

S-LAL 9

Code(d) **691548**

Code(e) **694546**

Refractive Index n_d	1.69100	Abbe Number ν_d	54.82	Dispersion n_F-n_C	0.012605
	1.691002				
Refractive Index n_e	1.694007	Abbe Number ν_e	54.59	Dispersion n_F-n_C'	0.012714

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.65343
n_{1970}	1.97009	1.66064
n_{1530}	1.52958	1.66822
n_{1129}	1.12864	1.67470
n_t	1.01398	1.67678
n_s	0.85211	1.68037
$n_{A'}$	0.76819	1.68279
n_f	0.70652	1.68499
n_C	0.65627	1.68717
$n_{C'}$	0.64385	1.68778
$n_{\text{He-Ne}}$	0.6328	1.68835
n_D	0.58929	1.69089
n_d	0.58756	1.69100
n_e	0.54607	1.69401
n_F	0.48613	1.69977
$n_{F'}$	0.47999	1.70049
$n_{\text{He-Cd}}$	0.44157	1.70573
n_g	0.435835	1.70664
n_h	0.404656	1.71236
n_i	0.365015	1.72212

Constants of Dispersion Formula	
A_1	1.16195687E+00
A_2	6.44860099E-01
A_3	1.25062221E+00
B_1	1.59659509E-02
B_2	5.05502467E-04
B_3	9.38284169E+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	52.0
Phosphate Resistance PR	4.0

Mechanical Properties	
Young's Modulus E (GPa)	107.5
Rigidity Modulus G (GPa)	41.8
Poisson's Ratio σ	0.287
Knoop Hardness Hk[Class]	660 * 7
Abrasion Aa	89

Partial Dispersions	
n_C-n_t	0.010384
$n_C-n_{A'}$	0.004384
n_d-n_C	0.003833
n_e-n_C	0.006838
n_g-n_d	0.015640
n_g-n_F	0.006868
n_h-n_g	0.005714
n_i-n_g	0.015476
n_C-n_t	0.010994
$n_e-n_{C'}$	0.006228
$n_{F'}-n_e$	0.006486
$n_i-n_{F'}$	0.021625

Relative Partial Dispersions	
$\theta_{C,t}$	0.8238
$\theta_{C,A'}$	0.3478
$\theta_{d,C}$	0.3041
$\theta_{e,C}$	0.5425
$\theta_{g,d}$	1.2408
$\theta_{g,F}$	0.5449
$\theta_{h,g}$	0.4533
$\theta_{i,g}$	1.2278
$\theta'_{C,t}$	0.8647
$\theta'_{e,C}$	0.4899
$\theta'_{F',e}$	0.5101
$\theta'_{i,F'}$	1.7009

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	0.0199
$\Delta \theta_{C,A'}$	0.0055
$\Delta \theta_{g,d}$	-0.0101
$\Delta \theta_{g,F}$	-0.0079
$\Delta \theta_{i,g}$	-0.0382

Thermal Properties	
Strain Point StP (°C)	606
Annealing Point AP (°C)	630
Transformation Temperature Tg (°C)	653
Yield Point At (°C)	679
Softening Point SP (°C)	707
Expansion Coefficients (-30~+70°C)	61
α (10^{-7}K^{-1}) (+100~+300°C)	74
Thermal Conductivity λ W/(m·K)	0.895

Coloring			
λ_{80}	375	λ_5	295
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	358	$\lambda_{0.05}$	301

CCI		
B	G	R
0.00	0.51	0.52

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	0.01
300	0.04
310	0.11
320	0.22
330	0.38
340	0.55
350	0.70
360	0.82
370	0.89
380	0.936
390	0.960
400	0.973
420	0.985
440	0.988
460	0.992
480	0.994
500	0.995
550	0.997
600	0.996
650	0.997
700	0.998
800	0.998
900	0.997
1000	0.996
1200	0.996
1400	0.992
1600	0.992
1800	0.984
2000	0.963
2200	0.89
2400	0.66

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative (10^{-6}K^{-1})						
	t	C'	He-Ne	D	e	F'	g
-40~-20	3.4	3.8	3.8	3.9	4.1	4.4	4.8
-20~ 0	3.4	3.8	3.8	4.0	4.1	4.5	4.9
0~20	3.5	3.9	3.9	4.0	4.2	4.6	5.0
20~40	3.5	3.9	3.9	4.1	4.3	4.7	5.1
40~60	3.6	4.0	4.0	4.2	4.3	4.8	5.2
60~80	3.7	4.0	4.0	4.2	4.4	4.8	5.3

Other Properties	
Photoelastic Constant β nm/(cm·10 ⁵ Pa)	1.85
Specific Gravity d	3.63
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.