

# S-BSM14

Code(d) **603607**

Code(e) **605604**

Refractive Index $n_d$	<b>1.60311</b> 1.603112	Abbe Number $v_d$	<b>60.7</b> 60.64	Dispersion $n_F-n_C$	<b>0.00994</b> 0.009945
Refractive Index $n_e$	1.605484	Abbe Number $v_e$	60.39	Dispersion $n_F'-n_C'$	0.010027

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.57300
$n_{1970}$	1.97009	1.57880
$n_{1530}$	1.52958	1.58491
$n_{1129}$	1.12864	1.59013
$n_t$	1.01398	1.59180
$n_s$	0.85211	1.59467
$n_{A'}$	0.76819	1.59660
$n_r$	0.70652	1.59835
$n_C$	0.65627	1.60008
$n_{C'}$	0.64385	1.60056
$n_{\text{He-Ne}}$	0.6328	1.60101
$n_D$	0.58929	1.60302
$n_d$	0.58756	1.60311
$n_e$	0.54607	1.60548
$n_F$	0.48613	1.61002
$n_{F'}$	0.47999	1.61059
$n_{\text{He-Cd}}$	0.44157	1.61470
$n_g$	0.435835	1.61541
$n_h$	0.404656	1.61987
$n_i$	0.365015	1.62745

Partial Dispersions	
$n_C-n_t$	0.008275
$n_C-n_{A'}$	0.003482
$n_d-n_C$	0.003033
$n_e-n_C$	0.005405
$n_g-n_d$	0.012297
$n_g-n_F$	0.005385
$n_h-n_g$	0.004461
$n_i-n_g$	0.012043
$n_C-n_t$	0.008758
$n_e-n_{C'}$	0.004922
$n_{F'-n_e}$	0.005105
$n_i-n_{F'}$	0.016863

Relative Partial Dispersions	
$\theta_{C,t}$	0.8321
$\theta_{C,A'}$	0.3501
$\theta_{d,C}$	0.3050
$\theta_{e,C}$	0.5435
$\theta_{g,d}$	1.2365
$\theta_{g,F}$	0.5415
$\theta_{h,g}$	0.4486
$\theta_{i,g}$	1.2110
$\theta'_{C,t}$	0.8734
$\theta'_{e,C'}$	0.4909
$\theta'_{F',e}$	0.5091
$\theta'_{i,F}$	1.6818

Thermal Properties	
Strain Point StP (°C)	614
Annealing Point AP (°C)	641
Transformation Temperature Tg (°C)	663
Yield Point At (°C)	698
Softening Point SP (°C)	757
Expansion Coefficients (-30~+70°C)	62
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	73
Thermal Conductivity k (W/m·K)	0.891

Coloring			
$\lambda_{80}$	35	$\lambda_5$	30
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	0.17
320	0.45
330	0.68
340	0.82
350	0.906
360	0.948
370	0.968
380	0.980
390	0.987
400	0.991
420	0.994
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	0.999
900	0.998
1000	0.998
1200	0.998
1400	0.990
1600	0.995
1800	0.988
2000	0.976
2200	0.919
2400	0.81

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0009
$\Delta\theta_{C,A'}$	0.0007
$\Delta\theta_{g,d}$	-0.0023
$\Delta\theta_{g,F}$	-0.0019
$\Delta\theta_{i,g}$	-0.0062

Mechanical Properties	
Young's Modulus E (10 <sup>8</sup> N/m <sup>2</sup> )	849
Rigidity Modulus G (10 <sup>8</sup> N/m <sup>2</sup> )	338
Poisson's Ratio $\sigma$	0.257
Knoop Hardness Hk[Class]	570   6
Abrasion Aa	131
Photoelastic Constant $\beta$ (nm/cm/10 <sup>5</sup> Pa)	2.01

Constants of Dispersion Formula	
A <sub>1</sub>	1.28286270E+00
A <sub>2</sub>	2.47647429E-01
A <sub>3</sub>	1.10383999E+00
B <sub>1</sub>	1.22902399E-02
B <sub>2</sub>	-6.13142361E-03
B <sub>3</sub>	1.06883378E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	5
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	2.2

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.43
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	2.5	2.7	2.7	2.8	2.9	3.1	3.4
-20~0	2.5	2.8	2.8	2.9	3.0	3.3	3.5
0~20	2.6	2.9	2.9	3.0	3.1	3.4	3.7
20~40	2.6	2.9	3.0	3.1	3.2	3.5	3.8
40~60	2.7	3.0	3.1	3.2	3.3	3.6	4.0
60~80	2.7	3.1	3.1	3.3	3.4	3.8	4.1