

S-NSL 3

Code(d) **518590**

Code(e) **520586**

Refractive Index n_d	1.51823	Abbe Number v_d	59.0	Dispersion n_F-n_C	0.00879
	1.518229		58.90		0.008798
Refractive Index n_e	1.520326	Abbe Number v_e	58.63	Dispersion n_F-n_C'	0.008875

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.49273
n_{1970}	1.97009	1.49747
n_{1530}	1.52958	1.50252
n_{1129}	1.12864	1.50692
n_t	1.01398	1.50835
n_s	0.85211	1.51083
$n_{A'}$	0.76819	1.51250
n_r	0.70652	1.51403
n_C	0.65627	1.51556
$n_{C'}$	0.64385	1.51598
$n_{\text{He-Ne}}$	0.6328	1.51638
n_D	0.58929	1.51815
n_d	0.58756	1.51823
n_e	0.54607	1.52033
n_F	0.48613	1.52435
$n_{F'}$	0.47999	1.52486
$n_{\text{He-Cd}}$	0.44157	1.52852
n_g	0.435835	1.52915
n_h	0.404656	1.53315
n_i	0.365015	1.53999

Partial Dispersions	
n_C-n_t	0.007206
$n_C-n_{A'}$	0.003052
n_d-n_C	0.002673
n_e-n_C	0.004770
n_g-n_d	0.010926
n_g-n_F	0.004801
n_h-n_g	0.003996
n_i-n_g	0.010832
n_C-n_t	0.007631
$n_e-n_{C'}$	0.004345
$n_{F'-n_e}$	0.004530
$n_i-n_{F'}$	0.015131

Relative Partial Dispersions	
$\theta_{C,t}$	0.8190
$\theta_{C,A'}$	0.3469
$\theta_{d,C}$	0.3038
$\theta_{e,C}$	0.5422
$\theta_{g,d}$	1.2419
$\theta_{g,F}$	0.5457
$\theta_{h,g}$	0.4542
$\theta_{i,g}$	1.2312
$\theta'_{C,t}$	0.8598
$\theta'_{e,C'}$	0.4896
$\theta'_{F',e}$	0.5104
$\theta'_{i,F}$	1.7049

Thermal Properties	
Strain Point StP (°C)	455
Annealing Point AP (°C)	492
Transformation Temperature Tg (°C)	500
Yield Point At (°C)	553
Softening Point SP (°C)	668
Expansion Coefficients (-30~+70°C)	90
α ($10^{-7}/^\circ\text{C}$) (+100~+300°C)	110
Thermal Conductivity k (W/m-K)	1.026

Coloring			
λ_{80}	34	λ_5	31
λ_{70}			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	0.15
330	0.53
340	0.80
350	0.924
360	0.968
370	0.984
380	0.990
390	0.995
400	0.997
420	0.997
440	0.997
460	0.997
480	0.998
500	0.998
550	0.999
600	0.999
650	0.998
700	0.998
800	0.998
900	0.998
1000	0.997
1200	0.997
1400	0.992
1600	0.991
1800	0.968
2000	0.930
2200	0.86
2400	0.81

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0040
$\Delta\theta_{C,A'}$	-0.0004
$\Delta\theta_{g,d}$	-0.0005
$\Delta\theta_{g,F}$	-0.0005
$\Delta\theta_{i,g}$	-0.0006

Mechanical Properties	
Young's Modulus E (10^8N/m^2)	700
Rigidity Modulus G (10^8N/m^2)	288
Poisson's Ratio σ	0.217
Knoop Hardness Hk[Class]	510 5
Abrasion Aa	111
Photoelastic Constant β (nm/cm/ 10^5Pa)	2.60

Constants of Dispersion Formula	
A_1	8.82514764E-01
A_2	3.89271907E-01
A_3	1.10693448E+00
B_1	4.64504582E-03
B_2	2.00551397E-02
B_3	1.36234339E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.48
Remarks	

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	0.3	0.6	0.6	0.7	0.8	1.1	1.4
-20~ 0	0.3	0.6	0.6	0.7	0.8	1.1	1.4
0~20	0.3	0.6	0.6	0.7	0.9	1.2	1.5
20~40	0.3	0.6	0.6	0.7	0.9	1.2	1.6
40~60	0.3	0.6	0.7	0.8	0.9	1.3	1.6
60~80	0.3	0.6	0.7	0.8	1.0	1.3	1.7