

S-LAL20

Code(d) **699511**

Code(e) **703508**

Refractive Index n_d	1.69930	Abbe Number ν_d	51.11	Dispersion n_F-n_C	0.013682
	1.699300				
Refractive Index n_e	1.702559	Abbe Number ν_e	50.82	Dispersion n_F-n_C'	0.013825

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.66804
n_{1970}	1.97009	1.67270
n_{1530}	1.52958	1.67791
n_{1129}	1.12864	1.68297
n_t	1.01398	1.68481
n_s	0.85211	1.68820
$n_{A'}$	0.76819	1.69063
n_f	0.70652	1.69290
n_C	0.65627	1.69520
$n_{C'}$	0.64385	1.69584
$n_{\text{He-Ne}}$	0.6328	1.69645
n_D	0.58929	1.69918
n_d	0.58756	1.69930
n_e	0.54607	1.70256
n_F	0.48613	1.70888
$n_{F'}$	0.47999	1.70967
$n_{\text{He-Cd}}$	0.44157	1.71546
n_g	0.435835	1.71647
n_h	0.404656	1.72283
n_i	0.365015	1.73376

Constants of Dispersion Formula	
A_1	1.06788467E+00
A_2	7.58735350E-01
A_3	1.02804682E+00
B_1	5.18896058E-03
B_2	2.04004357E-02
B_3	1.20826320E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	53.1
Phosphate Resistance PR	4.2

Mechanical Properties	
Young's Modulus E (GPa)	78.7
Rigidity Modulus G (GPa)	30.2
Poisson's Ratio σ	0.302
Knoop Hardness Hk(Class)	490 5
Abrasion Aa	254

Partial Dispersions	
n_C-n_t	0.010389
$n_C-n_{A'}$	0.004570
n_d-n_C	0.004104
n_e-n_C	0.007363
n_g-n_d	0.017174
n_g-n_F	0.007596
n_h-n_g	0.006359
n_i-n_g	0.017290
n_C-n_t	0.011038
$n_e-n_{C'}$	0.006714
$n_{F'}-n_e$	0.007111
$n_i-n_{F'}$	0.024094

Relative Partial Dispersions	
$\theta_{C,t}$	0.7593
$\theta_{C,A'}$	0.3340
$\theta_{d,C}$	0.3000
$\theta_{e,C}$	0.5382
$\theta_{g,d}$	1.2552
$\theta_{g,F}$	0.5552
$\theta_{h,g}$	0.4648
$\theta_{i,g}$	1.2637
$\theta'_{C,t}$	0.7984
$\theta'_{e,C}$	0.4856
$\theta'_{F,e}$	0.5144
$\theta'_{i,F'}$	1.7428

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta \theta_{C,t}$	-0.0272
$\Delta \theta_{C,A'}$	-0.0038
$\Delta \theta_{g,d}$	-0.0034
$\Delta \theta_{g,F}$	-0.0036
$\Delta \theta_{i,g}$	-0.0333

Thermal Properties	
Strain Point StP (°C)	593
Annealing Point AP (°C)	621
Transformation Temperature Tg (°C)	628
Yield Point At (°C)	676
Softening Point SP (°C)	717
Expansion Coefficients (-30~+70°C)	90
α (10^{-7}K^{-1}) (+100~+300°C)	105
Thermal Conductivity λ W/(m·K)	0.602

Coloring			
λ_{80}	370	λ_5	310
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	350	$\lambda_{0.05}$	305

CCI		
B	G	R
0.00	0.40	0.36

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	
300	0.01
310	0.09
320	0.27
330	0.49
340	0.67
350	0.80
360	0.88
370	0.934
380	0.960
390	0.974
400	0.982
420	0.987
440	0.987
460	0.989
480	0.992
500	0.994
550	0.996
600	0.995
650	0.994
700	0.996
800	0.998
900	0.997
1000	0.997
1200	0.998
1400	0.997
1600	0.995
1800	0.985
2000	0.969
2200	0.935
2400	0.84

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	-1.8	-1.3	-1.3	-1.1	-1.0	-0.5	-0.1
-20~ 0	-1.9	-1.4	-1.4	-1.2	-1.0	-0.6	-0.1
0~20	-1.9	-1.4	-1.4	-1.2	-1.0	-0.5	-0.1
20~40	-2.0	-1.5	-1.4	-1.3	-1.0	-0.6	-0.1
40~60	-2.0	-1.4	-1.4	-1.2	-1.0	-0.5	0.0
60~80	-1.9	-1.3	-1.3	-1.1	-0.9	-0.4	0.2

Other Properties	
Photoelastic Constant β nm/(cm·10 ⁹ Pa)	1.23
Specific Gravity d	4.38
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.