

S-BAL 3

Code(d) **571530**

Code(e) **574527**

Refractive Index n_d	1.57135	Abbe Number v_d	53.0	Dispersion n_F-n_C	0.01079
	1.571351		52.95		0.010790
Refractive Index n_e	1.573920	Abbe Number v_e	52.65	Dispersion n_F-n_C'	0.010900

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.54361
n_{1970}	1.97009	1.54831
n_{1530}	1.52958	1.55341
n_{1129}	1.12864	1.55806
n_t	1.01398	1.55965
n_s	0.85211	1.56248
$n_{A'}$	0.76819	1.56445
n_r	0.70652	1.56627
n_C	0.65627	1.56810
$n_{C'}$	0.64385	1.56862
$n_{\text{He-Ne}}$	0.6328	1.56910
n_D	0.58929	1.57126
n_d	0.58756	1.57135
n_e	0.54607	1.57392
n_F	0.48613	1.57889
$n_{F'}$	0.47999	1.57952
$n_{\text{He-Cd}}$	0.44157	1.58409
n_g	0.435835	1.58489
n_h	0.404656	1.58993
n_i	0.365015	1.59867

Partial Dispersions	
n_C-n_t	0.008456
$n_C-n_{A'}$	0.003653
n_d-n_C	0.003246
n_e-n_C	0.005815
n_g-n_d	0.013536
n_g-n_F	0.005992
n_h-n_g	0.005041
n_i-n_g	0.013784
n_C-n_t	0.008970
$n_e-n_{C'}$	0.005301
$n_{F'-n_e}$	0.005599
$n_i-n_{F'}$	0.019152

Relative Partial Dispersions	
$\theta_{C,t}$	0.7837
$\theta_{C,A'}$	0.3386
$\theta_{d,C}$	0.3008
$\theta_{e,C}$	0.5389
$\theta_{g,d}$	1.2545
$\theta_{g,F}$	0.5553
$\theta_{h,g}$	0.4672
$\theta_{i,g}$	1.2775
$\theta'_{C,t}$	0.8229
$\theta'_{e,C'}$	0.4863
$\theta'_{F',e}$	0.5137
$\theta'_{i,F}$	1.7571

Thermal Properties	
Strain Point StP (°C)	483
Annealing Point AP (°C)	516
Transformation Temperature Tg (°C)	531
Yield Point At (°C)	573
Softening Point SP (°C)	652
Expansion Coefficients (-30~+70°C)	95
α ($10^{-7}/^\circ\text{C}$) (+100~+300°C)	111
Thermal Conductivity k (W/m-K)	0.864

Coloring			
λ_{80}	36	λ_5	33
λ_{70}			

Internal Transmittance	
$\lambda(\text{nm})$	$\tau_{10\text{mm}}$
280	
290	
300	
310	
320	
330	0.01
340	0.26
350	0.63
360	0.84
370	0.928
380	0.963
390	0.979
400	0.988
420	0.994
440	0.994
460	0.995
480	0.996
500	0.997
550	0.998
600	0.998
650	0.998
700	0.998
800	0.998
900	0.998
1000	0.997
1200	0.996
1400	0.991
1600	0.990
1800	0.972
2000	0.945
2200	0.88
2400	0.83

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0114
$\Delta\theta_{C,A'}$	-0.0015
$\Delta\theta_{g,d}$	-0.0003
$\Delta\theta_{g,F}$	-0.0005
$\Delta\theta_{i,g}$	-0.0041

Mechanical Properties	
Young's Modulus E (10^8N/m^2)	719
Rigidity Modulus G (10^8N/m^2)	288
Poisson's Ratio σ	0.249
Knoop Hardness Hk[Class]	510 5
Abrasion Aa	172
Photoelastic Constant β (nm/cm/ 10^5Pa)	2.18

Constants of Dispersion Formula	
A_1	1.29366890E+00
A_2	1.32440252E-01
A_3	1.10197293E+00
B_1	8.00367962E-03
B_2	3.54711196E-02
B_3	1.34517431E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	3
Acid Resistance(Powder) Group RA(P)	3
Weathering Resistance(Surface) Group W(S)	2
Acid Resistance(Surface) Group SR	1.2
Phosphate Resistance PR	1.0

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.98
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	-1.0	-0.8	-0.7	-0.6	-0.5	-0.1	0.2
-20~ 0	-1.0	-0.7	-0.7	-0.6	-0.4	-0.1	0.3
0~20	-1.0	-0.7	-0.7	-0.6	-0.4	0.0	0.4
20~40	-1.0	-0.7	-0.6	-0.5	-0.3	0.1	0.5
40~60	-1.0	-0.7	-0.6	-0.5	-0.3	0.1	0.5
60~80	-1.0	-0.6	-0.6	-0.4	-0.2	0.2	0.6