D-ZF10	**689311**	n_d = 1.68893	υ_d = 31.08	$n_F - n_C$ = 0.022169
		n_e = 1.69417	υ_e = 30.85	$n_F - n_{C'}$ = 0.022498

Refractive Indices

	λ (nm)	n_λ
n_{2325}	2325.42	1.64356
n_{1970}	1970.09	1.64994
n_{1530}	1529.58	1.65720
n_{1129}	1128.64	1.66435
n_{1064}	1064.00	1.66578
n_t	1013.98	1.66698
n_s	852.11	1.67192
$n_{A'}$	768.19	1.67552
n_r	706.52	1.67896
n_C	656.27	1.68249
$n_{C'}$	643.85	1.68350
$n_{He\text{-}Ne}$	632.80	1.68445
n_D	589.29	1.68875
n_d	587.56	1.68893
n_e	546.07	1.69417
n_F	486.13	1.70466
$n_{F'}$	479.99	1.70600
n_g	435.84	1.71785
n_h	404.66	1.72959
n_i	365.01	1.75178

Relative Partial Dispersion

$P_{d,C}$	0.2905
$P_{e,d}$	0.2364
$P_{g,F}$	0.5950
$P'_{d,c'}$	0.2414
$P'_{e,d}$	0.2329
$P'_{g,F'}$	0.5267

Deviation of Relative Partial Dispersions

$\triangle P_{F,e}$	0.0001
$\triangle P_{g,F}$	0.0030
$\triangle P_{C,t}$	0.0089
$\triangle P_{C,s}$	0.0018

Thermal Properties

Tg (℃)	490
Ts (℃)	527
$T_{10}^{14.5}$ (℃)	432
T_{10}^{13} (℃)	473
$\alpha_{-50/80℃}$ (10^{-7}/K)	93
$\alpha_{100/300℃}$ (10^{-7}/K)	121
λ (W/(m K))	1.20
β_d	200

Constants of Dispersion Formula

A_0	2.76366083E+00
A_1	-1.24616807E-02
A_2	2.66401782E-02
A_3	2.38393825E-03
A_4	-2.27557760E-04
A_5	2.16448822E-05

Mechanical Properties

HK (10^7Pa)	539
F_A	146
E (GPa)	90.4
G (GPa)	35.4
μ	0.276
σ_b (MPa)	74
B (10^{-12}/Pa)	2.95

Density / Solarization

Density		**Solarization**	
ρ (g/cm³)	2.86	$\triangle\lambda$ (%)	-1.3

Chemical Properties (grade)

RC (S)	1
RA (S)	1
D_W	1
D_A	1
R_{OH} (S)	1
RP (S)	2
CR	

Expansion Coefficient α (×10^{-7}/K)

℃	α
-50/-40	64
-40/-30	71
-30/-20	74
-20/-10	78
-10/0	81
0/10	84
10/20	86
20/30	89
30/40	92
40/50	94
50/60	96
60/70	97
70/80	98
80/90	99
90/100	101
100/110	104
110/120	106
120/130	109
130/140	112
140/150	115
150/160	117

Internal Transmittance

λ (nm)	τ5mm	τ10mm
2400	0.927	0.841
2200	0.972	0.927
2000	0.992	0.977
1800	0.999	0.991
1600	0.999	0.998
1400	0.999	0.998
1200	0.999	0.998
1060	0.999	0.998
1000	0.999	0.998
950	0.999	0.998
900	0.999	0.998
850	0.999	0.998
800	0.999	0.998
750	0.999	0.998
700	0.999	0.998
650	0.999	0.998
600	0.999	0.998
550	0.999	0.998
500	0.999	0.995
480	0.997	0.990
460	0.994	0.982
440	0.989	0.976
420	0.982	0.962
400	0.961	0.926
390	0.944	0.889
380	0.900	0.806
370	0.771	0.589
360	0.419	0.180
350		
340		
330		
320		
310		
300		
290		
280		

Temperature Coefficients of Refractive Index

dn/dt relative (×10^{-6} / ℃)

Range of Temperature (℃)	t	s	C	C'	He-Ne	d	e	F	F'	g
-60 ~ -40	-0.6	-0.3	0.0	0.0	0.1	0.4	0.8	1.0	1.1	1.8
-40 ~ -20	-0.6	-0.2	0.1	0.2	0.3	0.6	1.2	1.3	1.4	2.3
-20 ~ 0	-0.4	-0.1	0.3	0.4	0.4	0.8	1.5	1.8	1.8	2.7
0 ~ 20	-0.3	0.1	0.5	0.6	0.6	0.9	1.6	2.2	2.2	3.1
20 ~ 40	-0.4	0.1	0.6	0.7	0.8	1.0	1.6	2.4	2.4	3.7
40 ~ 60	-0.5	0.3	0.6	0.7	0.8	1.1	1.5	2.6	2.7	3.9
60 ~ 80	-0.6	0.3	0.6	0.6	0.7	1.0	1.5	2.8	2.8	4.1
80 ~ 100	-0.6	0.3	0.6	0.6	0.8	1.1	1.6	2.8	2.9	4.2
100 ~ 120	-0.6	0.3	0.6	0.6	0.8	1.2	1.7	3.0	3.1	4.4
120 ~ 140	-0.5	0.3	0.7	0.7	0.9	1.4	1.9	3.2	3.2	4.7
140 ~ 160	-0.3	0.3	0.9	0.9	1.0	1.7	2.2	3.5	3.6	5.0

Coloration Code

$\lambda_{80}(\lambda_{70})/\lambda_5$	400/360

Coloration of Internal Transmittance

$\lambda\tau_{80}/\lambda\tau_5$	380/358

Constants of dn/dt

D_0	D_1	D_2
-4.48E-06	1.06E-08	-3.94E-11
E_0	E_1	λ_{TK}
9.15E-07	1.82E-09	2.55E-01

NHG