

E-FD10L

728-283 $n_d = 1.72825$ $\nu_d = 28.32$ (28.320) $n_F - n_C = 0.025715$
 $n_e = 1.73432$ $\nu_e = 28.10$ (28.097) $n_{F'} - n_{C'} = 0.026135$

屈折率 Refractive Index		
	λ (nm)	
$n_{1529.6}$	1529.60	1.69249
$n_{1128.64}$	1128.64	1.70029
n_t	1013.98	1.70322
n_s	852.11	1.70877
$n_{A'}$	768.195	1.71286
n_r	706.519	1.71678
n_C	656.273	1.72083
$n_{C'}$	643.847	1.72198
n_{633}	632.8	1.72307
n_D	589.294	1.72803
n_d	587.562	1.72825
n_e	546.074	1.73432
n_F	486.133	1.74654
$n_{F'}$	479.991	1.74812
n_g	435.834	1.76216
n_h	404.656	1.77623
n_i	365.015	1.80326

分散式の定数 Constants of dispersion formula	
A_0	2.8819845
A_1	$-1.3360032 \times 10^{-2}$
A_2	3.1090844×10^{-2}
A_3	2.8218544×10^{-3}
A_4	$-2.5458280 \times 10^{-4}$
A_5	2.7374245×10^{-5}

部分分散 Partial dispersions	
$n_C - n_t$	0.017608
$n_d - n_C$	0.007425
$n_F - n_d$	0.018290
$n_g - n_F$	0.015622
$n_{C'} - n_t$	0.018765
$n_e - n_{C'}$	0.012336
$n_{F'} - n_e$	0.013799
$n_g - n_{F'}$	0.014045

部分分散比 Partial dispersion rates	
$P_{C,t}$	0.6847
$P_{d,C}$	0.2887
$P_{e,d}$	0.2360
$P_{F,e}$	0.4753
$P_{g,F}$	0.6075
$P_{h,g}$	0.5472
$P_{i,h}$	1.0510
$P'_{C,t}$	0.7180
$P'_{d,C'}$	0.2398
$P'_{e,d'}$	0.2322
$P'_{F',e}$	0.5280
$P'_{g,F'}$	0.5374
$P'_{h,g'}$	0.5384

異常分散性 Anomalous dispersions	
$\Delta P_{C,t}$	0.0065
$\Delta P_{C,A'}$	-0.0013
$\Delta P_{g,d}$	0.0115
$\Delta P_{g,F}$	0.0102
$\Delta P_{i,g}$	

光弾性定数 Photoelastic Constant	
B ($10^{-12}/\text{Pa}$)	2.77

比重 Specific Gravity	
d	3.01

化学的性質 Chemical Properties	
D_W	1
D_A	1
T_{Blue}	1
D_{NaOH}	1
D_{STPP}	1
D_0	1
D_H	

熱的性質 Thermal Properties	
T_g (°C)	606
T_s (°C)	647
$T_{10^{14.5}}$ (°C)	579
$T_{10^{13}}$ (°C)	600
$T_{10^{7.6}}$ (°C)	690
α -30/+70°C ($10^{-7}/^\circ\text{C}$)	82
α 100/300°C ($10^{-7}/^\circ\text{C}$)	102
λ [W/(m·K)]	0.886
C_p [kJ/(kg·K)]	0.551

機械的性質 Mechanical Properties	
H_K	535 (5)
F_A	160
E (GPa)	91
G (GPa)	36.1
μ	0.252
σ_b (MPa)	96

内部透過率 Internal Transmittance			
λ (nm)	τ 2mm	τ 5mm	τ 10mm
2500	0.964	0.912	0.831
2400	0.972	0.931	0.868
2200	0.981	0.953	0.909
2000	0.991	0.978	0.957
1800	0.995	0.986	0.973
1600	0.998	0.995	0.990
1550	0.998	0.996	0.992
1500	0.998	0.996	0.992
1400	0.999	0.996	0.993
1300	0.999	0.999	0.998
1200	0.999	0.999	0.998
1100	0.999	0.999	0.998
1060	0.999	0.999	0.998
1050	0.999	0.999	0.998
1000	0.999	0.999	0.998
950	0.999	0.999	0.998
900	0.999	0.999	0.998
850	0.999	0.999	0.999
830	0.999	0.999	0.999
800	0.999	0.999	0.998
780	0.999	0.999	0.998
750	0.999	0.999	0.998
700	0.999	0.998	0.997
650	0.999	0.998	0.996
600	0.998	0.994	0.989
550	0.995	0.988	0.975
500	0.998	0.996	0.992
480	0.998	0.994	0.989
460	0.997	0.992	0.985
440	0.995	0.988	0.975
420	0.990	0.975	0.951
400	0.971	0.929	0.864
390	0.942	0.862	0.743
380	0.870	0.705	0.497
370	0.692	0.398	0.158
360	0.249		
350			
340			
330			
320			
310			
300			
290			
280			

