ガラスレンズ用プレス品硝種
Glass Lens Pressed Blanks

ガラス研磨レンズ用硝種
Glass Polished Lens

推奨硝種
Recommended Glass Type

FD270

684-268 $n_d = 1.68430$ $\nu_d = 26.81\ (\ 26.813\ )$ $n_F - n_C = 0.025521$
$n_e = 1.69031$ $\nu_e = 26.57\ (\ 26.574\ )$ $n_{F'} - n_{C'} = 0.025977$

屈 折 率 Refractive Index		
	λ (nm)	
$n_{1529.6}$	1529.60	1.64884
$n_{1128.64}$	1128.64	1.65694
n_t	1013.98	1.65984
n_s	852.11	1.66526
$n_{A'}$	768.195	1.66923
n_r	706.519	1.67304
n_C	656.273	1.67700
$n_{C'}$	643.847	1.67813
n_{633}	632.8	1.67920
n_D	589.294	1.68408
n_d	587.562	1.68430
n_e	546.074	1.69031
n_F	486.133	1.70252
$n_{F'}$	479.991	1.70411
n_g	435.834	1.71842
n_h	404.656	1.73313
n_i	365.015	1.76263

分 散 式 の 定 数 Constants of dispersion formula	
A_0	2.7430787
A_1	$-1.5254471 \times 10^{-2}$
A_2	2.4611038×10^{-2}
A_3	4.4218106×10^{-3}
A_4	$-5.2471037 \times 10^{-4}$
A_5	4.8488943×10^{-5}

部 分 分 散 Partial dispersions	
$n_C - n_t$	0.017158
$n_d - n_C$	0.007299
$n_F - n_d$	0.018222
$n_g - n_F$	0.015904
$n_{C'} - n_t$	0.018292
$n_e - n_{C'}$	0.012172
$n_{F'} - n_e$	0.013805
$n_g - n_{F'}$	0.014314

部分分散比 Partial dispersion rates			
P_{C_t}	0.6723	$P'_{C'\_t}$	0.7042
P_{d_C}	0.2860	$P'_{d\_C'}$	0.2373
P_{e_d}	0.2354	P'_{e_d}	0.2312
P_{F_e}	0.4786	$P'_{F'\_e}$	0.5314
P_{g_F}	0.6232	$P'_{g\_F'}$	0.5510
P_{h_g}	0.5761	P'_{h_g}	0.5660
P_{i_h}	1.1562	P'_{i_h}	1.1359

異常分散性 Anomalous dispersions	
ΔP_{C_t}	0.0011
$\Delta P_{C\_A'}$	-0.0049
ΔP_{g_d}	0.0265
ΔP_{g_F}	0.0231
ΔP_{i_g}	0.2286

光弾性定数 Photoelastic Constant	
B (10^{-12}/Pa)	2.72

比 重 Specific Gravity	
d	2.94

化 学 的 性 質 Chemical Properties	
D_W	2
D_A	3
T_{Blue}	2
D_{NaOH}	2
D_{STPP}	1
D_O	2
D_H	

熱 的 性 質 Thermal Properties	
T_g (℃)	500
T_s (℃)	544
$T_{10^{14.5}}$ (℃)	473
$T_{10^{13}}$ (℃)	497
$T_{10^{7.6}}$ (℃)	585
$\alpha_{-30/+70℃}$ (10^{-7}/℃)	121
$\alpha_{100/300℃}$ (10^{-7}/℃)	150
λ [W/(m·K)]	0.828
C_p [kJ/(kg·K)]	0.741

機 械 的 性 質 Mechanical Properties	
H_K	300(3)
F_A	490
E (GPa)	68
G (GPa)	27.0
μ	0.269
σ_b (MPa)	45

内部透過率 Internal Transmittance			
λ (nm)	τ 2mm	τ 5mm	τ 10mm
2500	0.902	0.772	0.596
2400	0.917	0.805	0.649
2200	0.942	0.861	0.741
2000	0.965	0.915	0.836
1800	0.983	0.959	0.920
1600	0.995	0.989	0.977
1550	0.997	0.991	0.983
1500	0.997	0.993	0.985
1400	0.999	0.996	0.993
1300	0.999	0.997	0.995
1200	0.999	0.998	0.995
1100	0.999	0.997	0.995
1060	0.999	0.997	0.994
1050	0.999	0.997	0.995
1000	0.999	0.997	0.995
950	0.999	0.998	0.995
900	0.999	0.998	0.995
850	0.999	0.998	0.996
830	0.999	0.998	0.995
800	0.999	0.999	0.999
780	0.999	0.999	0.999
750	0.999	0.999	0.999
700	0.999	0.999	0.999
650	0.999	0.999	0.997
600	0.998	0.995	0.989
550	0.996	0.989	0.979
500	0.998	0.996	0.992
480	0.998	0.995	0.989
460	0.997	0.993	0.985
440	0.996	0.989	0.979
420	0.992	0.981	0.963
400	0.977	0.943	0.890
390	0.940	0.856	0.732
380	0.811	0.593	0.352
370	0.501	0.178	0.032
360	0.078		
350			
340			
330			
320			
310			
300			
290			
280			

