S-BAM12

Code(d) **639449**
Code(e) **643446**

Refractive Index n_d	**1.639 30** 1.639 300	Abbe Number ν_d	**44.87**	Dispersion $n_F - n_C$	**0.014 247**
Refractive Index n_e	1.642 684	Abbe Number ν_e	44.59	Dispersion $n_{F'} - n_{C'}$	0.014 414

Refractive Indices		
λ (μm)		
n_{2325}	2.325 42	1.604 80
n_{1970}	1.970 09	1.610 40
n_{1530}	1.529 58	1.616 53
n_{1129}	1.128 64	1.622 23
n_t	1.013 98	1.624 22
n_s	0.852 11	1.627 81
$n_{A'}$	0.768 19	1.630 33
n_r	0.706 52	1.632 68
n_C	0.656 27	1.635 06
$n_{C'}$	0.643 85	1.635 73
$n_{He\text{-}Ne}$	0.632 8	1.636 35
n_D	0.589 29	1.639 17
n_d	0.587 56	1.639 30
n_e	0.546 07	1.642 68
n_F	0.486 13	1.649 30
$n_{F'}$	0.479 99	1.650 14
$n_{He\text{-}Cd}$	0.441 57	1.656 31
n_g	0.435 835	1.657 40
n_h	0.404 656	1.664 33
n_i	0.365 015	1.676 65

Constants of Dispersion Formula	
A_1	1.501 616 05E+00
A_2	1.269 874 45E-01
A_3	1.435 440 52E+00
B_1	9.407 618 26E-03
B_2	4.726 021 95E-02
B_3	1.416 664 99E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	3.2
Phosphate Resistance PR	1.0

Mechanical Properties		
Young's Modulus E (GPa)	90.4	
Rigidity Modulus G (GPa)	36.1	
Poisson's Ratio σ	0.253	
Knoop Hardness Hk[Class]	570	6
Abrasion Aa	154	

Partial Dispersions	
$n_C - n_t$	0.010 836
$n_C - n_{A'}$	0.004 725
$n_d - n_C$	0.004 243
$n_e - n_C$	0.007 627
$n_g - n_d$	0.018 101
$n_g - n_F$	0.008 097
$n_h - n_g$	0.006 929
$n_i - n_g$	0.019 244
$n_{C'} - n_t$	0.011 505
$n_e - n_{C'}$	0.006 958
$n_{F'} - n_e$	0.007 456
$n_i - n_{F'}$	0.026 505

Relative Partial Dispersions	
$\theta_{C,t}$	0.760 6
$\theta_{C,A'}$	0.331 6
$\theta_{d,C}$	0.297 8
$\theta_{e,C}$	0.535 3
$\theta_{g,d}$	1.270 5
$\theta_{g,F}$	0.568 3
$\theta_{h,g}$	0.486 3
$\theta_{i,g}$	1.350 7
$\theta'_{C',t}$	0.798 2
$\theta'_{e,C'}$	0.482 7
$\theta'_{F',e}$	0.517 3
$\theta'_{i,F'}$	1.838 8

Anomalous dispersion	
$\Delta\theta_{C,t}$	0.003 4
$\Delta\theta_{C,A'}$	0.001 4
$\Delta\theta_{g,d}$	-0.001 0
$\Delta\theta_{g,F}$	-0.000 6
$\Delta\theta_{i,g}$	0.001 4

Coloring			
λ_{80}	385	λ_5	345
λ_{70}			

Internal transmission			
$\lambda_{0.80}$	374	$\lambda_{0.05}$	348

CCI		
B	G	R
0.00	0.93	0.93

Internal Transmittance	
λ (nm)	τ_i (10 mm)
280	
290	
300	
310	
320	
330	
340	
350	0.13
360	0.49
370	0.75
380	0.87
390	0.928
400	0.955
420	0.977
440	0.983
460	0.987
480	0.990
500	0.993
550	0.997
600	0.996
650	0.996
700	0.997
800	0.998
900	0.998
1 000	0.998
1 200	0.998
1 400	0.992
1 600	0.995
1 800	0.987
2 000	0.976
2 200	0.932
2 400	0.86

