J-LLF1

n_d = 1.548140 n_e = 1.551000

ν_d = 45.51 ν_e = 45.22

Glass code (d)
548455
Glass code (e)
551452

Spectral l.	Refractive idx
2.058	1.52182
1.970	1.52302
1.530	1.52855
1.129	1.53359
1.064	1.53453
t	1.53532
s	1.53840
A'	1.540544
r	1.542539
C	1.544550
C'	1.545117
He-Ne	1.545647
D	1.548034
d	1.548140
e	1.551000
F	1.556594
F'	1.557301
g	1.563441
h	1.569310
0.389	1.572986
i	1.579793

Coef. disp. form. (pwr ser.)	
A0	2.35082049E+00
A1	-8.90815763E-03
A2	-4.67960548E-05
A3	1.55575823E-02
A4	4.97642954E-04
A5	-1.81687973E-05
A6	2.83408723E-06
A7	0.00000000E+00
A8	0.00000000E+00

Partial dispersion	
F-C	0.012044
F'-C'	0.012184
C-t	0.009232
C-A'	0.004006
d-C	0.003590
e-C	0.006450
g-d	0.015301
g-F	0.006847
h-g	0.005869
i-g	0.016352
C'-t	0.009799
e-C'	0.005883
F'-e	0.006301
i-F'	0.022492

Relative partial dispersion	
C-t／F-C	0.7665
C-A'／F-C	0.3326
d-C／F-C	0.2981
e-C／F-C	0.5355
g-d／F-C	1.2704
g-F／F-C	0.5685
h-g／F-C	0.4873
i-g／F-C	1.3577
C'-t／F'-C'	0.8043
e-C'／F'-C'	0.4828
F'-e／F'-C'	0.5172
i-F'／F'-C'	1.8460

Deviation of relative partial disp.	
ΔPdC	0.0003
ΔPgF	0.0005

Internal CC (80%/5%)
364/338
Color Code (80%/5%)
370/340

CCI	
B	0.00
G	0.30
R	0.28

Thermal properties	
CTE(-30,70) [1E-7/℃]	87
CTE(100,300) [1E-7/℃]	105
Tg [℃]	471
At [℃]	529
StP [℃]	416
AP [℃]	456
SP [℃]	628
Ht cndct. [W/m･K]	1.050
Sp. heat [kJ/kg･K]	0.770
Ht diffus. [1E-6 m2/sec]	0.534

Chemical properties [class]	
Acid res. (surface)	1
Alkaline detergent res.	1
Climate resistance	1
Water res. (powder)	3
Acid res. (powder)	1

Mechanical properties	
Knoop hardness	455 (5)
Abrasion hardness	109
Young's mod. [GPa]	71.0
Shear mod. [GPa]	29.2
Poisson's ratio	0.216
Stress optical coef. [1E-5 nm/cm／Pa]	3.16

Internal trans. (10mm)	
λ [nm]	τ
280	–
290	–
300	–
310	–
320	–
330	–
340	0.08
350	0.36
360	0.70
370	0.88
380	0.948
390	0.975
400	0.986
420	0.994
440	0.995
460	0.996
480	0.997
500	0.998
550	0.999
600	0.999
650	0.999
700	0.999
800	0.998
900	0.997
1000	0.997
1200	0.998
1400	0.993
1600	0.990
1800	0.962
2000	0.920
2200	0.84
2400	0.79

Specific gravity
2.55

Relative Δn/ΔT [1E-6/℃]

Temp. [℃]	1.083	t	s	A'	r	C	C'	He-Ne	d	e	F	F'	g	h	0.389
80 to 90 (ref.)	0.9	1.0	1.1	1.3	1.4	1.6	1.6	1.6	1.8	2.1	2.6	2.7	3.3	4.0	4.4
60 to 80 (ref.)	0.9	0.9	1.1	1.2	1.4	1.5	1.5	1.6	1.8	2.0	2.5	2.6	3.2	3.8	4.3
40 to 60	0.8	0.9	1.0	1.2	1.3	1.4	1.5	1.5	1.7	1.9	2.4	2.4	3.0	3.7	4.1
20 to 40	0.8	0.9	1.0	1.1	1.2	1.4	1.4	1.5	1.6	1.8	2.3	2.4	2.9	3.5	4.0
0 to 20	0.8	0.9	1.0	1.1	1.2	1.4	1.4	1.4	1.6	1.8	2.3	2.3	2.9	3.4	3.8
-20 to 0	0.9	0.9	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.8	2.3	2.3	2.8	3.4	3.8
-40 to -20	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.6	1.7	1.9	2.3	2.4	2.9	3.4	3.8
-60 to -40 (ref.)	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8	1.9	2.1	2.5	2.5	3.0	3.5	3.9
-70 to -60 (ref.)	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.0	2.1	2.3	2.7	2.7	3.2	3.7	4.0

Absolute Δn/ΔT [1E-6/℃]

Temp. [℃]	1.083	t	s	A'	r	C	C'	He-Ne	d	e	F	F'	g	h	0.389
80 to 90	0.0	0.0	0.2	0.3	0.5	0.6	0.6	0.7	0.9	1.1	1.6	1.7	2.3	3.0	3.4
60 to 80	-0.1	-0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.7	0.9	1.4	1.5	2.1	2.8	3.2
40 to 60	-0.3	-0.3	-0.1	0.0	0.1	0.2	0.3	0.3	0.5	0.7	1.2	1.2	1.8	2.5	2.9
20 to 40	-0.5	-0.5	-0.3	-0.2	-0.1	0.0	0.1	0.1	0.3	0.5	0.9	1.0	1.6	2.2	2.6
0 to 20	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1	0.1	0.3	0.7	0.7	1.3	1.8	2.2
-20 to 0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.2	0.0	0.4	0.5	1.0	1.5	1.9
-40 to -20	-1.0	-1.0	-0.9	-0.8	-0.7	-0.6	-0.5	-0.5	-0.4	-0.2	0.2	0.2	0.7	1.2	1.6
-60 to -40	-1.2	-1.2	-1.1	-1.0	-0.9	-0.8	-0.8	-0.7	-0.6	-0.4	0.0	0.0	0.5	0.9	1.3
-70 to -60	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9	-0.9	-0.9	-0.7	-0.6	-0.2	-0.2	0.3	0.7	1.0

Coef. disp. form. (frac. eq.)(ref.)	
P1	1.14272540E-01
Q1	8.36598442E+01
P2	1.16097513E-02
Q2	5.03232551E-02
P3	2.98780426E-01
Q3	6.54971242E-03

Fitting error of disp. form. σ [1E-6]		
	Visible	Infrared
Power ser. eq.	0.8	5.0
Frac. eq. (ref.)	0.9	4.7

Prod. Freq. (A to D)	C

Similar glass type			
OHARA	S-TIL1	HOYA	E-FEL1
CDGM	H-QF1	SCHOTT	-

2022-7-1	StP, AP, SP
2019-4-1	Transmittance
2018-4-1	Prod. Freq.

HIKARI GLASS CO., LTD.