

NBFD29

770-297 $n_d = 1.77047$ $\nu_d = 29.74$ (29.736) $n_F - n_C = 0.025910$
 $n_e = 1.77660$ $\nu_e = 29.53$ (29.525) $n_{F'} - n_{C'} = 0.026303$

屈折率 Refractive Index		
	λ (nm)	
$n_{1529.6}$	1529.60	1.73346
$n_{1128.64}$	1128.64	1.74170
n_t	1013.98	1.74477
n_s	852.11	1.75055
$n_{A'}$	768.195	1.75477
n_r	706.519	1.75879
n_C	656.273	1.76293
$n_{C'}$	643.847	1.76411
n_{633}	632.8	1.76522
n_D	589.294	1.77024
n_d	587.562	1.77047
n_e	546.074	1.77660
n_F	486.133	1.78884
$n_{F'}$	479.991	1.79041
n_g	435.834	1.80426
n_h	404.656	1.81786
n_i	365.015	1.84308

部分分散 Partial dispersions	
$n_C - n_t$	0.018161
$n_d - n_C$	0.007540
$n_F - n_d$	0.018370
$n_g - n_F$	0.015420
$n_{C'} - n_t$	0.019339
$n_e - n_{C'}$	0.012489
$n_{F'} - n_e$	0.013814
$n_g - n_{F'}$	0.013849

比重 Specific Gravity	
d	3.34

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

内部透過率 Internal Transmittance				
λ (nm)	τ_{2mm}	τ_{5mm}	τ_{10mm}	
2500	0.967	0.919	0.845	
2400	0.975	0.939	0.881	
2200	0.985	0.962	0.925	
2000	0.993	0.983	0.966	
1800	0.995	0.988	0.977	
1600	0.999	0.996	0.993	
1550	0.999	0.997	0.994	
1500	0.999	0.997	0.993	
1400	0.999	0.998	0.997	
1300	0.999	0.999	0.999	
1200	0.999	0.999	0.999	
1100	0.999	0.999	0.999	
1060	0.999	0.999	0.999	
1050	0.999	0.999	0.999	
1000	0.999	0.999	0.999	
950	0.999	0.999	0.999	
900	0.999	0.999	0.999	
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	0.996	
650	0.999	0.998	0.996	
600	0.998	0.994	0.988	
550	0.996	0.991	0.982	
500	0.998	0.996	0.992	
480	0.998	0.994	0.988	
460	0.997	0.992	0.985	
440	0.996	0.991	0.982	
420	0.995	0.987	0.973	
400	0.991	0.977	0.954	
390	0.986	0.966	0.934	
380	0.979	0.948	0.899	
370	0.965	0.914	0.835	
360	0.927	0.828	0.686	
350	0.844	0.654	0.427	
340	0.628	0.313	0.098	
330	0.147			
320				
310				
300				
290				
280				

部分分散比 Partial dispersion rates			
$P_{C,t}$	0.7009	$P'_{C,t}$	0.7352
$P_{d,C}$	0.2910	$P'_{d,C}$	0.2419
$P_{e,d}$	0.2365	$P'_{e,d}$	0.2329
$P_{F,e}$	0.4725	$P'_{F,e}$	0.5252
$P_{g,F}$	0.5951	$P'_{g,F}$	0.5265
$P_{h,g}$	0.5250	$P'_{h,g}$	0.5171
$P_{i,h}$	0.9731	$P'_{i,h}$	0.9586

熱的性質 Thermal Properties	
T_g (°C)	570
T_s (°C)	620
$T_{10^{14.5}}$ (°C)	549
$T_{10^{13}}$ (°C)	567
$T_{10^{7.6}}$ (°C)	671
$\alpha_{-30/+70^\circ C}$ ($10^{-7}/^\circ C$)	82
$\alpha_{100/300^\circ C}$ ($10^{-7}/^\circ C$)	104
λ [W/(m·K)]	1.110
C_p [kJ/(kg·K)]	0.730

分散式の定数 Constants of dispersion formula	
A_0	3.0234840
A_1	$-1.4446333 \times 10^{-2}$
A_2	3.4673303×10^{-2}
A_3	2.0637437×10^{-3}
A_4	$-1.1126222 \times 10^{-4}$
A_5	1.4468973×10^{-5}

異常分散性 Anomalous dispersions	
$\Delta P_{C,t}$	0.0160
$\Delta P_{C,A'}$	0.0020
$\Delta P_{g,d}$	0.0001
$\Delta P_{g,F}$	0.0003
$\Delta P_{i,g}$	0.0204

