S-BAL42

Code(d) **583594**
Code(e) **585591**

Refractive Index	n_d	**1.58313**	Abbe Number	ν_d	**59.38**	Dispersion	n_F-n_C	**0.009821**
		1.583126						
Refractive Index	n_e	1.585468	Abbe Number	ν_e	59.11	Dispersion	$n_{F'}$-$n_{C'}$	0.009905

Refractive Indices		
λ(μm)		
n_{2325}	2.32542	1.55463
n_{1970}	1.97009	1.55992
n_{1530}	1.52958	1.56557
n_{1129}	1.12864	1.57048
n_t	1.01398	1.57208
n_s	0.85211	1.57485
$n_{A'}$	0.76819	1.57673
n_r	0.70652	1.57844
n_C	0.65627	1.58014
$n_{C'}$	0.64385	1.58061
$n_{He\text{-}Ne}$	0.6328	1.58106
n_D	0.58929	1.58304
n_d	0.58756	1.58313
n_e	0.54607	1.58547
n_F	0.48613	1.58996
$n_{F'}$	0.47999	1.59052
$n_{He\text{-}Cd}$	0.44157	1.59459
n_g	0.435835	1.59530
n_h	0.404656	1.59972
n_i	0.365015	1.60724

Constants of Dispersion Formula	
A_1	1.39570615E+00
A_2	7.18505070E-02
A_3	1.27129267E+00
B_1	1.12218843E-02
B_2	-2.52117422E-02
B_3	1.34497860E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	2
Weathering Resistance(Surface) Group W(S)	1～2
Acid Resistance(Surface) Group SR	1.2
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E (GPa)	84.7	
Rigidity Modulus G (GPa)	34.0	
Poisson's Ratio σ	0.246	
Knoop Hardness Hk[Class]	570	6
Abrasion Aa	121	

Partial Dispersions	
n_C-n_t	0.008056
n_C-$n_{A'}$	0.003413
n_d-n_C	0.002987
n_e-n_C	0.005329
n_g-n_d	0.012171
n_g-n_F	0.005337
n_h-n_g	0.004424
n_i-n_g	0.011946
n_C-n_t	0.008531
n_e-$n_{C'}$	0.004854
$n_{F'}$-n_e	0.005051
n_i-$n_{F'}$	0.016724

Relative Partial Dispersions	
$\theta_{C,t}$	0.8203
$\theta_{C,A'}$	0.3475
$\theta_{d,C}$	0.3041
$\theta_{e,C}$	0.5426
$\theta_{g,d}$	1.2393
$\theta_{g,F}$	0.5434
$\theta_{h,g}$	0.4505
$\theta_{i,g}$	1.2164
$\theta'_{C',t}$	0.8613
$\theta'_{e,C'}$	0.4901
$\theta'_{F',e}$	0.5099
$\theta'_{i,F'}$	1.6884

Deviation of Relative Dispersions Δθfrom "Normal"	
$\Delta\theta_{C,t}$	-0.0050
$\Delta\theta_{C,A'}$	-0.0004
$\Delta\theta_{g,d}$	-0.0021
$\Delta\theta_{g,F}$	-0.0020
$\Delta\theta_{i,g}$	-0.0114

Thermal Properties		
Strain Point StP (℃)		503
Annealing Point AP (℃)		534
Transformation Temperature Tg (℃)		550
Yield Point At (℃)		588
Softening Point SP (℃)		672
Expansion Coefficients α (10^{-7} K^{-1})	(-30~+70℃)	66
	(+100~+300℃)	76
Thermal Conductivity λ W/(m·K)		0.974

Coloring			
λ_{80}	340	λ_5	290
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	335	$\lambda_{0.05}$	292

CCI		
B	G	R
0.00	0.16	0.14

Internal Transmittance	
λ(nm)	τ 10mm
280	
290	0.03
300	0.15
310	0.36
320	0.58
330	0.75
340	0.86
350	0.932
360	0.964
370	0.979
380	0.986
390	0.991
400	0.993
420	0.995
440	0.995
460	0.996
480	0.997
500	0.998
550	0.999
600	0.998
650	0.998
700	0.998
800	0.998
900	0.997
1000	0.997
1200	0.997
1400	0.987
1600	0.994
1800	0.985
2000	0.973
2200	0.917
2400	0.86

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	2.9	3.2	3.2	3.3	3.5	3.8	4.0
-20~ 0	2.9	3.3	3.3	3.4	3.5	3.8	4.1
0~20	3.0	3.3	3.3	3.4	3.6	3.9	4.2
20~40	3.0	3.4	3.4	3.5	3.7	4.0	4.3
40~60	3.0	3.4	3.4	3.6	3.7	4.1	4.4
60~80	3.1	3.5	3.5	3.7	3.8	4.2	4.5

Other Properties	
Photoelastic Constant β nm/(cm·10^5Pa)	2.20
Specific Gravity d	3.19
Remarks	

OHARA 23-05

※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.