

# S-LAH59

Code(d) **816466**

Code(e) **820464**

Refractive Index $n_d$	<b>1.81600</b> 1.816000	Abbe Number $\nu_d$	<b>46.62</b>	Dispersion $n_F-n_C$	<b>0.017503</b>
Refractive Index $n_e$	1.820167	Abbe Number $\nu_e$	46.37	Dispersion $n_F-n_{C'}$	0.017688

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.77345
$n_{1970}$	1.97009	1.78033
$n_{1530}$	1.52958	1.78784
$n_{1129}$	1.12864	1.79483
$n_t$	1.01398	1.79729
$n_s$	0.85211	1.80174
$n_{A'}$	0.76819	1.80488
$n_r$	0.70652	1.80780
$n_C$	0.65627	1.81075
$n_{C'}$	0.64385	1.81158
$n_{\text{He-Ne}}$	0.6328	1.81236
$n_D$	0.58929	1.81585
$n_d$	0.58756	1.81600
$n_e$	0.54607	1.82017
$n_F$	0.48613	1.82825
$n_{F'}$	0.47999	1.82927
$n_{\text{He-Cd}}$	0.44157	1.83670
$n_g$	0.435835	1.83800
$n_h$	0.404656	1.84619
$n_i$	0.365015	1.86034

Constants of Dispersion Formula	
$A_1$	1.51372967E+00
$A_2$	7.02462343E-01
$A_3$	1.33600982E+00
$B_1$	7.05246901E-03
$B_2$	2.49488689E-02
$B_3$	1.00085908E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	2
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 (GPa)	125.0
Rigidity Modulus G (GPa)	48.2
Poisson's Ratio $\sigma$	0.298
Knoop Hardness Hk(Class)	740   7
Abrasion Aa	50

Partial Dispersions	
$n_C-n_t$	0.013459
$n_C-n_{A'}$	0.005870
$n_d-n_C$	0.005251
$n_e-n_C$	0.009418
$n_g-n_d$	0.021997
$n_g-n_F$	0.009745
$n_h-n_g$	0.008188
$n_i-n_g$	0.022341
$n_C-n_t$	0.014289
$n_e-n_{C'}$	0.008588
$n_{F'}-n_e$	0.009100
$n_i-n_{F'}$	0.031071

Relative Partial Dispersions	
$\theta_{C,t}$	0.7690
$\theta_{C,A'}$	0.3354
$\theta_{d,C}$	0.3000
$\theta_{e,C}$	0.5381
$\theta_{g,d}$	1.2568
$\theta_{g,F}$	0.5568
$\theta_{h,g}$	0.4678
$\theta_{i,g}$	1.2764
$\theta'_{C,t}$	0.8078
$\theta'_{e,C'}$	0.4855
$\theta'_{F',e}$	0.5145
$\theta'_{i,F'}$	1.7566

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0036
$\Delta\theta_{C,A'}$	0.0030
$\Delta\theta_{g,d}$	-0.0111
$\Delta\theta_{g,F}$	-0.0092
$\Delta\theta_{i,g}$	-0.0582

Thermal Properties	
Strain Point StP (°C)	644
Annealing Point AP (°C)	690
Transformation Temperature Tg (°C)	714
Yield Point At (°C)	737
Softening Point SP (°C)	773
Expansion Coefficients (-30~+70°C)	63
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	76
Thermal Conductivity $\lambda$ W/(m·K)	0.816

Coloring			
$\lambda_{80}$	390	$\lambda_5$	290
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	359	$\lambda_{0.05}$	298

CCI		
B	G	R
0.00	0.94	0.93

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	0.02
300	0.06
310	0.09
320	0.28
330	0.43
340	0.58
350	0.71
360	0.81
370	0.88
380	0.921
390	0.943
400	0.958
420	0.973
440	0.979
460	0.984
480	0.989
500	0.994
550	0.997
600	0.996
650	0.996
700	0.996
800	0.996
900	0.995
1000	0.995
1200	0.995
1400	0.995
1600	0.994
1800	0.989
2000	0.973
2200	0.938
2400	0.76

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n / \Delta T$ relative ( $10^{-6} \text{K}^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	4.1	4.6	4.6	4.9	5.1	5.6	6.2
-20~ 0	4.1	4.7	4.7	5.0	5.2	5.8	6.4
0~20	4.2	4.8	4.8	5.1	5.3	5.9	6.5
20~40	4.3	4.9	4.9	5.2	5.4	6.1	6.7
40~60	4.3	5.0	5.0	5.3	5.6	6.2	6.9
60~80	4.4	5.1	5.1	5.4	5.7	6.4	7.0

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>5</sup> Pa)	1.37
Specific Gravity d	5.07
Remarks	

OHARA 24-01

OHARA Copyright© OHARA INC. All Rights Reserved.

※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.