L-LAH84

Code(d) **808405**

Code(e) **813403**

Refractive Index	n_d	**1.80835** / 1.808350	Abbe Number	ν_d **40.55**	Dispersion	n_F-n_C **0.019936**
Refractive Index	n_e	1.813086	Abbe Number	ν_e 40.30	Dispersion	$n_{F'}$-$n_{C'}$ 0.020178

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.76397
n_{1970}	1.97009	1.77059
n_{1530}	1.52958	1.77793
n_{1129}	1.12864	1.78505
n_t	1.01398	1.78765
n_s	0.85211	1.79245
$n_{A'}$	0.76819	1.79590
n_r	0.70652	1.79914
n_C	0.65627	1.80243
$n_{C'}$	0.64385	1.80336
n_{He-Ne}	0.6328	1.80424
n_D	0.58929	1.80818
n_d	0.58756	1.80835
n_e	0.54607	1.81309
n_F	0.48613	1.82237
$n_{F'}$	0.47999	1.82354
n_{He-Cd}	0.44157	1.83219
n_g	0.435835	1.83372
n_h	0.404656	1.84340
n_i	0.365015	1.86048

Constants of Dispersion Formula	
A_1	1.83606127E+00
A_2	3.41720032E-01
A_3	1.35280173E+00
B_1	9.81969903E-03
B_2	3.85636264E-02
B_3	1.07045530E+02

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	51.3
Phosphate Resistance PR	2.2

Mechanical Properties		
Young's Modulus E (GPa)	111.6	
Rigidity Modulus G (GPa)	42.8	
Poisson's Ratio σ	0.303	
Knoop Hardness Hk[Class]	640	6
Abrasion Aa	88	

Partial Dispersions	
n_C-n_t	0.014785
n_C-$n_{A'}$	0.006535
n_d-n_C	0.005918
n_e-n_C	0.010654
n_g-n_d	0.025366
n_g-n_F	0.011348
n_h-n_g	0.009680
n_i-n_g	0.026762
n_C-n_t	0.015716
n_e-$n_{C'}$	0.009723
$n_{F'}$-n_e	0.010455
n_i-$n_{F'}$	0.036937

Relative Partial Dispersions	
$\theta_{C,t}$	0.7416
$\theta_{C,A'}$	0.3278
$\theta_{d,C}$	0.2968
$\theta_{e,C}$	0.5344
$\theta_{g,d}$	1.2724
$\theta_{g,F}$	0.5692
$\theta_{h,g}$	0.4856
$\theta_{i,g}$	1.3424
$\theta'_{C',t}$	0.7789
$\theta'_{e,C'}$	0.4819
$\theta'_{F',e}$	0.5181
$\theta'_{i,F'}$	1.8306

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	0.0047
$\Delta\theta_{C,A'}$	0.0028
$\Delta\theta_{g,d}$	-0.0081
$\Delta\theta_{g,F}$	-0.0067
$\Delta\theta_{i,g}$	-0.0431

Thermal Properties		
Strain Point StP (℃)		491
Annealing Point AP (℃)		515
Transformation Temperature Tg (℃)		531 *
Yield Point At (℃)		577 *
Softening Point SP (℃)		603
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	64 *
	(+100~+300℃)	81 *
Thermal Conductivity λ W/(m·K)		0.875

Coloring			
λ_{80}	400	λ_5	335
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	364	$\lambda_{0.05}$	336

CCI		
B	G	R
0.00	0.75	0.77

Internal Transmittance	
λ(nm)	τ 10mm
280	
290	
300	
310	
320	
330	
340	0.20
350	0.54
360	0.76
370	0.87
380	0.922
390	0.950
400	0.965
420	0.979
440	0.985
460	0.990
480	0.993
500	0.996
550	0.998
600	0.998
650	0.998
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.998
1600	0.997
1800	0.992
2000	0.975
2200	0.942
2400	0.79

Temperature Coefficients of Refractive Index							
Range of Temperature (℃)	Δn/ΔT relative ($10^{-6}$$K^{-1}$)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	7.2	8.1	8.1	8.4	8.7	9.6	10.4
-20~ 0	7.1	8.1	8.1	8.4	8.8	9.7	10.6
0~20	7.1	8.1	8.2	8.5	8.7	9.8	10.7
20~40	7.1	8.1	8.2	8.5	8.9	9.8	10.8
40~60	7.2	8.2	8.3	8.6	9.0	10.0	11.0
60~80	7.3	8.4	8.5	8.8	9.3	10.3	11.3

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	2.35
Specific Gravity d	4.62
Remarks	

OHARA 24-01

※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.