

# S-LAL19

Code(d) **729541**

Code(e) **732539**

Refractive Index $n_d$	1.72916	Abbe Number $\nu_d$	54.09	Dispersion $n_F-n_C$	0.013480
Refractive Index $n_e$	1.729160	Abbe Number $\nu_e$	53.87	Dispersion $n_F-n_C'$	0.013596

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.68912
$n_{1970}$	1.97009	1.69682
$n_{1530}$	1.52958	1.70487
$n_{1129}$	1.12864	1.71175
$n_t$	1.01398	1.71397
$n_s$	0.85211	1.71779
$n_{A'}$	0.76819	1.72038
$n_f$	0.70652	1.72273
$n_C$	0.65627	1.72506
$n_{C'}$	0.64385	1.72571
$n_{\text{He-Ne}}$	0.6328	1.72632
$n_D$	0.58929	1.72904
$n_d$	0.58756	1.72916
$n_e$	0.54607	1.73237
$n_F$	0.48613	1.73854
$n_{F'}$	0.47999	1.73931
$n_{\text{He-Cd}}$	0.44157	1.74491
$n_g$	0.435835	1.74588
$n_h$	0.404656	1.75199
$n_i$	0.365015	1.76243

Constants of Dispersion Formula	
$A_1$	9.73997577E-01
$A_2$	9.58186322E-01
$A_3$	1.20163359E+00
$B_1$	3.79332678E-03
$B_2$	1.77574581E-02
$B_3$	8.37989600E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	52.0
Phosphate Resistance PR	2.0

Mechanical Properties	
Young's Modulus E (GPa)	119.8
Rigidity Modulus G (GPa)	46.3
Poisson's Ratio $\sigma$	0.295
Knoop Hardness Hk[Class]	720 * 7
Abrasion Aa	65

Partial Dispersions	
$n_C-n_t$	0.011088
$n_C-n_{A'}$	0.004686
$n_d-n_C$	0.004099
$n_e-n_C$	0.007312
$n_g-n_d$	0.016725
$n_g-n_F$	0.007344
$n_h-n_g$	0.006108
$n_i-n_g$	0.016544
$n_C-n_t$	0.011740
$n_e-n_{C'}$	0.006660
$n_{F'}-n_e$	0.006936
$n_i-n_{F'}$	0.023120

Relative Partial Dispersions	
$\theta_{C,t}$	0.8226
$\theta_{C,A'}$	0.3476
$\theta_{d,C}$	0.3041
$\theta_{e,C}$	0.5424
$\theta_{g,d}$	1.2407
$\theta_{g,F}$	0.5448
$\theta_{h,g}$	0.4531
$\theta_{i,g}$	1.2273
$\theta'_{C,t}$	0.8635
$\theta'_{e,C}$	0.4898
$\theta'_{F,e}$	0.5102
$\theta'_{i,F'}$	1.7005

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0221
$\Delta \theta_{C,A'}$	0.0062
$\Delta \theta_{g,d}$	-0.0117
$\Delta \theta_{g,F}$	-0.0092
$\Delta \theta_{i,g}$	-0.0448

Thermal Properties	
Strain Point StP (°C)	610
Annealing Point AP (°C)	634
Transformation Temperature Tg (°C)	644
Yield Point At (°C)	672
Softening Point SP (°C)	708
Expansion Coefficients (-30~+70°C)	54
$\alpha$ ( $10^{-7} \text{K}^{-1}$ ) (+100~+300°C)	69
Thermal Conductivity $\lambda$ W/(m·K)	0.895

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

Internal transmission			
$\lambda_{0.80}$	327	$\lambda_{0.05}$	

CCI		
B	G	R
0.00	0.21	0.21

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	0.29
290	0.43
300	0.55
310	0.66
320	0.75
330	0.82
340	0.88
350	0.925
360	0.953
370	0.970
380	0.980
390	0.986
400	0.990
420	0.993
440	0.995
460	0.997
480	0.998
500	0.999
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	0.993
1600	0.993
1800	0.981
2000	0.951
2200	0.85
2400	0.58

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ( $10^{-6}\text{K}^{-1}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	4.3	4.7	4.7	4.9	5.0	5.4	5.8
-20~ 0	4.2	4.7	4.7	4.8	5.0	5.4	5.8
0~20	4.2	4.7	4.7	4.9	5.0	5.5	5.9
20~40	4.2	4.7	4.7	4.9	5.1	5.5	5.9
40~60	4.2	4.8	4.8	4.9	5.1	5.6	6.0
60~80	4.4	4.9	5.0	5.1	5.3	5.8	6.3

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>9</sup> Pa)	1.61
Specific Gravity d	3.98
Remarks	

OHARA 23-05

OHARA Copyright© OHARA INC. All Rights Reserved.

※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.