

S-BAL35

Code(d) **589612**

Code(e) **591609**

Refractive Index n_d	1.58913 1.589130	Abbe Number v_d	61.2 61.14	Dispersion n_F-n_C	0.00963 0.009636
Refractive Index n_e	1.591429	Abbe Number v_e	60.88	Dispersion n_F-n_C'	0.009714

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.55959
n_{1970}	1.97009	1.56531
n_{1530}	1.52958	1.57134
n_{1129}	1.12864	1.57648
n_t	1.01398	1.57813
n_s	0.85211	1.58093
$n_{A'}$	0.76819	1.58280
n_r	0.70652	1.58450
n_C	0.65627	1.58619
$n_{C'}$	0.64385	1.58666
$n_{\text{He-Ne}}$	0.6328	1.58710
n_D	0.58929	1.58904
n_d	0.58756	1.58913
n_e	0.54607	1.59143
n_F	0.48613	1.59582
$n_{F'}$	0.47999	1.59637
$n_{\text{He-Cd}}$	0.44157	1.60034
n_g	0.435835	1.60103
n_h	0.404656	1.60535
n_i	0.365015	1.61268

Partial Dispersions	
n_C-n_t	0.008061
$n_C-n_{A'}$	0.003384
n_d-n_C	0.002942
n_e-n_C	0.005241
n_g-n_d	0.011904
n_g-n_F	0.005210
n_h-n_g	0.004314
n_i-n_g	0.011647
n_C-n_t	0.008530
$n_e-n_{C'}$	0.004772
$n_{F'}-n_e$	0.004942
$n_i-n_{F'}$	0.016310

Relative Partial Dispersions	
$\theta_{C,t}$	0.8366
$\theta_{C,A'}$	0.3512
$\theta_{d,C}$	0.3053
$\theta_{e,C}$	0.5439
$\theta_{g,d}$	1.2354
$\theta_{g,F}$	0.5407
$\theta_{h,g}$	0.4477
$\theta_{i,g}$	1.2087
$\theta'_{C,t}$	0.8781
$\theta'_{e,C'}$	0.4912
$\theta'_{F',e}$	0.5088
$\theta'_{i,F}$	1.6790

Thermal Properties	
Strain Point StP (°C)	619
Annealing Point AP (°C)	646
Transformation Temperature Tg (°C)	669
Yield Point At (°C)	709
Softening Point SP (°C)	768
Expansion Coefficients (-30~+70°C)	57
α (10 ⁻⁷ /°C) (+100~+300°C)	67
Thermal Conductivity k (W/m·K)	0.915

Coloring			
λ_{80}	34	λ_5	30
λ_{70}			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	0.01
310	0.16
320	0.43
330	0.67
340	0.82
350	0.904
360	0.949
370	0.972
380	0.983
390	0.989
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	0.999
800	0.999
900	0.998
1000	0.998
1200	0.998
1400	0.984
1600	0.994
1800	0.987
2000	0.972
2200	0.89
2400	0.80

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0030
$\Delta\theta_{C,A'}$	0.0012
$\Delta\theta_{g,d}$	-0.0024
$\Delta\theta_{g,F}$	-0.0018
$\Delta\theta_{i,g}$	-0.0044

Mechanical Properties	
Young's Modulus E (10 ⁸ N/m ²)	832
Rigidity Modulus G (10 ⁸ N/m ²)	333
Poisson's Ratio σ	0.250
Knoop Hardness Hk[Class]	590 6
Abrasion Aa	115
Photoelastic Constant β (nm/cm/10 ⁵ Pa)	2.15

Constants of Dispersion Formula	
A ₁	9.41357273E-01
A ₂	5.46174895E-01
A ₃	1.16168917E+00
B ₁	1.40333996E-02
B ₂	9.06635683E-04
B ₃	1.14163758E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	2
Acid Resistance(Powder) Group RA(P)	4
Weathering Resistance(Surface) Group W(S)	
Acid Resistance(Surface) Group SR	4.2
Phosphate Resistance PR	1.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.31
Remarks	

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	dn/dt relative (10 ⁻⁶ /°C)						
	t	C'	He-Ne	D	e	F'	g
-40~20	2.9	3.1	3.1	3.3	3.4	3.6	3.9
-20~ 0	3.0	3.3	3.3	3.4	3.5	3.8	4.1
0~20	3.2	3.5	3.5	3.6	3.7	4.0	4.3
20~40	3.3	3.6	3.6	3.8	3.9	4.2	4.5
40~60	3.5	3.8	3.8	3.9	4.1	4.4	4.7
60~80	3.6	3.9	4.0	4.1	4.2	4.5	4.9

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