

# S-LAH88

Code(d) **917316**

Code(e) **923314**

Refractive Index $n_d$	<b>1.91650</b> 1.916500	Abbe Number $\nu_d$	<b>31.60</b>	Dispersion $n_F-n_C$	<b>0.028999</b>
Refractive Index $n_e$	1.923361	Abbe Number $\nu_e$	31.38	Dispersion $n_F-n_C'$	0.029426

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.85814
$n_{1970}$	1.97009	1.86607
$n_{1530}$	1.52958	1.87503
$n_{1129}$	1.12864	1.88413
$n_t$	1.01398	1.88756
$n_s$	0.85211	1.89408
$n_{A'}$	0.76819	1.89884
$n_r$	0.70652	1.90338
$n_C$	0.65627	1.90803
$n_{C'}$	0.64385	1.90936
$n_{\text{He-Ne}}$	0.6328	1.91060
$n_D$	0.58929	1.91625
$n_d$	0.58756	1.91650
$n_e$	0.54607	1.92336
$n_F$	0.48613	1.93703
$n_{F'}$	0.47999	1.93878
$n_{\text{He-Cd}}$	0.44157	1.95185
$n_g$	0.435835	1.95418
$n_h$	0.404656	1.96920
$n_i$	0.365015	

Constants of Dispersion Formula	
$A_1$	2.12844340E+00
$A_2$	4.05082139E-01
$A_3$	1.67918461E+00
$B_1$	1.17309815E-02
$B_2$	5.08706599E-02
$B_3$	1.07091456E+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	3.2
Phosphate Resistance PR	1.1

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	1135
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	457
Poisson's Ratio $\sigma$	0.242
Knoop Hardness Hk[Class]	650   7
Abrasion Aa	69
Photoelastic Constant $\beta$ nm/(cm · $10^5\text{Pa}$ )	1.90

Partial Dispersions	
$n_C-n_t$	0.020471
$n_C-n_{A'}$	0.009192
$n_d-n_C$	0.008465
$n_e-n_C$	0.015326
$n_g-n_d$	0.037676
$n_g-n_F$	0.017142
$n_h-n_g$	0.015029
$n_i-n_g$	
$n_C-n_t$	0.021794
$n_e-n_{C'}$	0.014003
$n_F-n_e$	0.015423
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.7059
$\theta_{C,A'}$	0.3170
$\theta_{d,C}$	0.2919
$\theta_{e,C}$	0.5285
$\theta_{g,d}$	1.2992
$\theta_{g,F}$	0.5911
$\theta_{h,g}$	0.5183
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7406
$\theta'_{e,C'}$	0.4759
$\theta'_{F,e}$	0.5241
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0110
$\Delta\theta_{C,A'}$	0.0029
$\Delta\theta_{g,d}$	0.0001
$\Delta\theta_{g,F}$	0.0008
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP (°C)	581
Annealing Point AP (°C)	601
Transformation Temperature Tg (°C)	616
Yield Point At (°C)	642
Softening Point SP (°C)	677
Expansion Coefficients (-30~+70°C)	57
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	71
Thermal Conductivity $\lambda$ W/(m·K)	0.894

Coloring			
$\lambda_{80}$		$\lambda_5$	355
$\lambda_{70}$	400		

Internal transmission			
$\lambda_{0.80}$	389	$\lambda_{0.05}$	353

CCI		
B	G	R
0.00	2.51	2.67

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	0.01
360	0.16
370	0.45
380	0.68
390	0.81
400	0.87
420	0.936
440	0.961
460	0.973
480	0.981
500	0.987
550	0.994
600	0.996
650	0.997
700	0.998
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.995
1600	0.994
1800	0.985
2000	0.963
2200	0.89
2400	0.71

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	5.3	6.4	6.5	6.8	7.3	8.5	9.7
-20~ 0	5.4	6.6	6.6	7.0	7.5	8.7	10.1
0~20	5.4	6.7	6.8	7.2	7.7	9.0	10.4
20~40	5.5	6.8	6.9	7.3	7.8	9.1	10.6
40~60	5.6	6.9	7.0	7.4	8.0	9.4	10.9
60~80	5.8	7.1	7.2	7.7	8.3	9.7	11.3

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.74
Remarks	

OHARA 17-04

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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.