

<b>H-ZF12</b>	<b>762266</b>	$n_d = 1.76182$	$v_d = 26.61$	$n_F - n_C = 0.028631$
		$n_e = 1.76857$	$v_e = 26.39$	$n_F - n_C = 0.029118$

Refractive Indices		
	$\lambda$ (nm)	$n_\lambda$
$n_{2325}$	2325.42	1.70927
$n_{1970}$	1970.09	1.71556
$n_{1530}$	1529.58	1.72304
$n_{1129}$	1128.64	1.73106
$n_{1064}$	1064.00	1.73276
$n_t$	1013.98	1.73422
$n_s$	852.11	1.74028
$n_{A'}$	768.19	1.74478
$n_f$	706.52	1.74912
$n_C$	656.27	1.75359
$n_{C'}$	643.85	1.75487
$n_{He-Ne}$	632.80	1.75608
$n_D$	589.29	1.76157
$n_d$	587.56	1.76182
$n_e$	546.07	1.76857
$n_F$	486.13	1.78222
$n_{F'}$	479.99	1.78399
$n_g$	435.84	1.79975
$n_h$	404.66	1.81558
$n_i$	365.01	1.84562

Relative Partial Dispersion	
$P_{d,C}$	0.2875
$P_{e,d}$	0.2358
$P_{g,F}$	0.6123
$P'_{d,c'}$	0.2387
$P'_{e,d}$	0.2318
$P'_{g,F'}$	0.5412

Chemical Properties (grade)	
RC (S)	1
RA (S)	1
D <sub>W</sub>	1
D <sub>A</sub>	1
R <sub>OH</sub> (S)	1
RP (S)	1
CR	

Internal Transmittance		
$\lambda$ (nm)	$\tau_{5mm}$	$\tau_{10mm}$
2400	0.935	0.874
2200	0.956	0.914
2000	0.979	0.958
1800	0.986	0.972
1600	0.995	0.990
1400	0.998	0.996
1200	0.998	0.996
1060	0.998	0.996
1000	0.998	0.996
950	0.998	0.996
900	0.998	0.996
850	0.998	0.996
800	0.998	0.996
750	0.998	0.996
700	0.998	0.996
650	0.998	0.996
600	0.998	0.996
550	0.998	0.996
500	0.995	0.990
480	0.991	0.982
460	0.987	0.974
440	0.983	0.966
420	0.969	0.939
400	0.923	0.849
390	0.849	0.718
380	0.711	0.508
370	0.355	0.129
360		
350		
340		
330		
320		
310		
300		
290		
280		

Deviation of Relative Partial Dispersions	
$\Delta P_{F,e}$	0.0012
$\Delta P_{g,F}$	0.0129
$\Delta P_{C,t}$	0.0075
$\Delta P_{C,s}$	0.0006

Expansion Coefficient $\alpha$ ( $\times 10^{-7}/K$ )	
$^{\circ}C$	$\alpha$
-50/-40	77
-40/-30	78
-30/-20	78
-20/-10	79
-10/0	80
0/10	82
10/20	83
20/30	83
30/40	85
40/50	86
50/60	87
60/70	88
70/80	89
80/90	90
90/100	92
100/110	93
110/120	93
120/130	95
130/140	98
140/150	99
150/160	102

Thermal Properties	
T <sub>g</sub> ( $^{\circ}C$ )	614
T <sub>s</sub> ( $^{\circ}C$ )	655
T <sub>10</sub> <sup>14.5</sup> ( $^{\circ}C$ )	544
T <sub>10</sub> <sup>13</sup> ( $^{\circ}C$ )	590
$\alpha_{-50/80^{\circ}C}$ ( $10^{-7}/K$ )	83
$\alpha_{100/300^{\circ}C}$ ( $10^{-7}/K$ )	103
$\lambda$ (W/(m K))	1.10

Constants of Dispersion Formula	
A <sub>0</sub>	2.98048977E+00
A <sub>1</sub>	-1.22396125E-02
A <sub>2</sub>	3.91094110E-02
A <sub>3</sub>	1.60680583E-03
A <sub>4</sub>	1.39107243E-06
A <sub>5</sub>	1.34851004E-05

Mechanical Properties	
HK ( $10^7 Pa$ )	545
F <sub>A</sub>	158
E (GPa)	92.3
G (GPa)	36.0
$\mu$	0.283
$\sigma_b$ (MPa)	77
B ( $10^{-12}/Pa$ )	2.85

Density		Solarization	
$\rho$ (g/cm <sup>3</sup> )	3.16	$\Delta\lambda$ (%)	-0.3

Range of Temperature ( $^{\circ}C$ )	Temperature Coefficients of Refractive Index									
	dn/dt relative ( $\times 10^{-6} / ^{\circ}C$ )									
	t	s	C	C'	He-Ne	d	e	F	F'	g
-60 ~ -40	0.3	0.9	1.3	1.3	1.4	1.7	2.1	3.2	3.2	4.5
-40 ~ -20	0.3	0.9	1.4	1.4	1.5	1.7	2.2	3.3	3.3	4.7
-20 ~ 0	0.3	1.0	1.4	1.4	1.5	1.9	2.2	3.5	3.5	4.9
0 ~ 20	0.3	1.0	1.5	1.5	1.6	1.9	2.4	3.8	3.8	5.2
20 ~ 40	0.3	1.0	1.5	1.5	1.6	1.9	2.5	3.8	3.8	5.5
40 ~ 60	0.4	1.1	1.6	1.6	1.6	2.2	2.6	4.1	4.1	5.8
60 ~ 80	0.4	1.3	1.8	1.8	1.8	2.3	2.8	4.3	4.3	6.1
80 ~ 100	0.4	1.3	1.9	1.9	1.9	2.4	3.0	4.5	4.5	6.3
100 ~ 120	0.6	1.4	2.0	2.0	2.0	2.6	3.2	4.8	4.8	6.5
120 ~ 140	0.8	1.6	2.2	2.2	2.3	2.8	3.4	5.0	5.0	6.7
140 ~ 160	1.0	1.8	2.3	2.4	2.5	3.1	3.6	5.3	5.3	7.0

Coloration Code	
$\lambda_{80}(\lambda_{70})/\lambda_5$	415/365
Coloration of Internal Transmittance	
$\lambda\tau_{80}/\lambda\tau_5$	391/365

Constants of dn/dt		
D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>
-2.98E-06	1.11E-08	-1.51E-11
E <sub>0</sub>	E <sub>1</sub>	$\lambda_{TK}$
9.37E-07	9.52E-10	2.89E-01