

# S-LAH98

Code(d) **954323**

Code(e) **961321**

Refractive Index $n_d$	<b>1.95375</b> 1.953750	Abbe Number $\nu_d$	<b>32.32</b>	Dispersion $n_F-n_C$	<b>0.029506</b>
Refractive Index $n_e$	1.960733	Abbe Number $\nu_e$	32.09	Dispersion $n_F-n_{C'}$	0.029940

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.89737
$n_{1970}$	1.97009	1.90436
$n_{1530}$	1.52958	1.91250
$n_{1129}$	1.12864	1.92115
$n_t$	1.01398	1.92452
$n_s$	0.85211	1.93102
$n_{A'}$	0.76819	1.93582
$n_r$	0.70652	1.94042
$n_C$	0.65627	1.94514
$n_{C'}$	0.64385	1.94649
$n_{\text{He-Ne}}$	0.6328	1.94775
$n_D$	0.58929	1.95349
$n_d$	0.58756	1.95375
$n_e$	0.54607	1.96073
$n_F$	0.48613	1.97465
$n_{F'}$	0.47999	1.97643
$n_{\text{He-Cd}}$	0.44157	1.98970
$n_g$	0.435835	1.99207
$n_h$	0.404656	2.00732
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	2.28510629E+00
$A_2$	3.85532264E-01
$A_3$	2.06551120E+00
$B_1$	1.22178962E-02
$B_2$	5.14752342E-02
$B_3$	1.45920870E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	3.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	1293
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	495
Poisson's Ratio $\sigma$	0.306
Knoop Hardness Hk[Class]	650   7
Abrasion Aa	55
Photoelastic Constant $\beta$ nm/(cm· $10^5\text{Pa}$ )	0.86

Partial Dispersions	
$n_C-n_t$	0.020620
$n_C-n_{A'}$	0.009319
$n_d-n_C$	0.008609
$n_e-n_C$	0.015592
$n_g-n_d$	0.038320
$n_g-n_F$	0.017423
$n_h-n_g$	0.015249
$n_i-n_g$	
$n_C-n_t$	0.021965
$n_e-n_{C'}$	0.014247
$n_F-n_e$	0.015693
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6988
$\theta_{C,A'}$	0.3158
$\theta_{d,C}$	0.2918
$\theta_{e,C}$	0.5284
$\theta_{g,d}$	1.2987
$\theta_{g,F}$	0.5905
$\theta_{h,g}$	0.5168
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7336
$\theta'_{e,C'}$	0.4759
$\theta'_{F',e}$	0.5241
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0005
$\Delta\theta_{C,A'}$	0.0008
$\Delta\theta_{g,d}$	0.0011
$\Delta\theta_{g,F}$	0.0013
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	680
Annealing Point AP (°C)	716
Transformation Temperature Tg (°C)	723
Yield Point At (°C)	757
Softening Point SP (°C)	791
Expansion Coefficients (-30~+70°C)	73
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	87
Thermal Conductivity $\lambda$ W/(m·K)	0.924

Coloring			
$\lambda_{80}$		$\lambda_5$	355
$\lambda_{70}$	405		

Internal transmission			
$\lambda_{0.80}$	390	$\lambda_{0.05}$	352

CCI		
B	G	R
0.00	2.90	3.06

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	0.02
360	0.18
370	0.47
380	0.68
390	0.80
400	0.86
420	0.927
440	0.953
460	0.967
480	0.978
500	0.986
550	0.996
600	0.998
650	0.998
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.998
1800	0.993
2000	0.979
2200	0.952
2400	0.84

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.4	3.5	3.6	4.0	4.5	5.6	6.8
-20~ 0	2.5	3.7	3.8	4.2	4.7	5.9	7.2
0~20	2.6	3.8	3.9	4.3	4.8	6.1	7.5
20~40	2.5	3.8	3.9	4.3	4.9	6.2	7.7
40~60	2.5	3.9	4.0	4.4	5.0	6.4	7.9
60~80	2.7	4.1	4.2	4.7	5.3	6.7	8.3

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.94
Remarks	

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※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.