ガラスモールドレンズ用硝種
Glass molded lens

推奨硝種
Recommended Glass Type

M-TAFD315

851-401

n_d = 1.85136　ν_d = 40.07 (40.070)　$n_F - n_C$ = 0.021247
n_e = 1.85641　ν_e = 39.83 (39.826)　$n_{F'} - n_{C'}$ = 0.021504

屈折率 Refractive Index

	λ (nm)	
$n_{1529.6}$	1529.60	1.81939
$n_{1128.64}$	1128.64	1.82667
n_t	1013.98	1.82938
n_s	852.11	1.83444
$n_{A'}$	768.195	1.83809
n_r	706.519	1.84154
n_C	656.273	1.84505
$n_{C'}$	643.847	1.84604
n_{633}	632.8	1.84697
n_D	589.294	1.85117
n_d	587.562	1.85136
n_e	546.074	1.85641
n_F	486.133	1.86630
$n_{F'}$	479.991	1.86755
n_g	435.834	1.87838
n_h	404.656	1.88868
n_i	365.015	1.90682

分散式の定数 Constants of dispersion formula

A_0	3.3260687
A_1	$-1.3098860 \times 10^{-2}$
A_2	3.4217904×10^{-2}
A_3	7.6102760×10^{-4}
A_4	1.4203244×10^{-5}
A_5	1.8681028×10^{-6}

部分分散 Partial dispersions

$n_C - n_t$	0.015674
$n_d - n_C$	0.006308
$n_F - n_d$	0.014939
$n_g - n_F$	0.012085
$n_{C'} - n_t$	0.016667
$n_e - n_{C'}$	0.010363
$n_{F'} - n_e$	0.011141
$n_g - n_{F'}$	0.010835

部分分散比 Partial dispersion rates

P_{C_t}	0.7377	$P'_{C'\_t}$	0.7751
P_{d_C}	0.2969	$P'_{d\_C'}$	0.2472
P_{e_d}	0.2376	P'_{e_d}	0.2347
P_{F_e}	0.4655	$P'_{F'\_e}$	0.5181
P_{g_F}	0.5688	$P'_{g\_F'}$	0.5039
P_{h_g}	0.4846	P'_{h_g}	0.4788
P_{i_h}	0.8536	P'_{i_h}	0.8434

異常分散性 Anomalous dispersions

ΔP_{C_t}	0.0046
$\Delta P_{C\_A'}$	0.0019
ΔP_{g_d}	−0.0086
ΔP_{g_F}	−0.0074
ΔP_{i_g}	−0.0481

光弾性定数 Photoelastic Constant

B (10^{-12}/Pa)	1.86

比重 Specific Gravity

d	5.13

化学的性質 Chemical Properties

D_W	1
D_A	2
T_{Blue}	4
D_{NaOH}	1
D_{STPP}	1
D_O	2
D_H	1

熱的性質 Thermal Properties

T_g (℃)	571
T_s (℃)	622
$T_{10^{14.5}}$ (℃)	540
$T_{10^{13}}$ (℃)	569
$T_{10^{7.6}}$ (℃)	662
$\alpha_{-30/+70℃}$ (10^{-7}/℃)	64
$\alpha_{100/300℃}$ (10^{-7}/℃)	82
λ [W/(m·K)]	0.846
C_p [kJ/(kg·K)]	0.460

機械的性質 Mechanical Properties

H_K	640(6)
F_A	60
E (GPa)	121
G (GPa)	46.4
μ	0.300
σ_b (MPa)	120

内部透過率 Internal Transmittance

λ (nm)	τ 2mm	τ 5mm	τ 10mm
2500	0.921	0.814	0.663
2400	0.951	0.882	0.778
2200	0.984	0.961	0.924
2000	0.994	0.985	0.971
1800	0.997	0.993	0.986
1600	0.999	0.997	0.994
1550	0.999	0.997	0.994
1500	0.999	0.997	0.994
1400	0.999	0.998	0.996
1300	0.999	0.998	0.997
1200	0.999	0.998	0.997
1100	0.999	0.998	0.997
1060	0.999	0.998	0.996
1050	0.999	0.998	0.996
1000	0.999	0.998	0.996
950	0.999	0.998	0.997
900	0.999	0.998	0.997
850	0.999	0.998	0.997
830	0.999	0.998	0.997
800	0.999	0.998	0.996
780	0.999	0.999	0.998
750	0.999	0.998	0.996
700	0.999	0.998	0.996
650	0.999	0.998	0.995
600	0.997	0.993	0.987
550	0.995	0.988	0.976
500	0.998	0.995	0.990
480	0.997	0.993	0.987
460	0.996	0.991	0.982
440	0.995	0.988	0.976
420	0.993	0.983	0.967
400	0.989	0.973	0.947
390	0.985	0.962	0.926
380	0.977	0.942	0.888
370	0.962	0.907	0.822
360	0.926	0.826	0.682
350	0.860	0.686	0.470
340	0.714	0.431	0.186
330	0.453	0.138	0.019
320			
310			
300			
290			
280			

