

S-LAL13

Code(d) **694532**

Code(e) **697530**

Refractive Index n_d	1.69350 1.693501	Abbe Number ν_d	53.21	Dispersion n_F-n_C	0.013034
Refractive Index n_e	1.696607	Abbe Number ν_e	52.97	Dispersion n_F-n_C'	0.013152

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.65605
n_{1970}	1.97009	1.66304
n_{1530}	1.52958	1.67044
n_{1129}	1.12864	1.67685
n_t	1.01398	1.67894
n_s	0.85211	1.68258
$n_{A'}$	0.76819	1.68504
n_r	0.70652	1.68730
n_C	0.65627	1.68955
$n_{C'}$	0.64385	1.69018
$n_{\text{He-Ne}}$	0.6328	1.69076
n_D	0.58929	1.69339
n_d	0.58756	1.69350
n_e	0.54607	1.69661
n_F	0.48613	1.70258
$n_{F'}$	0.47999	1.70333
$n_{\text{He-Cd}}$	0.44157	1.70877
n_g	0.435835	1.70972
n_h	0.404656	1.71566
n_i	0.365015	1.72585

Constants of Dispersion Formula	
A_1	9.80071267E-01
A_2	8.32904776E-01
A_3	1.28111995E+00
B_1	3.89123698E-03
B_2	1.89164592E-02
B_3	9.89052676E+01

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	1~2
Acid Resistance(Surface) Group SR	52.0
Phosphate Resistance PR	3.0

Mechanical Properties	
Young's Modulus E (10^9N/m^2)	1073
Rigidity Modulus G (10^9N/m^2)	416
Poisson's Ratio σ	0.290
Knoop Hardness Hk[Class]	650 7
Abrasion Aa	84
Photoelastic Constant β nm/(cm· 10^5Pa)	2.13

Partial Dispersions	
n_C-n_t	0.010604
$n_C-n_{A'}$	0.004503
n_d-n_C	0.003953
n_e-n_C	0.007059
n_g-n_d	0.016214
n_g-n_F	0.007133
n_h-n_g	0.005947
n_i-n_g	0.016134
n_C-n_t	0.011232
$n_e-n_{C'}$	0.006431
n_F-n_e	0.006721
$n_i-n_{F'}$	0.022521

Relative Partial Dispersions	
$\theta_{C,t}$	0.8136
$\theta_{C,A'}$	0.3455
$\theta_{d,C}$	0.3033
$\theta_{e,C}$	0.5416
$\theta_{g,d}$	1.2440
$\theta_{g,F}$	0.5473
$\theta_{h,g}$	0.4563
$\theta_{i,g}$	1.2378
$\theta'_{C,t}$	0.8540
$\theta'_{e,C'}$	0.4890
$\theta'_{F,e}$	0.5110
$\theta'_{i,F'}$	1.7124

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0173
$\Delta\theta_{C,A'}$	0.0051
$\Delta\theta_{g,d}$	-0.0102
$\Delta\theta_{g,F}$	-0.0081
$\Delta\theta_{i,g}$	-0.0417

Thermal Properties	
Strain Point StP (°C)	591
Annealing Point AP (°C)	616
Transformation Temperature Tg (°C)	641
Yield Point At (°C)	666
Softening Point SP (°C)	701
Expansion Coefficients (-30~+70°C)	57
α ($10^{-7}/^\circ\text{C}$) (+100~+300°C)	72
Thermal Conductivity λ W/(m·K)	0.893

Coloring			
λ_{80}	375	λ_5	300
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	360	$\lambda_{0.05}$	304

CCI		
B	G	R
0.00	0.48	0.42

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	0.01
300	0.03
310	0.08
320	0.19
330	0.34
340	0.52
350	0.68
360	0.80
370	0.88
380	0.932
390	0.958
400	0.972
420	0.986
440	0.990
460	0.993
480	0.995
500	0.996
550	0.997
600	0.995
650	0.995
700	0.996
800	0.997
900	0.996
1000	0.995
1200	0.995
1400	0.990
1600	0.990
1800	0.981
2000	0.958
2200	0.88
2400	0.66

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	$\Delta n/\Delta T$ relative ($10^{-6}/^\circ\text{C}$)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	4.6	4.8	4.8	4.9	5.1	5.5	5.9
-20~ 0	4.7	4.9	5.0	5.1	5.3	5.7	6.1
0~20	4.8	5.1	5.1	5.3	5.5	5.9	6.4
20~40	4.9	5.3	5.3	5.5	5.7	6.1	6.6
40~60	5.0	5.4	5.5	5.6	5.8	6.3	6.8
60~80	5.1	5.6	5.6	5.8	6.0	6.5	7.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.60
Remarks	

OHARA 17-04

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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.