

# S-LAH60MQ

Code(d) **834372**

Code(e) **839369**

Refractive Index $n_d$	<b>1.83400</b> 1.834000	Abbe Number $\nu_d$	<b>37.17</b>	Dispersion $n_F-n_C$	<b>0.022437</b>
Refractive Index $n_e$	1.839321	Abbe Number $\nu_e$	36.92	Dispersion $n_F-n_C'$	0.022735

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.78810
$n_{1970}$	1.97009	1.79430
$n_{1530}$	1.52958	1.80135
$n_{1129}$	1.12864	1.80854
$n_t$	1.01398	1.81125
$n_s$	0.85211	1.81641
$n_{A'}$	0.76819	1.82017
$n_r$	0.70652	1.82374
$n_C$	0.65627	1.82739
$n_{C'}$	0.64385	1.82843
$n_{\text{He-Ne}}$	0.6328	1.82940
$n_D$	0.58929	1.83380
$n_d$	0.58756	1.83400
$n_e$	0.54607	1.83932
$n_F$	0.48613	1.84983
$n_{F'}$	0.47999	1.85116
$n_{\text{He-Cd}}$	0.44157	1.86106
$n_g$	0.435835	1.86281
$n_h$	0.404656	1.87401
$n_i$	0.365015	1.89407

Constants of Dispersion Formula	
$A_1$	1.95539063E+00
$A_2$	3.02550219E-01
$A_3$	1.34311390E+00
$B_1$	1.09111365E-02
$B_2$	4.54666700E-02
$B_3$	1.13580850E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	1.2

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	953
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	366
Poisson's Ratio $\sigma$	0.302
Knoop Hardness Hk[Class]	520   5
Abrasion Aa	160
Photoelastic Constant $\beta$ nm/(cm · $10^5\text{Pa}$ )	1.36

Partial Dispersions	
$n_C-n_t$	0.016137
$n_C-n_{A'}$	0.007222
$n_d-n_C$	0.006608
$n_e-n_C$	0.011929
$n_g-n_d$	0.028810
$n_g-n_F$	0.012981
$n_h-n_g$	0.011196
$n_i-n_g$	0.031262
$n_C-n_t$	0.017174
$n_e-n_{C'}$	0.010892
$n_F-n_e$	0.011843
$n_i-n_{F'}$	0.042908

Relative Partial Dispersions	
$\theta_{C,t}$	0.7192
$\theta_{C,A'}$	0.3219
$\theta_{d,C}$	0.2945
$\theta_{e,C}$	0.5317
$\theta_{g,d}$	1.2840
$\theta_{g,F}$	0.5786
$\theta_{h,g}$	0.4990
$\theta_{i,g}$	1.3933
$\theta'_{C,t}$	0.7554
$\theta'_{e,C'}$	0.4791
$\theta'_{F,e}$	0.5209
$\theta'_{i,F'}$	1.8873

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0019
$\Delta\theta_{C,A'}$	0.0010
$\Delta\theta_{g,d}$	-0.0035
$\Delta\theta_{g,F}$	-0.0027
$\Delta\theta_{i,g}$	-0.0205

Thermal Properties	
Strain Point StP (°C)	609
Annealing Point AP (°C)	635
Transformation Temperature Tg (°C)	655
Yield Point At (°C)	688
Softening Point SP (°C)	721
Expansion Coefficients (-30~+70°C)	85
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	98
Thermal Conductivity $\lambda$ W/(m·K)	0.701

Coloring			
$\lambda_{80}$	425	$\lambda_5$	340
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	377	$\lambda_{0.05}$	336

CCI		
B	G	R
0.00	1.58	1.64

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	0.08
350	0.31
360	0.56
370	0.73
380	0.83
390	0.89
400	0.927
420	0.957
440	0.968
460	0.976
480	0.983
500	0.989
550	0.995
600	0.995
650	0.995
700	0.997
800	0.998
900	0.998
1000	0.998
1200	0.999
1400	0.998
1600	0.995
1800	0.986
2000	0.968
2200	0.927
2400	0.80

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	-1.4	-0.6	-0.6	-0.3	0.0	0.8	1.6
-20~ 0	-1.4	-0.6	-0.5	-0.2	0.1	0.9	1.8
0~20	-1.4	-0.5	-0.5	-0.2	0.2	1.1	2.0
20~40	-1.4	-0.5	-0.4	-0.1	0.2	1.1	2.1
40~60	-1.4	-0.4	-0.4	-0.1	0.3	1.2	2.2
60~80	-1.3	-0.4	-0.3	0.0	0.4	1.4	2.4

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.71
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.