

# S-LAL12Q

Code(d) **678553**

Code(e) **681551**

Refractive Index $n_d$	1.67790	Abbe Number $\nu_d$	55.35	Dispersion $n_F-n_C$	0.012248
Refractive Index $n_e$	1.677900	Abbe Number $\nu_e$	55.12	Dispersion $n_F-n_{C'}$	0.012351

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.64108
$n_{1970}$	1.97009	1.64821
$n_{1530}$	1.52958	1.65566
$n_{1129}$	1.12864	1.66200
$n_t$	1.01398	1.66404
$n_s$	0.85211	1.66754
$n_{A'}$	0.76819	1.66990
$n_f$	0.70652	1.67204
$n_C$	0.65627	1.67417
$n_{C'}$	0.64385	1.67476
$n_{\text{He-Ne}}$	0.6328	1.67532
$n_D$	0.58929	1.67779
$n_d$	0.58756	1.67790
$n_e$	0.54607	1.68082
$n_F$	0.48613	1.68642
$n_{F'}$	0.47999	1.68712
$n_{\text{He-Cd}}$	0.44157	1.69219
$n_g$	0.435835	1.69307
$n_h$	0.404656	1.69860
$n_i$	0.365015	1.70803

Constants of Dispersion Formula	
$A_1$	1.09887025E+00
$A_2$	6.65500482E-01
$A_3$	1.07183658E+00
$B_1$	5.38103754E-03
$B_2$	1.86717709E-02
$B_3$	8.30816500E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	51.0
Phosphate Resistance PR	3.0

Mechanical Properties	
Young's Modulus E (GPa)	106.8
Rigidity Modulus G (GPa)	41.4
Poisson's Ratio $\sigma$	0.289
Knoop Hardness Hk[Class]	700 * 7
Abrasion Aa	62

Partial Dispersions	
$n_C-n_t$	0.010130
$n_C-n_{A'}$	0.004273
$n_d-n_C$	0.003729
$n_e-n_C$	0.006650
$n_g-n_d$	0.015174
$n_g-n_F$	0.006655
$n_h-n_g$	0.005527
$n_i-n_g$	0.014954
$n_C-n_t$	0.010724
$n_e-n_{C'}$	0.006056
$n_{F'}-n_e$	0.006295
$n_i-n_{F'}$	0.020912

Relative Partial Dispersions	
$\theta_{C,t}$	0.8271
$\theta_{C,A'}$	0.3489
$\theta_{d,C}$	0.3045
$\theta_{e,C}$	0.5429
$\theta_{g,d}$	1.2389
$\theta_{g,F}$	0.5434
$\theta_{h,g}$	0.4513
$\theta_{i,g}$	1.2209
$\theta'_{C,t}$	0.8683
$\theta'_{e,C}$	0.4903
$\theta'_{F',e}$	0.5097
$\theta'_{i,F'}$	1.6931

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0207
$\Delta \theta_{C,A'}$	0.0059
$\Delta \theta_{g,d}$	-0.0109
$\Delta \theta_{g,F}$	-0.0085
$\Delta \theta_{i,g}$	-0.0406

Thermal Properties	
Strain Point StP (°C)	637
Annealing Point AP (°C)	670
Transformation Temperature Tg (°C)	689
Yield Point At (°C)	717
Softening Point SP (°C)	750
Expansion Coefficients (-30~+70°C)	49
$\alpha$ (10 <sup>-7</sup> K <sup>-1</sup> ) (+100~+300°C)	59
Thermal Conductivity $\lambda$ W/(m·K)	0.914

Coloring			
$\lambda_{80}$	380	$\lambda_5$	310
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	363	$\lambda_{0.05}$	308

CCI		
B	G	R
0.00	0.53	0.50

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	0.01
310	0.06
320	0.15
330	0.30
340	0.48
350	0.64
360	0.77
370	0.86
380	0.917
390	0.950
400	0.969
420	0.987
440	0.993
460	0.996
480	0.997
500	0.998
550	0.999
600	0.998
650	0.998
700	0.998
800	0.998
900	0.996
1000	0.996
1200	0.996
1400	0.981
1600	0.988
1800	0.975
2000	0.944
2200	0.82
2400	0.59

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative (10 <sup>-6</sup> K <sup>-1</sup> )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	5.3	5.7	5.7	5.8	6.0	6.3	6.7
-20~ 0	5.3	5.7	5.8	5.9	6.1	6.4	6.8
0~20	5.3	5.8	5.8	5.9	6.1	6.5	6.9
20~40	5.3	5.8	5.8	6.0	6.1	6.5	6.9
40~60	5.4	5.9	5.9	6.0	6.2	6.6	7.0
60~80	5.6	6.1	6.1	6.2	6.4	6.8	7.3

Other Properties	
Photoelastic Constant $\beta$ nm/(cm·10 <sup>9</sup> Pa)	1.97
Specific Gravity d	3.59
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.