

# J-SF13

$n_d = 1.740770$

$n_e = 1.747068$

$v_d = 27.74$

$v_e = 27.52$

Glass code (d)	741277
Glass code (e)	747275

Spectral l.	Refractive idx
2.058	1.69539
1.970	1.69688
1.530	1.70418
1.129	1.71187
1.064	1.71347
t	1.71484
s	1.72056
A'	1.724801
r	1.728868
C	1.733069
C'	1.734269
He-Ne	1.735397
D	1.740539
d	1.740770
e	1.747068
F	1.759772
F'	1.761414
g	1.776029
h	1.790639
0.389	1.800152
i	-

Coef. disp. form. (pwr ser.)	
A0	2.91742250E+00
A1	-1.21278695E-02
A2	0.00000000E+00
A3	3.44734103E-02
A4	2.66756706E-03
A5	-4.32503622E-04
A6	1.00646069E-04
A7	-1.00610625E-05
A8	4.80261151E-07

Partial dispersion	
F-C	0.026703
F'-C'	0.027145
C-t	0.018225
C-A'	0.008268
d-C	0.007701
e-C	0.013999
g-d	0.035259
g-F	0.016257
h-g	0.014610
i-g	-
C'-t	0.019425
e-C'	0.012799
F'-e	0.014346
i-F'	-

Relative partial dispersion	
C-t/F-C	0.6825
C-A'/F-C	0.3096
d-C/F-C	0.2884
e-C/F-C	0.5242
g-d/F-C	1.3204
g-F/F-C	0.6088
h-g/F-C	0.5471
i-g/F-C	-
C'-t/F'-C'	0.7156
e-C'/F'-C'	0.4715
F'-e/F'-C'	0.5285
i-F'/F'-C'	-

Deviation of relative partial disp.	
$\Delta PdC$	-0.0013
$\Delta PgF$	0.0110

Internal CC (80%/5%)	
394/362	

Color Code (80%/5%)	
420/365	

CCI	
B	0.00
G	2.73
R	2.85

Thermal properties	
CTE(-30,70) [1E-7/°C]	86
CTE(100,300) [1E-7/°C]	103
Tg [°C]	604
At [°C]	636
Ht condct. [W/m·K]	1.132
Sp. heat [kJ/kg·K]	0.718
Ht diffus. [1E-6 m2/sec]	0.506

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

Mechanical properties	
Knoop hardness	492 (5)
Abrasion hardness	160
Young's mod. [GPa]	89.5
Shear mod. [GPa]	35.7
Poisson's ratio	0.254
Stress optical coef. [1E-5 nm/cm/Pa]	2.79

Internal trans. (10mm)	
$\lambda$ [nm]	$\tau$
280	0.00
290	0.00
300	0.00
310	0.00
320	0.00
330	0.00
340	0.00
350	0.00
360	0.03
370	0.20
380	0.51
390	0.74
400	0.85
420	0.938
440	0.962
460	0.972
480	0.979
500	0.984
550	0.992
600	0.994
650	0.994
700	0.995
800	0.994
900	0.993
1000	0.994
1200	0.995
1400	0.994
1600	0.987
1800	0.971
2000	0.961
2200	0.925
2400	0.89

Specific gravity	
3.1	

Relative $\Delta n / \Delta T$ [1E-6/°C]																
Temp. [°C]	1.083	t	s	A'	r	C	C'	He-Ne	d	e	F	F'	g	h	0.389	
80 to 90 (ref.)	0.7	0.8	1.1	1.4	1.7	2.0	2.1	2.2	2.6	3.2	4.4	4.6	6.4	8.6	10.2	
60 to 80 (ref.)	0.5	0.6	1.0	1.3	1.5	1.8	1.9	2.0	2.4	3.0	4.2	4.4	6.1	8.2	9.8	
40 to 60	0.4	0.5	0.8	1.1	1.4	1.7	1.7	1.8	2.2	2.7	3.9	4.0	5.7	7.6	9.2	
20 to 40	0.3	0.4	0.7	1.0	1.2	1.5	1.6	1.6	2.0	2.5	3.6	3.8	5.3	7.2	8.6	
0 to 20	0.2	0.3	0.6	0.9	1.1	1.4	1.4	1.5	1.9	2.3	3.4	3.5	5.0	6.7	8.1	
-20 to 0	0.2	0.3	0.6	0.8	1.0	1.3	1.4	1.4	1.8	2.2	3.2	3.3	4.7	6.3	7.6	
-40 to -20	0.3	0.4	0.6	0.8	1.1	1.3	1.4	1.4	1.8	2.2	3.1	3.2	4.5	6.0	7.2	
-60 to -40 (ref.)	0.4	0.5	0.8	1.0	1.2	1.4	1.5	1.5	1.8	2.2	3.1	3.2	4.4	5.8	6.9	
-70 to -60 (ref.)	0.6	0.7	0.9	1.1	1.3	1.6	1.6	1.7	2.0	2.3	3.1	3.3	4.4	5.8	6.8	

Absolute $\Delta n / \Delta T$ [1E-6/°C]																
Temp. [°C]	1.083	t	s	A'	r	C	C'	He-Ne	d	e	F	F'	g	h	0.389	
80 to 90	-0.4	-0.3	0.1	0.3	0.6	0.9	1.0	1.1	1.5	2.1	3.3	3.5	5.3	7.4	9.1	
60 to 80	-0.6	-0.5	-0.2	0.1	0.4	0.7	0.8	0.8	1.3	1.8	3.0	3.1	4.8	6.9	8.5	
40 to 60	-0.9	-0.8	-0.5	-0.2	0.0	0.3	0.4	0.5	0.9	1.4	2.5	2.7	4.3	6.2	7.8	
20 to 40	-1.2	-1.1	-0.8	-0.5	-0.3	0.0	0.1	0.1	0.5	1.0	2.1	2.2	3.7	5.6	7.0	
0 to 20	-1.5	-1.4	-1.1	-0.9	-0.6	-0.4	-0.3	-0.2	0.1	0.6	1.6	1.7	3.2	4.9	6.2	
-20 to 0	-1.7	-1.7	-1.4	-1.2	-0.9	-0.7	-0.6	-0.6	-0.2	0.2	1.1	1.3	2.6	4.2	5.5	
-40 to -20	-2.0	-2.0	-1.7	-1.5	-1.3	-1.1	-1.0	-0.9	-0.6	-0.2	0.7	0.8	2.0	3.6	4.7	
-60 to -40	-2.3	-2.2	-2.0	-1.8	-1.6	-1.4	-1.3	-1.3	-1.0	-0.6	0.2	0.3	1.5	2.9	4.0	
-70 to -60	-2.5	-2.5	-2.2	-2.0	-1.9	-1.7	-1.6	-1.5	-1.3	-0.9	-0.1	0.0	1.1	2.4	3.4	

Coef. disp. form. (frac. eq.) (ref.)	
P1	1.12550486E-01
Q1	8.07969473E+01
P2	2.33049439E-02
Q2	6.13187337E-02
P3	3.66354523E-01
Q3	8.63804110E-03

Fitting error of disp. form. $\sigma$ [1E-6]		
	Visible	Infrared
Power ser. eq.	0.9	4.8
Frac. eq. (ref.)	2.3	10.7

Prod. Freq. (A to D)	C
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Similar glass type			
OHARA	S-TIH13	HOYA	E-FD13
CDGM	H-ZF50	SCHOTT	-

2019-4-1	Transmittance
2018-4-1	Prod. Freq.
2015-4-1	Color Code