屈折率の温度係数 dn/dT ($\times 10^{-6}/^\circ\text{C}$)		アッペ数の温度係数 $d\nu/dT$ ($\times 10^{-3}/^\circ\text{C}$)													
Temperature Coefficient of Refractive Index		Temperature Coefficient of Abbe-number													
	(°C)	dn/dT										$d\nu/dT$			
		n_h	n_g	$n_{F'}$	n_F	n_e	n_d	n_{633}	$n_{C'}$	n_C	n_r	ν_e	ν_d		
dn/dT & $d\nu/dT$ (rel.)	-40 / -20	6.1	4.7	3.5	3.4	2.5	2.1	1.8	1.7	1.6	1.4	-1.9	-1.9		
	-20 / 0	6.5	5.1	3.8	3.7	2.7	2.3	2.0	1.9	1.8	1.6	-2.0	-2.0		
	0 / 20	6.9	5.4	4.1	3.9	2.9	2.5	2.1	2.1	2.0	1.7	-2.1	-2.1		
	20 / 40	7.3	5.7	4.3	4.2	3.1	2.6	2.3	2.2	2.1	1.9	-2.2	-2.2		
	40 / 60	7.6	6.0	4.5	4.4	3.3	2.8	2.4	2.3	2.2	1.9	-2.2	-2.2		
	60 / 80	7.9	6.2	4.7	4.5	3.4	2.9	2.5	2.4	2.3	2.0	-2.3	-2.3		
	80 / 100	8.2	6.4	4.8	4.6	3.5	2.9	2.5	2.4	2.3	2.0	-2.4	-2.4		
	100 / 120	8.4	6.5	4.9	4.7	3.5	2.9	2.5	2.4	2.3	2.0	-2.5	-2.5		
	120 / 140	8.5	6.6	4.9	4.7	3.4	2.9	2.4	2.3	2.2	1.9	-2.6	-2.6		
	140 / 150	8.6	6.6	4.9	4.7	3.4	2.8	2.3	2.2	2.1	1.8	-2.6	-2.7		
dn/dT & $d\nu/dT$ (abs.)	-40 / -20	3.6	2.3	1.1	1.0	0.1	-0.2	-0.6	-0.6	-0.7	-0.9	-1.9	-1.9		
	-20 / 0	4.4	3.0	1.8	1.6	0.7	0.3	0.0	-0.1	-0.2	-0.4	-2.0	-2.0		
	0 / 20	5.1	3.6	2.3	2.2	1.2	0.8	0.4	0.3	0.3	0.0	-2.1	-2.1		
	20 / 40	5.7	4.1	2.8	2.6	1.6	1.1	0.8	0.7	0.6	0.4	-2.2	-2.2		
	40 / 60	6.2	4.6	3.2	3.0	1.9	1.5	1.1	1.0	0.9	0.6	-2.3	-2.3		
	60 / 80	6.7	5.0	3.5	3.3	2.2	1.7	1.3	1.2	1.1	0.8	-2.3	-2.3		
	80 / 100	7.1	5.3	3.7	3.6	2.4	1.9	1.5	1.4	1.3	1.0	-2.4	-2.4		
	100 / 120	7.4	5.5	3.9	3.8	2.5	2.0	1.5	1.5	1.4	1.0	-2.5	-2.5		
	120 / 140	7.6	5.7	4.0	3.9	2.6	2.0	1.6	1.5	1.4	1.0	-2.6	-2.6		
	140 / 150	7.8	5.8	4.1	3.9	2.6	2.0	1.5	1.4	1.3	1.0	-2.7	-2.7		

線膨張係数 α ($\times 10^{-7}/^\circ\text{C}$)	
Coefficient of Thermal Expansion	
(°C)	α
-40 / -30	77
-30 / -20	78
-20 / -10	80
-10 / 0	81
0 / 10	81
10 / 20	82
20 / 30	83
30 / 40	83
40 / 50	84
50 / 60	84
60 / 70	85
70 / 80	85
80 / 90	85
90 / 100	86
100 / 110	86
110 / 120	87
120 / 130	88
130 / 140	89
140 / 150	90

着色度 Coloration Code	
$\lambda_{80}(\lambda_{70})/\lambda_5$	415/365
着色度 (内部透過率) Coloration of Internal Transmittance	
$\lambda_{\tau 80}/\lambda_{\tau 5}$	394/365

CCI Color Contribution Index	
CCI (G)	2.39
CCI (R)	2.46

冷却速度による屈折率の変化 Difference of refractive indices by cooling rate	
β_C	
β_d	
β_F	
β_g	

備考 Remarks						
硝種対照表 Glass Cross Reference Index						
	HOYA	SCHOTT	OHARA	HIKARI	SUMITA	CDGM
Glass_Type	E-FD10L	(N-SF10)	(S-TIH10)	J-SF10	K-SFLD10	H-ZF4A
Code	728-283	(728-285)	(728-285)	728-284	728-284	728-283
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