Thermal Properties		
Strain Point StP (°C)		565
Annealing Point AP (°C)		592
Transformation Temperature Tg (°C)		605
Yield Point At (°C)		659
Softening Point SP (°C)		717
Expansion Coefficients α_l (10^{-7} K^{-1})	(-30 ℃ ~ 70 ℃)	76
	(100 °C ~ 300 °C)	91
Thermal Conductivity λ (W/(m·K))		0.954

Linear coefficient of thermal expansion	
Temperature range (°C)	α_l (10^{-7} K^{-1})
-100 ~ -90	63
-90 ~ -80	64
-80 ~ -70	65
-70 ~ -60	66
-60 ~ -50	68
-50 ~ -40	69
-40 ~ -30	70
-30 ~ -20	71
-20 ~ -10	72
-10 ~ 0	73
0 ~ 10	74
10 ~ 20	75
20 ~ 30	77
30 ~ 40	78
40 ~ 50	79
50 ~ 60	80
60 ~ 70	80
70 ~ 80	81
80 ~ 90	82
90 ~ 100	83
100 ~ 110	84
110 ~ 120	85
120 ~ 130	86
130 ~ 140	87
140 ~ 150	87
150 ~ 160	88
160 ~ 170	89
170 ~ 180	90
180 ~ 190	90
190 ~ 200	91
200 ~ 210	92
210 ~ 220	92
220 ~ 230	93
230 ~ 240	93
240 ~ 250	94
250 ~ 260	94
260 ~ 270	95
270 ~ 280	95
280 ~ 290	96
290 ~ 300	96

Other Properties	
Photoelastic Constant β nm/(cm·105Pa)	2.30
Specific Gravity *d*	3.18
Remarks	

Temperature Coefficients of Refractive Index												
Range of Temperature (°C)	$\Delta n_{rel} / \Delta T$ (10^{-6} K^{-1})											
	1550	t	r	C	C'	d	e	F	F'	g	h	i
-80 ~ -60	1.4	1.5	1.9	2.0	2.0	2.2	2.4	2.7	2.8	3.3	3.8	4.9
-60 ~ -40	1.3	1.5	1.8	1.9	1.9	2.1	2.2	2.7	2.8	3.2	3.7	4.9
-40 ~ -20	1.3	1.4	1.8	1.9	1.9	2.1	2.3	2.8	2.8	3.3	3.9	5.0
-20 ~ 0	1.3	1.5	1.8	2.0	2.0	2.2	2.4	2.8	2.9	3.5	4.1	5.3
0 ~ 20	1.3	1.5	1.9	2.0	2.1	2.3	2.5	3.0	3.1	3.6	4.2	5.5
20 ~ 40	1.4	1.6	2.0	2.1	2.2	2.4	2.6	3.1	3.2	3.8	4.5	5.7
40 ~ 60	1.5	1.7	2.2	2.3	2.4	2.6	2.9	3.3	3.4	4.0	4.7	6.0
60 ~ 80	1.7	1.9	2.3	2.4	2.5	2.7	3.0	3.5	3.5	4.2	5.0	6.4
80 ~ 100	1.8	2.0	2.4	2.6	2.6	2.9	3.1	3.7	3.7	4.4	5.1	6.6
100 ~ 120	1.9	2.1	2.6	2.7	2.8	3.0	3.3	3.8	3.9	4.6	5.3	6.8
120 ~ 140	1.9	2.2	2.7	2.8	2.9	3.1	3.4	4.0	4.1	4.8	5.5	7.1
140 ~ 160	2.0	2.2	2.7	2.9	2.9	3.2	3.5	4.2	4.2	5.0	5.8	7.4
160 ~ 180	2.1	2.3	2.9	3.0	3.1	3.4	3.7	4.3	4.3	5.1	5.9	7.6

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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.