.63612
$n_D$	0.58929	1.63844
$n_d$	0.58756	1.63854
$n_e$	0.54607	1.64129
$n_F$	0.48613	1.64658
$n_{F'}$	0.47999	1.64724
$n_{\text{He-Cd}}$	0.44157	1.65207
$n_g$	0.435835	1.65291
$n_h$	0.404656	1.65818
$n_i$	0.365015	1.66720

Partial Dispersions	
$n_C-n_t$	0.009188
$n_C-n_{A'}$	0.003946
$n_d-n_C$	0.003488
$n_e-n_C$	0.006236
$n_g-n_d$	0.014367
$n_g-n_F$	0.006324
$n_h-n_g$	0.005271
$n_i-n_g$	0.014291
$n_C-n_t$	0.009742
$n_e-n_{C'}$	0.005682
$n_{F'-n_e}$	0.005956
$n_i-n_{F'}$	0.019954

Relative Partial Dispersions	
$\theta_{C,t}$	0.7968
$\theta_{C,A'}$	0.3422
$\theta_{d,C}$	0.3025
$\theta_{e,C}$	0.5408
$\theta_{g,d}$	1.2459
$\theta_{g,F}$	0.5484
$\theta_{h,g}$	0.4571
$\theta_{i,g}$	1.2394
$\theta'_{C,t}$	0.8371
$\theta'_{e,C'}$	0.4882
$\theta'_{F',e}$	0.5118
$\theta'_{i,F}$	1.7146

Thermal Properties	
Strain Point StP (°C)	567
Annealing Point AP (°C)	600
Transformation Temperature Tg (°C)	613
Yield Point At (°C)	655
Softening Point SP (°C)	717
Expansion Coefficients (-30~+70°C)	70
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	84
Thermal Conductivity k (W/m-K)	0.815

Coloring			
$\lambda_{80}$	35	$\lambda_5$	31
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	0.08
320	0.31
330	0.57
340	0.75
350	0.86
360	0.929
370	0.961
380	0.977
390	0.985
400	0.990
420	0.993
440	0.994
460	0.995
480	0.996
500	0.997
550	0.998
600	0.998
650	0.998
700	0.998
800	0.998
900	0.998
1000	0.997
1200	0.997
1400	0.993
1600	0.994
1800	0.986
2000	0.973
2200	0.924
2400	0.84

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0097
$\Delta\theta_{C,A'}$	-0.0008
$\Delta\theta_{g,d}$	-0.0038
$\Delta\theta_{g,F}$	-0.0035
$\Delta\theta_{i,g}$	-0.0219

Mechanical Properties	
Young's Modulus E (10 <sup>8</sup> N/m <sup>2</sup> )	885
Rigidity Modulus G (10 <sup>8</sup> N/m <sup>2</sup> )	349
Poisson's Ratio $\sigma$	0.268
Knoop Hardness Hk[Class]	570   6
Abrasion Aa	159
Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa)	1.79

Constants of Dispersion Formula	
A <sub>1</sub>	9.27886025E-01
A <sub>2</sub>	7.08858526E-01
A <sub>3</sub>	1.18610897E+00
B <sub>1</sub>	4.17549199E-03
B <sub>2</sub>	1.84691838E-02
B <sub>3</sub>	1.22210416E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	2.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.69
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative (10 <sup>-6</sup> /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~20	1.8	2.2	2.3	2.4	2.5	2.9	3.2
-20~ 0	1.8	2.3	2.3	2.4	2.6	3.0	3.3
0~20	1.9	2.4	2.4	2.5	2.7	3.1	3.4
20~40	1.9	2.4	2.5	2.6	2.8	3.2	3.5
40~60	2.0	2.5	2.5	2.7	2.9	3.3	3.7
60~80	2.1	2.6	2.6	2.8	2.9	3.4	3.8