

# L-LAH53

Code(d) **806409**

Code(e) **811406**

Refractive Index $n_d$	Abbe Number $v_d$	Dispersion $n_F-n_C$
<b>1.80610</b> 1.806098	<b>40.9</b> 40.88	<b>0.01972</b> 0.019718
Refractive Index $n_e$	Abbe Number $v_e$	Dispersion $n_F-n_C'$
1.810782	40.63	0.019954

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.76076
$n_{1970}$	1.97009	1.76780
$n_{1530}$	1.52958	1.77552
$n_{1129}$	1.12864	1.78286
$n_t$	1.01398	1.78549
$n_s$	0.85211	1.79031
$n_{A'}$	0.76819	1.79375
$n_r$	0.70652	1.79697
$n_C$	0.65627	1.80024
$n_{C'}$	0.64385	1.80116
$n_{\text{He-Ne}}$	0.6328	1.80203
$n_D$	0.58929	1.80592
$n_d$	0.58756	1.80610
$n_e$	0.54607	1.81078
$n_F$	0.48613	1.81996
$n_{F'}$	0.47999	1.82112
$n_{\text{He-Cd}}$	0.44157	1.82967
$n_g$	0.435835	1.83117
$n_h$	0.404656	1.84075
$n_i$	0.365015	1.85768

Partial Dispersions	
$n_C-n_t$	0.014747
$n_C-n_{A'}$	0.006489
$n_d-n_C$	0.005860
$n_e-n_C$	0.010544
$n_g-n_d$	0.025074
$n_g-n_F$	0.011216
$n_h-n_g$	0.009575
$n_i-n_g$	0.026505
$n_C-n_t$	0.015670
$n_e-n_{C'}$	0.009621
$n_{F'-n_e}$	0.010333
$n_i-n_{F'}$	0.036562

Relative Partial Dispersions	
$\theta_{C,t}$	0.7479
$\theta_{C,A'}$	0.3291
$\theta_{d,C}$	0.2972
$\theta_{e,C}$	0.5347
$\theta_{g,d}$	1.2716
$\theta_{g,F}$	0.5688
$\theta_{h,g}$	0.4856
$\theta_{i,g}$	1.3442
$\theta'_{C,t}$	0.7853
$\theta'_{e,C'}$	0.4822
$\theta'_{F',e}$	0.5178
$\theta'_{i,F}$	1.8323

Thermal Properties	
Strain Point StP (°C)	534
Annealing Point AP (°C)	558
Transformation Temperature Tg (°C)	574
Yield Point At (°C)	607
Softening Point SP (°C)	646
Expansion Coefficients (-30~+70°C)	59
$\alpha$ (10 <sup>-7</sup> /°C) (+100~+300°C)	72
Thermal Conductivity k (W/m·K)	0.862

Coloring			
$\lambda_{80}$	40	$\lambda_5$	34
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	
340	0.13
350	0.48
360	0.70
370	0.84
380	0.908
390	0.940
400	0.959
420	0.976
440	0.983
460	0.988
480	0.991
500	0.995
550	0.998
600	0.998
650	0.999
700	0.999
800	
900	
1000	
1200	
1400	
1600	
1800	
2000	
2200	
2400	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0094
$\Delta\theta_{C,A'}$	0.0037
$\Delta\theta_{g,d}$	-0.0082
$\Delta\theta_{g,F}$	-0.0065
$\Delta\theta_{i,g}$	-0.0385

Mechanical Properties	
Young's Modulus E (10 <sup>8</sup> N/m <sup>2</sup> )	1151
Rigidity Modulus G (10 <sup>8</sup> N/m <sup>2</sup> )	443
Poisson's Ratio $\sigma$	0.298
Knoop Hardness Hk[Class]	660   7
Abrasion Aa	76
Photoelastic Constant $\beta$ (nm/cm/10 <sup>6</sup> Pa)	

Constants of Dispersion Formula	
A <sub>1</sub>	1.90781372E+00
A <sub>2</sub>	2.63500130E-01
A <sub>3</sub>	1.28144614E+00
B <sub>1</sub>	1.03413285E-02
B <sub>2</sub>	4.19041155E-02
B <sub>3</sub>	9.57068567E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	51.2
Phosphate Resistance PR	2.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	4.49
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative (10 <sup>-6</sup> /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~20	6.4	7.3	7.3	7.6	7.9	8.7	9.4
-20~ 0	6.5	7.4	7.4	7.7	8.0	8.8	9.7
0~20	6.5	7.4	7.5	7.8	8.1	9.0	9.8
20~40	6.5	7.5	7.5	7.8	8.2	9.0	10.0
40~60	6.6	7.6	7.7	7.9	8.3	9.2	10.2
60~80	6.8	7.8	7.9	8.2	8.6	9.5	10.5