機械的性質 Mechanical Properties	
H_K	580 (6)
F_A	140
E (GPa)	101
G (GPa)	40.7
μ	0.248
σ_b (MPa)	96

光弾性定数 Photoelastic Constant	
B ($10^{-12}/Pa$)	3.41

屈折率の温度係数 dn/dT ($\times 10^{-6}/^\circ C$)		アッペ数の温度係数 $d\nu/dT$ ($\times 10^{-3}/^\circ C$)														
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	6.8	5.6	4.6	4.5	3.6	3.2	2.9	2.8	2.8	2.6	-1.8	-1.8			
	-20 / 0	7.0	5.8	4.7	4.6	3.7	3.3	2.9	2.9	2.8	2.6	-1.9	-1.9			
	0 / 20	7.3	6.0	4.8	4.7	3.7	3.3	3.0	2.9	2.8	2.6	-2.0	-2.0			
	20 / 40	7.5	6.2	4.9	4.8	3.8	3.4	3.0	2.9	2.8	2.6	-2.1	-2.1			
	40 / 60	7.7	6.3	5.0	4.8	3.8	3.4	3.0	2.9	2.8	2.6	-2.1	-2.1			
	60 / 80	7.8	6.4	5.0	4.9	3.8	3.3	3.0	2.9	2.8	2.5	-2.3	-2.3			
	80 / 100	7.9	6.4	5.0	4.9	3.8	3.3	2.9	2.8	2.7	2.4	-2.3	-2.3			
	100 / 120	8.0	6.4	5.0	4.8	3.7	3.2	2.7	2.7	2.6	2.3	-2.4	-2.4			
	120 / 140	8.0	6.4	4.9	4.7	3.5	3.0	2.6	2.5	2.4	2.1	-2.5	-2.5			
	140 / 150	8.0	6.3	4.8	4.6	3.4	2.9	2.4	2.3	2.2	1.9	-2.6	-2.6			
dn/dT & $d\nu/dT$ (abs.)	-40 / -20	4.3	3.2	2.1	2.0	1.2	0.8	0.5	0.5	0.4	0.2	-1.8	-1.8			
	-20 / 0	4.9	3.7	2.6	2.5	1.6	1.2	0.9	0.8	0.8	0.5	-1.9	-1.9			
	0 / 20	5.4	4.2	3.0	2.9	2.0	1.6	1.2	1.1	1.1	0.8	-2.0	-2.0			
	20 / 40	5.9	4.5	3.3	3.2	2.3	1.8	1.5	1.4	1.3	1.1	-2.1	-2.1			
	40 / 60	6.3	4.9	3.6	3.5	2.5	2.0	1.6	1.6	1.5	1.2	-2.2	-2.2			
	60 / 80	6.6	5.1	3.8	3.7	2.6	2.1	1.8	1.7	1.6	1.3	-2.3	-2.3			
	80 / 100	6.8	5.3	3.9	3.8	2.7	2.2	1.8	1.7	1.6	1.3	-2.3	-2.3			
	100 / 120	7.0	5.4	4.0	3.8	2.7	2.2	1.8	1.7	1.6	1.3	-2.4	-2.4			
	120 / 140	7.1	5.5	4.0	3.8	2.7	2.1	1.7	1.6	1.5	1.2	-2.5	-2.5			
	140 / 150	7.1	5.5	3.9	3.8	2.6	2.0	1.6	1.5	1.4	1.1	-2.6	-2.6			

線膨張係数 α ($\times 10^{-7}/^\circ C$)	
Coefficient of Thermal Expansion	
(°C)	α
-40 / -30	72
-30 / -20	75
-20 / -10	77
-10 / 0	79
0 / 10	81
10 / 20	82
20 / 30	83
30 / 40	84
40 / 50	86
50 / 60	86
60 / 70	87
70 / 80	87
80 / 90	88
90 / 100	89
100 / 110	89
110 / 120	90
120 / 130	91
130 / 140	93
140 / 150	94

着色度 Coloration Code	
$\lambda_{80}(\lambda_{70})/\lambda_5$	395/340
着色度 Coloration of Internal Transmittance (内部透過率)	
$\lambda_{\tau 80}/\lambda_{\tau 5}$	366/337

CCI Color Contribution Index	
CCI (G)	0.90
CCI (R)	0.94

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	NBFD29					
Code	770-297					

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