着色度 Coloration Code

λ80(λ70)/λ5	(375)/335

着色度(内部透過率) Coloration of Internal Transmittance

λτ80/λτ5	367/333

CCI Color Contribution Index

CCI(G)	1.07
CCI(R)	1.14

屈折率の温度係数 dn/dT (×10^{-6}/℃) Temperature Coefficient of Refractive Index
アッベ数の温度係数 dν/dT (×10^{-3}/℃) Temperature Coefficient of Abbe-number

	(℃)	dn/dT										dν/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
		404.66	435.84	479.99	486.13	546.07	587.56	632.80	643.85	656.27	706.52	546.07	587.56
dn/dT & dν/dT (rel.)	-40 / -20	9.8	9.0	8.2	8.1	7.3	7.0	6.7	6.6	6.6	6.3	-2.5	-2.5
	-20 / 0	9.8	8.9	8.1	8.0	7.2	6.9	6.6	6.5	6.4	6.2	-2.6	-2.6
	0 / 20	9.8	8.9	8.0	7.9	7.2	6.8	6.5	6.4	6.3	6.1	-2.6	-2.7
	20 / 40	9.9	9.0	8.0	7.9	7.2	6.8	6.4	6.4	6.3	6.1	-2.7	-2.7
	40 / 60	10.0	9.0	8.1	8.0	7.2	6.8	6.5	6.4	6.3	6.1	-2.8	-2.8
	60 / 80	10.1	9.1	8.2	8.1	7.2	6.8	6.5	6.4	6.3	6.1	-2.9	-2.9
	80 / 100	10.2	9.3	8.3	8.1	7.3	6.9	6.5	6.5	6.4	6.1	-2.9	-2.9
	100 / 120	10.4	9.4	8.4	8.3	7.4	7.0	6.6	6.5	6.4	6.2	-3.0	-3.1
	120 / 140	10.6	9.5	8.5	8.4	7.5	7.0	6.7	6.6	6.5	6.2	-3.1	-3.1
	140 / 150	10.7	9.6	8.6	8.5	7.5	7.1	6.7	6.6	6.6	6.3	-3.1	-3.2
dn/dT & dν/dT (abs.)	-40 / -20	7.2	6.4	5.6	5.5	4.8	4.5	4.2	4.1	4.1	3.9	-2.5	-2.5
	-20 / 0	7.5	6.7	5.9	5.8	5.1	4.7	4.4	4.4	4.3	4.1	-2.6	-2.6
	0 / 20	7.9	7.0	6.1	6.0	5.3	4.9	4.6	4.6	4.5	4.3	-2.7	-2.7
	20 / 40	8.2	7.3	6.4	6.3	5.5	5.2	4.8	4.8	4.7	4.5	-2.7	-2.7
	40 / 60	8.5	7.6	6.6	6.5	5.7	5.4	5.0	5.0	4.9	4.7	-2.8	-2.8
	60 / 80	8.8	7.8	6.9	6.8	6.0	5.6	5.2	5.2	5.1	4.8	-2.9	-2.9
	80 / 100	9.1	8.1	7.1	7.0	6.2	5.8	5.4	5.3	5.3	5.0	-3.0	-3.0
	100 / 120	9.4	8.3	7.3	7.2	6.4	5.9	5.6	5.5	5.4	5.2	-3.0	-3.1
	120 / 140	9.6	8.6	7.6	7.4	6.6	6.1	5.8	5.7	5.6	5.3	-3.1	-3.1
	140 / 150	9.8	8.8	7.7	7.6	6.7	6.2	5.9	5.8	5.7	5.4	-3.2	-3.2

線膨張係数 α (×10^{-7}/℃) Coefficient of Thermal Expansion

(℃)	α
-40 / -30	62
-30 / -20	62
-20 / -10	62
-10 / 0	63
0 / 10	63
10 / 20	64
20 / 30	64
30 / 40	64
40 / 50	65
50 / 60	65
60 / 70	66
70 / 80	67
80 / 90	68
90 / 100	68
100 / 110	69
110 / 120	70
120 / 130	71
130 / 140	72
140 / 150	74

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

βC	116
βd	116
βF	117
βg	118

備考 Remarks

硝種対照表　Glass Cross Reference Index

	HOYA	SCHOTT	OHARA	HIKARI	SUMITA	CDGM
Glass_Type	M-TAFD315					
Code	851-401					

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