着 色 度 Coloration Code	
$\lambda_{80}(\lambda_{70})/\lambda_5$	405/370
着 色 度 (内部透過率) Coloration of Internal Transmittance	
$\lambda_{\tau 80}/\lambda_{\tau 5}$	393/371

CCI Color Contribution Index	
CCI(G)	2.25
CCI(R)	2.37

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	1.8	0.0	-1.4	-1.6	-2.6	-3.1	-3.5	-3.5	-3.6	-3.9	-2.3	-2.3
	-20 / 0	2.1	0.2	-1.3	-1.5	-2.6	-3.1	-3.5	-3.5	-3.6	-3.9	-2.4	-2.4
	0 / 20	2.4	0.4	-1.2	-1.4	-2.6	-3.1	-3.5	-3.6	-3.6	-3.9	-2.5	-2.5
	20 / 40	2.6	0.6	-1.2	-1.3	-2.6	-3.1	-3.5	-3.6	-3.7	-4.0	-2.6	-2.6
	40 / 60	2.9	0.7	-1.1	-1.3	-2.6	-3.2	-3.6	-3.7	-3.8	-4.1	-2.7	-2.7
	60 / 80	3.0	0.8	-1.1	-1.3	-2.7	-3.3	-3.8	-3.8	-3.9	-4.3	-2.9	-2.9
	80 / 100	3.1	0.8	-1.2	-1.4	-2.8	-3.5	-3.9	-4.0	-4.1	-4.5	-2.9	-3.0
	100 / 120	3.2	0.7	-1.4	-1.6	-3.0	-3.7	-4.2	-4.3	-4.4	-4.8	-3.1	-3.1
	120 / 140	3.1	0.6	-1.6	-1.8	-3.3	-4.0	-4.5	-4.6	-4.7	-5.1	-3.2	-3.2
	140 / 150	3.1	0.4	-1.8	-2.0	-3.6	-4.3	-4.8	-4.9	-5.0	-5.4	-3.3	-3.3
dn/dT & dν/dT (abs.)	-40 / -20	-0.6	-2.3	-3.8	-3.9	-4.9	-5.4	-5.7	-5.8	-5.9	-6.1	-2.3	-2.3
	-20 / 0	0.0	-1.8	-3.3	-3.5	-4.6	-5.0	-5.4	-5.5	-5.6	-5.8	-2.4	-2.4
	0 / 20	0.6	-1.3	-2.9	-3.1	-4.3	-4.8	-5.2	-5.2	-5.3	-5.6	-2.5	-2.5
	20 / 40	1.1	-0.9	-2.7	-2.8	-4.0	-4.6	-5.0	-5.1	-5.2	-5.5	-2.6	-2.6
	40 / 60	1.5	-0.6	-2.4	-2.6	-3.9	-4.5	-4.9	-5.0	-5.1	-5.4	-2.7	-2.7
	60 / 80	1.8	-0.4	-2.3	-2.5	-3.8	-4.4	-4.9	-5.0	-5.1	-5.4	-2.9	-2.9
	80 / 100	2.1	-0.3	-2.3	-2.5	-3.9	-4.5	-5.0	-5.1	-5.2	-5.5	-3.0	-3.0
	100 / 120	2.2	-0.2	-2.3	-2.5	-4.0	-4.6	-5.1	-5.2	-5.3	-5.7	-3.1	-3.1
	120 / 140	2.3	-0.3	-2.4	-2.6	-4.2	-4.8	-5.3	-5.5	-5.6	-5.9	-3.2	-3.2
	140 / 150	2.3	-0.4	-2.6	-2.8	-4.3	-5.0	-5.6	-5.7	-5.8	-6.2	-3.3	-3.3

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

(℃)	α
-40 / -30	115
-30 / -20	115
-20 / -10	116
-10 / 0	117
0 / 10	118
10 / 20	120
20 / 30	121
30 / 40	123
40 / 50	125
50 / 60	127
60 / 70	129
70 / 80	131
80 / 90	132
90 / 100	134
100 / 110	136
110 / 120	138
120 / 130	139
130 / 140	140
140 / 150	141

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

備 考 Remarks

硝種対照表 Glass Cross Reference Index

	HOYA	SCHOTT	OHARA	HIKARI	SUMITA	CDGM
Glass_Type	FD270					
Code	684-268					

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