

# L-LAH91

Code(d) **765491**

Code(e) **768488**

Refractive Index $n_d$	<b>1.76450</b> 1.764500	Abbe Number $\nu_d$	<b>49.09</b>	Dispersion $n_F-n_C$	<b>0.015572</b>
Refractive Index $n_e$	1.768208	Abbe Number $\nu_e$	48.85	Dispersion $n_F-n_C'$	0.015726

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.72404
$n_{1970}$	1.97009	1.73103
$n_{1530}$	1.52958	1.73852
$n_{1129}$	1.12864	1.74527
$n_t$	1.01398	1.74758
$n_s$	0.85211	1.75168
$n_{A'}$	0.76819	1.75453
$n_r$	0.70652	1.75716
$n_C$	0.65627	1.75981
$n_{C'}$	0.64385	1.76055
$n_{\text{He-Ne}}$	0.6328	1.76125
$n_D$	0.58929	1.76436
$n_d$	0.58756	1.76450
$n_e$	0.54607	1.76821
$n_F$	0.48613	1.77538
$n_{F'}$	0.47999	1.77628
$n_{\text{He-Cd}}$	0.44157	1.78284
$n_g$	0.435835	1.78399
$n_h$	0.404656	1.79120
$n_i$	0.365015	1.80360

Constants of Dispersion Formula	
$A_1$	1.26144128E+00
$A_2$	7.82115273E-01
$A_3$	1.15823645E+00
$B_1$	5.72512582E-03
$B_2$	2.19829752E-02
$B_3$	8.80482200E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	52.2
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	1144
Rigidity Modulus G ( $10^9\text{N/m}^2$ )	439
Poisson's Ratio $\sigma$	0.301
Knoop Hardness Hk[Class]	680   7
Abrasion Aa	68
Photoelastic Constant $\beta$ nm/(cm · $10^5\text{Pa}$ )	1.71

Partial Dispersions	
$n_C-n_t$	0.012232
$n_C-n_{A'}$	0.005282
$n_d-n_C$	0.004692
$n_e-n_C$	0.008400
$n_g-n_d$	0.019488
$n_g-n_F$	0.008608
$n_h-n_g$	0.007208
$n_i-n_g$	0.019614
$n_C-n_t$	0.012975
$n_e-n_{C'}$	0.007657
$n_F-n_e$	0.008069
$n_i-n_{F'}$	0.027325

Relative Partial Dispersions	
$\theta_{C,t}$	0.7855
$\theta_{C,A'}$	0.3392
$\theta_{d,C}$	0.3013
$\theta_{e,C}$	0.5394
$\theta_{g,d}$	1.2515
$\theta_{g,F}$	0.5528
$\theta_{h,g}$	0.4629
$\theta_{i,g}$	1.2596
$\theta'_{C,t}$	0.8251
$\theta'_{e,C'}$	0.4869
$\theta'_{F,e}$	0.5131
$\theta'_{i,F'}$	1.7376

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0085
$\Delta\theta_{C,A'}$	0.0038
$\Delta\theta_{g,d}$	-0.0113
$\Delta\theta_{g,F}$	-0.0092
$\Delta\theta_{i,g}$	-0.0544

Thermal Properties	
Strain Point StP (°C)	578
Annealing Point AP (°C)	599
Transformation Temperature Tg (°C)	611
Yield Point At (°C)	644
Softening Point SP (°C)	676
Expansion Coefficients (-30~+70°C)	57
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	71
Thermal Conductivity $\lambda$ W/(m·K)	0.841

Coloring			
$\lambda_{80}$	365	$\lambda_5$	275
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	333	$\lambda_{0.05}$	274

CCI		
B	G	R
0.00	0.30	0.31

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	0.15
290	0.32
300	0.46
310	0.59
320	0.69
330	0.78
340	0.85
350	0.902
360	0.937
370	0.954
380	0.973
390	0.981
400	0.986
420	0.991
440	0.993
460	0.996
480	0.997
500	0.998
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.997
1600	0.996
1800	0.988
2000	0.963
2200	0.905
2400	0.67

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	6.5	7.2	7.2	7.4	7.7	8.3	8.8
-20~ 0	6.5	7.1	7.2	7.4	7.7	8.3	8.9
0~20	6.4	7.1	7.2	7.4	7.7	8.3	8.9
20~40	6.3	7.1	7.1	7.4	7.7	8.3	8.9
40~60	6.5	7.2	7.3	7.5	7.8	8.5	9.1
60~80	6.7	7.5	7.5	7.8	8.1	8.8	9.4

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.29
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.