

S-BAL42

Code(d) **583594**

Code(e) **585591**

Refractive Index n_d	1.58313 1.583126	Abbe Number v_d	59.4 59.38	Dispersion n_F-n_C	0.00982 0.009821
Refractive Index n_e	1.585468	Abbe Number v_e	59.11	Dispersion $n_F'-n_C'$	0.009905

Refractive Indices		
$\lambda(\mu\text{m})$		
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
$n_{\text{He-Ne}}$	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
$n_{\text{He-Cd}}$	0.44157	1.59459
n_g	0.435835	1.59530
n_h	0.404656	1.59972
n_i	0.365015	1.60724

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

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

Coloring			
λ_{80}	34	λ_5	29
λ_{70}			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
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

Deviation of Relative Dispersions $\Delta\theta$ from "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

Mechanical Properties	
Young's Modulus E (10^8N/m^2)	847
Rigidity Modulus G (10^8N/m^2)	340
Poisson's Ratio σ	0.246
Knoop Hardness Hk[Class]	570 6
Abrasion Aa	117
Photoelastic Constant β (nm/cm/ 10^5Pa)	2.20

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

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.19
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	dn/dt relative ($10^{-6}/^\circ\text{C}$)						
	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