

# S-BSL 7

Code(d) **516641**

Code(e) **518639**

Refractive Index $n_d$	<b>1.51633</b> 1.516330	Abbe Number $\nu_d$	<b>64.14</b>	Dispersion $n_F-n_C$	<b>0.008050</b>
Refractive Index $n_e$	1.518251	Abbe Number $\nu_e$	63.93	Dispersion $n_F-n_C'$	0.008107

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.48899
$n_{1970}$	1.97009	1.49462
$n_{1530}$	1.52958	1.50050
$n_{1129}$	1.12864	1.50536
$n_t$	1.01398	1.50686
$n_s$	0.85211	1.50935
$n_{A'}$	0.76819	1.51097
$n_r$	0.70652	1.51243
$n_C$	0.65627	1.51386
$n_{C'}$	0.64385	1.51425
$n_{\text{He-Ne}}$	0.6328	1.51462
$n_D$	0.58929	1.51626
$n_d$	0.58756	1.51633
$n_e$	0.54607	1.51825
$n_F$	0.48613	1.52191
$n_{F'}$	0.47999	1.52236
$n_{\text{He-Cd}}$	0.44157	1.52564
$n_g$	0.435835	1.52621
$n_h$	0.404656	1.52977
$n_i$	0.365015	1.53578

Constants of Dispersion Formula	
$A_1$	1.15150190E+00
$A_2$	1.18583612E-01
$A_3$	1.26301359E+00
$B_1$	1.05984130E-02
$B_2$	-1.18225190E-02
$B_3$	1.29617662E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1~2
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	800
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	332
Poisson's Ratio $\sigma$	0.205
Knoop Hardness Hk[Class]	570   6
Abrasion Aa	94
Photoelastic Constant $\beta$ (nm/cm/ $10^9\text{Pa}$ )	2.79

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	dn/dT relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.1	2.3	2.3	2.4	2.5	2.7	3.0
-20~ 0	2.1	2.4	2.4	2.5	2.6	2.8	3.1
0~20	2.2	2.5	2.5	2.6	2.7	3.0	3.2
20~40	2.2	2.6	2.6	2.7	2.8	3.1	3.3
40~60	2.3	2.6	2.7	2.8	2.9	3.2	3.5
60~80	2.4	2.7	2.7	2.9	3.0	3.3	3.6

Partial Dispersions	
$n_C-n_t$	0.006993
$n_C-n_{A'}$	0.002882
$n_d-n_C$	0.002475
$n_e-n_C$	0.004396
$n_g-n_d$	0.009884
$n_g-n_F$	0.004309
$n_h-n_g$	0.003554
$n_i-n_g$	0.009571
$n_C-n_t$	0.007389
$n_e-n_{C'}$	0.004000
$n_F-n_e$	0.004107
$n_i-n_{F'}$	0.013427

Relative Partial Dispersions	
$\theta_{C,t}$	0.8687
$\theta_{C,A'}$	0.3580
$\theta_{d,C}$	0.3075
$\theta_{e,C}$	0.5461
$\theta_{g,d}$	1.2278
$\theta_{g,F}$	0.5353
$\theta_{h,g}$	0.4415
$\theta_{i,g}$	1.1889
$\theta'_{C,t}$	0.9114
$\theta'_{e,C'}$	0.4934
$\theta'_{F,e}$	0.5066
$\theta'_{i,F'}$	1.6562

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0211
$\Delta\theta_{C,A'}$	0.0044
$\Delta\theta_{g,d}$	-0.0037
$\Delta\theta_{g,F}$	-0.0024
$\Delta\theta_{i,g}$	0.0010

Thermal Properties	
Strain Point StP (°C)	532
Annealing Point AP (°C)	563
Transformation Temperature Tg (°C)	576
Yield Point At (°C)	625
Softening Point SP (°C)	718
Expansion Coefficients (-30~+70°C)	72
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	86
Thermal Conductivity k (W/m·K)	1.13

Coloring			
$\lambda_{80}$	330	$\lambda_5$	285
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	323	$\lambda_{0.05}$	289

CCI		
B	G	R
0.00	0.08	0.07

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	0.08
300	0.31
310	0.58
320	0.77
330	0.88
340	0.940
350	0.968
360	0.984
370	0.991
380	0.991
390	0.996
400	0.997
420	0.996
440	0.995
460	0.995
480	0.996
500	0.996
550	0.998
600	0.997
650	0.997
700	0.998
800	0.998
900	0.997
1000	0.996
1200	0.995
1400	0.982
1600	0.991
1800	0.980
2000	0.961
2200	0.89
2400	0.85

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.52
Remarks	

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