S-NSL 3

Code(d) **518590**
Code(e) **520586**

Refractive Index	n_d	**1.51823** 1.518229	Abbe Number	ν_d **58.90**	Dispersion	n_F-n_C **0.008798**
Refractive Index	n_e	1.520326	Abbe Number	ν_e 58.63	Dispersion	$n_{F'}$-$n_{C'}$ 0.008875

Refractive Indices		
λ(μm)		
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_{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_{He-Cd}	0.44157	1.52852
n_g	0.435835	1.52915
n_h	0.404656	1.53315
n_i	0.365015	1.53999

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

Mechanical Properties		
Young's Modulus E (GPa)	70.0	
Rigidity Modulus G (GPa)	28.8	
Poisson's Ratio σ	0.217	
Knoop Hardness Hk[Class]	520	5
Abrasion Aa	117	

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

Deviation of Relative Dispersions Δθfrom "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

Thermal Properties		
Strain Point StP (℃)		455
Annealing Point AP (℃)		492
Transformation Temperature Tg (℃)		500
Yield Point At (℃)		553
Softening Point SP (℃)		668
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	90
	(+100~+300℃)	110
Thermal Conductivity λ W/(m·K)		1.03

Coloring			
λ_{80}	340	λ_5	310
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	340	$\lambda_{0.05}$	317

CCI		
B	G	R
0.00	0.09	0.06

Internal Transmittance	
λ(nm)	τ 10mm
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

Temperature Coefficients of Refractive Index							
Range of Temperature (℃)	Δn/ΔT relative ($10^{-6}$$K^{-1}$)						
	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

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	2.60
Specific Gravity d	2.48
Remarks	

OHARA 24-01

※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.