

S-LAH99

Code(d) **001291**

Code(e) **009289**

Refractive Index n_d	2.00100 2.001000	Abbe Number ν_d	29.14	Dispersion n_F-n_C	0.034352
Refractive Index n_e	2.009118	Abbe Number ν_e	28.92	Dispersion $n_F-n_{C'}$	0.034895

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.93863
n_{1970}	1.97009	1.94585
n_{1530}	1.52958	1.95440
n_{1129}	1.12864	1.96380
n_t	1.01398	1.96756
n_s	0.85211	1.97488
$n_{A'}$	0.76819	1.98035
n_r	0.70652	1.98561
n_C	0.65627	1.99105
$n_{C'}$	0.64385	1.99260
n_{He-Ne}	0.6328	1.99406
n_D	0.58929	2.00070
n_d	0.58756	2.00100
n_e	0.54607	2.00912
n_F	0.48613	2.02540
$n_{F'}$	0.47999	2.02749
n_{He-Cd}	0.44157	2.04319
n_g	0.435835	2.04600
n_h	0.404656	2.06424
n_i	0.365015	

Constants of Dispersion Formula	
A_1	2.39140662E+00
A_2	4.39219228E-01
A_3	2.38358467E+00
B_1	1.31467500E-02
B_2	5.53226042E-02
B_3	1.61259900E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	1
Acid Resistance(Surface) Group SR	2.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E (10^9N/m^2)	1313
Rigidity Modulus G (10^9N/m^2)	502
Poisson's Ratio σ	0.307
Knoop Hardness Hk[Class]	650 7
Abrasion Aa	55
Photoelastic Constant β nm/(cm \cdot 10 5 Pa)	0.76

Partial Dispersions	
n_C-n_t	0.023490
$n_C-n_{A'}$	0.010695
n_d-n_C	0.009952
n_e-n_C	0.018070
n_g-n_d	0.045001
n_g-n_F	0.020601
n_h-n_g	0.018235
n_i-n_g	
n_C-n_t	0.025041
$n_e-n_{C'}$	0.016519
n_F-n_e	0.018376
$n_i-n_{F'}$	

Relative Partial Dispersions	
$\theta_{C,t}$	0.6838
$\theta_{C,A'}$	0.3113
$\theta_{d,C}$	0.2897
$\theta_{e,C}$	0.5260
$\theta_{g,d}$	1.3100
$\theta_{g,F}$	0.5997
$\theta_{h,g}$	0.5308
$\theta_{i,g}$	
$\theta'_{C,t}$	0.7176
$\theta'_{e,C'}$	0.4734
$\theta'_{F',e}$	0.5266
$\theta'_{i,F'}$	

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0004
$\Delta\theta_{C,A'}$	0.0001
$\Delta\theta_{g,d}$	0.0058
$\Delta\theta_{g,F}$	0.0054
$\Delta\theta_{i,g}$	

Thermal Properties	
Strain Point StP ($^{\circ}\text{C}$)	682
Annealing Point AP ($^{\circ}\text{C}$)	718
Transformation Temperature Tg ($^{\circ}\text{C}$)	725
Yield Point At ($^{\circ}\text{C}$)	761
Softening Point SP ($^{\circ}\text{C}$)	792
Expansion Coefficients (-30~+70 $^{\circ}\text{C}$)	75
α ($10^{-7}/^{\circ}\text{C}$) (+100~+300 $^{\circ}\text{C}$)	88
Thermal Conductivity λ W/(m \cdot K)	0.944

Coloring			
λ_{80}		λ_5	360
λ_{70}	425		

Internal transmission			
$\lambda_{0.80}$	407	$\lambda_{0.05}$	360

CCI		
B	G	R
0.00	5.00	5.23

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	
300	
310	
320	
330	
340	
350	
360	0.05
370	0.25
380	0.49
390	0.66
400	0.76
420	0.87
440	0.924
460	0.951
480	0.968
500	0.980
550	0.995
600	0.998
650	0.998
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.999
1600	0.998
1800	0.995
2000	0.983
2200	0.964
2400	0.88

Temperature Coefficients of Refractive Index							
Range of Temperature ($^{\circ}\text{C}$)	$\Delta n/\Delta T$ relative ($10^{-6}/^{\circ}\text{C}$)						
	t	C'	He-Ne	D	e	F'	g
-40~-20	2.1	3.4	3.5	3.9	4.5	5.8	7.4
-20~ 0	2.1	3.5	3.6	4.1	4.7	6.1	7.8
0~20	2.2	3.6	3.7	4.2	4.8	6.4	8.1
20~40	2.2	3.7	3.8	4.3	4.9	6.6	8.4
40~60	2.3	3.8	3.9	4.5	5.1	6.8	8.7
60~80	2.4	4.1	4.2	4.7	5.4	7.2	9.2

Other Properties	
Bubble Quality Group B	
Specific Gravity d	5.02
Remarks	

OHARA 18-04

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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.