

# S-LAL10

Code(d) **720502**

Code(e) **723500**

Refractive Index $n_d$	<b>1.72000</b> 1.719995	Abbe Number $v_d$	<b>50.2</b> 50.23	Dispersion $n_F-n_C$	<b>0.01433</b> 0.014334
Refractive Index $n_e$	1.723409	Abbe Number $v_e$	49.98	Dispersion $n_F-n_C'$	0.014474

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.68159
$n_{1970}$	1.97009	1.68841
$n_{1530}$	1.52958	1.69567
$n_{1129}$	1.12864	1.70213
$n_t$	1.01398	1.70430
$n_s$	0.85211	1.70814
$n_{A'}$	0.76819	1.71079
$n_r$	0.70652	1.71323
$n_C$	0.65627	1.71567
$n_{C'}$	0.64385	1.71636
$n_{\text{He-Ne}}$	0.6328	1.71700
$n_D$	0.58929	1.71987
$n_d$	0.58756	1.72000
$n_e$	0.54607	1.72341
$n_F$	0.48613	1.73000
$n_{F'}$	0.47999	1.73083
$n_{\text{He-Cd}}$	0.44157	1.73686
$n_g$	0.435835	1.73792
$n_h$	0.404656	1.74455
$n_i$	0.365015	1.75597

Partial Dispersions	
$n_C-n_t$	0.011368
$n_C-n_{A'}$	0.004885
$n_d-n_C$	0.004325
$n_e-n_C$	0.007739
$n_g-n_d$	0.017923
$n_g-n_F$	0.007914
$n_h-n_g$	0.006628
$n_i-n_g$	0.018051
$n_C-n_t$	0.012054
$n_e-n_{C'}$	0.007053
$n_{F'-n_e}$	0.007421
$n_i-n_{F'}$	0.025139

Relative Partial Dispersions	
$\theta_{C,t}$	0.7931
$\theta_{C,A'}$	0.3408
$\theta_{d,C}$	0.3017
$\theta_{e,C}$	0.5399
$\theta_{g,d}$	1.2504
$\theta_{g,F}$	0.5521
$\theta_{h,g}$	0.4624
$\theta_{i,g}$	1.2593
$\theta'_{C,t}$	0.8328
$\theta'_{e,C'}$	0.4873
$\theta'_{F',e}$	0.5127
$\theta'_{i,F}$	1.7368

Thermal Properties	
Strain Point StP (°C)	582
Annealing Point AP (°C)	600
Transformation Temperature Tg (°C)	624
Yield Point At (°C)	657
Softening Point SP (°C)	692
Expansion Coefficients (-30~+70°C)	61
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	76
Thermal Conductivity k (W/m-K)	0.85

Coloring			
$\lambda_{80}$	38	$\lambda_5$	31
$\lambda_{70}$			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	0.07
320	0.22
330	0.40
340	0.58
350	0.72
360	0.83
370	0.89
380	0.937
390	0.959
400	0.972
420	0.983
440	0.988
460	0.991
480	0.994
500	0.996
550	0.998
600	0.997
650	0.998
700	0.998
800	0.998
900	0.998
1000	0.998
1200	0.998
1400	0.997
1600	0.996
1800	0.990
2000	0.971
2200	0.922
2400	0.71

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0107
$\Delta\theta_{C,A'}$	0.0040
$\Delta\theta_{g,d}$	-0.0100
$\Delta\theta_{g,F}$	-0.0081
$\Delta\theta_{i,g}$	-0.0451

Mechanical Properties	
Young's Modulus E ( $10^8\text{N/m}^2$ )	1061
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	410
Poisson's Ratio $\sigma$	0.294
Knoop Hardness Hk[Class]	650   7
Abrasion Aa	86
Photoelastic Constant $\beta$ (nm/cm/ $10^5\text{Pa}$ )	2.17

Constants of Dispersion Formula	
A <sub>1</sub>	1.52812575E+00
A <sub>2</sub>	3.67965267E-01
A <sub>3</sub>	1.11751784E+00
B <sub>1</sub>	7.76817644E-03
B <sub>2</sub>	2.72026548E-02
B <sub>3</sub>	8.88697400E+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	3.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.86
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$dn/dt$ relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	4.4	5.0	5.0	5.1	5.4	5.8	6.3
-20~ 0	4.5	5.0	5.1	5.2	5.5	5.9	6.4
0~20	4.5	5.1	5.2	5.3	5.5	6.0	6.5
20~40	4.6	5.2	5.2	5.4	5.6	6.1	6.7
40~60	4.6	5.2	5.3	5.5	5.7	6.3	6.8
60~80	4.6	5.3	5.4	5.5	5.8	6.4	6.9