

# J-LASFH13

$n_d = 1.903660$

$n_e = 1.910493$

$v_d = 31.27$

$v_e = 31.04$

Glass code (d)
904313
Glass code (e)
910310

Spectral l.	Refractive idx
2.058	1.85394
1.970	1.85556
1.530	1.86348
1.129	1.87190
1.064	1.87366
t	1.87518
s	1.88150
A'	1.886175
r	1.890648
C	1.895254
C'	1.896567
He-Ne	1.897801
D	1.903409
d	1.903660
e	1.910493
F	1.924149
F'	1.925900
g	1.941336
h	1.956483
0.389	1.966172
i	-

Coef. disp. form. (pwr ser.)	
A0	3.48496859E+00
A1	-1.34692969E-02
A2	-8.98801936E-05
A3	4.53620373E-02
A4	1.10287376E-03
A5	1.48043312E-04
A6	-1.27401645E-05
A7	1.28412516E-06
A8	0.00000000E+00

Partial dispersion	
F-C	0.028895
F'-C'	0.029333
C-t	0.020070
C-A'	0.009079
d-C	0.008406
e-C	0.015239
g-d	0.037676
g-F	0.017187
h-g	0.015147
i-g	-
C'-t	0.021383
e-C'	0.013926
F'-e	0.015407
i-F'	-

Relative partial dispersion	
C-t/F-C	0.6946
C-A'/F-C	0.3142
d-C/F-C	0.2909
e-C/F-C	0.5274
g-d/F-C	1.3039
g-F/F-C	0.5948
h-g/F-C	0.5242
i-g/F-C	-
C'-t/F'-C'	0.7290
e-C'/F'-C'	0.4748
F'-e/F'-C'	0.5252
i-F'/F'-C'	-

Deviation of relative partial disp.	
$\Delta PdC$	-0.0004
$\Delta PgF$	0.0029

Internal CC (80%/5%)	
397/356	

Color Code (70%/5%)	
410/355	

CCI	
B	0.00
G	3.67
R	3.76

Thermal properties	
CTE(-30,70) [1E-7/°C]	67
CTE(100,300) [1E-7/°C]	83
Tg [°C]	654
At [°C]	699
Ht condct. [W/m·K]	0.910
Sp. heat [kJ/kg·K]	0.508
Ht diffus. [1E-6 m2/sec]	0.384

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	649 (6)
Abrasion hardness	105
Young's mod. [GPa]	111.5
Shear mod. [GPa]	42.8
Poisson's ratio	0.301
Stress optical coef. [1E-5 nm/cm/Pa]	1.68

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	0.11
370	0.35
380	0.59
390	0.73
400	0.82
420	0.903
440	0.939
460	0.958
480	0.970
500	0.981
550	0.993
600	0.993
650	0.993
700	0.995
800	0.994
900	0.992
1000	0.994
1200	0.997
1400	0.999
1600	0.990
1800	0.983
2000	0.971
2200	0.943
2400	0.85

Specific gravity	
4.66	

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.)	3.4	3.5	3.7	4.1	4.5	4.9	5.0	5.1	5.7	6.4	7.8	8.0	9.6	11.6	13.2	
60 to 80 (ref.)	3.2	3.3	3.6	3.9	4.2	4.6	4.8	4.9	5.4	6.1	7.4	7.6	9.2	11.1	12.6	
40 to 60	3.0	3.0	3.3	3.6	3.9	4.3	4.4	4.5	5.1	5.7	7.0	7.1	8.6	10.4	11.8	
20 to 40	2.8	2.8	3.0	3.3	3.7	4.0	4.1	4.2	4.7	5.3	6.5	6.7	8.1	9.8	11.1	
0 to 20	2.6	2.6	2.8	3.1	3.4	3.8	3.9	4.0	4.5	5.0	6.1	6.3	7.6	9.2	10.4	
-20 to 0	2.5	2.5	2.7	3.0	3.2	3.6	3.7	3.8	4.2	4.8	5.8	6.0	7.2	8.6	9.8	
-40 to -20	2.4	2.4	2.6	2.9	3.2	3.5	3.6	3.7	4.1	4.6	5.6	5.7	6.8	8.2	9.3	
-60 to -40 (ref.)	2.5	2.5	2.7	2.9	3.2	3.5	3.6	3.6	4.1	4.5	5.5	5.6	6.6	7.8	8.9	
-70 to -60 (ref.)	2.6	2.6	2.8	3.0	3.3	3.6	3.6	3.7	4.1	4.6	5.4	5.6	6.5	7.7	8.7	

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	2.3	2.3	2.6	2.9	3.3	3.7	3.8	4.0	4.5	5.2	6.6	6.7	8.4	10.4	11.9	
60 to 80	2.0	2.0	2.3	2.6	3.0	3.4	3.5	3.6	4.1	4.8	6.1	6.3	7.8	9.7	11.2	
40 to 60	1.6	1.6	1.9	2.1	2.5	2.9	3.0	3.1	3.6	4.2	5.5	5.6	7.1	8.9	10.3	
20 to 40	1.1	1.2	1.4	1.7	2.0	2.4	2.5	2.6	3.1	3.7	4.8	5.0	6.4	8.0	9.4	
0 to 20	0.7	0.8	1.0	1.2	1.5	1.9	2.0	2.1	2.6	3.1	4.2	4.3	5.6	7.2	8.4	
-20 to 0	0.3	0.3	0.5	0.8	1.1	1.4	1.5	1.6	2.0	2.6	3.6	3.7	4.9	6.3	7.5	
-40 to -20	-0.1	-0.1	0.1	0.3	0.6	0.9	1.0	1.1	1.5	2.0	3.0	3.1	4.2	5.5	6.6	
-60 to -40	-0.5	-0.5	-0.3	-0.1	0.1	0.4	0.5	0.6	1.0	1.4	2.3	2.4	3.4	4.6	5.6	
-70 to -60	-0.8	-0.8	-0.7	-0.5	-0.2	0.0	0.1	0.2	0.6	1.0	1.9	2.0	2.9	4.0	4.9	

Coef. disp. form. (frac. eq.) (ref.)	
P1	1.33101966E-01
Q1	9.96219670E+01
P2	2.60138903E-02
Q2	5.27668833E-02
P3	4.27058488E-01
Q3	7.32785665E-03

Fitting error of disp. form. $\sigma$ [1E-6]		
	Visible	Infrared
Power ser. eq.	0.7	5.3
Frac. eq. (ref.)	1.6	7.9

Prod. Freq. (A to D)	A
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Similar glass type			
OHARA	S-LAH95	HOYA	TAFD25
CDGM	H-ZLaF75A	SCHOTT	N-LASF46A

2019-4-1	Transmittance
2017-4-1	Similar glass type
2016-4-1	Similar glass type