

L-PHL 1

Code(d) **565608**

Code(e) **567605**

Refractive Index n_d	1.56455 1.564550	Abbe Number ν_d	60.8 60.82	Dispersion n_F-n_C	0.00928 0.009283
Refractive Index n_e	1.566764	Abbe Number ν_e	60.51	Dispersion $n_F-n_{C'}$	0.009366

Refractive Indices		
$\lambda(\mu\text{m})$		
n_{2325}	2.32542	1.53937
n_{1970}	1.97009	1.54382
n_{1530}	1.52958	1.54859
n_{1129}	1.12864	1.55285
n_t	1.01398	1.55428
n_s	0.85211	1.55680
$n_{A'}$	0.76819	1.55854
n_r	0.70652	1.56014
n_C	0.65627	1.56174
$n_{C'}$	0.64385	1.56218
$n_{\text{He-Ne}}$	0.6328	1.56260
n_D	0.58929	1.56447
n_d	0.58756	1.56455
n_e	0.54607	1.56676
n_F	0.48613	1.57102
$n_{F'}$	0.47999	1.57155
$n_{\text{He-Cd}}$	0.44157	1.57541
n_g	0.435835	1.57608
n_h	0.404656	1.58029
n_i	0.365015	1.58747

Partial Dispersions	
n_C-n_t	0.007455
$n_C-n_{A'}$	0.003193
n_d-n_C	0.002815
n_e-n_C	0.005029
n_g-n_d	0.011534
n_g-n_F	0.005066
n_h-n_g	0.004209
n_i-n_g	0.011388
n_C-n_t	0.007903
$n_e-n_{C'}$	0.004581
$n_{F'}-n_e$	0.004785
$n_i-n_{F'}$	0.015923

Relative Partial Dispersions	
$\theta_{C,t}$	0.8031
$\theta_{C,A'}$	0.3440
$\theta_{d,C}$	0.3032
$\theta_{e,C}$	0.5417
$\theta_{g,d}$	1.2425
$\theta_{g,F}$	0.5457
$\theta_{h,g}$	0.4534
$\theta_{i,g}$	1.2268
$\theta'_{C,t}$	0.8438
$\theta'_{e,C'}$	0.4891
$\theta'_{F',e}$	0.5109
$\theta'_{i,F}$	1.7001

Thermal Properties	
Strain Point StP (°C)	308
Annealing Point AP (°C)	331
Transformation Temperature Tg (°C)	347
Yield Point At (°C)	379
Softening Point SP (°C)	408
Expansion Coefficients (-30~+70°C)	105
α (10 ⁻⁷ /°C) (+100~+300°C)	140
Thermal Conductivity k (W/m·K)	0.627

Coloring			
λ_{80}	335	λ_5	295
λ_{70}			

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	-0.0289
$\Delta\theta_{C,A'}$	-0.0056
$\Delta\theta_{g,d}$	0.0041
$\Delta\theta_{g,F}$	0.0026
$\Delta\theta_{i,g}$	0.0111

Mechanical Properties	
Young's Modulus E (10 ⁸ N/m ²)	589
Rigidity Modulus G (10 ⁸ N/m ²)	230
Poisson's Ratio σ	0.280
Knoop Hardness Hk(Class)	350 4
Abrasion Aa	547
Photoelastic Constant β (nm/cm/10 ⁵ Pa)	3.29

Constants of Dispersion Formula	
A_1	1.07570798E+00
A_2	3.35020347E-01
A_3	8.10997558E-01
B_1	5.91654042E-03
B_2	2.03432769E-02
B_3	1.06182158E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	5
Weathering Resistance(Surface) Group W(S)	3
Acid Resistance(Surface) Group SR	53.3
Phosphate Resistance PR	4.3

Other Properties	
Bubble Quality Group B	
Specific Gravity d	3.18
Remarks	

Internal Transmittance	
$\lambda(\text{nm})$	τ 10mm
280	
290	
300	
310	0.06
320	0.37
330	0.7
340	0.88
350	0.952
360	0.981
370	0.99
380	0.994
390	0.996
400	0.996
420	0.996
440	0.996
460	0.997
480	0.997
500	0.998
550	0.999
600	0.999
650	0.999
700	0.999
800	0.999
900	0.999
1000	0.999
1200	0.999
1400	0.998
1600	0.986
1800	0.955
2000	0.923
2200	0.86
2400	0.83

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	-0.7	-0.4	-0.3	-0.2	0.0	0.3	0.7
-20~ 0	-0.7	-0.4	-0.3	-0.2	0.0	0.3	0.7
0~20	-0.8	-0.4	-0.3	-0.2	0.0	0.3	0.7
20~40	-0.8	-0.4	-0.4	-0.2	-0.1	0.3	0.7
40~60	-0.9	-0.4	-0.4	-0.2	-0.1	0.3	0.7
60~80	-1.0	-0.5	-0.4	-0.3	-0.1	0.4	0.8